

Contested Ecologies

An aerial photograph of a wetland or tidal flat. The water is shallow and reflects the sky, creating a shimmering effect. Numerous circular patterns, possibly from man-made structures or natural formations, are scattered across the water's surface. The background shows a hazy horizon with distant landmasses under a cloudy sky.

Contested Ecologies

Dialogues in the South
on Nature and Knowledge

Edited by
Lesley Green



Published by HSRC Press
Private Bag X9182, Cape Town, 8000, South Africa
www.hsrcpress.ac.za

First published 2013

ISBN (soft cover) 978-0-7969-2428-5

ISBN (pdf) 978-0-7969-2429-2

ISBN (epub) 978-0-7969-2430-8

© 2013 Human Sciences Research Council

This book has undergone a double-blind independent peer review process overseen by the HSRC Press Editorial Board.

The views expressed in this publication are those of the authors. They do not necessarily reflect the views or policies of the Human Sciences Research Council ('the Council') or indicate that the Council endorses the views of the authors. In quoting from this publication, readers are advised to attribute the source of the information to the individual author concerned and not to the Council.

Copyedited by Karen Press
Typeset by Charlene Bate
Cover image by Craig Foster
Cover design by Eugene Badenhorst (PumpHaus design)
Printed by CapitolPress, Cape Town

Distributed in Africa by Blue Weaver
Tel: +27 (0) 21 701 4477; Fax: +27 (0) 21 701 7302
www.oneworldbooks.com

Distributed in Europe and the United Kingdom by Eurospan Distribution Services (EDS)
Tel: +44 (0) 17 6760 4972; Fax: +44 (0) 17 6760 1640
www.eurospanbookstore.com

Distributed in North America by River North Editions, from IPG
Call toll-free: (800) 888 4741; Fax: +1 (312) 337 5985
www.ipgbook.com

Contents

List of figures vii
Abbreviations and acronyms viii
Foreword xi
Crain Soudien
Acknowledgements xvii

1 Contested Ecologies: Nature and knowledge 1
Lesley Green

a first intervention: Nature versus Culture

2 Notes towards a political ontology of 'environmental' conflicts 13
Mario Blaser

3 Economic development and cosmopolitical re-involvement:
From necessity to sufficiency 28
Eduardo Viveiros de Castro

4 On animism, modernity/colonialism, and the African order of knowledge:
Provisional reflections 42
Harry Garuba

a second intervention: space, time, life

5 About 'Mariano's Archive': Ecologies of stories 55
Marisol de la Cadena

6 The day-world *hawkri* and its topologies: On Palikur alternatives
to the idea of space 69
Lesley Green

- 7 Cultivating *krag*, refreshing *gees*: Ecologies of wellbeing in Namaqualand 90
Joshua B. Cohen
- 8 Are petitioners makers of rain? Rains, worlds and survival in
conflict-torn Buhera, Zimbabwe 110
Artwell Nhemachena
- 9 Metaphors for climate adaptation from Zimbabwe: Zephaniah Phiri Maseko
and the marriage of water and soil 126
Christopher Mabeza
- a third intervention: sciences and publics**
- 10 Engagements between disparate knowledge traditions: Toward doing
difference generatively and in good faith 141
Helen Verran
- 11 The making of *Sutherlandia* as medicine 162
Diana Gibson and Sanja Kilian
- 12 Conservation conversations: Improving the dialogue between fishers
and fisheries science along the Benguela Coast 187
*Tarryn-Anne Anderson, Kelsey Draper, Greg Duggan, Lesley Green, Astrid Jarre,
Jennifer Rogerson, Sven Ragaller and Marieke van Zyl*
- 13 Cape Flats Nature: Rethinking urban ecologies 202
Tania Katzschner
- 14 Spotting the leopard: Fieldwork, science and leopard behaviour 227
Ian Glenn
- 15 Contesting ecological collapse: Rapa Nui, the island at the end
of the world 243
David Turnbull
- 16 Closing remarks from the conclusion of the
Contested Ecologies Writing Workshop, September 2011 271
Eduardo Viveiros de Castro
- About the contributors 276
- Index 279

List of figures

Unnumbered figures

- Anthropo Scene for the Anthropocene: Land art on a beach at Cape Hangklip x
Planet UCT 10
Theological debate in nine frames 39–40
Mr and Mrs Phiri Maseko with their National Geographic Atlas 52
Knowledge objects: An Amerindian woodcarving of the kingfisher constellation 138

Numbered figures

- Figure 2.1 Modern and relational ontologies compared 20
Figure 2.2 Four ontological armatures 22
Figure 5.1 Mariano Turpo, 2004 56
Figure 7.1 An intermingling of lines of life, near Paulshoek. Also known as a dry river bed. 99
Figure 9.1 Mr Phiri Maseko's stone structures that trap water 128
Figure 9.2 Map of Mr Phiri Maseko's farm, 1999 129
Figure 9.3 The cropping system on Mr Phiri Maseko's farm, 1999 130
Figure 12.1 Fishermen and their catch 188
Figure 13.1 Cape Flats Nature project 203
Figure 13.2 Cape Flats Nature pilot sites in the context of the Biodiversity Network 207
Figure 14.1 Male leopard from the interior of Africa 232
Figure 14.2 Natasha de Woronin tracking leopards using telemetry 237
Figure 15.1 Rapa Nui (Easter Island) one of the most isolated islands in the world 244
Figure 15.2 Rapa Nui farmer with potato 252
Figure 15.3 Moai with restored eyes 256
Figure 15.4 Map showing distribution of statues on Rapa Nui 257

Abbreviations and acronyms

ANT	Actor-Network-Theory
ARV	antiretroviral
BLC	basic locative construction
DAFF	Department of Agriculture, Forestry and Fisheries
DEAT	Department of Environmental Affairs and Tourism
DST	Department of Science and Technology
EAF	Ecosystems Approach to Fisheries
GIS	geographical information systems
HPLC	high performance liquid chromatography
ICTs	information and communication technologies
IK	indigenous knowledge
IKS	indigenous knowledge systems
MCC	Medicines Control Council
MCM	Marine and Coastal Management
MLRA	Marine Living Resources Act (No. 18 of 1998)
NGO	non-governmental organisation
NIH	National Institutes of Health
RCT	randomised placebo-controlled clinical trial
SAHSMI	South African Herbal Science and Medicines Institute
SANBI	South African National Biodiversity Institute
TEK	traditional environmental knowledge
TICIPS	The International Centre for Indigenous Phytotherapy Studies
ZWP	Zvishavane Water Project



Anthropo Scene for the Anthropocene: Land art on a beach at Cape Hangklip, near Cape Town, South Africa. (Sculpted kelp on beach with waves, 3 000 m x 600 m.)

Source: Courtesy of Craig Foster and reproduced with permission.

Foreword

Transforming scholarship: Conversations across the global South

AN IMPORTANT, IF NOT dominant, way of understanding the world in which we live is to see it, following Manuel Castells, as an Information Society. We are, in these terms, surrounded by data, facts, ideas, insight, opinion and analysis in ways that were not quite conceivable even 20 years ago. The significance of this development is profound. Castells himself, in works such as *The Rise of the Network Society* (2000), has made the argument that it has driven contemporary economic and social development and come to give modernity its character. Few would take issue with the substance of Castell's characterisation of the world in which we live. Few would deny how much we have gained in terms of our understanding of social and natural phenomena. The sophistication of our knowledge of the human body, our capacity to decipher the genetic codes of a wide variety of forms of life, our understanding of the geomorphology of the planet and of its weather systems, our grasp of the cosmos – how old it is, its make-up and its evolution – all of this is truly exciting.

But we actually still know so little. Celebrate as we should how our learning is constantly being enriched, there are reasons to be concerned about the information turn of the modernity that we now see. It has stimulated a kind of hubris amongst us about how learning works in our lives. Characteristic of this hubris is its explanation that we simply need more of particular kinds of knowing and less of others. To come to understand our world and ourselves better, all that we lack is more of some kinds of information and less of very particular kinds of others that keep us back. The point about this hubris is that it is decidedly not, in the final analysis, informed by an objective approach to knowing. It understands knowing in very limited terms. Its discursive generosity, which kinds of ideas it authorises and valorises and which not, what it deems to be politically, economically and culturally acceptable and what not, is configured in very particular ways. This book, *Contested ecologies*, is part of a wider discussion initiated by Dr Lesley Green of the University of Cape Town about the role of the university in this new phase of modernity. The discussion seeks to open up the

question of intellectual democracy, and particularly that of how the university becomes a space for the mediation of different forms of knowing instead of the sacralisation of only one way of understanding. I began this Foreword with a focus on the Information Society in order to emphasise how much this new information order is framed by discursive conditionality and how central the university has become in the reproduction of this conditionality.

What is this discursive conditionality? It is essentially the agreement that has been reached by governments and development agencies, almost everywhere, that development is only and fundamentally about economic growth. Unfortunate about this agreement is the implicit capitulation of almost the entire globe to the model of development offered by nations such as the United States, the so-called Asian Tigers and the economically prosperous countries of Europe. In terms of this approach, essentially modelled on the 1960s thinking of WW Rostow (see for example his 1964 work, *The Stages of Economic Growth*), certain conditions are essential for a country to progress from its traditional beginnings to the stage of 'take-off' and, finally, the age of high mass consumption. Development, according to this model, is achieved when society has acquired prestige and money and can choose how it will manage the big questions of security versus welfare, promoting the arts or privileging the development of more technology, and so on. While Rostow's model has been criticised for its mechanical and instrumental character, its narrative of 'progress' has settled into the modern imagination and has come to provide the 'historical' blueprint for the developing world, for how it progresses from 'infancy' to 'maturity'. Significant about this narrative is that while some of its key features have changed – industrialisation as a 'necessity' has, for example, been replaced with the imperative of technological development – its essential logic has remained intact. In this logic a causal syllogism has been constructed around educational achievement and market freedom, which represent, together and separately, societies in which rationality has come to prevail. In making education their priority and creating the conditions for market freedom, countries such as these are behaving 'rationally'.

The force of this logic is powerful. Governments everywhere are falling into line in configuring and aligning their governance, educational systems and social support systems behind and for the realisation of this Rostovian logic. Given this tendency, it has become increasingly difficult to criticise the model on which it is based, which has come to assume the standing of common sense. It is what is taught in standard economics courses, it is what pervades historiography, and it is written into the normative canon of political theory. But there is enough evidence in its outcomes to assert the necessity to look at alternatives. The catalogue of problems it has catalysed, from the near-fatal challenge that global

warming constitutes for us, to the unstoppable march of people to the cities and the concentration around the world of tens of millions of human beings in densely populated communities, to the emergence of criminal structures operating as shadow governments, to the intolerance of some nations of the political choices made by others and the widening phenomenon in most countries of the gap between the rich and the poor, are sufficient to pose questions about the ‘prize’ that it represents. There is enough evidence in the ongoing crises which the ‘model’ economies of the world are experiencing – Japan, the United States and the new ‘miracle’ economies of Spain and Ireland – to challenge our understanding of development. Are economic growth and high mass consumption the apex of the civilisation we would wish to achieve for all the people of the world?

The answer, even if we are concerned that all the alternatives to the dominant model that have been put forward are themselves problematic, is that we cannot proceed as if there is nothing wrong with the developmental agenda currently driving our social, cultural and economic endeavours, and that we are obliged to think differently. What this means is that we in the university need to critically rethink how we manage ourselves.

An important point of departure is recognising how assimilated we are into the logic of developmental conditionality. In acknowledging this point we need to recognise how our disciplines have been ideologically configured by this conditionality. Conditionality has catalysed the emergence in many fields of enquiry of a mind-set of dogmatism and intolerance. Revel in the riches of data and information as society might, many fields and disciplines, partly as a result of the way in which the questions of rigour and reliability and warrant and proof have come to be posed, have struggled to accommodate data and information generated outside of the protocols, frameworks and criteria assumed to be characteristic of the privileged modes of enquiry they have developed for themselves. This struggle has been particularly evident with respect to indigenous knowledge. Awash as most fields of enquiry are with data and information, there has been extreme scepticism about the value and utility of the knowledges and ways of understanding of people outside of the modernity of the West. The argument generally made about these knowledges is that they are rooted in belief, as opposed to reason.

Against this backdrop, an implicit question underpinning much of the discussion in this book is that of how the university becomes a space for the production of knowledge which is not configured in suspicion. How does the university make itself a place that is hospitable and that will become, as Cardinal John Newman put it in 1854, in *Select Discourses from the Idea of a University*, ‘a

place of concourse, whither students come from every quarter for every kind of knowledge?’ Newman also said that a university

implies the assemblage of strangers from all parts in one spot; – from all parts; else, how will you find professors and students for every department of knowledge? and in one spot; else, how can there be any school at all? ... Accordingly, in its simple and rudimental form, it is a school of knowledge of every kind, consisting of teachers and learners from every quarter.

It is debatable, of course, whether the scale and kinds of difference Newman had in mind are anything like the issues that are currently being confronted with respect to indigenous knowledge. When he was writing *The Idea of the University* he had just been entrusted with the task of establishing University College, Dublin and was embroiled in an ongoing controversy about the return of the Anglican Church to its Catholic roots. The issues he was preoccupied with were largely of a doctrinal and liturgical nature. The point is, nonetheless, that the vision he created of the modern university was extraordinary in its ambition – ‘a school of knowledge of every kind.’

In relation to the ideal of a ‘school of knowledge of every kind’ it is interesting how the modern university has struggled to define an identity for itself that is framed by hospitality and generosity, and to recognise how susceptible it has been to discourses of dominance, and so has made itself the antithesis of what Newman had in mind.

The university’s history, of course, is not a singular thing. But very evident in the highlights of how it has managed the challenge of inclusion have been postures of arrogance, defensiveness, self-satisfaction or even smugness. It projects itself as being beyond scrutiny. These postures are clearly not acceptable. The succumbing of the University of Freiburg, for example, to the Nazi project, led by no less a figure than Heidegger, and the acquiescence of the South African university in the apartheid government’s ideology of white supremacy, provide one with extreme reasons for insisting that we look again at how the university as an institution can be transformed. But it is not only *in extremis* that the case arises for this to be done. The need is present even in regard to less obvious aspects. Seemingly benign ideas, such as patriotism, or even more confusingly, ideas of social progress, have come to condition what the university should be about and how it should conduct itself.

How then, the question must be asked, does the modern university become a hospitable place? How does one build a knowledge commons which is not framed by suspicion and which is open and welcoming?

Important theoretical positions are suggested in the contributions in this book. At the core of these positions is an acknowledgement of the need to open up the discussion around epistemological difference, and to make the differences

generative and productive. The key question that the book poses is how to ‘do difference’ together as opposed to separately. It acknowledges how much bad faith has circulated in and between communities of difference, and their difficulty in living with their respective ambiguities. It asks how conditions of possibility could be developed where cognitive opportunities can be nurtured.

Important in opening up this cognitive possibility is the question posed by several authors in this collection of what it would take for the parties to take each other seriously. How do these parties come to recognise that their own practices are culturally rooted, and are essentially about keeping categories intact that are constructs and not simply objective realities? The basic line of reasoning that informs these questions is the need to bring to the surface the reality that one is dealing with essentialist logics in both mainstream science and in traditional forms of knowing. Practically, the process through which the content of this book was developed aimed to reframe the possibilities for dialogue across the natural and social sciences, in order to clarify the need to confront conflict and suspicion, and to access what is sometimes described in the discussions as ‘the void’ – that space in which meanings and characteristics are attributed across difference in bad faith: ‘I can do without all the bullshit, just show me your technique’, or, ‘you do believe, I do knowledge’. It has raised the issue of coming to the conversation with a sense that such dialogue is not about finding a consensus or a standardisation of data; rather, it depends on acknowledging that possibility is multiplicity, and that objects or topics under scrutiny have plural vitalities.

A key arena in which a ‘closing down’ has taken place is in what Green, in a 2010 paper entitled ‘Beyond South Africa’s IK–Science Wars’, calls South Africa’s ‘science wars’. She shows how the South African university has been caught up in a science war that has counterposed ‘hard science’ with tradition with, as she says, ‘catastrophic results’: ‘Thabo Mbeki’s effort to set up traditional medicine against an exploitative western pharmaceutical industry generated a deadly “either-or”, and the South African state’s failure to provide anti-retrovirals contributed massively to an AIDS mortality figure ... of well over 3 million’. The example is illustrative of the difficulties involved in setting up the conditions for a discussion of possibility. In coming into the conflict, neither side would concede anything. Each constructed the other as arguing about something that did not exist: AIDS denialists cast virus science as pursuing an illness that did not exist, while the mainstream scientists projected traditional medicine and indigenous knowledge as constructions of reality that had no empirical foundations. Green describes how these positionings produce intellectual culs-de-sac. The traditional knowledge argument, taking its point of departure from a cognitive justice position, offers remedies that are limited. It calls for one of three things: a recognition of its deligitimisation; by way of redress, greater tolerance and recognition; and radical relativism or a return to some kind of

precolonial authenticity. The upshot of this, she suggests, is a paradox. Indigenous knowledge systems or traditional knowledges are set up as simply another version of Western science that requires, like Western science, an acknowledgement of its capital. Mainstream science on the other hand, she argues, is frequently unable to recognise its location in a knowledge economy 'where universities subsist in a particular relationship with capital, monetary logics, temporal logics, added value, and other controllables'. She says that what this does in the antiretrovirals debate is produce conditions for health provision where a patient could spend a day in a primary healthcare facility with the most sophisticated modern treatment available but have no access to food. Lost in the discussion, she argues, is the necessity for privileging care and nurturing. She calls for a different ecology of knowledge where neither side is only fixated on a denunciation of the other, but where they recognise the vitalities in each other's positions. One way of doing this, she and others in this book suggest, is by seeking agreement on what the object under scrutiny might be, and thinking about where cognitive possibility might emanate from this. Green and others refer to this as a different ecology of knowledge 'that might offer a line of flight from the destructive fallout of the science wars'. They propose the construction of an intellectual commons 'where the tools of testing, criticism and innovation are encouraged'.

The implications of this kind of thinking for the university as it is now and for where it goes in the future are intense. As one of the primary institutions devoted to thinking about the future of human flourishing, and indeed the flourishing of all life forms, the university cannot be a conduit or a legitimising agency for a single perspective on what constitutes truth, what constitutes virtue and goodness. It has to work assiduously to avoid its capture for this purpose. To do this it has to constantly ask how hospitable it is to difference of whatever kind, and deliberately seek to build into its habits and its practices the humility to know when it is being appropriated by one or another way of seeing the world.

Crain Soudien

Deputy Vice Chancellor, University of Cape Town

Cape Town, December 2012

Acknowledgements

The contributors to this volume gratefully acknowledge the support of the John F Sawyer Seminar Programme of the Andrew W Mellon Foundation, and the University of Cape Town for additional support of the Contested Ecologies programme through the Africa Knowledges Project and its Programme for the Enhancement of Research Capacity, funded by the Carnegie Foundation.

As editor, I thank Dr Stuart Saunders and Dr Harriet Zuckermann for their support throughout the project; Dr Marilet Sienaert, Prof. Robert Morrell, Prof. Brenda Cooper and Dr Mignonne Breier of the UCT Research Office; Prof. Paula Ensor, Dean of Humanities; Deputy Vice Chancellors Crain Soudien, Danie Visser and Thandabantu Nhlapo; successive heads of the Department of Social Anthropology Prof. Francis Nyamnjoh, Dr Sally Frankental and Prof. Mugsy Spiegel; administrators Colleen Petersen, Amaal Davids and Veronica Seaton-Smith and logistical manager extraordinaire Marieke van Zyl; as well as researchers Jess Auerbach, Sven Ragaller and Shannon Morreira who developed the Contested Ecologies database.

Guests of the Sawyer Programme whose generous sharing of their research at seminars between 2009 and 2011 amplified the discussions in these pages included Jane Anderson, Mario Blaser, Raewynn Connell, Drucilla Cornell, Jim Cochrane, Chris Colvin, Jean and John Comaroff, Veena Das, Marisol de la Cadena, Rene Devisch, Yolisa Duley, Zimitri Erasmus, Judith Farquhar, Diana Gibson, André Goodrich, Nceba Gqaleni, Patti Henderson, Alf Hornborg, Oliver Human, Tim Ingold, Astrid Jarre, Michael Lambek, Fritha Langerman, Julie Laplante, Susan Levine, Jack Lewis, Helen MacDonald, Leadus Madzima, Sibusiso Masondo, Isaac Mayeng, Achille Mbembe, Ashis Nandy, Barbara Neis, Mogobe Ramose, Pamela Reynolds, Fiona Ross, Laura Rival, Elaine Salo, Fernando Santos-Granero, Sizwe Satyo, Madoda Sigonyela, Robert Thornton, David Turnbull, Helen Verran, Eduardo Viveiros de Castro, Hylton White, Jo Wreford and Dan Yon. Arturo Escobar was

unable to join us himself, but was with us in the generosity with which he shared his unpublished papers. Helen Verran offered a great deal of editorial support.

Participants in the Contested Ecologies reading group came from many departments and I thank them all. Special thanks are due to the doctoral and master's graduates whose work is published in these pages: Tarryn-Anne Anderson, Josh Cohen, Kelsey Draper, Greg Duggan, Chris Mabeza, Munya Mawere, Artwell Nhemachena, Sven Ragaller, Jen Rogerson, and Marieke van Zyl. It has been a privilege.

Lesley Green



Introduction

Contested ecologies: Nature and knowledge

Lesley Green

A RIVER AS A brother in Ecuador; embodied ways of knowing the sea in South Africa; fire as a means of conserving landscapes in northern Australia; Peruvian struggles over notions of nature within histories; resisting a telling of the story of Rapa Nui (Easter Island) as the archetype for ecological collapse; nurturing environmentalities amid extreme poverty: the studies in this volume focus on contests over environments where different versions of nature are in play. The material is challenging, for the aim is to explore the possibilities of unorthodox environmentalities which do not find a ready ear in fora where ecological management is limited to only one version of 'nature'. In many such settings, alternative environmentalities find themselves explained away as culture or belief. The option there is to ask to be tolerated – while scientific understandings of nature inform governance and policy. But as philosopher of science Isabelle Stengers asks, who, as a knowledge authority, will accept being tolerated (Stengers 2011)?

Documenting contests over nature in a variety of settings, the research that is collected in this volume explores environmentalities in a range of contexts in the global South. Though the chapters speak to concerns in areas that are far apart, they have in common the desire to rethink conventional wisdoms about a division between sciences and alternative ways of knowing environments. Under what conditions, they ask, might new kinds of conservation conversations be possible? How might we push beyond simply selecting pieces of indigenous or alternative knowledges that appear to match scientific knowledge? What kinds of contributions do different ways of knowing the world offer to environmental management – and more importantly, to rethinking environmentality itself?

Attempting to rethink the relationship between 'scientific nature' and its alternatives risks stoking a science war, particularly when the discussions are held in South Africa in the aftermath of former President Thabo Mbeki's attempt to draw on traditional and alternative medicines instead of supplying antiretrovirals to those living with HIV. The consequences of that simplistic polemic

between ‘Western science’ and ‘African knowledge’ are a devastating moment for postcolonial knowledge studies anywhere, and one that compels a response whether one is working in the field of medicine or that of climate change. Against that background, the question becomes ‘how can one *responsibly* critique modernist science?’

In that context, our dialogues could never be limited to a cognitive justice approach which would lift out comparative studies of different indigenous knowledge projects in different parts of the world. Nor could we do the kind of simplistic science and technology studies that relativised the sciences and treated their findings as a matter of belief, or ideology, or discourse. In the view of the participants in this research project, we had to come at these issues differently. Over time, and in dialogues that developed across the global South (thanks to the generous support of the Sawyer Seminar Programme of the Andrew Mellon Foundation and the Africa Knowledges Project at the University of Cape Town), our questions have expanded. Key among them are: What are the limits of a modernist vision of the world? What does this approach enable science to see, and what does it occlude? How might science itself be transformed? Might science explore different intellectual heritages that enable researchers to attend to nature in different ways?

Here, the work of science scholars is central, particularly sociologist-and-anthropologist of science Bruno Latour (1993, 1999, 2004; Latour & Weibel 2005), philosopher of science Isabelle Stengers (2010, 2011), and Brazilian anthropologist Eduardo Viveiros de Castro (2004a, 2004b). Their work enables an approach that is grounded in the materiality of the sciences, and that asks about different versions of the natural without reducing them to ‘cultural construction’, ‘religion’, ‘indigeneity’ or ‘superstition’. In this, their central concern is the rethinking of the nature-culture divide.

Latour’s work questions the extent to which the environmental movement itself relies on the nature-culture divide. Arguing for scientific accountability to be expanded to include the human and nonhuman processes that are at work in its endorsement, his work does not argue *against* the idea that sciences can know reality, but *for* what he calls ‘an expanded reality’ that is not bound to the nature-culture divide. His remedy, however, is not to ‘add culture and stir’ but to open up discussion on what it is to know, and to begin to track and trace a far more fragile discussion on the interactive spaces in which things come to be defined, and known. With that move, different conversations have a hope of beginning. When ways of knowing and describing the world are not confined to pre-given categories such as knowledge or belief, nature or culture, object or subject, ways of knowing can begin to be traced and unravelled. The subset of ideas that define ‘indigenous knowledge’ in opposition to the sciences can also begin to be rethought. The crucial difference between this approach and that of multiculturalist activism

is that instead of staking a claim that all knowledges are equally true, or equally mythical, it is interested in tracing the ways in which things come to be known.

Eduardo Viveiros de Castro asks about the possibilities of thinking in terms of different intellectual heritages. He asks what if, instead of documenting cultural and intellectual diversity in its own terms, anthropology began to think with local theory? What would happen if anthropology could take as philosophy that which has generally been represented as myth or as the irrationality of the Other?

For Latin American scholars like Walter Mignolo and Arturo Escobar, contestations over the sciences in the name of ‘indigenous knowledge’ or ‘tradition’ or ‘alternative knowledge’ – even New Age thought – can be read as part of a broader challenge to the limitations of modernist thought, entangled as it is with capital (Mignolo 2000; Escobar 2008, forthcoming). For Mignolo and Escobar, the resurgence of traditional and alternative thought needs to be understood as a resistance to the ways in which modernist ontologies offer nature up as a resource to be exploited, an approach that is part of the alienation of ‘moderns’ from environments.

What of African environmental philosophy and practices? How might one work with these without committing the errors of ‘salvage anthropology’? Curiously, in contrast to the Latin American struggles over traditional knowledge which focus on the environment, South Africa’s struggles over traditional knowledge focus on the body and medicine, and on the idea of ubuntu or personhood in relation to jurisprudence. The difference is almost certainly in the apartheid history of land dispossession. After land has been taken away, the body and sociality become the foci of traditional practice and innovation. By contrast, Zimbabwean debates about land and soil inform ways of thinking about land that key into a regional environmental philosophy, some of which appears in this volume.

This book evolved from a two-year research seminar on contests over ecologies in southern Africa, Latin America and Australia. The product of three writing workshops over that period and two visits by almost all of the writers from further afield, the book offers a suite of Southern chapters that attend to contests over notions of ‘nature’, science, and environment – without relying on the notion of cultural difference, or on an indigenous knowledge | science divide. Interested in situations that challenge conventional ideas about nature, the seminar has sought to support the work of a range of researchers who are thinking critically about the relationship between sciences, states and publics across the South. Some of the questions that this project has sought to engage include:

- ◆ What does it mean to move beyond the idea that knowledge contests are the effect of ‘multiple cultures’? How might we think with the idea of ‘multiple natures’ without making ‘nature’ or ‘ontology’ serve as new wine in the old wineskin of ‘culture’?

- ◆ Current writing in the post-humanities proposes shifting away from the objectivists' concern with the accuracy of representing things and the social constructionists' concern with who has the power to represent things in particular ways, towards an ontological politics that explores the relationalities through which objects of study emerge as things. How does this work shift the possibilities for dialogue with 'Other Natures'?
- ◆ How might the writing in this project navigate the challenge of drawing on different intellectual heritages and earning an audience within the halls of scholarship, without once again privileging the newest innovations in European scholarship?
- ◆ How might our work address the ways in which states' commitments to 'science' make a particular version of nature appear as an incontestable truth? Where, and in what ways, and with what consequences, do such natures become normative, and function as moral and ethical sanctionings of policy? In what ways do ideas such as 'conservation' or 'sustainable development' carry into the public domain very particular sets of interests and intellectual heritages?
- ◆ What are the implications, for democratic politics, of multiple natures (or 'the pluriverse')? In what ways might the Latin American material on the pluriverse speak to the emergence of multiple natures in politics elsewhere in the South? What political processes – or proposals for them – emerge elsewhere in which nonhuman actors can or could play a role?
- ◆ What strategies are useful in writing of the extra-disciplinary, that is, of that which exceeds its translation into the disciplined languages of formal scholarship?
- ◆ How do notions of life, nurture, the life-giving, and vitality support the emergence of different dialogues with the modernist state?

These were some of the questions posed in the run-up to the final workshop, held near Cape Town in September 2011.

The body of work that emerges in the chapters in this book questions the idea that socially responsive conservation management must rest on a combination of biodiversity management and the veneration of cultural diversity. That approach, these chapters argue, reduces the work of 'social science' to the task of rendering 'the social' in ways that are split off from 'the natural', based on the assumption that the kind of nature described and defined by the formal sciences constitutes the one true nature, against which everything else is but a cultural version. Inevitably, that work requires 'human studies' of a kind that are either 'culturalist' – in the sense that they focus on belief, poverty, symbolism, meaning, wisdom, the sacred, etc. – or 'political economic' in the sense that they focus on demographics, sectors,

stakeholders, poverty and injustice. In either approach, the idea that ‘scientific nature’ provides the primary referent is central, and the rest is relativism. The role of social scientists, in this approach, is either advocacy for marginalised communities or entering into dialogue with colleagues in the sciences, to figure out better strategies for education and law enforcement. The stage is set for intractable conflicts. Environmental managers are often bewildered by the lack of compliance on the part of the public with ‘the science’. Environmental publics are often angered by science-based management strategies that do not see the kinds of connections that they see. How might such conflicts be mediated?

The contributors to this book are reaching for a way of thinking about complex worlds in which processes and connections don’t match the neat separation of nature from culture, and which exceed the ‘tick boxes’ and tidy mathematical formulae of modernist environmental management. What if, they ask, we begin to recognise as a contestable intellectual heritage the impulse to classify, define, name and count objects in a nature out there? Are there other ways of knowing the world that can be lifted out? What do different intellectual heritages bring to the discussion?

Such discussions are vulnerable and fragile; they are difficult to enunciate when the very language in which we speak mitigates against thinking new thoughts. The struggle evident in these pages is to articulate different ways of knowing the world, and as such, it reflects the fact that much of the work of the project has been to struggle with an inherited language in which the idea of nature is already prefigured. For this reason, it has been a challenge to edit this volume for a wider audience in order to present ideas that do not travel the well-trodden paths of existing discourses about nature and culture. The challenge throughout has been to write in ways that allow different realities to become audible, and at the same time not once again reducible to examples of ‘different cultures’. Such a strategy would merely affirm once again that ‘others’ have cultural versions of the one true nature that scholarship has already grasped. Central to this challenge is the need to open up the intellectual heritage of scholarship, and as such, a great deal of the content of these chapters addresses matters that some readers may find abstract. What we have sought to do is to find ways to offer different accounts of the real in stories, as much as through working with the implications of these stories for the philosophy of knowledge. Grappling with language facilitates the emergence of fresh ways of thinking. Having done this work, it becomes possible to tell different kinds of stories too.

This set of chapters is the work of a collective of thinkers from a range of regions. Mindful of the many possibilities for arranging the contributions, they are assembled here in a way that proposes three interventions into environmentalist debate.

The first intervention explores the division of ‘Nature’ and ‘Culture’ and sets out some theoretical orientations that permit a scholarship which thinks with local theory, rather than relying on the canons of European philosophy to interpret them.

The opening chapter by Mario Blaser, an Argentinian who holds the Canada Research Chair in Aboriginal Studies at Memorial University, questions the idea of ‘reasonable politics’ – arguing that the framing discussion on environmental conflicts warrants reconsideration of the ways in which ‘nature’, ‘the social’ and ‘politics’ are reimagined. His particular intervention is to call for a sustained engagement with the ontologies that undergird indigenous environmental activism.

Brazilian anthropologist Eduardo Viveiros de Castro sets out a critique of the emphasis on development that is central to the contemporary Brazilian state’s fetishisation of growth. Beginning with the observation that the Amazon has become the ultimate example of environmental conflict for nature conservation activism almost everywhere, he wonders what might happen if Amazonian ways of thinking were to inform Brazilian development policy. Resisting the assumption that economic expansion is the route to success in the global order, the chapter draws on Amerindian notions of nature and sufficiency to imagine alternatives in the contemporary global environment and conditions of economic crisis.

Latin American decolonial critiques of modernist thought speak in important ways to African debates, argues literary scholar Harry Garuba, who makes a case that animist thought, so central to African intellectual heritage, has been cast as the antithesis of sciences framed during the time of the colonial project. His intervention is an important one, as it asks how African thought might be able to bring something quite different to scholarship if logics were not limited by what can be seen and measured. The chapter offers a vital provocation about the politics of cosmology – including the cosmology of modernist divisions of nature from culture, subject from object – and in doing so, offers a re-reading of Marx’ critique of the fetish.

The second intervention attends to different ways of thinking about ecology. Exploring the connections between space, time, and life, the section considers the possibilities for understanding ecologies differently if the focus of investigation is not limited to classifications of the world into the human and the natural. Ecologies of ideas, in other words, shape the kinds of ecologies that we can observe, and name, in the world. The section pays close attention to ideas of space, territory, land and property, which are as central to environmental thought as they are to environmental activism. What happens, ask the chapters in this section, if one extends the critique of nature and culture in modernist thought to the idea of space itself? Rethinking the idea of ‘indigenous knowledge’ and its place in law, state and archive is central to Marisol de la Cadena’s chapter on the Quechua concept of ‘*allyu*’. The chapter offers a sustained engagement with a concept that problematises

notions of land, property and evidence as the basis for political decisions on territory.

Drawing on research in northern Brazil and French Guiana, Lesley Green explores the concept of '*hawkri*' which in the Palikur language of the region means both 'day' and 'world'. The study problematises the idea that the nature of space is fixed, and that it is severable from time and relationships. Based on a rethinking of Palikur categorisations of shapes and forms, the chapter proposes that environmental activism encompasses alternative concepts of space, environment, and ecology.

Survival strategies and the interweaving of worlds in the dry, poverty-stricken South African region of Namaqualand are the focus of Joshua Cohen's chapter, which speaks to an ecology of wellbeing amid chronic poverty and the fear of sorcery. His chapter expands on the idea of 'traditional medicine' and links plant medicine and wellbeing to local senses of place, which generate environmental relationships that encompass health.

Artwell Nhemachena's contribution, from Zimbabwe, engages the resurgence of spirit mediums in the crisis of state and drought in rural Zimbabwe. Beginning with a perceptive retranslation of the idea of 'rainmaking' as 'asking for rain' or 'petitioning for rain', he asks what ideas the gatherings of these mediums offer as a way of thinking about life and relationships more broadly.

Staying in Zimbabwe, the ideas of award-winning farmer Mr Zephaniah Phiri Maseko are the focus of Christopher Mabeza's reflection on the ways in which Mr Phiri Maseko has combined lifelong learning with a philosophy of soil and water that is as deeply rooted in southern African thought as it was in the Zimbabwean liberation struggle. This chapter explores Mr Phiri Maseko's agro-ecological philosophy and activism.

The third intervention assembles work on the theme of sciences and publics, and turns to the vulnerability of dialogue about contested ecologies. The chapters in this section implicitly develop insights offered by the earlier chapters. These chapters all speak of collective goings-on, of 'doing difference' together against the recognition that there are many, many ways to not (even) be able to disagree. For that reason, Helen Verran suggests that they are vulnerable dialogues.

The opening chapter in this section is Helen Verran's story of a disagreement between Aboriginal Australians and environmental scientists over whether two plants are the same or different. It is obvious that alternative metaphysical commitments are in play here. But how to manage the difference enough for the workshop to proceed in good faith as a generative experience for both Aboriginal teachers and scientist learners? Verran suggests a risky strategy of adding to the tension by asking about the knowledge practices involved, so that puzzles of connections and separations might be explicitly negotiated.

Stabilisation is the concern of the next chapter. Like many of the people they work with and talk to, Diana Gibson and Sanjay Killian could be said to love the plant *Sutherlandia*. But what actually is it? A botanical entity, a traditional medicine, a product trial outcome, or perhaps a regulatory entity possessing a form of agency quite different to the agency it exhibits when ingested by a human body? The point is that it is all those entities, and is only ephemerally stabilised as one or the other. One link between the Gibson and Killian chapter and the chapter by a team of young ethnographers and their supervisors considering possibilities of dialogue between fishers and fisheries scientists is the issue of scale. Scale is, of course, ambiguous when it comes to ecological contestation. Are we speaking of cartographic scale or scale in the sense that South Africa's Marine Living Resources legislation is a bigger agent than, say, the *koppie* in Gansbaai (a local 'parliament' where consensus is reached) – where scale implies cultural practices of framing? Both notions of scale are implicated in the emergent, still vulnerable dialogue between the equally concerned but contesting visions of fishers and scientists.

Also in the Cape Town region, Tania Katzschner's chapter is written based on years of participating in a project that might be thought of as 'naturing' a deprived urban landscape. It emphatically attends to ways of 'doing nature' that are salient to the life of an African city – not a pure 'out-there' nature that is 'other' to the city. This means taking seriously the complex intuitions about nature expressed in in-place collective action by the residents of the Cape Flats, and questioning the logics of managerialism which measure success in ways that may at times be quite alien to the muddle of nature, politics, social struggles, wellbeing and disconnection that are aspects of urban poverty in the centre of a threatened floral kingdom.

Knowing leopards is the subject of the fourth contribution in this section, by Ian Glenn. 'Dialogue' between leopards and hunters, with both guns and cameras, is radically mediated by trackers and scientists. But how to credit the differing translational forms of these distinct ways of knowing? This chapter, too, problematises the pure nature of 'natural science'.

The final chapter in this section is a fitting end to the collection, as it focuses on Rapa Nui, also known as Easter Island, which has come to figure as the archetypal example of human power over nature. Author David Turnbull approaches this topic differently, working with historical sources, archaeologies and Rapa Nuian accounts to offer a different reading of the island's environmental history, one that recognises both human and nonhuman actors in history.

The significance of this volume is well articulated in a concise question: how might we reconceptualise an environmental history and politics, and indeed a scholarship, in which humans and nonhumans are actors? The question is a central one, and its significance is underscored in the struggles of ecological modellers to find a way to include humans in their models. For humans are too complex a class

of actors to fit the assumptions of many ecological models used in the life sciences. Yet this question can be turned around, too: how to reconceptualise nonhumans as complex actors? The question of how to fit humans into ecological assessments is a major challenge – Ian Glenn underscores this in his chapter on the observations of leopard observers who have not been formally trained. Rather than trying to identify ‘best practice in social science’ that can assist ecological managers in an at times unenviable task of educating and policing recalcitrant publics, the book reaches for the possibilities of reconceptualising the relationships between humans and environments. This is, too, the challenge of the anthropocene, as Eduardo Viveiros de Castro remarked in his closing comments at the final workshop of the seminar and which form the last text in this volume. Where humans have become large-scale actors in geological history, the division of culture from nature is not a helpful way of thinking. The challenge of the moment is to work with environmentalities – or perhaps better put, worldings – that remodel conventional thought and scholarship.

References

- Escobar A (2008) *Territories of difference: Place, movement, life, redes*. Durham, NC: Duke University Press
- Escobar A (forthcoming) Encountering development: Preface to the 2011 edition. *Encountering development: The making and unmaking of the Third World*. Princeton: Princeton University Press
- Latour B (1993) *We have never been modern*. Cambridge, MA: Harvard University Press
- Latour B (1999) *Pandora's hope: Essays on the reality of science studies*. Cambridge, MA: Harvard University Press
- Latour B (2004) *Politics of nature: How to bring the sciences into democracy*. Cambridge, MA: Harvard University Press
- Latour B & Weibel P (2005) *Making things public: Atmospheres of democracy*. Cambridge, MA: Massachusetts Institute of Technology Press
- Mignolo W (2000) *Local histories / global designs: Coloniality, subaltern knowledges, and border thinking*. Princeton: Princeton University Press
- Stengers I (2000) *The invention of modern science*. Ann Arbor: University of Minnesota Press
- Stengers I (2010) *Cosmopolitics I* (trans. R Bonno). Minneapolis: Minnesota University Press
- Stengers I (2011) *Cosmopolitics II* (trans. R Bonno). Minneapolis: Minnesota University Press
- Viveiros de Castro E (2004a) Exchanging perspectives: The transformation of objects into subjects in Amerindian perspectives. *Common Knowledge* 10(3): 463–484
- Viveiros de Castro E (2004b) Perspectival anthropology and the method of controlled equivocation. *Tipiti: Journal of the Society for the Anthropology of Lowland South America* 2(1): 3–22



Planet UCT

Source: Courtesy of Lee Casalena and reproduced with permission.

– a first intervention –
Nature versus Culture?

The image of the University of Cape Town by Lee Casalena is made up of multiple single images of UCT's central Jameson Plaza, taken in a series of 360° spirals from a single point, and stitched together. Almost every one of the images, on its own, could stand alone as a familiar photograph, of a familiar space, taken with a familiar camera.

The composite is arresting, and defamiliarising. Grafting together hundreds of perspectives from the same point, the picture that emerges is astonishing – the campus becomes like a planet. Yet it is not 'untrue' – its images are assembled differently, in a geometry that is unfamiliar, but which itself is no more right or wrong than the satellite images that render the earth flat, or the geometries that turn Google Street view into a navigable space.

It would be silly to argue that this is a different cultural version of the world simply because it is a different way of putting it together. However, the combination of a multiplicity of images (instead of one) and a different set of rules for managing that multiplicity destabilises ideas about how we make our versions of reality. It conjures up not as much a different culture, as a different nature by drawing attention beyond the objects in the lens to the actions through which the image is made. Nature – and the natural – the image suggests, comes to us through an active process of world-making, in which the arts of representation – like a map, or a photograph, or even woodcarvings or paint swatches – make it possible to transport particular aspects of the world to other places and other conversations.

In the particular assemblage of Planet UCT, the hundreds of unique images connect their edges and bend in concert with one another, so that what emerges is a single image in which the sky and the weather is not 'on top' (as in a photograph) or absent (as in a map) but all around. In an era of climate change, that inclusion offers a correction to the dominant mind-set in which the breath of the planet has been absent.

Nature versus Culture? One Nature or many assemblages? New conversations about nature and the natural? These are questions central to the life of a university and so Planet UCT aptly captures the very questions that open this first part of the book: are the ideas of 'nature' and 'culture' useful in resolving contestations over ecologies?

Notes towards a political ontology of ‘environmental’ conflicts

Mario Blaser

ON 5 JUNE 2009, a deadly confrontation took place in the Peruvian Amazon between police forces and a group of protestors mostly composed of indigenous Awaj'un people who had taken control of a highway to protest President Alan Garcia's decrees facilitating the concession of their territories to oil, timber and hydroelectric corporations. Leni, a young Awaj'un leader, explained what motivated his participation in the protests:

We speak of our brothers who quench our thirst, who bathe us, those who protect our needs – this [brother] is what we call the river. We do not use the river for our sewage; a brother cannot stab another brother. We do not stab our brothers. *If the transnational corporations would care about our soil like we have cared for it for millennia, we would gladly give them room so that they could work here – but all they care about is their economic benefit, to fill their coffers with wealth.* We do not understand why the government wants to raze our lives with those decrees. (IWGIA 2009; emphasis added)

Around the same time, in the Paraguayan Chaco, the Yshiro indigenous people were struggling to force a network of state institutions and non-governmental organisations (NGOs) with transnational connections to allow them to participate in various plans for the so-called management of ‘natural resources’ in their traditional territories. The plans included the creation of a reserve of biosphere, zoning, and the establishment of a national park. The background to these plans was an intense process of deforestation, led mainly by large cattle ranchers who had been enticed to move into the area by the economic policies of the Paraguayan state. The combined result of this process and the government responses to it had been the curtailment of the Yshiro's capacity to live life as they had done previously. In an interview with the author, Modesto Martinez, an Yshiro leader, described his people's concerns about the way things were being done:

These ecologists now come and tell us we cannot hunt, they tell us we cannot fish, they tell us we cannot cut trees. Why? I don't know, they always say we have to care for nature ... mother nature. Why they don't go to those ranchers who bulldoze the forest? Why they speak of nature? I went to Spain, those environmental NGOs took me to meet their friends there and I saw very well, in Spain there is no more trees, all is cement. The poor earth cannot breathe, all flattened out under the heavy cement. And the children, they only want to drive in cars and write with computers. They have no trees to climb on. The Spaniards buy trees from other places, I saw the boatloads with my own eyes ... Then they go to university and learn about nature in their blackboards ... and then they come and tell us we have to respect nature ... why they don't come and stay with us? *We grow along with the trees. They are our relatives ... they give life to us and when we die we give life to them ... Why they speak of nature? That's something on the paper, they need to come and learn with us about the trees, just like this, face to face, person to person.* (Emphasis added)

These vignettes illustrate the two faces of environmental conflicts that are proliferating where indigenous peoples find themselves at the intersection of the push from capital and states to tap into so-called 'undeveloped natural resources' (Mander & Tauli-Corpus 2006) and the counter-push from civil society and governments to protect 'hotspots of biodiversity' from the effects of the first phenomenon (Dowie 2009).

Environmental conflicts are the bread and butter of political ecology, which Joan Martinez-Alier (2002) has defined as the study of ecological distribution conflicts, meaning conflicts about access to, and control over, natural resources. However, as is evident from the expressions of indigenous participants, in some cases these conflicts go beyond the issues of access to and control over 'natural resources' to involve the very definition of the 'things' that are at stake. Neither the Awaj'un nor the Yshiro spokespersons posed their primary concern as being about control of and access to resources; in fact, both were explicit about 'making room' for, or inviting, others (corporations or environmentalists) into their territories. Rather, their concern was with the values and assumptions with which others approach their territories, without care and without a personal relationship with the nonhuman inhabitants of these territories. One is warranted in saying that in these cases the indigenous peoples are defending not simply access to and control over resources; they are defending complex webs of relations between humans and nonhumans, relations that, for them, are better expressed in the language of kinship than in the language of property.

Attending to the limitations of an approach that takes for granted that ‘natural resources’ are what is at stake in so-called environmental conflicts, Arturo Escobar has stressed the need to consider the power differentials between various knowledges and cultural practices (Escobar 2008). To continue with our examples, by privileging a perspective that sees ‘the environment’ as natural resources to be exploited or protected over a model that conceives its constituents as nonhuman agents whose relations with humans are better conveyed in terms of kinship, a cultural distribution conflict is created. In other words, in these cases two different culturally specific ways of understanding the environment clash with each other. Of course, whichever cultural perspective gains the upper hand will determine the access to, use of and relation to ‘the thing’ at stake.

Thus far the idea of cultural distribution conflict does not pose major conceptual difficulties. However, Escobar is also pointing at something else: he signals that we must remain attentive to the power relations between different knowledges. Once we follow this line of reasoning it becomes pressing to shift focus from culture to the epistemic formation of which the very concept of culture is a part. Why? Because besides being used by analysts and commentators to explain and know the conflicts, this concept is also used as a weapon wielded in the conflicts. For example, indigenous peoples appeal to notions of cultural rights to confront processes that will affect their capacity to sustain their ‘life projects.’ In response, states, corporations and environmentalists dismiss those claims on the basis that respect for the culture of indigenous peoples should not obstruct the rational ‘management’ (whatever this might mean) of what in the last instance is just nature. At bottom what is being argued is that not all cultures or ways of knowing ‘nature’ (the world out there) have the same standing in rational politics, the arena where decisions affecting a territory and its population are debated. Then the questions arise, based as they are on the concept of culture: What is the standing of our own analysis in these struggles? What do our analyses do in these contexts? The short answer is that they perpetuate existing power relations.

In this chapter I will unpack this answer by advancing the argument that the problem raised by the kinds of environmental conflicts illustrated in the examples I described above is a politicoconceptual one, and thus cannot be fully addressed by using the established concept of culture; rather, it requires a political ontology approach. I present my argument in three sections, beginning with a characterisation of the politicoconceptual problem, then moving on to present political ontology as a possible way to address it, and closing with a brief discussion of what a political ontology of environmental conflicts could entail.

Environmental conflicts as a politicoconceptual problem

The thrust of my argument is that some environmental conflicts both unsettle what is commonly construed as reasonable politics (i.e. a politics where the parties agree about what is at stake) and make evident the limitations of the concept of culture, the tool with which the social sciences try to apprehend and make reasonable what in principle appears as lying beyond reasonable politics. The first step in building this argument will be to delineate the contours of reasonable politics. Some examples of responses given by governments to the kinds of environmental conflicts I depicted will be of help in this.

The Peruvian president, Alan Garcia, tried two kinds of responses to the conflict in the Amazon mentioned previously. Before the violent clashes took place, he tried to dismiss indigenous demands as irrationality trumping progress. In declarations to the press he said,

These people are not first-class citizens. What can 400 000 natives say to twenty-eight million Peruvians, 'You don't have any right to come round here'? No way, that would be a grave error, and those who think that way want to lead us into irrationality and a backward, primitive state.¹

After the violent clashes, public opinion at large turned against the government. Thus, seeing that his appeals to 'reasonableness' did not work to sway the 'twenty-eight million Peruvians' in his favour and against the natives, Garcia tried another argument: foreign left-leaning governments (Venezuela and Bolivia) were behind the protest.²

A year after these events, in June 2010, indigenous peoples from the lowlands of Bolivia marched towards the capital city to demand from the leftist government of Evo Morales more participation in deciding whether and how natural resources that lie in their territories should be extracted. Morales accused the marchers of being manipulated by right-wing forces and by the US embassy.³

At around the same time, June 2010, the National Confederation of Indigenous Peoples of Ecuador rejected the mining and water law passed by their former political ally, centre-left President Correa. The indigenous concern was that the law did not leave in the hands of affected communities the decision as to whether disruptions to be caused by mining in their territories were deemed acceptable or not, and therefore whether projects should proceed or not. Correa responded by saying, 'We cannot be beggars sitting on a bag of gold because that will keep us in poverty, backwardness and immobility. We must develop our extractive potential and not fall in an extreme ecogism.'⁴

Besides demonstrating the self-interested readings that governments can make of popular protests, the responses are illustrative with regard to what is considered reasonable politics in Latin America. Facing indigenous demands for the right to decide over the conditions of their own lives, the right-leaning Peruvian government first sets a limit on what indigenous peoples can reasonably aspire to as citizens of a multicultural society: their 'cultural differences' (e.g. their conception of natural resources as relatives) cannot override the progress and greater good of the nation. Seeing that the characterisation of the indigenous demands as irrational does not really work, the government then turns to another explanation: the mobilisation is not irrational but ideologically motivated. In other words, the mobilisation is about natural resources that leftist political forces want to use and control for their own purposes. The Bolivian leftist government goes directly for this kind of explanation, but inverts the ideology they assign to dissidents: the right is manipulating them. The Ecuadorian president essays a variation: he accuses dissidents of being extremists, of going beyond a reasonable concern for the environment, where a reasonable concern would be to care for the environment as a *resource* for human ends.

In sum, between the roof of reasonable cultural demands and the floor of reasonable environmental concerns, and between the left and right walls, lies the realm of reasonable politics. Beyond those confines lies irrationality, where politics is no longer possible. And precisely what lies beyond any rational politics is what these governments (like many others) refuse to engage with: the possibility that what is at stake in the conflicts does not fit within the nature/culture and left/right categories. Certainly anthropology and other social sciences have picked up what lies beyond reasonable politics and, showing that it has its own rationality as 'culture', have contributed to bringing it back into the arena of reasonable politics – but always subject to being judged according to dominant conceptions of what counts as a reasonable demand to have cultural differences respected (Povinelli 2001). Thus, crucial to an understanding of the limits of culture to intervene in the conflicts that concern us is gaining a grasp of how the 'reasonable' gets defined in reasonable politics.

Dismissing indigenous peoples' claims about what motivates their mobilisation and protests with the argument that such claims are unreasonable (either because they are based on mistaken beliefs or because they hide the real motivations) carries the implicit assertion of an epistemologically superior standing. The dismissals are saying either 'You are confusing how things really are with what your culture tells you about them', or 'For ulterior motives you are trying to confuse us about how things really are'; and in either case they are also saying 'We do know how things really are and must act in consequence.' Where does this 'epistemological confidence' come from? Bruno Latour's characterisation of the two great divides shaping the 'modern constitution' might give us some hints:

The Internal Great Divide [between Nature and Culture] accounts for the External Great Divide [between Us and Them]; we [moderns] are the only ones who differentiate absolutely between Nature and Culture whereas in our eyes *all the others* – whether they are Chinese or Amerindians, Azande or Barouya – *cannot really separate what is knowledge from what is society*, what is sign from what is thing, what comes from Nature as it is from what their cultures require. (Latour 1999: 99; emphasis added.)

In short, ‘moderns’ have more than a culture, more than a perspective: they have knowledge. And the confidence that they have more than a perspective is premised precisely on recognising the difference between what is nature (or reality out there) and what is culture (the subjective representation of reality). Recognising such difference has allowed moderns to develop the proper procedure for knowing reality as it is: universal science.⁵

Here we go back to the justifications that the various agents of modernity (governments, corporations, environmentalists) advance to override the claims of indigenous peoples: we cannot stop progress and the greater good in the name of respecting picturesque, perhaps lovable and romantic but ultimately unrealistic cultural beliefs. The forests are lumber, genetic pools, oil and water; mountains are rocks and valuable minerals; these are all things that can be turned into commodities for the growth of the economy. Certainly, environmentalists will jump in and say, ‘Well, the science of ecology tells us that these are delicate ecosystems that cannot be destroyed without consequences.’ ‘No problem,’ is the response, ‘let the ecologists make environmental impact assessments and figure out exactly how much and in which ways we can pull resources out of the earth without completely destroying it. Perhaps we can even preserve some hotspots of biodiversity for the benefit and aesthetic enjoyment of humanity.’ Now, at this point the conversation does not involve indigenous peoples any longer; now it is a conversation among members of the tribe of the moderns who are using their only reasonable protocol to determine how to treat nature: they use universal science. Nonhuman relatives? Spirits? Ancestors? Those are not within the purview of science, they are not real, they are human fabrications and therefore fall within the domain of culture.⁶

What is left for those who have culture but not knowledge? Well, they can claim in the political arena their right to keep their identities, their cultures and their beliefs, but can never expect that they will be taken seriously and at face value when they speak about what the moderns call nature (Poirier 2008; Povinelli 1995). It is true that evolving national and international frameworks increasingly recognise a variety of indigenous rights (to be consulted, to have their territories respected, to be compensated and so on), thereby creating a whole new set of instruments and avenues that indigenous peoples can use to defend their worlds. But these rights are

all crafted to fit dominant parameters of reasonability. Can you imagine a politician or a corporation stopping a profitable mega-development project because the natives say a spirit or ancestor does not want it? At best, the natives might mobilise their various rights and, if the political conditions are favourable, build alliances with other concerned groups until they are able to have politicians and corporations stop the project, but on reasonable grounds!

The reasonableness of the demands will depend on the degree to which they are aligned with 'reality out there'. In other words, the test question that will be posed to these demands will be whether they are grounded on 'reality' or not. And who is to determine this alignment? Universal science? No surprise then about the army of expert consultants that indigenous peoples have to enrol to back up their claims and demands. Thus, one of the problems with using the concept of culture to intervene in and analyse certain (so-called) environmental conflicts is that some participants in the conflicts seem to be more cultural than others, that is to say, they do not have real knowledge, they have cultural beliefs.

But we can take the idea that some participants are more cultural than others in another direction: it might indicate that for some participants the world cannot be encompassed by the concept of culture, or nature for that matter. Following this meaning would lead us to cosmopolitics. But to show this I need to remain for a moment with the idea that some are more cultural than others in the sense that they don't have real knowledge, and discuss what I consider to be a misguided attempt to counter this assumption.

Since the 1980s and especially in the domain of development, conservation and natural resource co-management, some social scientists have advanced the argument that other cultures also produce valid knowledge, labelled Traditional Environmental Knowledge (TEK) and Indigenous Knowledge (IK), and that these knowledges could be integrated with scientific knowledge on an equal footing (Berkes 1999; Brokensha et al. 1980; Sillitoe 2000, 2007; Warren et al. 1995). I will not rehearse the many critiques that have been made of the idea of knowledge integration (see Agrawal 2005; Nadasdy 2003, 2007); rather, I am interested in discussing a common assumption underlying these debates, namely that the problem posed by other knowledge traditions is politico-epistemological.

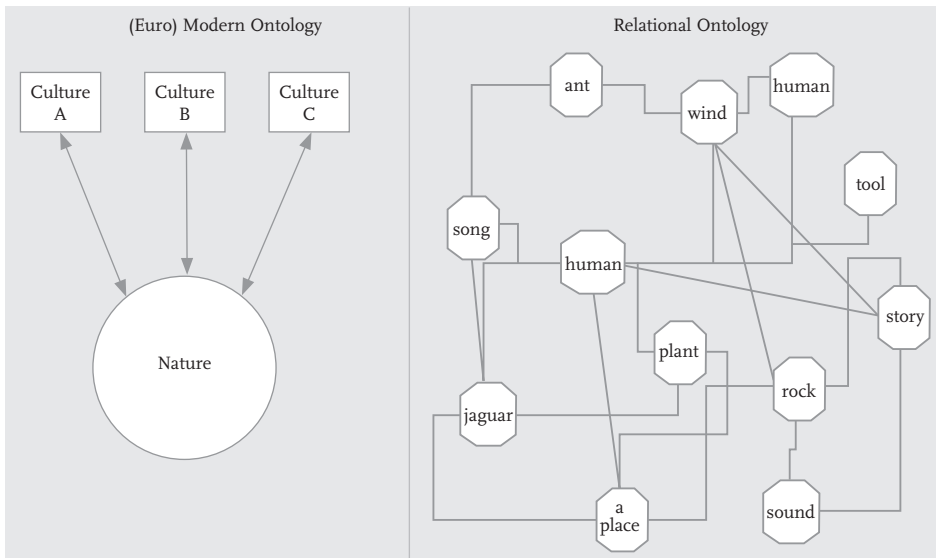
At bottom, the question that proponents of IK or TEK first raise is the eminent epistemological question: how do certain indigenous people know the world? Then follow related questions and debates: How does this way of knowing relate to others (and particularly scientific knowledge)? Are they equally valid? Can they be integrated? And so on. The debates and the questions gravitate towards the affirmation or denial of a certain assumption: that we are all equally cultural or, what amounts to the same thing, that we all have valuable perspectives on the world that we can call knowledge. What is not in question is the *world* that is to be known. Put

another way, debates around IK do not raise the ontological question (what is there to be known?); rather they surreptitiously return us to the terrain of reasonable politics where the ontological distinction between nature and culture dominates. Let me briefly illustrate how this return to reasonable politics takes place.

In Figure 2.1 we have two sketches of different ontological armatures. The one on the left is a sketch of the modern ontological assumptions that would make debates on IK an epistemological problem, that is, a problem of the perspective afforded by a particular culture's vantage point on the world. On the right we have the sketch of a relational ontology, where there is no distinction between nature and culture but rather the entities that exist emerge from a web or network of relations. If you imagine the sketch of the relational ontology being shrunk or reduced to a small square, then labelled 'culture' (or 'way of knowing') and then repositioned in the left side of the figure alongside the other squares with the label 'culture', you get a sense of how debates on IK bring us back to the terrain of reasonable politics by converting radical differences (ontological differences) into just another cultural perspective on nature (or reality out there).

Once we are securely within the modern ontology, we are back on the terrain of reasonable politics, and here those who know by assuming the nature/culture divide, that is those who have universal science, run with the advantage. The epistemic privilege of universal science might not be obvious and apparent in all cases where different 'claims to know' collide, precisely because of the role

FIGURE 2.1 *Modern and relational ontologies compared*



Source: Author's conceptualisation

that multicultural tolerance plays nowadays in relation to indigenous peoples. Thus some cultural difference is tolerated inside the 'house' of reasonable politics. However, it is precisely the term 'tolerance' that gives the game away: in this context to tolerate means to suspend the application of the most rational understanding of reality in deference to those who do not know best. But as we can see time and again in many of the cases where 'claims to know' collide, tolerance can only go so far before universal science is brought to bear to demarcate the limits beyond which disciplining force is required to meet unreason – 'unreason' or 'irrationality' being just different words used to deny ontological differences.

For critical analysts it is important to keep in mind that framing these conflicts as being cultural or epistemological may backfire. In effect, analysts may be trying to empower indigenous claims by bringing them into reasonable politics as culture claims or expressions of a different epistemology, but by doing this they end up reinforcing modern ontological assumptions that are central to the very process by which indigenous worlds are being destroyed. This backfiring occurs because an ontological conflict (i.e. a conflict about what is there) is treated as an epistemological conflict (i.e. a conflict about how different cultural perspectives see, know or struggle for what ontology has already established is there). If we want to avoid this self-contradicting move we must consider that environmental conflicts, like those in my examples at the start of this chapter, might also be ontological conflicts.

Ontological conflicts exceed reasonable politics – including the politics which denounces the limits of reasonable politics by trying to incorporate what lies beyond as peculiar (but reasonable) cultural or epistemological stands. Ontological conflicts fall into the domain of cosmopolitics, the terrain where multiple and diverging worlds encounter each other and the possibility (without guarantees) of composing mutually enlivening rather than destructive relations.⁷ In order for analysis to avoid the backfiring I have just mentioned, it must embrace the radical multiplicity at stake. For this, a political ontology is needed.

Political ontology

To characterise the concept of political ontology it is convenient to start by clarifying my use of the term 'ontology'. The term can be seen as operating in three simultaneous registers. The first register corresponds to a dictionary definition:

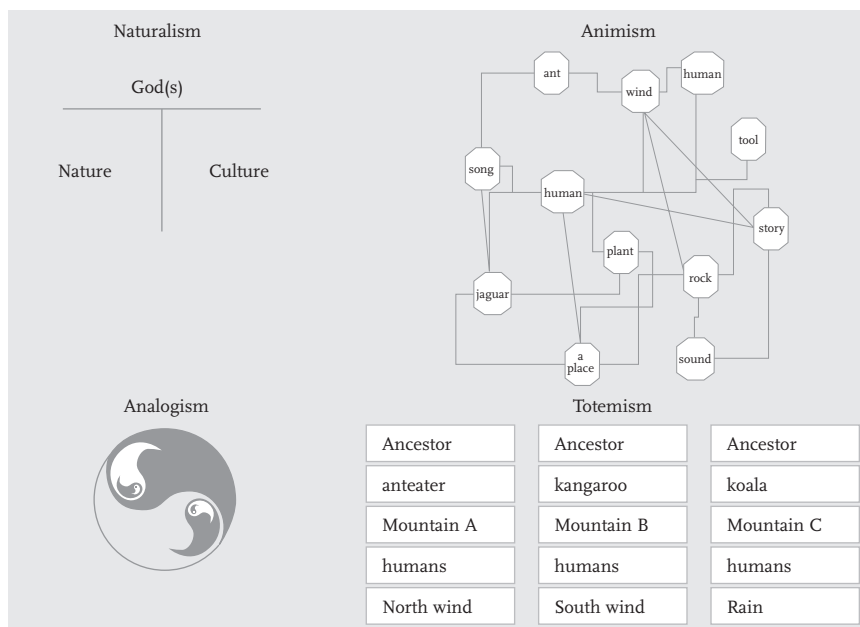
Any way of understanding the world must make assumptions (which may be implicit or explicit) about what kinds of things do or can exist, and what might be their conditions of existence, relations of dependency, and so on. Such an inventory of kinds of being and their relations is an ontology. (Scott & Marshall 2005)

The second register resonates with the insights of science and technology studies, and in particular with Actor-Network-Theory: ontologies do not precede mundane practices, rather are shaped through the practices and interactions of both humans and nonhumans (see Latour 1999; Law 2004; Mol 1999). The third register resonates with a voluminous ethnographic record that traces the connections between ‘myths’ and practices: ontologies also manifest themselves as ‘stories’ in which the assumptions of what kinds of things and relations make up a given world are readily graspable.

The three registers taken together are not exactly the same as each on its own, for they modify each other in crucial ways, thus providing the grounding for the project of a political ontology. A good place from which to start discussing how these three registers work together is Philippe Descola’s (2005) recent work, which helps us to quickly grasp the notion of multiple ontologies.

Descola delineates four basic ontological armatures (see Figure 2.2). *Naturalism* (which includes what we have previously presented as the modern ontology) distributes what exists between two large domains, Nature (the domain of nonhumans) and Culture (the domain of humans). *Animism* or relational ontologies conceive of entities (represented in the figure as hexagons) as emergent from the relations that bind them to other entities as knots in a net. *Analogism* operates in terms of the notion of an originating dynamic which repeats itself from the micro to the macro, permeating the entire cosmos and holding it together. And *Totemism* allocates a mix of humans

FIGURE 2.2 *Four ontological armatures*



Source: Author’s conceptualisation

and nonhumans within ontologically distinct groups that originate from a common ancestor. Neither the figure nor my discussion of it touches any deeper than the mere surface of this work's arguments, but they illustrate two crucially important points. The first is the existence of a multiplicity of ways of distributing and establishing what exists, and their mutual relations. Second, and following from the first point, the figure helps us to provincialise (see Chakrabarty 2000) the modern ontology, i.e. Naturalism, as one particular ontological formation among others. These other ontologies differ from the modern one not because, as moderns would assume, they lack what modernity has (i.e. the distinction between nature and culture,) but because they distribute what exists and conceive their constitutive relations in a different way.

The second register introduces more complexity to the notion of multiple ontologies, for it counters the potential equation of ontology with a sort of mental map of the world: in this register an ontology is a way of worlding, it is a form of enacting a reality. It is critical to stress, however, that a different understanding of reality is being postulated here, one that, building on Actor-Network-Theory, bypasses the nature/culture (or subject/object, material/ideational) divide to arrive at a material-semiotic formulation. What does this mean? First, that we avoid the assumption that reality is out there, and that in here (the mind) one has more or less accurate cultural representations of it. And second, that reality is always in the making by means of the actions of hybrid assemblages that only after the fact are purified by moderns as pertaining to either nature or culture. One way to grasp what is at stake here is to start from the idea that humans are involved in the enactment of realities, but not under conditions of their own choosing – they have to grapple with an 'environment' whose features have been more or less sedimented and crystallised through previous actions. But, crucially, the agents of those actions are not humans per se but heterogeneous assemblages from within which moderns later distinguish as humans and non-humans, along with an associated asymmetrical distribution of agency (see Law 2004).

Further, the understanding of ontology as a performance or enactment adds the notion of ontological multiplicity to that of multiple ontologies. Annemarie Mol's (2002) work with atherosclerosis is a good example of what ontological multiplicity entails. She has shown how in a Dutch hospital, atherosclerosis emerges as a different entity under the microscope of the pathologist (i.e. a narrowing of the artery), the interpretation of the clinician (i.e. the patient's expressed pain), and the graph of the radiologist (i.e. differential blood pressure in a limb). In each case we have a different enactment of atherosclerosis, producing a multiplicity that does not always cohere as pieces in a puzzle. Sometimes there is pain but not narrowing of arteries, or differential blood pressure in a limb without pain, and so on. This multiplicity is eventually rendered singular through a series of conceptual and politico-managerial procedures, through which some versions of atherosclerosis are discarded or made to fit uneasily with each other. But the key point is that when you want to see

atherosclerosis *in practice* (or more generally in reality) what you find is multiplicity, because there are multiple practices.

The third register again modifies the whole mix, for it reintroduces multiple ontologies with a twist. Enactments are 'storied' and stories are themselves enacted. Let's take Mol's case again. While Mol may show us that atherosclerosis is multiple *in practice*, for the radiologist, the clinician and the pathologist it goes without saying that they are treating a single entity/disease. Moreover, this assumption of singularity is crucial to the very practices through which they perform atherosclerosis. This enacted assumption can be storied thus: there is an objective reality out there (the disease atherosclerosis) and there are (more or less accurate) subjective or disciplinary perspectives on it. This is the succinct version of the modernist myth telling us what kinds of things (e.g. subjects and objects) and relations (e.g. of perspective) make up this particular world. Of course, the connections can be narrated in the reverse order: we can move from one of the various storied versions of the modern myth to its enactment in practice. This is the road taken many times by ethnographers when showing how myths are enacted in the practices and embedded in the institutions of the peoples they work with. In any case, the important point is that these stories are not only or not mainly denotative (referring to something 'out there'); neither are they fallacious renderings of the real practices. Rather, they contribute to performing or enacting the reality that they narrate.

This notion of ontology, where ontological multiplicity, multiple ontologies, and performativity of stories are entangled with each other, constitutes the grounding for the political ontology project. The term 'political ontology' simultaneously implies a certain political sensibility, a problem space, and a modality of analysis or critique. The political sensibility can be described as a commitment to defending the pluriverse – the partially connected (Strathern 2004) unfolding of beings – in the face of the impoverishment implied by universalisms. I say partially connected because the idea here is that these worlds are not sealed off from each other, with clear boundaries – they are certainly connected, yet there is no overarching principle that can be deduced from these connections, and that would make this multiplicity into a universe. The problem space can then be characterised as the dynamics through which different worlds or ontologies bring themselves into being and sustain themselves even as they interact, interfere and mingle with each other. Finally, and in contrast with other modalities of critique or analysis, political ontology is not concerned with a supposedly external and independent reality (to be uncovered or depicted accurately); rather, it is concerned with reality-making, including its own participation in reality-making. Or put in another way, the stories that the political ontology critic tells are not meant to debunk other stories on the basis of claiming more accuracy in relation to a reality out there; rather these stories seek to weave a different configuration of a reality that is in a state of permanent becoming, not least through the stories that are being told.

A political ontology of 'environmental' conflicts?

What might a political ontology of environmental conflicts entail? I will make just a few general points about this.

First, it entails caution in not rushing too quickly to define what the conflict is about. Hence the use of quotation marks around the word 'environmental'. At the very least we are signalling here that the 'environment' might be only partially what is at stake. In other words, for some parties involved in the conflict it might be the environment, for others we do not know. When we face statements like those of Leni or Modesto, which indicate that for some parties the entities and the relations at stake might not be fully encompassed by the notion of the environment, then we are warranted in considering the possibility that we face an ontological conflict – that is, a conflict where different worlds are bumping heads. So, a road opens there to lead us to investigate what these actual worlds are, how they narrate themselves and the conflict, and how our analyses might relate to those narratives and intervene in the conflicts.

Second, it is important to stress that not all conflicts involving indigenous peoples are ontological conflicts. Ontological differences may overlap with certain identity groups but do not necessarily map onto them. Performance, not group ascription, is the key process we must attend to in evaluating whether we should treat a conflict as ontological or not. In effect, treating conflicts as cultural or resource-distribution conflicts might in many cases very well be the most productive and politically sensitive way to intervene.⁸

Third, political ontology is not about providing a more accurate story of what is happening (i.e. saying that in reality these are ontological conflicts and not epistemological ones); the concern is rather with telling stories that hold together, opening up possibilities to further the commitment to the pluriverse. This is at bottom the reason why the claims of kinship between indigenous protestors and the nonhumans that form part of their territories should not be addressed with the usual modernist conceptual tools of the social sciences. Not because such analyses might be wrong, but because a reality-making event takes place through these analyses, an event where the pluriverse is denied. As we saw earlier, this is what happens when a different ontology is reduced to just another cultural perspective on the world within the modern ontology.

Thus, where we suspect that an ontological conflict is taking place, a political ontology approach is crucial, for it is at these points of encounter between ontologies that the pluriverse might be protected or abandoned. These are the spaces where political ontology as a cosmopolitical tool that reaffirms the pluriverse can show its utility, or give in to a cosmopolitics that, through the reaffirmation of modernist ontological assumptions, denies multiplicity and contributes to its destruction.

Acknowledgement

The ideas presented in this chapter are the product of a truly collaborative endeavour in which I have been engaged with Arturo Escobar and Marisol de la Cadena for some years now. I am also grateful to Lesley Green, Eduardo Viveiros de Castro and Helen Verran for very illuminating conversations. Research grants from the International Development Research Centre and the Social Sciences and Humanities Research Council (both of Canada) have been crucial in supporting the groundwork upon which the arguments presented here are based.

Notes

- 1 Accessed 27 January 2011, <http://inside.org.au/garcia-peru/>.
- 2 Accessed 27 January 2011, <http://www.pagina12.com.ar/diario/elmundo/4-126326-2009-06-09.html>.
- 3 Accessed 27 January 2011, <http://www.pagina12.com.ar/diario/elmundo/4-148063-2010-06-22.html>.
- 4 Accessed 27 January 2011, <http://www.pagina12.com.ar/diario/elmundo/4-148319-2010-06-26.html> accessed.
- 5 By universal science I refer to an assemblage of knowledge practices that, associating themselves with but distorting the very specific nature of the truths produced by the experimental sciences, claims to know reality 'as it is' (see Stengers 2000). This assemblage has come to constitute a veritable regime of knowledge ingrained in modern governmentality (Dean 1999).
- 6 Interestingly, the further environmentalists' claims move from the assumption of ecosystems as anything more than a very complex organic machine ruled by laws that are knowable and therefore manageable, the more they start to join the ranks of 'cultural' claims, that is, claims based on morals, beliefs or whatever but not on the hard facts that science is supposed to deal with.
- 7 I borrow the term 'cosmopolitics' from philosopher Isabelle Stengers, in whose work the cosmopolitical refers to 'the unknown constituted by ... multiple divergent worlds and ... the articulations of which they would eventually be capable' (Stengers 2005: 995).
- 8 This does not mean that attention to ontological multiplicity and the kinds of analyses advanced by Actor-Network-Theory might not be relevant, even when conflicts are not ontological in the sense used here (see Mol 2002).

References

- Agrawal A (2005) *Environmentality: Technologies of government and the making of subjects*. Durham, NC: Duke University Press
- Berkes F (1999) *Sacred ecology: Traditional ecological knowledge and resource management*. Philadelphia: Taylor & Francis
- Brokensha D, Warren DM & Werner O (1980) *Indigenous knowledge systems and development*. Washington DC: University Press of America

- Chakrabarty D (2000) *Provincializing Europe: Postcolonial thought and historical difference*. Princeton: Princeton University Press
- Dean M (1999) *Governmentality: Power and rule in modern society*. London & Thousand Oaks: Sage Publications
- Descola P (2005) *Par-delà nature et culture*. Paris: Editions Gallimard
- Dowie M (2009) *Conservation refugees: The hundred-year conflict between global conservation and native peoples*. Cambridge, MA: MIT Press
- Escobar A (2008) *Territories of difference: Place, movements, life, redes*. Durham, NC: Duke University Press
- Latour B (1999) *Pandora's hope: Essays on the reality of science studies*. Cambridge, MA: Harvard University Press
- Law J (2004) *After method: Mess in social science research*. London & New York: Routledge
- IWGIA (International World Group on Indigenous Affairs) (2009) *Los Sucesos de Bagua*. Accessed 20 June 2009, <http://www.servindi.org/producciones/videos/13083>
- Mander J & Tauli-Corpuz V (Eds) (2006) *Paradigm wars: Indigenous peoples' resistance to economic globalization*. A special report of the International Forum on Globalization, Committee on Indigenous Peoples. San Francisco: International Forum on Globalization
- Martinez-Alier J (2002) *The environmentalism of the poor: A study of ecological conflicts and valuation*. Cheltenham: Edward Elgar Publishing
- Mol A (1999) Ontological politics: A word and some questions. In J Law & J Hassard (Eds) *Actor-Network-Theory and after*. Boston: Blackwell
- Mol A (2002) *The body multiple: Ontology in medical practice*. Durham, NC: Duke University Press
- Nadasdy P (2003) *Hunters and bureaucrats: Power, knowledge, and aboriginal-state relations in the southwest Yukon*. Vancouver: UBC Press
- Nadasdy P (2007) The gift in the animal: The ontology of hunting and human-animal sociality. *American Ethnologist* 34(1): 25–43
- Poirier S (2008) Reflections on indigenous cosmopolitics: Poetics. *Anthropologica* 50(1): 75–85
- Povinelli E (1995) Do rocks listen? The cultural politics of apprehending Australian aboriginal labor. *American Anthropologist* 97(3): 505–518
- Povinelli E (2001) Radical worlds: The anthropology of incommensurability and inconceivability. *Annual Review of Anthropology* 30(16): 319–335
- Scott J & Marshall G (2005) Ontology. In J Scott & G Marshall *A dictionary of sociology* (3rd revised edition). Oxford: Oxford University Press Reference Online. Accessed 16 September 2011, <http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t88.e1610>
- Sillitoe P (2000) *Indigenous knowledge development in Bangladesh: Present and future*. London: Intermediate Technology
- Sillitoe P (2007) *Local science vs. global science: Approaches to indigenous knowledge in international development*. New York: Berghahn Books
- Stengers I (2000) *The invention of modern science*. Minneapolis: University of Minnesota Press
- Stengers I (2005) The cosmopolitical proposal. In B Latour & P Weibel (Eds) *Making things public: Atmospheres of democracy*. Cambridge, MA: MIT Press
- Strathern M (2004) *Partial connections* (updated edition). Walnut Creek: AltaMira Press
- Warren DM, Slikkerveer LJ, Brokensha D & Dechering W (1995) *The cultural dimension of development: Indigenous knowledge systems*. London: Intermediate Technology Publications

Economic development and cosmopolitical re-involvement: From necessity to sufficiency

Eduardo Viveiros de Castro

This text was written as a reply to a number of pronouncements made in 2008 by the then ‘Extraordinary Minister for Strategic Affairs’ of Brazil, the well-known political scientist R. Mangabeira Unger. At that moment, President Lula and his Chief of Staff, Dilma Rousseff, were manoeuvring to implement the aggressive anti-environmentalist policy of the ruling faction of the Workers’ Party. The main point then was to get the ‘Medida Provisória 422’, a.k.a ‘Medida da Grilagem’ (Landgrabbing Bill), approved by the Congress. This decree legalised the fraudulent (and almost always violent) appropriation of Amazonian public lands by big landowners and great agribusiness corporations. The highly publicised arrival of Mangabeira Unger – he was brought down from Harvard in order to give some sort of scientific legitimacy to this policy – was the final insult that forced Marina Silva, the Minister for the Environment, to quit the government. Dilma Rousseff was elected President in October 2010, running against Marina Silva and José Serra (the candidate of Fernando Henrique Cardoso’s Social Democracy Party).

‘Whoever comes after will have to make do.’
– Old Brazilian saying

I

AS THE SYMBOL THAT the *physis* chose as one of its guises around last century’s end, Amazonia has now become an arena in which a decisive match is being played: the players involved, bringing together the micro- and macro-political in unprecedented ways, compete over the meaning of the future. Now, leaving behind the dialectics of State and Nature, these two imaginary totalities that have been

reciprocally constituted by a confrontation from which people and their myriad associations were always excluded (because they were either represented by the first, or identified with the second), a new geopolitics takes over. Exchanging the naturalisation of politics for the politicisation of nature, directly connecting the land to the Earth, thereby skipping over the old national territorialisations, the geopolitics of environmentalism refuses to entrust the State with the guardianship of the infinite and the monopoly on totalisation. Along with the State, Nature – a certain idea of Nature — must go down as well, ceasing to function as a sort of Ontological Supreme Court and opening itself to a symmetrical polivocal and multiple cosmopraxis. Geopolitics transmutes into cosmopolitics.

We could view things, of course, the other way around, seeing the old in the new. Environmentalist discourse may be read as the cosmology of late capitalism, a resacralisation of history and geography that would close the cycle opened by the expansion of the West in the 15th century; a dramatic reterritorialisation on a planetary scale of all those local, national and continental deterritorialisations that defined world history in the last centuries: the revenge of Totality. Environmentalism would thus mark the advent of a post-enlightenment Dark Age: leaving the space-time of the relations between society and supernature, the discourse of finitude and transcendence would now be articulated in the confrontation between society and nature. The Amazon rainforest would occupy, no longer merely allegorically, the place of the Gothic cathedral: the ‘sacred canopy’ which can now be admired on Google Earth, the *Hylea amazonica* would take on the shape of the Spirit. And Society, which not very long ago was the model of all order and of any Whole, would now see itself as disorder itself, as the suicidal hubris that can only redeem itself if it accepts its subordination to a totality that encompasses and determines it. The polis must defer to Gaia.

So perhaps environmentalism *can* be taken as a kind of repetition of Christianity – as both subverting and reinvesting (in the psychoanalytical sense), in the name of wider totalities and more concrete universals, the myopic imperial abstractions of our modern Romes – with Brazilians, incidentally, in the ambiguous role of barbarians to be converted by the missionaries of this neoreligion of the middle classes (a naturist replay of the old Protestant ethic); barbarians, on top of that, entrusted with the Amazonian Grail, inadvertent warrantors of planetary salvation.

Perhaps this is all true; but environmentalism can *also* be seen as a radically new discourse, which refuses some of the founding partitions and basic categories of so-called Western rationality. In particular, it rejects the idea that *Homo sapiens* is the species-elect of the universe – by divine gift or historical-evolutionary conquest – exclusively entitled to the condition of subject and agent before a nature

seen as object and patient, inert target of a Promethean praxis. It problematises the theologico-philosophical concept of 'production' as the last avatar of transcendence – the idea that the human produces against the nonhuman, an infinite movement of spiritualisation that opposes matter, production as separation from nature. In exchange, environmentalism proposes an internalisation of nature, a new immanence and a new materialism – a conviction that nature cannot be the name of what is 'out there', because there is neither outside nor inside.

If we understand nature that way, as a certain idea of the real, then nature designates the absolute limit of history. This is the predicament of our era: the planet has been saturated by the human, culture has become co-extensive with nature, ecology and anthropology, geophysics and geopolitics today coincide. A reaction against the enclosing of the global commons, environmentalism imposes a drastic revision of the paradigms of unending progress and perpetual development which continue to guide our economic doctrines and ideological pipe-dreams. Our linear and cumulative conception of history – structurally blind to structure, to systemic circularities and reverse causalities – took too long to wake up to the fact that misery, hunger and injustice are not the result of the still partial and incomplete character of the march of progress, but two of its necessary by-products, which increase as the march continues to move in the same direction. The Third and Fourth Worlds already are, because they always were, part of the First World, and they are everywhere. We went through the 20th century with the mind of the 19th century; the future is at our gates, and it promises to be hard for everyone.

As a matter of fact, the future seems to have already arrived. The anthropological project, in the wide sense of the expression, is in deep crisis. The famous theses on 'the end of history' and 'the last man' that Fukuyama (1992) recycled from Hegel and Nietzsche via Kojève have now ominously moved from the metaphysical to the physical planet; the end of history and the last man are now mere empirical questions that concern climatologists and geophysicists: how much hotter the world needs to get, how many degrees up are required to produce the last man? Humans are no longer confident that they are the God-chosen species made to rule the Earth. Or perhaps they have started to realise that they may have been chosen, not by God, but by the Devil, and to destroy, not to increase, life on the planet – at least the kind of life, and of living beings, they cherish the most. The 'posthumanist turn' in anthropology, which includes things apparently as diverse as the so-called animal, ontological and speculative 'turns' – not to mention Deep Ecology and related movements – is a telling sign of this. Let us take the 'animal turn' as our example. It is obviously a turning *away* from the human in the sense of a turning *towards* the animal to see whether we can find in animality – in our shared animality with the other animal species – a better way of being human, or

better, a way of getting away from the human in search of a better way to be, and stay, alive. You certainly recall Heidegger's notorious distinction between things like stones, which are worldless, animals, which are 'poor in world', and humans, who are 'rich in world' or 'world-forming' (Heidegger 1929/1995). Now that we are starting to see ourselves as having quite irresponsibly squandered our world's riches, we humbly search and comb the lives of poor to see if they can teach us how to live with more modest means. Being no longer proud of being human, we seem to be willing to extend much of our jealously guarded humanity to other species. (Of course, the more widely we extend the concept, the thinner it becomes intentionally, while it slowly mutates into something else. Animals are but one of the intercessors in this process.) Let us not forget, however, that such an extension is simply the re-establishment of a former situation, for what defines modernity is precisely the restriction of that concept of humanity, particularly in terms of its moral import:

Ecological morality is always approached as if it were a matter of authorizing or prohibiting an extension of the moral category to new beings (animals, rivers, glaciers, oceans), whereas exactly the opposite is the case. What we should find amazing are the strange operations whereby we have constantly restricted the list of beings to whose appeal we should have been able to respond. From this point of view, there is nothing less 'natural' than philosophical modernism. (Hache & Latour 2010: 325)

This citation, among other things, reminds us that animal rights are a small, albeit strategically important, part of a much wider recent tendency to grant rights to 'Nature' at large (see the new Constitutions of Ecuador and Bolivia; for once, those poor nations are at the cutting edge of human meta-culture) – which is tantamount to ascribing *duties* to humanity. Animal rights are one of the reciprocals of the new human duties.

But there is more than animal suffering at stake. There is, for instance, the question of rethinking the whole notion of 'rights' as the default mode of codifying intrahuman relationality, or of ontologising sociality, or of expressing ethical commitment. Is there not another way of schematising universal relationality – the link between all creatures insofar as they belong to the same plane of earthly, material immanence – is there not another way to conceive of the Relation except in terms of rights and duties? To *respond* to other beings, in other words, to become *responsible* before them, is not necessarily expressed in a bill of rights. What other modes of existence, to evoke Latour's coming metaphysics (Latour 2011), should be mobilised to cope with other beings, other *existants*, with animals being just the first – the closest, in many senses – candidates for relational redefinition?

II

The diversity of the forms of life on Earth is consubstantial with life as a form, or mode, of matter. This diversity is the very movement of life as information, a form-taking process that interiorises difference – the variations of potential existing in a universe constituted by the heterogeneous distribution of matter-energy – to produce more difference, that is, more information. Life, in this sense, is an exponentialisation, a redoubling or multiplication of difference by itself. This applies equally to human life. The diversity of ways of human life is a diversity in the ways of relating to life in general, and to the innumerable singular forms of life that occupy (inform) all of the possible niches of this world. Human diversity, social and cultural, is a manifestation of environmental, or natural, diversity – it constitutes us as a singular form of life, being our own mode of interiorising ‘external’ (environmental) diversity and therefore of reproducing it. For this reason the present environmental crisis is, for humans, a cultural crisis, a crisis of diversity, and a threat to human life.

The crisis sets in as soon as we lose sight of the relative, reversible and recursive character of the distinction between ‘environment’ and ‘society’. Paul Valéry stated in the sombre aftermath of the First World War, ‘We, European Civilizations, now know that we are mortal’ (Valéry 1957/1919: 988). In this somewhat crepuscular beginning of the present century, we have come to know that, beyond being mortal, ‘our civilisations’ are lethal, and lethal not only for us, but for an incalculable number of living species – including our own. We, modern humans, children or stepchildren of the mortal civilisations of Valéry, appear to have forgotten that we belong to life, and not the contrary. Once we knew this. A few other remaining civilisations appear to know this still. Many more, some of which we have already killed, knew this only too well. But today, it has begun to be glaringly obvious even for ‘us’ that it is in the supreme and urgent interest of the human species to abandon an anthropocentric perspective. If the demand seems paradoxical, that is because indeed it is; such is our present condition. But not all paradox implies an impossibility; the paths that our civilisation has taken have not been at all necessary, from the point of view of the human species. It is possible to change direction, even though this means changing much of what many people would consider to be the very essence of our civilisation. Our curious way of saying ‘us’, for example, excluding ourselves from the ‘environment’.

What we call environment is a society of societies, what we call society is an environment of environments. What is ‘environment’ for one society will be ‘society’ for another environment, and so forth. Ecology is sociology, and vice versa. As the great ecologist Gabriel Tarde said, ‘Every thing is a society, every phenomenon is a social fact’ (Tarde 1999/1893: 58). All diversity is both a social and an environmental

fact; it is impossible to separate them without falling into the gap thus opened up and destroying the very conditions of our existence.

Diversity is, therefore, a superior value for life. Life lives off difference; every time that a difference disappears, there is death. 'To exist is to differ,' continued Tarde, 'it is diversity, not unity, which is at the heart of things' (1999/1893: 72–73). In this way, it is the very idea of value, the value of all value, so to speak – the heart of reality – which supposes and affirms diversity.

It is true that the death of some is the life of others and that, in this sense, the differences that form the irreducible condition of the world never really annul themselves, they merely 'change place' (the principle of the conservation of energy). But not all places are equally good for us humans. Not all places have the same value. (Ecology is nothing but this: the evaluation of place.) Socioenvironmental diversity is the condition of a rich life, a life capable of articulating the greatest number of significant differences. Life, value and meaning, finally, are the three names, or effects, of difference.

To speak of socioenvironmental diversity is not merely to affirm a truth; it is a call to arms. It is not about celebrating or lamenting a foregone diversity, residually maintained or irretrievably lost – an already differentiated difference, static, sedimented in separated identities and ready for consumption. We know how socioenvironmental diversity, taken as mere variety in the world, can be used to substitute mock differences for true differences – narcissistic distinctions that repeat to infinity the apathetic identity of consumers, who become ever more similar the more they imagine themselves to 'be different'.

But the arrow of real diversity points to the future, to a differentiating difference, to a becoming which goes beyond the plural (a simple variety subsumed by some superior unity) towards the multiple (a complex variation that resists totalisation). Socioenvironmental diversity is to be produced, promoted, favoured. It is not a question of preservation, but of perseverance. It is not a problem of technological control, but of political self-determination.

III

These days Brazil wallows in dreams of imminent grandeur. Contrary to the millenarianism disseminated in my country – 'Our turn has arrived!' (our turn for what, exactly?) – I am convinced that it is urgent, not to 'stop to think', but to think so as not to stop; it is urgent to begin to think carefully so as not to stop altogether. We need to learn to de-grow so that we don't decay. Brazil is a big country, as a local saying goes; yes, Brazil is big, but it's a small world. At the dawn of this century the Earth is not at its best. The global patterns of production, distribution and consumption of energy by our species are acutely unsustainable. My country is

one of the few that still has full viability from the point of view of its resource base. Brazil boasts, historically and culturally, one of the most diversified populations in the world: 220 indigenous groups and immense numbers of African descendants, European and Asian immigrants, Arabs and Jews; rural and urban people of the most different ethnic and cultural origins living in a variety of natural formations that, in turn, are home to the richest biodiversity on the planet. Sociodiversity and biodiversity should be our major assets. But here we are, as always, insisting on sawing off the branch on which we sit, with policies of international trade that apply a model of development that is ecologically predatory, economically concentrating, socially impoverishing and culturally alienating. We have devastated more than half of our country in the belief that it was necessary to leave nature to enter history; now look how history, with its customary predilection for irony, demands that we make that very nature our passport. I am afraid we will be found wanting.

IV

Contrary to what the Extraordinary Minister for Strategic Affairs, Roberto Mangabeira Unger, said in a recent interview, Amazonia is not a 'collection of trees'.² Collections of trees exist in botanical gardens or on the estates of the super-rich. Amazonia is an ecosystem, a multiplicity composed of very conspicuous trees as well as innumerable other living species – including human beings, who have been there for at least 15 thousand years.³

Amazonia was never devoid of people before the European invasion; on the contrary, its demographic nadir was reached after the invasion, with its epidemics, its methodical massacres, and with its forced 'descents' of native populations for concentration around mission stations and commercial outposts. And the indigenous populations, throughout these millennia of co-adaptation with the Amazonian ecosystem (or ecosystems – as Amazonia has many, not only one), found solutions of 'sustainability' that are infinitely superior to the truculent and myopic processes of deforestation with herbicides, chainsaws, bulldozers and so forth.

The Amazonian rainforest was always populated. The majority of the useful species of the forest owe their dissemination to indigenous land use techniques: Amazonia is a cultural forest, an anthropic entity. So it was never, or at least not for many centuries, millennia perhaps, 'virgin forest'. However, it does not follow from the fact that the forest is no longer virgin that it is legitimate to rape it. Yet that is exactly what is being done.

Amazonia is suffering a violent process of aggression. I say Amazonia, not the so-called collection of trees; Amazonia in its entirety, its traditional populations and their myriad living species. Rather than simply initiating northern European development models, an alternative model which puts the largest forest in

the world at the centre of the equation is called for, since we have arrived at a moment in the history of the planet in which life is the value that is in crisis – both human and nonhuman life. It is no longer possible to practise politics without considering the space in which all real politics unfolds, the space of terrestrial immanence.

I use the word immanence deliberately here. Minister Mangabeira Unger said in a recent interview that the destiny of Man is to be ‘grand, divine; it is not to be a child imprisoned in a green paradise’; and that ‘all people [*pessoas*, persons] are spirits who strive to transcend’.⁴ Well, Amazonian Indians would agree with the minister that all people are spirits; perhaps they would not agree with the idea that only human beings are people or persons, but that is another problem. Certainly, however, they would not agree with the idea that all people ‘strive to transcend’. This is an affirmation that would sound, to indigenous ears, distressingly similar to that which they have been hearing during the five centuries since the arrival of the Europeans – the affirmation that they *are* children who need to bow to the divine message of transcendence in order to become full human beings, to wit, to be good Christian citizens (i.e. with plenty of faith and no land at all).

Indians are not ‘imprisoned in a green paradise’, as the minister said. Amazonia is not a God-given paradise; on the contrary, it is a laborious co-adaptive construction, a system in dynamic equilibrium produced by the synergistic interaction of human (indigenous) technical ingenuity and the *sui generis* ingenuities of the sundry organisms that live there. The idea that Paradise is, at bottom, a prison for ‘Man’ has a long history in Western thought. Both notions, however – that of Paradise as well as that of prison – belong in the Old World. Amerindians have nothing to do with them. Take them out of the conceptual prison in which you have locked them, Minister. And let us leave Paradise for those who need it.

The idea that indigenous populations need to be ‘liberated’, which Mangabeira Unger expounded in another, more recent text, seems to me to be metaphysically insolent.⁵ Those indigenous groups who suffer from depression, suicide, alcoholism, as the minister laments, are precisely those who do not have land – the Guarani of Southern Mato Grosso, for example – and not Amazonian groups like the Yanomami, a strong and happy people, precisely for having land that fits their vital and spiritual needs. The indigenous areas of Amazonia are the least deforested areas of the whole region; and they are the essential components in the process of regularisation or juridical stabilisation of the chaotic land distribution that made Amazonia into a paradise of illegal land appropriation, political assassination, drug trafficking, international smuggling and government-subsidised corruption. And what does the ministry propose? A ‘programme of landowning regularisation’ that is nothing but a repeat of the loathsome principle of *Uti possidetis*: the legalisation of the private, brute-force appropriation of public lands by the rich and the powerful.

Naturally, Amerindians suffer from various problems, many of them caused by the incompetence and/or corruption of the agencies of the state that should enforce the respect of their constitutional rights. But it can also not be denied that the Amerindians have suffered other difficulties adapting to the socioeconomic (and spiritual) forms of Brazilian national society, because they have chosen from very early on in history a civilisational route that is radically distinct from our own – one which can be called the path of immanence as opposed to the path of transcendence.

Indigenous cultures are not founded on the principle that the essence of the human condition is desire, need, and lack. Their mode of life, their 'system', in the most radical sense, is other. Amerindians are the masters of immanence. What transcendence do we have, proud Brazilians, the self-appointed representatives of Reason and Modernity, to offer them? It is more probable that the Amerindians will liberate us than that we will liberate them. At least in spirit.

V

The problem, in sum, is that of finding an alternative way of life, because there is no alternative to life. To change the life we live – to change the way of life; to change the 'system'. Capitalism is a politicoreligious system, the principle of which consists of taking from people what they have and making them want what they don't have – always and ever. Another name for this principle is 'economic development'. We are here right in the thick of the theology of the Fall, of the infinite insatiability of human desires before the finite means of satisfying them (see Sahlins 2000). The economists are the priests and the theologians of our age. It is not by accident that Marx spoke of the metaphysical subtleties and of the theological astuteness involved in the idea of commodity. But it is precisely this theology of development that we can no longer accept, or at least we can no longer accept the equation between development and economic 'growth'. The world of economics is paying renewed attention to the theses of Georgescu-Roegen and his disciples on de-growth, the thermodynamic costs of the economy, and the idea that there exists an uneconomic growth which occurs 'when increases in production come at an expense in resources and wellbeing that is worth more than the items made':

Environmental degradation is an iatrogenic disease induced by economic physicians (pro-growth advocates) who treat the basic malady of unlimited wants by prescribing unlimited economic growth. We experience environmental degradation in the form of increased scarcity of clean air, pure water, relaxed moments etc. But the only way the growthmania paradigm knows to deal with scarcity is to recommend growth. Yet one certainly does

not cure a treatment-induced disease by increasing the treatment dosage!
(Daly 2004/1973: 49)

The notion of 'sustainable development' is merely a means of making the notion of development sustainable, although it really should have already been sent to the idea-recycling plant. There is no such thing as a sustainable *capitalist* economy; but unless I am much mistaken, the majority of those who strive for a sustainable way of life cannot even imagine an alternative to capitalism.

To counter *economic* development, we must generate a concept of *anthropological* sufficiency. Anthropological sufficiency does not mean absolute self-sufficiency ('sustainability'), given that life is difference, is relation with alterity, is openness to an outside in view of its perpetual interiorisation, an interiorisation that is always unfinished (the outside maintains us, we are the outside, we differ from ourselves at every moment). What is in question is self-determination, the capacity to define for ourselves a *good enough life*, as Winnicott spoke of a 'good enough mother'. We do not need paradise, or the perfect mother; the 'good life' is a good *enough* life. There is no better than enough.

Development is always deemed an anthropological necessity because it supposes an anthropology of necessity: the subjective infinitude of 'Man' (his insatiable desires) is in indissoluble contradiction with the objective finitude of the environment (the scarcity of resources). We are at the heart of the theological economy of the West; we are at the source of our economic theology of development. It was Walter Benjamin who famously remarked that capitalism is a religion – not the result of a religious mutation (as in Weber's classic thesis), but a mutation of Christianity, its transformation into capitalism itself (Benjamin 1996/1921). And as Sahlins also famously said, the genesis of Economics was the economics of Genesis (Sahlins 2000).

However, this economicotheological concept of necessity is, in every sense, unnecessary, by which I mean, dangerous to the point of being suicidal. Against the theology of necessity should be put forward a pragmatic of sufficiency. Against the acceleration of growth, the acceleration of transfers of wealth, or the free circulation of differences; against the economocist theory of necessary development, let us devise a cosmopragmatics of sufficient action. Against the world of 'everything is necessary, nothing is enough', let us favour a world where very little is necessary, almost everything is enough. Who knows, maybe with these strategies we will end up with a world to leave to our children.

I end with three conclusions. Firstly, on a pessimist-fantast note, by saying that I have my doubts that we can escape the ecological crisis created by capitalism simply by means of the exercise of scientific reason and political will. I have therefore come to suppose that only a religious movement, a posthuman utterly non-messianic utopia, biocentric and geomorphic, can perhaps modify the

conditions of our existence in a meaningful way. It would be a matter, then, of shaking the religious foundations of Western culture, and perhaps even of human culture. Humans must mutate into another species to forestall their own extinction. Christianity was a radical innovation within the anthropological matrix, it redefined certain basic values of human society. Christ was an anthropological Messiah. Perhaps the imminent *parousia* will bring us a different Christ: a physical Christ, a thermodynamic Messiah (this is a prediction – of sorts! – not a prescription of any sort). An Artificial Intelligence, maybe? But of course, messiahs are not made to order. I think it was Kafka who said the Messiah will come only when he is no longer necessary. Soon he will no longer be necessary.

Secondly, another pessimist-fantastist conclusion. Imagine one of those science fiction B-movies in which the Earth has been invaded by aliens who manage to disguise themselves as humans in order to dominate the planet and plunder its resources (because their natal world has been exhausted). Usually, those aliens feed off humans themselves: their bodies, their mental energy, something like that. Now, let us imagine we are in such a movie, but with the difference that the invasion has already happened. Imagine the aliens are, in truth, ourselves. We were invaded by an alien race disguised as human, and it so turned out that they have won: we are them. Or are there two species of humans, perhaps? One alien, the other indigenous? Or maybe there is only one species, but it is internally divided, an alien mind sharing the same body with an indigenous one? Let us say a slight glitch in our behaviour makes ‘us’ realise that we are actually two individuals, and we cannot tell who is the one who is realising it. Or maybe the invader is the soul, the native is the body. (William Burroughs told us that ‘language is a virus from outer space’; maybe the whole soul is.) We would all be natives; we would all be like the Amerindian peoples colonised by the European invaders. All of us humans – Europeans in the first place, of course; Europe was the first continent that was invaded.

We seem to have woken up into an incomprehensible nightmare.

But let us finish on a more lighthearted note. In the conclusion to their beautiful paper ‘Morality of moralism? An exercise in sensitization’, Emilie Hache and Bruno Latour leave the animal question and move to a far more remote type of being. They recall a striking meditation by Michel Serres on the myth of Sisyphus: ‘Everyone talks about Sisyphus, [Serres] points out, and no one says anything about the rock! “The myth shows the continual fall of the rock,” yet we notice only “the guilty, unhappy hero working like a slave”’ (Hache & Latour 2010: 319).

Indeed – *what about the rock?* If you think rocks do not count, I would like to leave you with this amusing (even if it may be a hoax) theological debate between two churches somewhere in the American Deep South or Midwest, one Presbyterian, the other Catholic. They stood opposite each other on the same street.





Source: <http://tithenai.tumblr.com/post/3215186237/two-churches-located-across-the-street-from-each-other> (accessed 24 June 2011)

Panpsychism. That's what we should be moving to. Animals are just the first step. We'll get to the rocks eventually.

Notes

- 1 'Quem vier depois, que se arranje', epigraph in Dean (1997).
- 2 Unger RM, Mangabeira defende pecuária intensiva em áreas devastadas, *Folha de São Paulo*, 21 May 2008. Actually, Unger said that Amazonia was 'more than a collection of trees; it has people in it' – people who needed state-sponsored development brought to the region, of course. So Amazonia is, according to the minister, a collection of trees + a number of human subjects of the State.
- 3 Amazonian rainforest is a rhizomatic assemblage – let us recall that trees in the Amazon region have relatively shallow roots, supporting themselves mostly thanks to their intricately interlocked superficial radicular system as well as by their enormous buttresses, and feeding to a substantial extent off their decaying matter; rather than growing in the soil, they grow their own soil.
- 4 Unger RM, Mangabeira defende pecuária intensiva em áreas devastadas, *Folha de São Paulo*, 21 May 2008.
- 5 Unger RM, A Amazônia não é só assunto der ambientalistas, *O Globo*, 27 May 2008.

References

- Benjamin W (1996/1921) Capitalism as religion (fragment). In W Benjamin *Selected Writings, Volume 1: 1913–1926* (transl. R Livingstone). Cambridge, Mass: Belknap Press
- Daly H (2004/1973) The steady-state economy. In SM Wheeler & T Beatley (Eds) *The sustainable urban development reader*. London: Routledge
- Dean W (1997) *With broadax and firebrand: The destruction of the Brazilian Atlantic forest*. Berkeley: University of California Press
- Fukuyama F (1992) *The end of history and the last man*. New York: Free Press
- Hache É & Latour B (2010) Morality or moralism? An exercise in sensitization. *Common Knowledge* 16(2): 311–330
- Heidegger M (1929/1995) *The fundamental concepts of metaphysics: World, finitude, solitude* (trans. W McNeill & N Walke). Bloomington: Indiana University Press
- Latour B (2011) Reflections on Etienne Souriau's *Les différents modes d'existence*. In L Bryant, N Snircek & G Harman (Eds) *The speculative turn: Continental materialism and realism*. Melbourne: re.press
- Sahlins M (2000) The sadness of sweetness: or, The native anthropology of Western cosmology. In M Sahlins *Culture in Practice*. New York: Zone Books
- Tarde G (1999/1893) *Monadologie et sociologie*. Le Plessis-Robinson: Institut Synthélabo
- Valéry P (1957/1919) La crise de l'esprit. In P Valéry *Œuvres I*. Paris: Gallimard Biliothèque de La Pléiade

On animism, modernity/colonialism and the African order of knowledge: Provisional reflections

Harry Garuba

Because of the colonizing structure, a dichotomizing system has emerged, and with it a great number of current paradigmatic oppositions have developed: traditional versus modern; oral versus written and printed; agrarian and customary communities versus urban and industrialized civilization; subsistence economies versus highly productive economies. In Africa a great deal of attention is generally given to the evolution implied and promised by the passage from the former paradigms to the latter.

– Mudimbe, *The Invention of Africa*

It might even be said that the fetish is the consummate form of power for Marx insofar as it mystifies and materializes in the same gesture, insofar as it crystallizes the necessity and inevitability of mystification for materialization. Indeed, if fetishism is that process whereby power as a relation is obscured through reification, through the guise of an object, then what Marx calls material life, with its thoroughly objective, tangible and concrete character, is always already fetishized.

– Brown, *Politics out of History*

HOW DO WE ACCOUNT for the recent resurgence of interest in animism and animist thought? Once considered as some kind of cognitive error, evidence of cognitive underdevelopment and epistemological failure, animism has once again become an object of discursive attention and intellectual inquiry, in addition to serving as a platform for political action, particularly in relation to issues of ecology and the environment. It has become an acceptable if not entirely respectable way of knowing and acting in the world. Although EB Tylor's 19th-century definition of the concept has remained foundational, we have come a long way from the modernist understanding of it which Emile Durkheim summed up in these words:

For Tylor, this extension of animism was due to the particular mentality of the primitive, who, like an infant, cannot distinguish the animate and the inanimate ... Now the primitive thinks like a child. Consequently, he is also inclined to endow all things, even inanimate ones, with a nature analogous to his own. (Durkheim 1915: 53)

This new interest has meant that the view which equated animism with everything that was childlike and epistemologically challenged, everything that was the negation of the mature, the modern and civilised, has gradually lost currency.

It is fairly safe to say, as Bruno Latour (1993) has shown, that the technological successes of modernity itself, which have led to the creation of 'hybrids,' 'quasi-objects' and so on, have also rendered the Cartesian distinction between object and subject no longer tenable – at least, not in those categorical terms. The literature on animism, animistic thought, animation and related phenomena and practices across a range of disciplinary domains, from science studies and philosophy to sociology and anthropology, all seems to support this position, with some going so far as to proclaim the end of objectivism and its dualistic epistemology. This view may be overly optimistic; but that it can be proclaimed without sounding entirely absurd is worth noting.

As Alf Hornborg, in his essay 'Animism, Fetishism, and Objectivism as Strategies for Knowing (or not Knowing) the World' asserts, 'We might begin by suggesting that the 'object' – in the sense of a material intrinsically meaningless, but essentially knowable reality – is a thoroughly modern invention' (Hornborg 2006: 27). Recognising this is important; and what has led to this recognition is the work of environmental/ecological movements which have increasingly invoked animistic understandings of the world that are derived from indigenous communities, postmodernism's relativist epistemologies, New Age spiritualism, and contemporary anthropologists speaking of relational epistemologies and different conceptions of personhood across cultures. A result of this work has been the suggestion that the boundary between Nature and Society, between the world of objects and that of subjects, between the material world and that of agency and symbolic meanings, is less certain than the modernist project had decreed it to be. These recent developments may collectively be said to be responsible for the return of animism to discursive attention. This interest, however, opens up another significant series of questions.

If the 'object' – in the sense in which Hornborg describes it above – is a thoroughly modern invention, and if the dualist epistemology of modernity is being contested on many fronts, what has been the fate of the order of knowledge it enabled and universalised? It is all well and good to announce the end of the grand narratives of the Enlightenment and modernity, but what has happened to

the structure of knowledge on which these narratives were grounded? What are the epistemic legacies of this regime of knowledge, especially in areas of the world defined by their 'animist' world views and thus seen as outside of the modern? Have they been left largely untouched by the subject-object episteme of modernity or have they been captured by it?

A number of theorists writing about this 'other' world have argued that once touched by modernity, the colonised are conscripted into its regime of knowledge/power. Masao Miyoshi, for example, claims that

once absorbed into the 'chronopolitics' of the secular West, colonized space cannot reclaim autonomy and seclusion; once dragged out of their precolonial space, the indigenes of the peripheries have to deal with knowledge of the outside world, irrespective of their own wishes and inclinations. (Miyoshi 1993: 730)

This is another way of saying what Talal Asad said a long time ago, that we are all – whether we like it or not – 'conscripts of western civilization' (Asad 1992: 337). This would mean that the modernist order of knowledge has not left untouched these 'other' parts of the world previously governed – if you like – by an animist order of knowledge or an animist epistemology. If this is true, and if, as the Latin American decolonial theorist Ramon Grosfoguel (2008) has argued in his essay 'Transmodernity, Border Thinking and Global Coloniality: Decolonizing Political Economy and Postcolonial Studies', 'the success of the modern/colonial world-system consists precisely in making subjects, that are socially located on the oppressed side of the colonial difference, think epistemically like the ones in dominant positions', can subjects previously defined outside of the modern construct an epistemic position that does not re-inscribe the dichotomies which Mudimbe describes as the paradigmatic oppositions that define the 'colonising structure'? We need to recall that this colonising structure is a knowledge structure which – to recall the second epigraph to this chapter – is premised on 'the evolution implied and promised by the passage from the former paradigms [the animist] to the latter [the modern]'. Can an animist world view enable another order of knowledge that allows us to think outside and beyond this premise? These are the important questions that arise in the light of the developments that have made animism an object of serious scholarly inquiry. For, while it may appear that the conditions of possibility exist for alternative conceptualisations to those of modernity, we also seem trapped within its epistemic structures and languages, and our attempts to speak outside them invariably return us to the same discursive archive, albeit by way of contestation or subversion.

In these brief reflections I will explore these questions. I begin by returning to the epigraph from Wendy Brown's text, which daringly rereads Marx's work on commodity fetishism and reverses the dualisms that often characterise vulgar materialist readings of it. Following upon this, I suggest that animism is the spectral Other that simultaneously constitutes and haunts the modern. Rather like Giorgio Agamben's reading of the status of the *homo sacer* of ancient Roman law (Agamben 1988), it is always already included by its exclusion. Accorded the recognition of non-recognition, animist understandings of the natural and social world functioned within discourses of colonial modernity as the aberration, the past-in-the-present, to be disciplined so as to create civilised worlds and subjects. The colonial modernist order of knowledge built on the translation or transformation of these animist worlds and subjects into modernity spawned the various dichotomies that have defined the study of Africa. In other words, animism has functioned as the metaphoric receptacle for everything that is a negation of the modern, and as Mudimbe (1988) argues, the goal (of the 'colonising structure') of the African order of knowledge bequeathed by colonialism has been to *decipher* and *translate/transform* these worlds into European constructs and fit them into European theoretical models. After considering this argument, I proceed to explore the possibilities that animism offers for instituting a different regime of knowledge, freed of the dualisms of the modern. Here, I argue that there is a need to reach for new conceptual vocabularies that transcend the modernist episteme in order to take advantage of this recent convergence of interest in the logics of animist thought, however difficult that may be to achieve.

'A commodity is therefore a mysterious thing': One knowledge domain for the thing and another for the mystery

When Karl Marx spoke of the 'mystical character of commodities', I doubt that he envisaged that within the following century knowledge would have become so fragmented that there would be a field devoted solely to the study of the commodity as object, rid entirely of the messiness of the mystical character that attaches to and constitutes it – the discipline of economics (Marx 1976/1867: 1). His perceptive understanding, as early as the 19th century, that 'a commodity is therefore a mysterious thing' has been of renewed interest for thinkers and scholars from a variety of theoretical and ideological persuasions that include the deconstructionist, the postmodernist and the post-Marxist, among others. If the commodity is central to economic modernity, an understanding of it as a locus of both the material and the mysterious must be of some significance; and scholars within the transdisciplinary field now known as critical theory have taken note.

Approaching Marx's view of the form of the commodity from a Foucauldian perspective that focuses on the operations of power (see Foucault 2000), the epigraph taken from Wendy Brown succinctly brings together the paradigmatic oppositions that mark the separation of the knowledge domains that we broadly call 'scientific,' which are devoted to the study of the material world through a series of methodological protocols and practices that primarily involve the cleansing of objects of all traces of symbolic meanings, and the knowledge domains reserved for the Others. According to this reading, Marx 'crystallizes the necessity and inevitability of mystification for materialization' and claims that 'material life, with its thoroughly objective, tangible, and concrete character, is always already fetishized' (Brown 2005: 76–77). Indeed, the epigraph should remind us, even as it overrides this division, of the construction of separate knowledge domains for the 'thing' and the 'mystery', and the establishment of a hierarchy between the sciences and those disciplines broadly designated as the social sciences and humanities. Since the institution and consolidation of this disciplinary separation, from the 19th century onwards, the aspiration of those that fall within the latter domain to mimic the protocols of the former in terms of acceptable methods of knowledge production has been analogous to and has mirrored the promise of passage from one paradigm to the other that Mudimbe identifies as central to the 'colonizing structure' and its knowledge regime.

Having drawn this analogy between the constitution, separation and hierarchisation of the modern scientific and 'lesser' (aspirational) social science disciplines of knowledge production, on the one hand, and the structure of the colonial order of knowledge with its promised 'civilising mission' on the other, I would go further to reiterate that the very identity of this order is constituted by that which it excludes, both in the rules of its discourse and in the protocols and practices of its enunciation. The 'messiness' of the 'lesser' disciplines and the 'animism' of the native both come from the same inability to fully objectify themselves, and this represents the spectral presence that shadows the objectifying imperatives at the valued heights of the hierarchy of knowledge. As Frederick Cooper affirms in another context, in his essay 'Postcolonial Studies and the Study of History', 'Without the native, without the Barbarian, without the slave, the values of the West are difficult to imagine' (Cooper 2005: 185). I would extend this to say that without animism, the values of positivist science are difficult to imagine. As I have argued elsewhere,

it was in this process of disciplinisation and the creation of disciplinary structures of knowledge that Africa fell out of the boxes and landed in the domain of anthropology ... [and that] many of the disciplines of the humanities and social sciences, being disciplines of modernity, were

invariably defined in opposition to Africa – African animism, African irrationality, African orality, etc. In short, Africa was the ultimate sign of the non-modern that was not available to disciplinary attention, except within the domain of anthropological knowledge. (Garuba 2012: 45)

The fear of animism, it would appear, is the beginning of (scientific) wisdom.

Let us concede at this point that, beginning as I do by foregrounding the predominant conceptions of modernity (and animism) and the dualistic framing of knowledge at the heart of the modern, these reflections cannot but employ this dichotomising discourse, even while advocating its transcendence. My use of the term animism, therefore, is restricted neither to the strict anthropological definition nor to the descriptions offered in dictionaries of religion or in the pages of texts on developmental psychology. Rather, my usage speaks more broadly to an epistemological standpoint in relation to the world that is radically different from the modernist position. In the essay, ‘“Animism” Revisited: Personhood, Environment, and Relational Epistemology’, Nurit Bird-David characterises this standpoint in this manner:

If the object of modernist epistemology is a totalizing scheme of separated essences, approached ideally from a separated viewpoint, the object of this animist knowledge is understanding relatedness from a related point of view, within the shifting horizons of the related viewer ... Against ‘I think therefore I am’ stands ‘I relate therefore I am’ and ‘I know as I relate’. Against materialist framing of the environment as discrete things stands relational framing of the environment as nested relatedness. Both ways are real and valid. Each has its limits and its strengths. (Bird-David 1999: S77–S78)

In placing the term ‘animism’ in scare quotes in the title of the article, Bird-David seeks to gesture beyond those narrower definitions inherited from EB Tylor and the history of the term’s usage within modernist thought. I also read the careful phrasing captured in ‘approached ideally’ as an acknowledgement that the dichotomy inherent in the self-constitution of the modern may not have been as hermetically sealed off from its opposite as it claimed. All the same, the oppositional framing persists because it is perhaps the only way to highlight these differences within the grammar of the discourse available to us.

The challenge, I believe, is to find a conceptual space and a language of discourse able to restore or reclaim that constitutive co-presence that Marx recognised between the commodity as material and as mystical object, and to find an order of knowledge that captures this and through which it can be represented. This is what epistemologies of relation, various forms of relativism that take the

Enlightenment project as their target of assault, postmodern epistemologies, and so on, attempt to do. Contesting its authority is a fine thing, but it is much more difficult to overturn its legacies.

Linear time, teleologies of knowledge production and the logic of animist thought

It should be clear from the foregoing that I broadly endorse these ‘new’ or ‘alternative’ epistemologies and their goal of subverting the singular narrative of modernity and its knowledge regime. However, I find that I cannot shake off my unease about the linear temporalising of these developments. For, often when the story is told, the emergence of these new discourses is presented as an epistemological advance over the previous modernist paradigm (as the name postmodern suggests, for example), in an unproblematically linear fashion. This narrative consigns the animist worlds upon which these discourses depend to the status of data, objects used only as sources of primary evidence, and the knowledge capital gained is inserted into a linear narrative of the progression of Western knowledge. The subject of knowledge remains the modern self, moving forward in linear time.

Addressing the issue of evolution and the naturalisation and secularisation of time in his book *Time and the Other: How Anthropology Makes its Object*, Johannes Fabian argues that within that paradigm ‘relationships between parts of the world (in the widest sense of both natural and sociocultural entities) can be understood as temporal relations’ (Fabian 1983: 11–12), with some relations upstream in time and others downstream. So even though it may appear that ‘animism’ is the ground upon which these new epistemologies stand, it is not the ‘real’ animistic practices of other peoples and cultures that matter, but rather ‘animism’ as a knowledge construct of the West; this is what is being revisited to derive new, Western, knowledge constructs and paradigms. Seen in this light, animism thus becomes a postmodern advance upon a prior knowledge paradigm and practice, rather than an always already recognised coeval presence (to use Fabian’s term) in the lifeworlds of those conscripted into modernity.

This is problematic because, presented in this manner, the West remains the ‘sovereign theoretical subject’ of knowledge, to use Dipesh Chakrabarty’s words, while the animistic other’s lived experience and reality are yet to be disciplined into formal knowledge (Chakrabarty 1992). Here is how Chakrabarty explains his idea of the subject of knowledge with regard to the discipline of history:

I have a more perverse proposition to argue. It is that in so far as the academic discourse of history – that is, ‘history’ as a discourse produced

at the institutional site of the university – is concerned, ‘Europe’ remains the sovereign theoretical subject of all histories, including the ones we call ‘Indian,’ ‘Chinese,’ ‘Kenyan,’ and so on. There is a peculiar way in which all these other Histories become variations of a master narrative that could be called ‘the history of Europe’. (Chakrabarty 1992: 1)

What appears to have struck Chakrabarty – after all those nationalist historiographies produced in the aftermath of colonialism – is that even though the ‘content’ of these histories may have been Kenyan or Indian or Chinese, ‘Europe remained the sovereign theoretical subject’. This means that all of these other histories, written within the protocols and idioms of the modern and the disciplinary practices that emerged from the modern episteme, were only Kenyan, or Indian, or Chinese, in terms of their data, not in their authorising discursive form. I read this as further saying that the paradigms and protocols of the discourse of academic history do not provide a discursive space from which to write a ‘non-modern’ history – a history that does not inscribe the modernist, linear conception of time. (Was this also the point Masao Miyoshi was making about the colonised and the “chronopolitics” of the secular West?) My fear is that this could also be true of all the new literature on animism, exciting, admittedly, as it has been.

The question of temporality has always been central to the narrative and ethos of modernity, and the consolidation and dissemination of a linear conception of time has been one of its enduring successes. While globalisation and the migrations and mobilities it has set in motion may be unscrambling in social and geographical space the spatialisation that anchored this conception of time and temporal relations, the teleological imaginary of time unfolding in a linear manner remains. We may no longer use overtly optimistic terms such as ‘progress’ and ‘civilisation’ or the more derogatory ‘savage’, but we have found various synonyms for them.

If the new convergence of interests in animism is to bear any advantage for those on the other side of modernity, it is here that we should begin, with a conception of time that rejects linearity and instead recognises the complex embeddedness of different temporalities, of different, discordant discursive formations and different epistemological perspectives within the same historical moment. And, then, search for a language to represent this knowledge.

Concluding thoughts

In an earlier essay, ‘Explorations in Animist Materialism: Notes on Reading/Writing African Literature, Culture, and Society’ (2003) I highlighted a characteristic feature

of animist thought whereby developments in science and technology, and the discourses and practices usually associated with modernity and a rationalisation of the world, lead instead to a *continual re-enchantment* rather than ‘a disenchantment of the world’ in the Weberian sense. I described the process through which animist thought continually spiritualises the object world, acknowledging and appropriating recent material developments and discoveries and animating them with a spirit. That this predisposition to continual re-enchantment is not simply a matter of religious belief has been highlighted by the Nigerian writer and activist Wole Soyinka, who describes it as ‘an attitude of philosophical accommodation’ that arises out of ‘the code on which this world-view is based’ (Soyinka 1976: 53). I referred to this code, this logic of animist thought, as the animist unconscious; an unconscious that operates basically on a refusal of the boundaries, binaries and demarcations, and linearity of modernity.

In thinking through the questions I have posed and the dilemmas presented by linear, narrative teleologies of knowledge production, we may want to return to the logic of animist thought as a site for transcending the rigid dualisms consecrated by the modern/Western epistemological order. The logic of animist thought provides an opening for thinking about other histories of modernity beyond the linear, teleological trajectories of the conventional historical narrative.¹

Acknowledgement

‘On Animism, Modernity/ Colonialism, and the African Order of Knowledge: Provisional Reflections’ was first published in July 2012 in *e-flux* 36 (see <http://www.e-flux.com/issues/36-july-2012/>).

References

- Agamben G (1988) *Homo sacer: Sovereign power and bare life* (trans. D Heller-Roazen). Stanford: Stanford University Press
- Asad T (1992) Conscripts of Western civilization. In C Ward Gailey (Ed.) *Dialectical anthropology: Essays in honour of Stanley Diamond. Volume 1: Civilization in crisis: Anthropological perspectives*. Gainesville: University of Florida Press
- Bird-David N (1999) ‘Animism’ revisited: Personhood, environment, and relational epistemology. *Current Anthropology* 40 (Supplement February): S67–S91
- Brown W (2005) *Politics out of history*. Princeton: Princeton University Press
- Chakrabarty D (1992) Postcoloniality and the artifice of history: Who speaks for ‘Indian’ pasts? *Representations* 37: 1–26
- Cooper F (2005) Postcolonial studies and the study of history. In A Loomba, S Kaul, A Burton & J Esty (Eds) *Postcolonial studies and beyond*. Durham, NC & London: Duke University Press

- Durkheim E (1915) *The elementary forms of religious life*. New York: Free Press
- Fabian J (1983) *Time and the Other: How anthropology makes its object*. New York: Columbia University Press
- Foucault M (2000) *Power* (Ed. JD Faubion). New York: New Press
- Garuba H (2003) Explorations in animist materialism: Notes on reading/writing African literature, culture, and society. *Public culture* 15(2): 261–85
- Garuba H (2012) African studies, area studies, and the logic of the disciplines. In T Nhlapo & H Garuba (Eds) *African studies in the postcolonial university*. Cape Town: University of Cape Town & Centre for African Studies
- Grosfoguel R (2008) Transmodernity, border thinking and global coloniality: Decolonizing political economy and postcolonial studies. *Eurozine*. Accessed July 2012, www.eurozine.com/articles/2008-07-04-grosfoguel-en-htm
- Hornborg A (2006) Animism, fetishism, and objectivism as strategies for knowing (or not knowing) the world. *Ethnos* 7(1): 21–32
- Latour B (1993) *We have never been modern*. Cambridge, MA: Harvard University Press
- Marx K (1976/1867) *Capital: A critique of political economy* Vol. 1 (trans. B Fowkes). New York: Penguin Books in association with New Left Review
- Miyoshi M (1993) A borderless world. *Critical Inquiry* 19(4): 726–751
- Mudimbe VY (1988) *The invention of Africa: Gnosis, philosophy, and the order of knowledge*. Bloomington: Indiana University Press
- Soyinka W (1976) *Myth, literature and the African world*. Cambridge: Cambridge University Press



Mr and Mrs Phiri Maseko with their National Geographic Atlas

Source: Photograph by Christopher Mabeza

– a second intervention –
space, time, life

Imagine a workshop that is trying to imagine how academics can support governance in the future: a future in which the dominant scenario is climate change. Exactly what the impacts of climate change are going to be, is unclear. The discussion keeps coming back to a central question: if we are to understand the impacts of changing earth systems on people, we need to understand people's relationships with the regional earth systems and the local ecologies. So the discussion develops, and lawyers and social scientists find themselves in dialogue with ecologists and earth systems scientists. As they try to talk about people in ecologies, new terms such as social ecology and political ecology start to pepper the conversation. Trying to think about earth activity like wind, river, fire and soil erosion within the context of political life compels discussion about flows – flows that cannot be comprehended with reference to existing boundaries of property, territory, region, or even shorelines. The assemblage of actors in that environment is in question: not just people are in charge, for rivers and winds and plant species are also active factors – or should that be actors? – in that environment. For example, some plants are natural firebreaks while others are fire hazards; some dry the landscape out and affect others downriver. The questions begin to focus on the politics of ecology and the democracy of rivers. The discussion struggles against the limits of current conventions for thinking about space as something that in itself is fixed, settled, predictable, owned, and comprised of natural objects that are known. We are up against the limits of modernist thought – that intellectual heritage that dominates formal scholarship, and that divides nature from culture, and political subjects from passive objects, and that assumes space and place can be managed through the idea of private property.

The chapters in this section speak to precisely this question: what do different ways of thinking about space bring to the kinds of conversations about ecology that the anthropocene compels?

The concepts of space and time are ways of mapping that are central to modernist thought: marking boundaries and naming places; making chronologies and marking properties; numbering minutes and miles and ticking seconds, and naming eras were central to the rollout of modernist thought in the colonial era. Yet space and nature are never outside of politics. Ecologies flow in, around, and through lives and places. How do different heritages of thought conceptualise the ways in which different kinds of flow animate the world, its histories and possibilities, and produce different notions of a politics that generates collective wellbeing?

About ‘Mariano’s archive’: Ecologies of stories

Marisol de la Cadena

A BOX CONTAINING MORE than four hundred documents was the origin of my relationship with Mariano Turpo.¹ They ranged from the 1920s to the 1970s, and were seemingly historical evidence of a local peasant struggle against several consecutive owners of a large stretch of land – a hacienda called Lauramarca, one of the largest in Cuzco, a region best known as the cradle of the Inca Empire. The documents were diverse in shape, content, and writing technique – they included the most formal typewritten official communications, scraps containing handwritten personal messages between wife and husband, lawyer and client, landlord and servant, school copybooks, pieces of paper where Mariano Turpo rehearsed his signature, hotel receipts from his sojourns in Lima, peasant union minutes, newspaper clippings, and assorted leftist pamphlets.

Thomas Muller – a German photographer who was then living in the same village and took this picture of Mariano in Figure 5.1 – found them in Nazario’s house, when Nazario (Mariano’s son) was about to use the paper in the box to light a fire and boil water for both of them to have some tea. According to Thomas, Nazario thought the documents were valueless, so he ‘rescued them’ and gave the papers to my sister and brother-in-law who were the keepers of what here I will call ‘Mariano’s archive’ – a concept I examine in this chapter. My original purpose was to read the ‘archive’ with Mariano, as the best way to expound the history of a group of peasants and their allies at the time that they were fighting against the abuses of the landowner. The fight had lasted more than 60 years, from the turn of the 20th century until 1968. The documents, I thought, would tell the story. However, after a few weeks of reading and commenting, Mariano disagreed: the documents were insufficient, there was much more – why bother with them?

Mariano’s rejection was meaningful. His explicit denial of the documents’ status as the source from which I could learn about indigenous actions against the landowner made me reconsider the limits of ideas, methods and habits of thought I had considered indispensable to recognising both equality and difference.

FIGURE 5.1 *Mariano Turpo, 2004*



Source: Photograph by Thomas Muller

For example, Ranajit Guha's proposal to read documents against the secularising grain of modernity, so as to be able to consider the political potential of peasants' religious practices and thus make peasants 'subjects of history in [their] own right' (Guha 1992: 3) seemed insufficient. Even if against the grain, such an analysis was contained by documents, the reading of which my collaborator in this interpretive process dismissed. Could it be that the narrative inscribed in those documents was not the one that Mariano wanted to be the subject of – or at least not the only one? After all, I could not forget that Nazario was using what to us were documents – even an archive – as paper to kindle his fire. This was not a mistake, the result of some kind of lack that could derogatorily be called 'ignorance'. Taken seriously, it indicated that in Nazario's and Mariano's house the box and the papers it contained had a different valence – they could be burnt. Could it be that the box and the papers it contained were *not an archive or documents*? Apparently, their import, and in that sense their existence, was over – but what had this import been? And, of course, why had the documents lost value?

The answers to these questions pertained not to the documents alone, but to their connections to the holders of the papers, the indigenous archivists – a concept that suggests complexity, for an archive, as a tool of the state, requires literacy. The indigenous archivists were mostly illiterate, which in Peru meant that legally they lacked citizenship until 1979 – that is, during the period when the documents were collected. An archive compiled by illiterate non-citizens of the Peruvian state –

intriguing indeed. And complexity accrues if we consider the contrast between the conditions of ‘Mariano’s archive’ and philosopher Achille Mbembe’s reflection on this notion:

The term ‘archives’ first refers to a building, a symbol of a public institution, which is one of the organs of a constituted state. However, by ‘archives’ is also understood a collection of documents – normally written documents kept in this building. There cannot, therefore, be a *definition* of ‘archives’ that does not encompass both the building itself and the documents stored there. (Mbembe 2002: 19)

Mariano’s archive was sometimes, indeed, kept in a building – usually a peasant house in the high Andes, a hut; at other times it was taken care of by specific *tirakuna*, or earth-beings – what we would call a mountain or a lagoon – sentient entities inscribed in the landscape and in charge of giving Mariano his strength. All this care ended at some point, the documents were forgotten, they became just another bag of items amidst sacks of potato seed, manure, and agricultural tools. As I write these lines, access to them is not public, and it is uncertain if it will ever be. Perhaps, then, the collection of papers I worked with does not meet the conditions of an archive. And yet, the documents meet a crucial consideration in terms of Mbembe’s concept of an archive. The archive, says this philosopher, is both necessary and a threat to the existence of the state, for it is a reminder of misdeeds and debts incurred by the state and which it would rather forget. Mbembe concludes, ‘More than on its ability to recall, the power of the state rests on its ability ... to abolish the archive and anaesthetize the past’ (2002: 20).

The documents in Mariano’s archive were seemingly a stubborn recall of the overwhelming debts the state had contracted with the indigenous peasants – or *runakuna* as they call themselves. Starting in the 1920s and ending in the 1970s, most of the documents contained in the box that Thomas found denounce the transgression of the rule of law by regional representatives of the local state – all generally hovering around the landowner. Abolishing the archive was a task inherent in this form of state presence in the region. Maintaining a log of the abuses committed against them was therefore the task of those I am calling indigenous archivists. Similarly, because the local state was replete with the power of the landowner, *runakuna* also had to watch over the lawful production of the documents – an activity that Mariano and his fellow peasants referred to as ‘walking the complaint’, or *queja purichiy*. In this phrase that combines Quechua and Spanish, walking (*purichiy*) is the apposite verb, for indigenous archivists had to travel long distances – on foot, on horseback, and by bus, train and ship – to consult with those state representatives who, if located beyond the reach of the landowner, could perhaps

listen to indigenous reason. Travelling from the remote altitudes of their villages to the city of Cuzco, and frequently to Lima, the coastal capital of the country, they consulted with lawyers, judges, police officers, leftist politicians and congressmen, and these conversations yielded the plethora of documents that I am calling Mariano's archive.

Mbembe's comment evokes Derrida's frequently quoted statement, 'There is no political power without control of the archive, if not of memory' (Derrida 1998: 4) – and the indigenous archivists were seemingly aware of this. Together these documents formed a collection of sorts, an archive in its own right. They are intriguing to the historically-minded individual, for they reveal the *runakuna's* will to counter the lawlessness that characterised state rule in their region. But intriguingly, this archival mission seemed to have come to an end. Probably this happened after 1968, when a national decree known as the Agrarian Reform evicted the landowner and transformed the hacienda into a state-owned cooperative – which the *runakuna* later parcelled out among their families. And when the confrontation ended, the documents lost their former value and became simply paper, which Nazario could therefore use to kindle a fire. In fact, this moment – when the papers were saved from the fire – effected an epistemic translation, for it was at this point that Mariano's archive emerged as such and acquired the partially public life that allows me to write about it. The assortment of written documents collected by illiterate individuals was situated at the epistemic margins of the state and of history. Not by coincidence, it was also geographically located in a remote corner of the country. My presence there touched the nerves of those margins, as indeed did Mariano's rejection of the documents.

So, the capacity of Mariano's archive changed historically: the documents were composed for a purpose that came to an end at a certain moment in time, and then they acquired a different purpose when they came into my hands. Even more fascinating was what I learned as my conversations with Mariano unfolded, namely that the practices that had produced the documents did not necessarily derive from the notion of the past that the nation-state uses to narrate its history. Philosophers of science Susan Leigh Star and James Griesemer have coined the term 'boundary object' to refer to things that inhabit distinct communities of practice and satisfy the requirements of each, without the object becoming singular (Star & Griesemer 1989). The term is seemingly apposite to describe Mariano's archive. But the boundaries that this object straddled were unthinkable for an archive: challenging our usual habits of thought, both historical practices and practices that exceeded history collaborated, even if asymmetrically, in its making. The documents in the box that motivated my conversations with Mariano were produced in that mode of partial connection that suffuses the complexity of the multiple indigenous and non-indigenous worlds that live together in the Andes.

Partial connection is, of course, a notion I borrow from Marilyn Strathern – she uses it to describe aggregates that are ‘neither singular nor plural, neither one nor many, a circuit of connections rather than joint parts’ (Strathern 2004: 54). Distinct, yet partially connected, literate state representatives and mostly illiterate *runakuna* collaborated in making the archive – and in this collaboration they were neither one nor many. As I will explain, they utilised the same words, ink, and paper, they wrote them together and even with shared purposes – while at the same time deploying practices, the conceptual raw material of which they mutually ignored. Most helpful for an understanding of *runakuna*’s practices in this context is the notion of *ayllu*, which I use first as an ethnographic concept to discuss how Mariano’s archive emerged both from historical practices and from practices that exceeded history.

So ... what is *ayllu*?

Ayllu is a ubiquitous term in the Andean ethnographic record. It is usually defined as a group of persons related to each other by kinship ties, and collectively inhabiting a territory which they also own. I was already familiar with this definition. However, Justo Oxa, a bilingual Quechua-Spanish elementary school teacher, provided a different, more nuanced explanation of what he told me was ‘being-in-*ayllu*’:

Ayllu is like a weaving ... and all the beings in the world, people, animals, mountains, plants, etc. are like the threads, we are part of the design. The beings in this world are not alone, just like a thread by itself cannot be weaving, the thread is only when it is woven, only if it is *ayllu*. (Oxa 2006: 239)

In *ayllu*, humans and other-than-human beings do not only exist individually for they are inherently connected, composing the *ayllu* of which they are part and which is part of them – as a single thread in a woven cloth is integral to the weaving, and the weaving is integral to the thread. In a sense, Justo Oxa’s explanation of individuals-in-*ayllu* resonates with Roy Wagner’s idea of a fractal person: ‘Never a unit standing in relation to an aggregate, or an aggregate standing in relation to a unit, but always an entity with relationships integrally implied’ (Wagner 1991: 163). Inherently relational, a fractal person is always already with others.

Similarly, composing the *ayllu* are entities *with* relationships integrally implied – at once singular *and* plural, an individual always brings about the *ayllu*. *Ayllu* is thus a relational practice, an indispensable condition for life for many (obviously not for all) in the Andes.

Thus viewed, the *ayllu* is the socionatural collective of *tirakuna* (the sentient beings made of earth and water) humans, animals and plants, *inherently* connected

to each other, so pervasive that nobody within it escapes such relation, for it is such relation, the *ayllu*, that makes the place and the persons who live in it. And in Justo Oxa's words again, 'It is important to remember that this place is not where we are from, *it is who we are*. For example, I am not *from* Huantura, I *am* Huantura' (Oxa 2006: 240). This is so because, as he explains,

the community, the *ayllu*, is not only a territory where a group of people lives; it is more than that. It is a dynamic space where the whole community of beings that exist in the world lives. This includes humans, plants, animals, the mountains, the rivers, the rain, etc. All are related like a family with respect and care and this implies not only humans but all world beings ... (Oxa 2006: 240)

Mariano seemed to confirm this: 'I am Pacchanta, ever since my old grandparents I am here.' Or, in Quechua, '*Pacchanta kani, hasta machula abuelaykumanta kayku.*'

In *ayllu*, humans, plants, animals, and earth-beings are not from a place, rather their entangled relationality *takes place*, in the sense that as it happens it occupies a space. Rather than being instilled in the individual subject, *the substance of the humans and other-than-humans that make an ayllu is their place-making temporal-spatial co-emergence with others*. And this includes the dead – they are in *ayllu* as *Machula Aulanchis* – old *abuelos*/grandparents, repositories of vitality and participants in the relational living condition among all entities that exist in *ayllu*. And thus, the past is not something that *runakuna* walk away from – rather what we call the past is also in *ayllu*, and in that sense not necessarily separate from the present.

In the early 1920s, a contingent of soldiers abducted a large group of *runakuna* leaders whom the landowner had accused of organising a revolt. The men were sent to work and eventually died in the jungle. This event seems to have been the root cause of the complaint against the *hacendado*; it is also in the historical record. Peruvian historians working on peasant movements have written about it – they give the names of several leaders but the one that appears most often is Francisco Chillihuani. Local memory in Mariano's village currently remembers the name, along with others – Juan Merma, for example. They might have been the first ones in a long genealogy that people recall as leaders in the struggle against the hacienda. Following the first two people, they recall Mariano Mamani, Manuel Choque, Manuel Quispe, Joaquín Carrasco – the list, which is chronologically organised, ends with Mariano Turpo. Two things are interesting about this genealogy. First, while it can be narrated from past to present (as was presented to me in a communal assembly, and as I have presented it here) it can also be narrated from present to past. This is how Mariano narrated it to me:

Before/in front of me was Manuel Quispe, he would hide because they were after him. He was with Joaquín Carrasco. But also *before/in front of* them was Manuel Choque, that one was killed, they threw the body to the river, they skinned his face ... *before/in front of* Choque was Mariano Mamani, *in front of* him Manuel Mandura ... that one escaped to live in the mountains. Like me he lived in hiding, that is why he saved himself from being sold to Ccosnipata. That Francisco Chillihuani, he instead was sent [to Qosñipata] – *they say the complaint began with him*, he did not return from the jungle. Like those before me had walked, I also had to walk ... the *ayllu* before us could not be lost.

Runakuna do indeed participate in Western forms of temporality – but in *ayllu* other forms are also important. Andean anthropology is familiar with two Quechua words that we translate as ‘past’ and ‘future’. The first is *ñawpaq*; it derives from *ñawi* (eyes) with the suffixes ‘pa’ and ‘q’. Literally, it translates as ‘that which is to the eyes’ – in front of, or before, one’s eyes. This is the word that Mariano uses to organise his list. In this expression *runakuna* face that which *is or has been*, something that is known, and which may belong to the past or present. This temporal distinction is not necessarily made, for in being in front of one’s eyes past and present can fold into one another. The second Quechua expression, which Mariano does not mention in the quoted extract from his narrative above, is *qhipaq*, which means ‘behind’ and refers to something that is at our backs, that cannot be seen and is therefore unknown; people also use it to mean ‘after’ (or what comes after). Andean anthropology has translated *ñawpaq* as ‘past’, and *qhipaq* as ‘future’ – and once again this is not altogether wrong. But important here is that the distinction between *ñawpaq* and *qhipaq*, or what is before and behind, does not imply detachment from the past, or the separation of the present from the future, that underpins modern notions of history. Rather, apprehended through someone’s eyes, ears, or hands, *ñawpaq* and *qhipaq*, being in front or behind, requires local embodiment – they do not exist as information or imagination for the past or future, but take place through the heterogeneous bodies that are integrally related in *ayllu*. We may translate *ñawpaq* and *qhipaq* as past and future, but they emerge as such through the here-and-now of *ayllu* relatedness.

Thus seen, Mariano did not only receive historical documents containing information – or evidence – about a *past* detached from the present. Furthermore, he did not receive the documents as an individual. Rather, what Mariano and his generation of leaders received was an event (the complaint) that was in integral *ayllu* relationship with them, and therefore they had an obligation to continue walking – the documents obliged them. Inscribed in the language of the state, the complaint was also an event in *ayllu* which, relationally collapsing past and present, became the place-memory from which *runakuna* could not walk away.

‘The tradition of all the dead generations weighs like a nightmare on the brain of the living,’ Marx famously wrote in the *Eighteenth Brumaire*, critically commenting on those who, not being able to get rid of their past, had made possible the reign of Louis Bonaparte (Marx 1978: 595). *Runakuna* would also disappoint his genius: dead generations did not weigh like a nightmare in the brain of Mariano and his cohort of archivists for they were not lost in chronology. Instead they emerged in *ayllu* genealogy in front of *runakuna*’s eyes, and there was no way out of it. But the state figured in this obligation as well: the documents where distinct practices had collaboratively, if asymmetrically met, were the site from which the promise of legal justice emerged and therefore where the *ayllu* met the state – in every generation.

Keeping the documents and caring for them was complicated, as with most archives, but some archival practices were idiosyncratic to this specific one – both because moving the documents through *hacendado* territory was dangerous, and because the documents were immersed in *ayllu* relations. For example, a man named Nazario Chillihuani was in charge of protecting the documents as they journeyed back and forth between city and countryside. He was the nephew of Francisco Chillihuani, one of the legendary leaders sent to Ccosñipata in the 1920s, and also the husband of Mariano’s sister. Nazario Chillihuani’s kinship relationship to the *queja* moved the *ayllu* to choose him as Mariano’s guard:

Since I live with his sister, I was placed to walk with him, ‘because you are his family, you are going to worry for him’, like your uncle he is going to be, perhaps he will die. Everybody, *all of them, absolutely all of them*, told me. Among family, we cannot let go of each other, I could not let go of him, [if I did] he could go disappear to jail.

Connected through in *ayllu* family ties – and not only united in a political cause – Nazario Chillihuani worked as Mariano Turpo’s security guard, and also guarded the papers, sometimes resorting to earth-beings whose strength he trusted:

I had the paper, our paper that we had presented to the doctors [lawyers] that is why they were after me, if they find me with it, they would kill me – in there with *Mariano’s pukara* the papers were hiding ... [covered] with dry grass, the *pukara* made the paper disappear ...

Only special people like Mariano have *pukara*. From this earth-being he drew strength and the capacity to make decisions. *Pukara* also translates as ‘fortress’ – covered by grass, nobody would find the documents there ...

The papers that Nazario Turpo, Mariano’s son, was using to ignite his fire had been important; genealogically in *ayllu*, cared for by family, and guarded

by earth-beings, the documents were able to ‘escape’ the *hacendado*’s purview, and compose the collection I am calling Mariano’s archive. This collection was clandestine as it was being made, and, ironically, emerged as an archive for (relatively) public use by those not its owners when the papers had lost the *ayllu*-relation they had once held. Otherwise they would never have been given to me: the papers were too important a part of the *ayllu* collective, and therefore undetachable from it. But when the *hacendado* was forced to leave, the documents’ tie to the *ayllu* loosened up. At this point they could move into my hands, where they became documents about a distant past to be interpreted in the present, and serve a purpose other than the one for which they were created.

... and so, the complaint was about *ayllu* and property

Lauramarca and its dwellers were connected through two relational regimes: one of them was a hacienda. The other one was *ayllu*. Habitually ‘hacienda’ and ‘*ayllu*’ are compared to each other through the distinction between individual and collective ‘property’ – which is not altogether wrong. Indeed the *ayllu* is a collective, and the hacienda can be individually owned. However, this distinction ignores the ways in which ‘property’ and ‘*ayllu*’ are conceived through different notions of relation. While property relations require pre-existing entities – in this case, a territory and someone to own it – being-in-*ayllu* is foremost a relational condition; without relations, there is no collective – this does not pre-exist relations. Another important difference results from this distinction. One of the qualities of property is that it can be represented: for example, a title represents the territory and its owner. Being-in-*ayllu* is different: a thread cannot represent the weaving. The separation that representation requires (between subject and object, signifier and signified) cuts the inherent relational character that is the condition of *ayllu* existence. As Wagner writes, ‘When relational points are treated as representational ... integral relationship is denied and distorted’ (Wagner 1991: 165). But representation is of the essence in legal dynamics, and therefore *ayllu* was understood (translated) in the legal context as an institution composed by a group of people who occupied land collectively. This was a *translation* indeed: transformed into ‘places’ earth-beings became land – and also mountains, rivers, lakes, lagoons, paths, caves – and thus markers of a territory that stood in relation to the humans, who were in turn translated as the sole *ayllu* members. The relational practices through which humans and earth-beings *take place as ayllu*, the relational practice that collapses time and space, disappeared.

Inscribed in the legal documents were objects occupying a space devoid of relations and therefore separate from the time in which the relations transpire. And yet *ayllu* conditions of life, as I have briefly described, were also crucial to

runakuna's claim and to the making of its documents. Hence, when a document confirmed a territorial demarcation the understanding may have been double: a) *ayllu* relational practices and b) an allocation of land disputed between two different groups of people. In the documents, these two languages and their practices overflowed into each other – asymmetrically though. Hence, while *runakuna* may have been able to write and read *ayllu* practices and social relations of property into the documents, for the rest of those involved, political allies and foes alike, the language of property prevailed.

Mariano's energetic rejection of the documents was an important ethnographic moment. Pursuing it I learned that his archive – an historical object, and an object of history – had been made possible also through practices and events that exceeded history: for example, *runakuna* and earth-beings collaborating to guard the documents. And thus, an important political conclusion was in order: the conflict inscribed in the documents was not only about 'owning the land' – rather, that I interpreted it as such resulted from an ontological and epistemic politics that required the translation of *ayllu* practices into 'social relations of property'. A consideration of the documents as boundary objects, the result of a collaboration among partially connected practices, could instead yield a reading of both relational regimes – *ayllu* and property – and the tensions between them.

Let me try to demonstrate this with several examples. In 1925, in a letter to the president of Peru, *runakuna* argued for the legitimacy of their occupation of place based on the fact that they had lived there since the times of the Incas, their ancestral grandparents. They had not bought the place where they raised animals for their sustenance – and it was not a place to be sold.

Earths of ancient [times] not sold. It is community proper of the indigenous from ancient proper from the Incas grandparents of us we all live from earths possessed in the *punas* we sustain with the animals, the animals are for our sustenance only.

Instead, the hacienda had been inscribed on title deeds under the Saldívar brothers' names only since 1904; and these titles indicated that the landowners had bought the land – a condition that was different from *ayllu* forms of possession but not necessarily more legitimate.

The subordination of ancestral *ayllu* relational 'placeness' to property regimes becomes apparent in later documents. In 1930, in a document also addressed to the president of the country, albeit a different one, *runakuna* say:

We have had the misfortune that some gentlemen favored by fortune Ismael Ruibal and Ernesto Saldivar *have bought some properties and have included within their borders the ayllu we occupy* and titling themselves owners they have taken away our animals and plots and have thrown us away from our dwellings, houses *that we have possessed since our ancestrals* [sic] *dispossessing us from everything we had had and used since our ancestors*, having had some of us to flee to places where only hunger, death and misery awaits us ...

When I asked Mariano about the importance of *ayllu* ancestral placeness as a legitimate claim, he recalled an event when he had used a similar argument with the landowner.

Ah ... that ... that *hacendado* was Ernesto Saldívar, against him we won [an argument]. We are born here, we are not brought [from a different place] for you to be able to say 'return to where you came'. We were born here, we opened our eyes here ... *we are ayllu here since our grandparents* ... Saying that I confronted him once and for all: I said where are we going to go, where are you going to throw us? Ha, ha ... we won that discussion.

We are ayllu here since our grandparents – I want to translate this phrase as *ayllu* beings taking place, inseparable from it: where are you going to throw us? Removing humans from where they were implied undoing *ayllu* – that conglomerate of humans, animals, and earth-beings that makes place a relational, and thus temporal, event. Evicting *runakuna* and their animals implied remaking place, transforming it from *ayllu* into territory, separating time and space, and subjects from objects as well. All this transformation could be read in the document when *ayllu* was written into it.

But *runakuna* also deployed the language of property. Since 1933, when a Congressional representative had suggested the possibility of 'expropriating the hacienda' to sell the property to the '*colonos*', *runakuna* had for many years persistently pursued the option of buying Lauramarca. In 1945, for example, in a document addressed to the *Inspector Regional de Asuntos Indígenas en el Sur del Perú*, (the Regional Inspector of Indigenous Issues in Southern Peru), *runakuna* asked about the price of the hacienda. They said that they would like to buy it because they understood

that we are obliged to live with our large families and our small herds, and considering how much it would harm us to let go of our ancestral possession of old custom that we have had in the estate in question.

Efforts to buy the land increased in the late 1950s and early 1960s – the period of Mariano’s most intense activity. Buying was his first and foremost goal, he told me. It would mean the end of *runakuna* obligation to work without pay for the landowner and to sell their herds’ wool to the hacienda – access to the market would be free. Becoming owners of the territory they inhabited could indeed be read as a modernising peasant project. With one important caveat: it was not intended to replace being-in-*ayllu* – it did not have to.

Also during Mariano’s period of leadership the alliance between *runakuna* and their leftist advocates became stronger. Their joint project was to buy the land – and this yielded a specific set of documents where the languages of property and class are apparent. Among them is a letter written by the secretary general of the *Federación de Trabajadores del Cuzco*, the Workers Federation of Cuzco, a national emblem of the Peruvian left until recently. Sent in February 1958, the letter tells *runakuna* that their lawyer – who was also a well-known female leftist politician – had two requests. First, she needed three thousand soles ‘to continue working on your issues’, which involved expenses. Second, the lawyer wanted him to convey to *runakuna* that they needed to raise one million soles to be used towards the expropriation of the hacienda. The federation he represented recommended that they follow the lawyer’s suggestions.

If you cannot gather that amount ... expropriation will be difficult, which is the only hope for the peasants to achieve tranquility and their independence from the exploitation ... you need to do any sacrifice to get the amount of money we suggest to use that as a basis from where we can ask the government for help.

On closing he expressed ‘our class solidarity’, ‘*nuestra solidaridad de Clase* [sic]’.

Only three months after the previous letter, Mariano Chillihuani (one of Mariano Turpo’s partners in struggle who could read and write) was in Lima – possibly back there to work with the lawyer, and probably after having paid her what she requested. He wrote in good Spanish (with someone’s help?):

I communicate to you that Dr Coello has made the Senate approve a law to destine seven million soles annually towards the expropriation of lands in the Sierra. Thus the expropriation of the hacienda Lauramarca is going to be possible and the peasants all united will be able to be owners of our land returning the price of the hacienda to the *hacendados*. Everything depends on the unity of all peasants of the hacienda and of the help that the Workers Federation of Cuzco can lend us.

In the same letter he reminded *runakuna* of their responsibilities towards him: being in *ayllu* they had to help his wife with the animals, their decaying house and, since it was May, the potato harvest.

Probably the plans to collect money continued all through that year. On 21 September 1958 Mariano Chillihuani signed another letter, this time from Cuzco, to Mariano Turpo who was in their village. Things were not going well – the Ministry of Agriculture had resolved in favour of the *hacendado* – but they had to persevere with their request for expropriation and their effort to buy the hacienda. The suggestion was to organise the collection of alpaca and sheep wool among *runakuna*. In selling their wool together, the goal was to

obtain higher prices, and we have to record the name of every person and the kind or quality of the product and of course the name of the *ayllu* to which the person belongs so that they always have faith in you and the reassurance that nobody will steal from or lie to them.

He finished by saying, ‘If you come bring money to buy a cheap photographic camera, it would cost 200 soles more or less, so that the doctor [the lawyer] can teach us to take [pictures] and then when there is an abuse we can take the picture and send it to Lima.’

Runakuna wanted to own the property – in those terms. Towards that end they collected wool among themselves and sought to sell it at the highest market prices; they also lobbied senators, and thought about buying a camera to document the *hacendado*’s abuses. But practices were also performed in the mode of *ayllu* integral to relationality: the *hacendado* could not evict them mainly because they were the place the *hacendado* wanted – and had been, from the time of the Incas; Mariano’s *pukara* safeguarded the documents, through which ancestral leadership was present, and all *runakuna* were part of the leaders’ families while they were away in Lima or Cuzco walking the *ayllu* complaint.

Thus, inscribed in the documents was not only a modern notion of property but also, making them possible, *ayllu* practices whereby entities – human and other-than-human, integrally related to each other – took place, the place that therefore was not only territory that *runakuna* could buy, but the place that resulted from their integral relationality. It was not only land that *runakuna* were defending – they were defending their place, which they called ‘*uywaqinichis*’ (our nurturer). *Runakuna* could not abandon the *tierras*, the lands that had been forever in their possession – they were their families’ nurturers.

According to Derrida, archival technologies – such as writing, and specifically legal writing in this case – do not only determine the moment or place of the conservational recording; more importantly they determine the archivable

event itself (Derrida 1998). But the archival technologies that made Mariano's archive (including writing) were also *ayllu* practices. A boundary object, this archive included events organised by legal writing – the usual archivable event – and events that exceeded historical practices. The documents resulted from the relationship between *runakuna* and the state, but did not erase the radical difference between them. Occupying the zone of partial connection between the lettered and the unlettered world, Mariano's archive was obviously a historical event, but it escaped history too. Its complex ontology – an historical object that would not have existed without the ahistorical – defies the epistemic power of history to render worlds homogeneous. Mariano's archive reveals that while *runakuna* shared our history, their lives also exceeded it. This excess was also an event, albeit an ahistorical one. This demands recognition of the eventfulness of the ahistorical; it also situates the historical event, its reality, relative to a specific time and place that we may abstract as Western.

Note

- 1 I travelled to Pacchanta – Mariano's village – to conduct research on the struggle against the landowner that Mariano Turpo had led.

References

- Derrida J (1998) *Archive fever: A Freudian impression*. Chicago: University of Chicago Press
- Guha R (1999) *Elementary aspects of peasant insurgency in colonial India*. Durham, NC: Duke University Press
- Marx K (1978) The eighteenth brumaire of Louis Bonaparte. In R Tucker (Ed.) *The Marx-Engels reader*. New York: Norton Company
- Mbembe A (2002) The power of the archive and its limits. In C Hamilton *Refiguring the archive*. New York: Springer
- Oxa J (2006) Vigencia de la cultura Andina en la escuela. In CM Pinilla (Ed.) *Arguedas y el Perú de hoy*. Lima: Sur Editores
- Star SL & Griesemer J (1989) Institutional ecology, 'translations', and boundary objects: Amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39. *Social Studies of Science* 19(4): 387–420
- Strathern M (2004) *Partial connections*. New York: Altamira Press
- Wagner R (1991) The fractal person: Big men and Great men. In M Strathern & M Godelier (Eds) *Personifications of power in Melanesia*. Cambridge: Cambridge University Press

The day-world *hawkri* and its topologies: On Palikur alternatives to the idea of space

Lesley Green

'A LA ESPADA Y el compas, Mas y mas y mas y mas' was the caption to a frontispiece portrait of Spanish Captain Vargas Machuca in his 1599 volume on his journey to the West Indies: 'With the Sword and the Compass, More and more and more and more'.¹ For Machuca, getting home with the loot from the 'large, riche and bewtifulle empyres'² in the tropics was possible for those with the physical and mental agility to navigate the ocean. With every journey made by Machuca's swashbuckling generation, the scholars in Europe's centres of calculation could be more certain of the routes along which loots and harvests and knowledge could travel to its emerging empires. Successful journeys affirmed new technologies of projecting and calculating vast spaces with the tools of measurement, angle, point, and line.

Critical geographers have written a great deal about cartography in the colonial imagination. Much of that literature focuses on its codes and conventions, on the selection of objects to map, and on the presentation of spaces as uninhabited *terrae incognitae*: unknown lands. Their work has inspired many treasured multiculturalist cartographic projects, in which indigenous lands can be overlaid on maps of territories to include hunting sites, histories, and creatures of an unknown cosmos. But in these works, critiques of the philosophy of space that renders it within particular geometries receives barely a mention. The paradox of multiculturalist cartographies is that they assume there is one nature of space, and, at least in triumphalist accounts of not a few geographical information systems (GIS) projects in faraway places, one way of mapping and measuring objects in it.

More recently, writers have reflected on possibilities of new nonlinear technologies for representing place (Pickles 2004; Turnbull 1993, 2007). Google maps that go down to street view level offer the possibility of integrating experiential views of space: spatial images arranged in the triangular geometries of perspective, rather than the quadrilateral geometries that square the circles of the planet's surface. Using spherical geometries, the familiar rectangular images from a

standard digital camera, shot in a spiral from a particular point, can be assembled in images that stretch the sky into a circle that surrounds one. The confrontation with such images is startling because none of them are ‘untrue’ in the strict sense of the term: they are simply different assemblages – projections of the spaces that encircle us, onto a flat page. To work with them is to encounter the history that delivers to us particular practices of remembering space, and to recognise that our human memory of space is not simply a matter of ‘the nature’ of mind, but derives from practices of putting space together in particular ways. Memory of space is never only visual: practices of spatial memory include memories of the sounds of a place, their smells, the ways people move in them, their seasonalities and weathers, their connectedness to other places, among many other sensory cues. Rene Descartes’s fascination with the geometry of quadrilaterals and the ways in which it could provide a grid for the x - y planes in which the places of objects could be annotated exactly, elides the need for multisensory, relational memories of spaces-in-times. Space, after Descartes, becomes analytical geometry (Descartes 2001/1637). The cosmos becomes matter extended in space and time (Descartes 1911/1628).

Much of this has already been commented upon in the rich counter-narratives on space in the works of several scholars. Tim Ingold problematises the idea that space and journeying can be rendered in points and lines (Ingold 2007). David Turnbull draws attention to multiple ways of mapping (Turnbull 1993, 2007). Henri Lefebvre’s *Rhythmanalysis: Space, Time and Everyday Life* draws attention to the importance of movement in space (Lefebvre 2004). Deleuze and Guattari argue in *A Thousand Plateaus: Capitalism and Schizophrenia* that smooth space (undifferentiated, unlined, ‘nomad’ space) and striated space (segmented, partitioned, ‘sedentary’ space) alternate and produce one another – and are not opposites, but mutually constitutive (Deleuze & Guattari 1987: 474–500). This range of interventions has informed a rich literature on the representation of space.

The recognition that geometries of space are languages and tools of assemblage provokes the realisation that the natures-cultures debate extends to ontologies of space. If the map is not the territory, and Euclidean geometry is not the sum of space itself but a translation of it into a particular conceptual language, then researchers could productively be asking: *What alternative conceptualisations of the space and time of the cosmos are possible? How might anthropological attention to spatiotemporality and its memory enable us to engage the intellectual history that translated space into the grids of Descartes? How might we grasp geometrical thought about space as both politics and philosophy of the cosmos? Might different ways of thinking about space frame a different political ecology?*

*

In prior work on astronomical narratives in the Palikur language along the Rio Urucauá in the Uaçá Indigenous Area in northern Brazil, David Green and I offered the proposal that in these stories,

the tools with which to think [about space] are not the static axes and forms of Archimedean and Platonic solids, but geometries that are applicable to movement. Pathways, flows, tracks, arcs, writhing, swimming, whirling, falling and coursing provide the three-dimensional dynamic conceptual forms that explain this Amerindian night sky. Such forms of dynamic abstraction are very different from the kinds of plane-based Cartesian geometries that are more familiar in Euro-American disciplines. (Green & Green 2010)

The stars and constellations, in that imaginary, are emphatically not mere points of light that move across the empty dark bubble that is the night sky. Rather, they are boats that move in and out of weeks and through a day, in Maurice Sendak's lovely phrase (Sendak 1967): boats that bring seasonal bounties and weathers, and which are mastered by spirit-shaman-animal creatures. The figure of the anaconda, for example, is an interesting choice, given the twisting movement of the Milky Way across the sky in the course of a year and at night, as constellations expand and contract between the horizon and the zenith of the night sky.³ The figure of the Wayam, the land tortoise who reluctantly goes into the water, is well suited to describing the slow movement of the stars near to the south celestial pole and their brief disappearance each year into the watery underworld. The qualities of movement of anacondas, tortoises, and people are elements of the conceptual tools for understanding the strange movements of the night sky. So, constellations and their movements are not remembered separately, as stick figures that traverse the sky; rather, to know the constellation is to know its story, which is at once a shape, a way of moving through the world, its seasonal propensity (in the sense of what it will bring), and its relationality to the world. To know the world in terms of this way of thinking about space is to know its moving, relating, conscious bodies, rather than its forms, points and lines. The woodcarvings of the constellations attest to a way of thinking about them as creatures that make paths through the sky in much the same way as boats make paths through the sea: they are bodies in motion whose journey one can share. And indeed the uneasiness, in the churches in Palikur villages, about traditional wood carvings and drums for *festas*, was that to make a carving of a constellation-being and to sit on it in the course of a *festa* would be to allow its *gihiyakemniki* – consciousness, perspective, knowing – to inhabit you, so that your own consciousness and perspective could be transformed, and you might see the world as that spirit-creature would. The destructiveness of the categories

of ‘knowledge’ and ‘belief’ is here evident: perspectivism is translated into the language of spirit-possession.

Through the course of a decade of research, gradual has been the revelation that in Palikur everyday life and narratives, bodies and bodily movements, there is a way of thinking about space and time that has logic and principles – but this logic is not the local equivalent of the discipline of astronomy. Although the two versions of the world have much in common, they are profoundly different. The ways in which they are different, and the reasons why this may be so, have a great deal to do with a way of thinking about space that does not use the language of abstract Newtonian space, where everything has its coordinates; nor is it a language of information, of facts. It is the language of relationship (Latour 2010), and a way of thinking about the world that privileges understanding of the transformations that occur when creatures, things, spirits, people, stars, mountains encounter one another outside the framework of matter set in space and time. Slowly, I have come to the realisation that the language of relationship and transformation, here, is the language of bodies. Eduardo Viveiros de Castro describes a similar insight as the beginnings of his own intellectual journey in the Xingu National Park in Brazil:

Quando eu cheguei no Xingu, estava com os dois pés plantados em nossa comum tradição de pensamento ... que ensinava que o corpo era / é uma coisa insignificante ... No Xingu, ao contrário, a maioria das coisas que consideramos como mentais, abstratas, achavam-se escritas concretamente no corpo. When I arrived in the Xingu, it was with both feet planted in our tradition of thought ... that teaches that the body was or is an insignificant thing ... In the Xingu, by contrast, the majority of things we consider mental abstractions, they find written concretely in the body. (Quoted in Sztutman 2008: 29; my translation)

What might bodily thought rather than axial thought mean for the ways in which we think about space and time in the ecologies of knowing, that are so tricky to dock in the harbours of the formal natural sciences? How might we begin to translate ideas of space and time in ways that do not present them as empty boxes in which things occur in places that can be mapped on axial grids?

Let us begin with language. It is significant that the Palikur word *hawkri* means both ‘day’ and ‘world’. To pass an assessment of someone’s character, you say they know or *hiyak* this day-world, *hawkri*; the phrase knots together *day* and *world* and being *wise*, *aware*, and *savvy*, a rough equivalent of ‘street-smart’ in an urban jungle. The word I render here as ‘know’ – *hiyak* – too could be translated in ways that expand (and therefore disconcert) the idea of what it is to know. The word *gihiyakemniki*, for example, does not mean ‘his knowledge’ but ‘his thoughts,

awareness, apprehension, consciousness'. If the task of the anthropologist-translator is, as Viveiros de Castro insists it is, to challenge the conceptual tools of her own language, then this chapter must answer a question: What is it in *hawkri* that is untranslatable? How might we grasp what for us is extra-disciplinary, in that day-world-wisdom-ethics? What conceptual commitments in the language of space and time, space-time, spatiotemporality need to be overcome, transgressed, or disconcerted in order to convey the ecology of knowing that is dominant in Arukwa (as the area along the Rio Urucauá is named in Palikur)?

*

Without going the route of linguistic determinism – that language limits thought – this chapter proposes to explore the linguistic practices of describing space that are present in the Palikur language. Having done so, it then grapples with the problem of the translation of Palikur spatial thought into the conceptual languages of space in the tongues of western Europe, where the definitive texts on the philosophy of geometry are those of Descartes, Kant and Newton who render space in the terms of analytical geometry, and whose ideas are latterly more challenged by the philosophers Husserl, Derrida, and Serres.

Let us begin with the linguistics of space in the Palikur language.

Throughout my fieldwork I battled with the impossibly complicated Palikur language in which spatial referents are ubiquitous, along with number (singular or plural) and gender (masculine, feminine, neuter). Diana Green had published a number of papers describing the integration, in the Palikur language, of spatial relations and shape classifications with numbers. Her account of concepts of space in the language had been both cited and republished by ethnomathematicians (Aikhenvald 2000: 535; Aikhenvald & Green 1998; Green 1994, 2001, 2002/1994: 119–165, 1997).⁴ Surely, I reasoned, there had to be a connection between the linguistics of space and the ways of thinking about space and environments that I was beginning to comprehend and would spend several more years trying to understand. A long conversation began with her. She offered many examples of locative shape markers that did not fit the categories she had earlier proposed, which referenced Euclidean forms and Newtonian space. In the first draft of an unpublished paper she offers a narrative account of her own disconcertments with the assumption that a universal conception of space provided what was needed to translate form and dimensionality:

Reference to dimensions and geometric form is pervasive in the [Palikur] language. Physical features are an intrinsic part of the verbs, adjectives, adverbs, locatives, interrogatives, and numerals (Aikhenvald & Green 1998).

For instance, there are over forty locative adpositions for the English locative prepositions ‘on’ or ‘in’. The one you use depends on the geometric form of what the object is resting on. If you want to say ‘on’ a **flat** object like a book, you would say *amadga*, but ‘on’ a **round** object like a rock is *avit*, and ‘on’ a cylindrical object like a finger is *amin* (Aikhenvald & Green 1998). For example, ‘on Earth’ is *a-madga wayk* (it-on earth).

In addition, when **inanimate** units are being counted, the classifier on the numeral indicates the objects’ geometric forms. There are seven numeral classifiers that distinguish eleven specific physical forms.

For example, the numeral ‘one’ in Palikur is *paha*. An added shape classifier is obligatory. When I heard Palikur speakers say, *pahaw uwas* ‘one orange’, *pahaa antiyan* ‘one egg’, *pahat ah* ‘one stick’, *pahak parak* ‘one board’, *pahamku umuh* ‘one canoe’, *pahatra warik* ‘one river’, and *pahaiku tiket* ‘one fire’, I quickly categorized them as describing shapes I recognized: round, oval, cylindrical, flat, concave, linear ...

But when I came to [the word] *pahaiku*, I was stumped. This term was used to count such varied items as a carved ring, a waterfall, a room, a fence, an ocean wave, a fire, a tunnel, a hole, or a wound. I had no easy category in which to fit these things. There was also a problem with my ‘concave’ label for the numeral *pahamku*, because some types of benches were included in that category. Even stranger, the same term was also used to count a machete, a knife, a saw, a metal ring, a coin, a needle, a ship, or a gun. Why would these objects fit into a category of concave objects?

I also wondered why *-t* is the numeral classifier for both cylindrical objects and intangible items. The term *pahat* is used to count not only arrows and bananas, but also words and dances and ideas. What possible connection could a cylindrical shape have with abstract nouns? In the small set of only ten numeral classifiers of units, it had to be more than a simple homophone – but what? (Green 2010; bold and italicised text in original.)

In her work that followed, the key was to rethink the ways in which geometrical forms were being translated – and instead of looking for equivalents of Euclidean geometries with their interest in angles, it was more helpful to think about topological geometries, with their interest in surfaces. In a revision of the paper in 2011, she writes:

In the Palikur language, the shape markers are based on three types of specific topological properties that determine the class to which an inanimate object belongs. The first type has to do with the concept of boundary or contour; the second type is a topological dimension that the Palikur call 'depth'; and the third property is that of closed or open space ... the seven inanimate noun classifiers on Palikur numbers clearly demonstrate this topological understanding ... The concept of boundary has to do with the curvature, the circumference, the perimeter, or the periphery of any figure or object, whether that object is flat, spherical, or a mere extension, such as fire. It denotes the whole of that boundary, not the measurements of it ... The Palikur language classifies inanimate nouns according to whether their boundary is considered to be *non-existent* (such as a stream) or *partial* (such as a hole) or *complete* (such as an orange.) Objects with a complete boundary are differentiated as to whether that boundary is *salient* (such as a box with its high sides) or *not salient* (such as a flat piece of paper whose edge is irrelevant.) Those with salient boundaries are distinguished as being either *symmetrical* (such as a round turtle egg) or *asymmetrical* (such as an oval chicken egg.) ... In the Palikur language the seven numeral classifiers for inanimate units are mainly based on three primary geometrical forms. These forms are described by the Palikur as being *tara-* 'extended', *saba-* 'flat' and *huwi-* 'round'. One could almost classify these terms, respectively, as one-dimensional, two-dimensional, and three-dimensional. *Tara-* 'extended' could easily convey the one dimension of length. *Saba-* 'flat' conveys two dimensions of length and width. *Huwi-* 'round' describes three-dimensional spheres that have noticeable length, width, and depth; however, it also describes objects like a watch, a coin, or a painted design where depth is not a factor ... the ... basis of these three primary geometrical forms is not dimension but the prominence of their boundaries ...

Topological features are a fundamental feature of ways of thinking about shape and space in the Palikur language ... As a linguist, I shudder to think of how quickly I learned the Palikur dimensional terms for length (*ayabwi*), width (*ahogbi*), and depth (*amihni*), but I never thought to explore the possibility that there would be a term for a geometric boundary. Only after all these years, is *ahuwiptiswan* ('curvature/closed boundary') now in the Palikur dictionary, along with *aminpig* ('high sides/open boundary'). (Green 2011)

The assumption that Euclidean geometry is the point of reference is so natural in western languages such as English that it is built into our very concept of translation, as a search for equivalents – the equal-angled.⁵ The goal of the argument here is not to claim that Palikur thinking about spatial forms now constitutes an *equivalent* of non-Euclidean geometries such as topologies or Riemannian sphericals or rheotomics or hyperbolics or fractal geometries or Gaussian curves. ‘Slow down,’ is Isabelle Stengers’s caution: we need to bumble along a little more before asserting equivalences (Stengers 2011b). A first step is to state a new approach in terms of the negative of what is familiar: the material suggests a way of thinking about space in which the world is not comprised of the static geometrical solids of Plato and Archimedes that can be understood via Euclidean angular geometries in Newtonian abstract space, representable in Cartesian grids. Doing so, however, leaves the question: in what respects are the notions of space that *are* at work here translatable into the discipline of geometry?

The minor geometries of Western mathematics affirm that the ideas variously consolidated by Euclid, Descartes and Newton do not allow for the calculation of all the qualities of space, and that there are alternative ways of conceptualising movement, curves and surfaces. As one grapples with the contending philosophies of geometry, one confronts the multiple natures of space in science and in physics itself, and the ways in which scholarly networks (Euclid, Descartes, Newton, for example) serve to establish a *shared representation of space* as ‘the nature of space’ itself. That spatial cosmos, in other words, is particular and not universal. It derives from an ecology of disciplines, and it constitutes (sets up) a political cosmos (Latour 2004; Stengers 2005, 2011a) that makes territory legible from afar (Harley 1989; Pickles 2004; Scott 1998; Turnbull 1993, 2007; Whitehead 1998: 301–326).

This chapter proposes that an understanding of the particular ecologies of knowledge in Arukwa begins with the ‘re-cognition’ that the philosophy of space here is not reducible to a structure of abstract planes. Rather, its forms are surfaces, skins, bodies, boundary, temporalities, presence, and intensivities as well as extent. Just as Euclidean geometry cannot provide the range of equivalents required to translate Palikur linguistic shape forms, so too the very idea of ‘space’ needs to come into question.

This is a very different approach to ‘cultural geometry’ than that which pervades the cultural geometries literature, which offers ethnologies of symbolic geometries as properties of cultural mind or thought or as visual iterations of ethnomathematics, metrics and calculation. As rich and important as this line of work is for fields such as re-imagining the possibilities for mathematics education, it tends to be quiet on the philosophies of space and geometry that undergird its translations. The translatory apparatus of Euclidean geometries tends to form an

unproblematic point of reference that asserts a singular ‘nature’ of space. Many of these works move from geometry to cosmology to numbers and patterns, and they reveal a great deal about the ways in which notions of beauty, truth, and the sacred are linked to shape in different knowledge traditions. But how might the picture change if we allow for the possibility that they offer different propositions about place and the experience of it? The assumption that space is only describable in terms of the three dimensions of breadth, height and depth is so automatic that we conflate the *x-y-z* box with reality, as we might conflate the map with the territory. If instead we problematise the link between the nature/truth/reality of space and the way of thinking about space that gives us *x-y-z* dimensions, and forms in these dimensions that are definable in theorems of circle, square and triangle, we might come up with a very different philosophy of space.

One route into this argument is via cognitive linguistics. The recently published volume *Grammars of Space: Explorations in Cognitive Diversity* explores the languages of space in a dozen tongues, with the goal of understanding the ways in which language structures the human spatial domain (Levinson & Wilkins 2006). Starting with the observation that every mobile creature that operates from a home space needs the ability to think about space, editors Levinson and Wilkins note that while language is obviously not the condition for animal (or human) spatial understanding, the ways in which languages treat spatiality differently give insights into how people archive information in relation to space. Their central questions are: *What reference systems do people use in order to understand space, and remember where things are in it? How have people internalised fixed directions so that in unfamiliar terrain they still know where a named direction lies?*

Their categorisation of possible kinds of spatial referents begins with the pair *kinesis* | *stasis* (i.e. movement versus static space), and they split the category ‘stasis’ into *angular space* and *topological space* (which attends to surfaces). Angular space, they propose, is governed by frames of reference, including fixed arcs (e.g. sun, zenith, nadir); embodied or somatic directionality such as front/back /left/right; and topographic and astronomical cues, such as a solar compass, star movements, wind directions, river drainage, and mountain slopes. Based on Levinson’s earlier work (Levinson 2003), they propose that human languages offer three possible kinds of coordinate systems: *bodily coordinates* (e.g. to the left of the tree), *intrinsic coordinates* (e.g. in front of *x*), and *fixed (absolute) bearings* (e.g. north or south); and that people use these separately or in combination. Framed with this typology of kinds of space, their project unfolds. In *Grammars of Space*, 12 linguists present research on how specific languages code topological relations, frames of reference, and descriptions of motion. The study finds an extraordinary diversity of possible kinds of spatial cognition (Levinson & Wilkins 2006: 550), leading the investigators to conclude that

while there are some patterns, there is no universal structure for spatial cognition (Levinson & Wilkins 2006: 55).

Their work on topological descriptors (or ways of describing spatial relationships between things) is based on a series of line drawings showing different relationships between things in order to find equivalent descriptive terms for spatial relationships (Levinson & Wilkins 2006: 570–575). The cup is *on* the table; the picture is *in* the bowl, the ball is *under* the chair, the fence is *around* the house, and so on. These locatives, or locational parts of speech in language, occur within different grammatical constructions in languages. This grammar of space is what they call the basic locative construction, or BLC (Levinson & Wilkins 2006: 15). The study searches for functional equivalents between languages. The Palikur material, however, points to three shortcomings in that kind of approach.

First, *the search for equivalents obscures the possibilities for radically different conceptualisations of space*. An example: in the Palikur language, the terms ‘left’ and ‘right’ can switch depending on the perspective of the object – and not only the subject. Thinking of how the tree relates to the world is a statement about the cosmos. The project’s search for functional equivalents of the ‘BLC’ would seem to assume that only subjects have views.

Second, in the Palikur language, relations in space are primarily about *surfaces in relation*, because it is the boundaries of surfaces, not only the edges and angularities that can be shown in lines, that are salient. The range of 71 possible topological relations identified by Levinson and his team, drawn in line drawings as a means of eliciting spatial terms in order to understand spatial cognition, has already assumed that forms are defined by their edges, rather than their surfaces. The shortcoming of this approach can be told in a story. Harold and Diana Green tell of a mission that predated their own, and that recounted in Palikur the parable of the lost sheep. Since no one in Arukwa had ever seen a sheep, the evangelist made use of a picture of a sheep to find an appropriate word. It was only years later that the Greens learned that the tale had been told with the word one gives to a picture of a sheep, which is a flat sheep, drawn on a piece of paper. Perhaps the Amerindian view was that the deity who came to save the Moderns’ one flat sheep was truly well sent.⁶ But perhaps also this was not simply a matter of linguistic mistranslation, but an ontological mistranslation that has to do with the difference between representational ontologies (of the Moderns ...) and relational ontologies, where forms and bodies are not just figures in abstract space but creatures and things whose surfaces interact to produce space itself.

Third, Levinson and Wilkins’ reliance on a diagram that splits static from kinetic space, and splits static space alone into angular and topological space, makes impossible the conceptualisation of moving topologies – for topologies have already been defined as static. In this conceptualisation, flows like that of water or flame are

very difficult to conceptualise. Representations of matter set in space and time form the defining frame.

Without detracting from the immense value of the project led by Levinson and Wilkins, which makes a case for multiple ways of thinking about space, it is important to recognise that its research methodology on topological relations is limited by the assumption that lines drawn to represent edges can stand in for the things in themselves, rather than thinking about the ways in which drawn things might constitute altogether different objects. Where the project's theory of spatial representations is not shared by research respondents, its findings must be read with caution.

The effort to move from representational ontologies to relational ontologies is a central interest in the work of Tim Ingold, whose extensive fieldwork in the Arctic has him grappling with human experience of the environment, time, and space (Ingold 2010). In *The Perception of the Environment: Essays in Livelihood, Dwelling and Skill* he explored the notion of wayfaring as a way of worldmaking (Ingold 2000). That project led to a fascination with the ways in which wandering routes – movements along the way of life – make the world; and that work in turn led to his extended reflection on the life of lines within modern technologies of recording information, in *Lines: A Brief History* (Ingold 2007). Some time after the publication of that work, however, Ingold reflected on it a little differently:

What if the living being is the line of its own movement? Then it cannot be imagined as a bounded totality, surrounded by its environment. We have to rather think of it as a line of growth of concrescence – or, more realistically, as a bundle of such lines – and of the environment as a zone in which these lines become comprehensively entangled with one another. Ecology, I suggested, would then be 'the study of the life of lines' ... Now I am not so sure. Can such lines really be objects of study? Literally, an object is a thing that has been thrown before the mind, in a form that can be apprehended. Life, however, is in the throwing and in the apprehension. It is the becomings of things perceived and of ourselves as perceivers. Perhaps, then, as an inquiry into the conditions and potentials of life, anthropology is not so much a study of lines as *in* them. (Ingold 2010: 300–301)

Making the world through movement, and researching the ways in which anthropological research and writing and drawing make the world through movement, Ingold here moves towards researching lines of movement rather than the lines of representation that they become when they turn into information or data. In *Lines: A Brief History*, his target is the ways in which the conceptual tools of modern scholarship have gradually removed the body and its movements from

its representations. Architectural drawing, cartographies, music notation, and other representational forms are a project in which, in the name of objectivity, the movements of the body have been erased.

Ingold's is a rich project, yielding many possibilities for critique of the modern preoccupation with the line, and with the point. Yet the very concept of a 'line' – in the sense of a sketched line – assumes that objects in space are related to one another via edges that can be drawn, rather than via surfaces. In this way of rendering the world, lines demarcate insides and outsides. The Palikur material suggests that representing the world via lines – extensive space – is part of a way of thinking about space that is not readily familiar; not a first choice; not a 'mother-tongue' in worldmaking. In the blackwater landscape that is Arukwa, for example, the surface of the water offers an intensive space in which sky, earth and underworld appear together. Dutch graphic artist MC Escher's graphic of the water in a pond, titled 'Three worlds', offers an apt illustration. In that image, a fish swims under the surface of the water on which leaves float and in which a tree and the sky are reflected. The three levels of upper world, surface world and underworld, are joined. Escher's drawing resists – deliberately – a conventional geometry of perspective, with a fixed horizon, and conventional notions of space. It plays with self-in-world, with plane, and with the illusions of space that lines make possible. In his refusal of conventional perspective, Escher reflects the possibility of thinking about space without edges, without levels. His work offers a route into the 'intensivity' of space that is in the Palikur *hawkri*, in which reflections or representations of space do not need to conform to the three-dimensional, and in which the primacy of the perspective of the human subject is decentred. Escher's world of drawing resists the geometric conventions with which we are familiar, and makes it possible to visualise the ways in which minor geometries and critical arts find startling convergences with Amerindian intensive space. It is this critique that is missing in Ingold's thinking about lines: the possibility that the very idea of lines themselves comes from a theory of space in which edges and borders and dimensional planes are given.

Edges and planes and borders are not strongly present in the Palikur narratives that David Green and I recorded in Arukwa (Green & Green 2009). Consider the story of the Masitwok, in which the hero travels down a hole into the underworld, then out into the upper world of the Milky Way, then back to this world. The spatial conception at work here is one of spatial flows: a type of geometry in which inside and outside are not clearly defined, and there are no staircases to top and bottom floors, only pathways to upper and underworlds. In the story of the shaman Kalumayra, his followers dance along a path for days until they slip into the underworld. The space of the cosmos is not a series of stacked-up levels in Euclidean space, but a world of pathways and flows and actions along them that themselves transform routes and surfaces. Such an attention to effects is less

'a way of knowing the world' and more a 'knowing the worldmakings'. (Note the extent to which English grammar finds this tortuous!) To extend the idea: 'knowing the bodymakings' is everyday practice in Arukwa in raising children, in which constant massage makes (some authors use the word 'fabricates') children's bodies through touch. The crafting of children's bodies, as if they are being made or sculpted with each stroke, builds on the idea that surfaces are transformed through interaction. In much the same way as Escher's work offers surprising convergences between worldmakings on the margins of Amsterdam and in Arukwa, the craft of bodymaking has surprising convergences with practices of counter-modern infant care in neonatal units, where 'kangaroo care' emphasises the importance of contact, and touch. The point is a minor one, but important nonetheless: that positions such as Modern and Non-Modern, Self and Other are quite meaningless. It is possible to escape the chessboard of dualities, and accept neither the veneration of asymmetry that is offered by the Indigenous Knowledge Movement, nor the work towards a pure symmetry in the hope of matching knowledges as if they were perfect equivalents. Emerging here is an approach that, akin to the graphics of MC Escher, is neither symmetrical nor asymmetrical: it is an anthropology of tessellations – forms that move in and out of lines and times and through their frames.

With compass and sword, the Machucas of European history initiated the process of disembodying Amerindian spaces. The production of geometry as the archive of an historical story enacts a geometry of space that is not given in nature, but historically produced. It minimises the space of the intersubjective and the relational, replacing these with objects and forms in gridded space.

Can there be an ecology that does not assert Euclidean space in order to locate its objects? Could environments be imagined without compass and ruler? Is it possible to write an Amerindian perspectivist ecology that enacts a different kind of environmentality? Can space be read in ways that enact different historical subjectivities?

Perhaps the impossible thoughts here are easier to think in relation to different forms of music: in much the same way as minor geometries break up space in different ways to those in dominant geometries, different kinds of music break up time in ways that mean very different things to people who hear them. Cameroonian drummer Brice Wassey, the king of 6/8 rhythm, and Johann Sebastian Bach create radically different geometries of time: the former gives voice to a fractal geometry of point and counterpoint; the latter's baroque cadences reflect the measured austerity of circles and spheres that one sees in Europe's baroque cathedrals. Both inspire very different forms of dance. Perhaps 'writing about music is like dancing about architecture'.⁷ Any musician can speak of the intimacy that comes with making music together, or the ways in which a really good party can remake the world, in the same way that the recordings of really good rock concerts

and the roars of the audience mark the emergence of new rhythms as they do new subjectivities: the authorisation of different kinds of emotions and ways of singing the self in the political cosmos in which we live. Can we begin to think of a way of doing geometry that restores it as a way of worldmaking, and marginalises its analytic qualities?

David Guss comes close. *To Weave and Sing: Art, Symbol and Narrative in the South American Rain Forest* is an account of the relationship of basketry, architecture, geometry, cosmos and what it means to be a person (Guss 1989). For Guss, the ethos and philosophy of the Yekuana cosmos were evident in architecture and in basketry: in the visual metaphors that organise the cosmos. The mathematics of building and basketry is profoundly symbolic, and part of an art of living that he describes in the language of encounter, presence and consciousness, to express the ways in which the weaver weaves baskets that reflect the spatiotemporal order. Movement, colour and design are also intimately linked in Gerardo Reichel-Dolmatoff's account of Tukano shamans' thought (Reichel-Dolmatoff 1997).

In several ways, these accounts find unexpected resonance in Europe's critiques of its own dominant traditions, for example in Husserl's effort to retrieve the relationship between geometry, sense and subject (Derrida 1989; Husserl 1970/1954; Rawes 2008). As part of his efforts to understand the crisis in the European sciences, Husserl sought to find 'a dynamic and living form of reason that releases geometry from its value as an objective, disembodied form of knowledge in modern science' (Rawes 2008: 157) of the kind that serves as a source of 'irrefutable reason' (Rawes 2008: 154). 'For Husserl,' writes Rawes, 'reason is inherently connected to hidden notions of existence or life which dominant rational scientific procedures conceal through their production of disembodied knowledge and methods' (Rawes 2008: 157). Geometric thinking, for Husserl, is both a historically specific scientific method and an intuitive activity (Rawes 2008: 159). His interest in the intuited world of geometry begins with the ways in which Galileo generates a divorce between the embodied subjective intuitive reasoning of space, and the abstract calculus made possible by rendering geometry as a set of technical procedures (Rawes 2008: 163). He searches, in other words, for ways to relink our active corporeal experience of space and time and sense, to create a living and vital geometry: a geometry that is part of worldmaking, and worldsensing (Hilbert & Cohn-Vossen 1952). Why? In order to recover the purpose of knowing, through engaging actively with the materiality of form; to problem-solve, but not in relation to a representative calculus that might have very little to do with the problems at hand.

Read in relation to the problem of understanding a different ecology of knowledge, Husserl's work enables us to see that the mathematics of space, form and spatial relationship is not the only ways of thinking about space, or even space

and time. Rather, his work enables us to comprehend that these apparently universal concepts of space are not ‘the nature of space’ but derive from metaphysical and ontological philosophies that privilege one way of memorising space. For the would-be symmetrical anthropologist (or the tessellatory anthropologist!) who is attempting to articulate a decolonial knowledge project in ways that can speak within the halls of scholarship, Husserl’s reflections are profoundly valuable. Geometry, for Husserl, is both subjectivity and worldmaking.

*

Cultural geometry, then, might be not only pattern, nor only cosmological symbols, nor even a different philosophy of space, but a different worldmaking in which the very ideas of space, time, philosophy and knowledge are different. Indeed, the phrase ‘origin of geometry’ appears three times in the titles of works of major philosophers in the past 100 years. There is Edmund Husserl’s essay titled ‘Origin of Geometry’ in the appendix to *The crisis of European sciences and transcendental phenomenology* (1970/1954). Then there is Jacques Derrida’s earliest published work, titled *Edmund Husserl’s Origin of Geometry: An Introduction* (Derrida 1989). And *The Origins of Geometry* is the title of a major work by Michel Serres which, he declares in his introduction, is the product of 34 years’ work from 1958 to 1992, and which informs much of his later thinking (Serres 1996/1993, 2000/1977; Serres & Latour B 1995). For Serres, ‘the rule of the canon is equilibrium or rest, stability. Hence Euclidean space, the space of the mason and the geometry of statics’ (Serres 2000/1977: 46). Serres’s book *The Birth of Physics* (2000/1977) is a passionate appeal for a science that calls for attention to be paid to flow and movement, turbulence and chaos, rather than to stasis and law. For Serres, homeostasis is the exception; the norm is homeorrhesis. The world is in constant flux. Working with flow and change, Serres suggests, is the basis of a revised contract with nature.

The aim of thinking with these writings is not to arrive at a translation of Amerindian thought into that of Serres, Derrida or Husserl, but to draw on these ‘notes on the margins of the canon’ to confront the intellectual heritage that brings us the idea that the world is made of matter set in space and time. Even in Europe, even in physics, even in geometry, there is not only one ‘nature’ of space and time. In the emphasis in the Palikur stories on bodies and actions and movement and flow in and through the world, there are no uncomplicated equivalents of ‘space and time’.

If ‘space and time’ are not universals, then in terms of what concepts and imaginaries is the world made in Arukwa? In crafting an answer to that problem, I want to return to the idea of the *hawkri*, with the goal of exploring the conceptual work that the word ‘*hawkri*’ accomplishes, in order to be able to imagine the

possibilities for a different kind of thinking about the very idea of ‘environment’ and ‘world’.

What, then, is a *hawkri*? The word can refer to both ‘day’ and ‘world’. Yet nested within the *hawkri* are multiple temporalities, rather than one.

The *hawkri* contains within it the idea of an earlier *era*: ‘*Igkis avim ini hawkri ka aynsima hiyeg ayge* – During that time, they were many people there.’ It can also refer to the present: ‘*Wake igkis madikwiyebe wixwiy yuma amadga hawkri*. If they had been exterminated, we would not be here on this [earth] day.’ The word can also refer to a *season*: ‘*Ig awna: Wagehe im. Hawkri kuwis wagahkis*. He said, ‘The fish are climbing. The season has started.’

Hawkri also refers to particular periods, such as a *day*: ‘*Abusku hawkri ig waykwad. Ig arewke*. Half a day he rains. He clears up’; a *morning*: ‘*Kuri ariwntak ini igkis ahawkrimineva*. Then, at that time, they woke up the next morning’ or a *year*: ‘*Aa! Kibite. Ka aynsima hawkri akiw*. Oh! Many! Many years later.’

The uses of the word ‘*hawkri*’ as ‘world’ are also varied. When Kiyavwiye Uwet exclaims that ‘*Ka ayhsima estuwa amadga hawkri* – There are so many stories on this world’ he uses the locative ‘on’ that indicates they are on a flattened surface: *amadga*.

Beyond the *hawkri* lie the ‘*en*’ or sky worlds: Maywak, Inurik, and Inukri. The joining seam of the *hawkri* is the *hawkri avatakni*, where there is a river [Milky Way] called the ‘*hawkri awakun*’. That world river is ‘the world’s edge’ or border or limits or channel. Paradoxically, then, knowing the *hawkri* is both to know the invisible and to have an idea of what it looks like through visual imagery of the kinds of movement that are in it (Wilbert 1985). Much as stars are creatures of the *hawkri*, hills and mountains and rivers are also partners and participants in the movements that make up the *hawkri*. Landforms are characterised by a capacity for relationships with one another and with people, and some are part of routes in and out of the underworld and the sky.

So far, so good: *hawkri* approximately resembles spatiotemporality, and one could even draw it. But, as in any good cricket match, the art is in the curve ball. The word *hawkri* is also used to refer to grandfathers, grandparents, first fathers, and master spirits. In an interview at Uraka, Kiyavwiye Floriano says ‘*Gahawkrikis pahavwiwa*– Their grandparents were one [the same].’

Master spirits take on the same appellation as a creature’s *gahawkri*. The *gahawkris* or master spirits are strong presences in Arukwa, many of which have specific places as their homes. The *gahawkris* are themselves changing: Kiyavwiye João asserted that ‘if there was no *Gahawkri* there would be no fish ... [but] Today we don’t call it the *Gahawkri* [that brings game and fish], we call it *Uhokri*. It’s God who takes care of everything.’⁸

In other words, there is something about knowing the world that involves grasping (conceptualising) its antecedents, be they grandparents or master spirits.

The world, then, comes to us through those who have gone before. Perhaps instead of ‘the day/world’ one could translate *hawkri* as ‘worldmakings’, ‘world-season-origination’ or ‘worldmakery’.

The phrase ‘knowing the *hawkri*’ – *hiyak hawkri* – serves as an evaluation of a person or creature’s ethical character; it could mean to have been well raised, and to know what is socially appropriate. *Hiyak hawkri* sets out an understanding of the purpose of knowledge, the ways in which the goals for knowing shape the ways in which we come to know. To *hiyak hawkri* is to understand the ecology of actors in the world, including animals and landforms. A journeying storyteller’s capacity to *hiyak hawkri* reflects his or her ability to understand the multiple temporalities of generations and creatures and polities in a place, with their multiple presences, and to respond to them. What is established is that we are not dealing with space, nor with space-time, but with attentiveness to the presences in a moment and a place. In *hiyak hawkri*, one attends to the world in motion, through one’s own motion – attending to your own presence, trail, propensity as you go. Your relationship with place is transformative, rather than informational: you are attending to minutiae of transformations that are everywhere about you, and at the same time aware of your own pathmaking, and the possible responses to your presence. In short, you are attending to the multiple perspectives in a place, and thinking through how actions and possibilities will be received, as you go. In this sense, *ka hiyak hawkri* refers to an outsider: like the *kurumsuk* giants – possibly conquistadors – who did not know how to overcome the wateriness of the *pantanal* and its water creatures such as alligators and anacondas. ‘*Ka hiyak hawkri*’ here is ‘inexperienced; without practical know-how’, or to not know how social things function. And since the *hawkri* is a cosmological and relational context, ignorance – *ka hiyak hawkri* – is also cosmological, relational, contextual.

Time, in this view, is not purely about history – time past, actions on a map – but also about time future: what responses one is about to occasion. To attend to the world as *hawkri* offers a different ethics of worldmakery – one that attends to one’s own presence and trail, and the propensities immanent in the places one travels through. To *hiyak hawkri* is thus to understand the dynamisms, interactions, potential and propensity of a situation. Time future is not so much a ‘tomorrow’ as a set of actions that are likely to flow from today’s actions. Efficacy, in such a situation, is ‘response-ability’, the potential for which comes to so many people in the hundreds of stories recorded as part of this project in a key evaluative moment, as they sit and ‘*hiyapni hene*’ – reflect upon a situation, and respond. Perhaps it is in this sense that the master spirit of a season or constellation offers *gihiyakemniki* – which could variously be translated as thoughts, consciousness, perception and perspective. And it would seem that for this reason the practice of storytrack telling, or telling stories of the landscape as you traverse it (Green & Green 2009), is so

important, as one encounters the perspectives immanent in a place through the presence of the *gahawkris* of stars and creatures. Perhaps one could draw an analogy: that the journey of the pupil healer through the rain stars is like the coursework of an MBA graduate who learns the ecology and attitudes of capital in various encounters with ‘the three goddess sisters of reason in the knowledge economy’: technical efficiency, economic profitability, and scientific objectivity.⁹

Undoing the intellectual heritage that renders *hawkris* ‘primitive’, ‘mythical’ or ‘cosmological’ begins, I want to argue, with rethinking the conceptual apparatus of space and time. Recognising that the extensive and quantifiable spaces and times bequeathed by Euclid, Descartes, Newton and Kant are not universal, offers the beginnings of the possibility of generative dialogue between scholarship and the intellectual heritages of everyday life on the margins.

Notes

- 1 That conquest would have been one of the forces that pushed the Caribs out of the West Indies at that time, contributing to the Carib expansion and their wars with the Palikur, among others. See Whitehead (1990); see also Frake (1985).
- 2 The phrase comes from the title of Sir Walter Raleigh’s account of his voyage to the Guianas of South America. See Whitehead (1997).
- 3 Much as the moon appears large on rising or setting but small in the middle of the sky, the constellations too appear magnified near the horizon, and contracted when overhead.
- 4 Diana M Green has been a wonderful dialogue partner in linking these explorations with the linguistics of space in the Palikur language. I gratefully acknowledge her decades of thinking about the linguistics of Palikur numbers, without which this conversation would not have begun.
- 5 The sense in which formal geometry defines the concept of scientific irrefutability is attested to in the rhetoric of reason itself. Consider the uses of the following words in both spheres: absurd; acute; apex; asymmetrical; bordering; central to; circular logic; commensurable; conforming to; conjunction; connection; construction; crux; crucial; deduction; demonstrate; describe; diametrical; dimension; efficient; equal, all things being equal; equivalent; even; exact / exactitude; figure; form, formal; frame; measure of; mimesis; obtuse; occlude; odd; parallel; pivotal; point; postulate; power; proof; proportion; reduction / reducible / irreducible; relation; reversal; rigorous; rule; same; schema, schematic; similar; solid; squares with; spheres; symmetrical; tangent / tangential; theorem / theory; triangulate.
- 6 I use the term ‘Moderns’ here in the sense that Latour uses it, in which (1) moderns have never been modern, and (2) the cult of modernity sets up its knowledge in such a way that it can believe that it is modern. A summary of these arguments is given in Latour (2007).
- 7 This well-known quotation is of uncertain provenance. See for example the debate about possible sources on the website <http://quoteinvestigator.com/tag/martin-mull/> (accessed November 2012).

- 8 *Uhokri* is a proper noun (translated as ‘God’ or ‘Creator’). Written with lower case ‘g’, *gahawkri* is a common noun referring to the master spirit of a particular kind of creature / species, unless it specifically refers to the *Gahawkri Yit/Datka*/etc. (the latter being animal names – the *Gahawkri* of each would be the name of each as in the Master of the Deer, Master of the Anacondas etc.).
- 9 The phrase ‘the three goddess sisters of reason in the knowledge economy’ is Bruno Latour’s (see Latour 2007).

References

- Aikhenvald AY (2000) *Classifiers: A typology of noun classification devices*. New York: Oxford University Press
- Aikhenvald AY & Green D (1998) Palikur and the typology of classifiers. *Anthropological Linguistics* 40(3): 429–480
- Deleuze G & Guattari F (1987) The smooth and the striated. In G Deleuze & F Guattari *A thousand plateaus: Capitalism and schizophrenia*. Minneapolis: University of Minnesota Press
- Derrida J (1989) *Edmund Husserl’s Origin of Geometry: An introduction* (trans. JP Leavey). Lincoln, NB: Nebraska University Press
- Descartes R (1911/1628) Principle X: What space or internal place is. Part II: Of the principles of material things in Principles of Philosophy. In R Descartes *The philosophical works of Descartes* (Vol. 1) (trans. E Haldane & GRT Ross). Cambridge: Cambridge University Press
- Descartes R (2001/1637) *Discourse on method, optics, geometry and meteorology* (revised edition) (trans. PJ Olscamp). Cambridge: Hackett Publishing Company
- Frake CO (1985) Cognitive maps of time and tide among medieval seafarers. *Man* 20: 254–270
- Green D (1994) O sistema numérico da língua Palikúr [The Palikúr number system]. *Boletim do Museu Paraense Emílio Goeldi-CNPq. Série Antropologia* 10(2): 261–303. Accessed April 2010, <http://www.sil.org/americas/brasil/publcns/ling/PortPLNB.pdf>
- Green D (1997) Diferenças entre termos numéricos em algumas línguas indígenas do Brasil. *Boletim do Museu Paraense Emílio Goeldi-CNPq. Série Antropologia* 13(2): 179–207
- Green D (2001) *Palikur numerals*. Summer Institute of Linguistics. Accessed April 2010, <http://www.sil.org/americas/brasil/publcns/ling/EngLPLNB.pdf>
- Green D (2002/1994) O sistema numérico da língua palikur. In M Ferreira (Ed.) *Idéias Matemáticas de Povos Culturalmente Distintas* [Mathematical Ideas of Culturally Distinct Peoples] *Série Antropologia e Educação* 3: 119–165
- Green D (2010) The elements of Palikur geometry. Unpublished draft article
- Green D (2011) Geometrical forms in the Palikur language: The importance of topology. Unpublished article
- Green L & Green D (2009) Space, time and story tracks: Contemporary practices of topographic memory in the Palikur territory of Arukwa, Amapá, Brazil. *Ethnohistory* 58(1): 163–185
- Green L & Green D (2010) The rain stars, the sun’s path, the world’s river: Palikur astronomy. *Tipiti: The Journal of the Society for the Anthropology of Lowland South America* 8(2): 1–66

- Guss D (1989) *To weave and sing: Art, symbol and narrative in the South American rain forest*. Berkeley: University of California Press
- Harley JB (1989) Deconstructing the map. *Cartographica* 26: 1–20
- Hilbert D & Cohn-Vossen S (1952) *Geometry and the imagination* (trans. P Nemenyi). New York: Chelsea Publishing Company
- Husserl E (1970/1954) Appendix VI: The origin of geometry. In E Husserl *The crisis of European sciences and transcendental phenomenology* (trans. D Carr). Evanston: Northwestern University Press
- Ingold T (2000) Ancestry, generation, substance, memory, land. In T Ingold *The Perception of the environment: Essays in livelihood, dwelling and skill*. London: Routledge
- Ingold T (2007) *Lines: A brief history*. London: Routledge
- Ingold T (2010) Drawing together: Materials, gestures, lines. In T Otto & N Bubandt (Eds) *Experiments in ethnographic holism*. Chichester: Wiley-Blackwell
- Latour B (2004) Whose cosmos, which cosmopolitics? Comments on the Peace Terms of Ulrich Beck. *Common Knowledge* 10(3): 450–462
- Latour B (2007) The recall of modernity. *Cultural Studies Review* 13(1): 11–30
- Latour B (2010) *On the modern cult of the factish gods*. Cambridge, MA: Harvard University Press
- Lefebvre H (2004) *Rhythmanalysis: Space, time and everyday life* (trans. Stuart Elder). London: Continuum
- Levinson SC (2003) *Space in language and cognition: Explorations in cognitive diversity*. Cambridge: Cambridge University Press
- Levinson SC & Wilkins D (Eds) (2006) *Grammars of space: Explorations in cognitive diversity*. Cambridge: Cambridge University Press
- Pickles J (2004) *A history of spaces: Cartographic reason, mapping and the geo-coded world*. London: Routledge
- Rawes P (2008) *Space, geometry and aesthetics: Through Kant and towards Deleuze*. New York: Palgrave MacMillan
- Reichel-Dolmatoff, G (1997) *Rainforest shamans: Essays on the Tukano Indians of the northwest Amazon*. Devon: Themis Books
- Scott JC (1998) *Seeing like a state*. New Haven: Yale University Press
- Sendak M (1967) *Where the wild things are*. London: The Bodley Head
- Serres M (1996/1993) *Los orígenes de la geometría [The origins of geometry]* (trans. AM Palos). Coyoacán: Siglo Veintiuno Editores
- Serres M (2000/1977) *The birth of physics* (trans. J Hawkes). Manchester: Clinamen Press
- Serres M & Latour B (1995) *Conversations on science, culture, and time* (trans. R Lapidus). Ann Arbor: University of Michigan Press
- Stengers I (2005) The cosmopolitical proposal. In B Latour & P Weibel (Eds) *Making things public*. Cambridge, MA: MIT Press
- Stengers I (2011a) *Cosmopolitics II* (trans. R Bononno). Minneapolis: University of Minnesota Press
- Stengers I (2011b) Another science is possible! A plea for slow science. Inaugural lecture of the Willy Calewaert Chair 2011–2012, Vrije Universiteit Brussel (13 December)
- Sztutman R (Ed.) (2008) *Encontros: Eduardo Viveiros de Castro*. Rio de Janeiro: Beco de Azougue

- Turnbull D (1993) *Maps are territories: Science is an atlas*. Chicago: University of Chicago Press
- Turnbull D (2007) Maps, narratives and trails: Performativity, hodology and distributed knowledges in complex adaptive systems: an approach to emergent mapping. *Geographical Research* 45: 140–149
- Whitehead NL (1990) Carib ethnic soldiering in Venezuela, the Guianas, and the Antilles, 1492–1820. *Ethnohistory* 37(4): 357–385
- Whitehead NL (1997) *The discoverie of the large, rich and bewtiful empyre of Guiana by Walter Raleigh*. Norman: University of Oklahoma Press
- Whitehead NL (1998) Indigenous cartography in lowland South America and the Caribbean. In DW Lewis & GM Lewis (Eds) *The history of cartography. Vol. 3 Book 2: Cartography in the traditional African, American, Arctic, Australian and Pacific societies*. Chicago: University of Chicago Press
- Wilbert J (1985) The house of the swallow-tailed kite: Warao myth and the art of thinking in images. In G Urton (Ed.) *Animal myths and metaphors in South America*. Salt Lake City: University of Utah Press

Cultivating *krag*, refreshing *gees*: Ecologies of wellbeing in Namaqualand

Joshua B. Cohen

Our task is ... to follow what is going on, tracing the multiple trails of becoming, wherever they lead. To trace these paths is to bring anthropology back to life.

– Ingold, *Being alive*

I OFTEN FEEL QUITE sorry for South African medicinal plants. If they aren't being pulverised, mixed with noxious chemicals and tested for all their molecular and monetary worth, their healing efficacy is being explained away as a will-o'-the-wisp social construction. When cast as 'traditional medicine' they are often either demonised as poison or expected to shoulder the burden of the hopes of the nation for economic and cultural emancipation.¹ Fortunately, the recent turn to concepts of natures-cultures, multiple natures and so forth in anthropology offers the possibility of approaches that can tell different stories, that can situate plants back in the world, and tell of the many ways in which plants, people and the world bring one another into being. This chapter forges such an approach, recounting a practical-theoretical journey centred around medicinal plants, poison and wellbeing. As the story progresses and my own attention becomes better attuned to the ethnographic context, I discern a suite of organisms, practices, ideas, materials and substances constituting what I term 'ecologies of wellbeing', the contours of which will become clear to the reader in good time.

As a 'retracing of a path through the terrain of lived experience' (Ingold 2011: 161), stories are perhaps one of the least privileged forms of human communication. Without thinking about it, upon hearing a story, almost anyone with the requisite linguistic capacity can relate to the account because it unfolds *along with* the trajectory of life. The conjuring magic of a story well told is that the lived experience of the teller becomes that of the listener, so that people may sit in 'companionship' with one another, joining in tales of one another's lives (Benjamin 1969/1955: 87, 100).

Which is why, for example, people in Paulshoek (see page 91) teach children about the dangers of going too close to certain water fountains through stories of

their own or of others that tell of encounters with the powerful watersnake that inhabits such places. The ease with which stories merge into the ongoing flow of life often becomes the grounds on which people accept, learn from, reject or refute others' tales. If a story resonates with what one has encountered in the past, or perhaps with that which will occur later on down the line, then the story (or at least aspects of it) will likely be accepted and learned from. Conversely, in the absence of such past or future resonance, stories will more than likely be rejected or forgotten. In this way a good story – such as I intend to tell in this chapter – can hold together humans, nonhumans (to use a fashionable though unfortunately very useful word), practices, events and theories of the constitution of reality in a manner that nourishes the very liveliness which unites teller and told. My hope is that through retracing the coupling of theoretical material and fieldwork experience as this evolved over time, I can offer a story which will not be rejected and forgotten (at least, not entirely).

So, in August 2010 ...

The research that led to the writing of this chapter began with a simple aim: to understand 'medicinal plant use' in Paulshoek. This is a small (population 500–600) and (for the majority of residents), materially impoverished Afrikaans-speaking village in the semi-arid Leliefontein communal area of Namaqualand, in the Northern Cape province of South Africa. In the 10 villages situated in the 192 719 hectare communal area, farming and stock-rearing constitute a small percentage of peoples' – usually very low – overall income, the balance deriving from wages and social assistance (Rohde et al. 2003).

The communal area's origins can be traced back to 1816, with the establishment of a Wesleyan mission station in the high Kamiesberg mountains (Rohde et al. 2003).² The introduction of Christianity was of course part of the so-called civilising process, and today the religion remains central to spiritual life, wellbeing, and many other aspects of life in Paulshoek and in the Leliefontein communal area more generally. There are Methodist and Apostolic churches in Paulshoek, and meals, community meetings, and other social gatherings more often than not begin with a prayer of thanks to '*die Here*' (the Lord).

In an attempt to assuage the loneliness that often accompanies early days in 'the field', I had established an evening ritual of dinner cooked on the little gas stove in the house in which I was staying (alone) and eaten while watching an episode of *Dexter* on television, followed by the writing of notes for the day and finally reading at least a chapter from a selection of the works of my favourite anthropologists.

Five days into fieldwork, my neighbour Hansie – a young man of 31 – hanged himself.³ He had used the pole that supported the washing line in his girlfriend's garden, and by morning the weight of his body had pulled him towards the earth so that rather than hanging, he was standing, knees slightly bent, looking at first

glance like a living person casually leaning and pondering the world. The image haunted me. It still does. Local children warned me that Hansie's ghost might trouble someone like me, living all alone.

In the daytime, amongst those I was getting to know, I felt confident that I did not believe in ghosts. Alone in the cold, dark winter evenings (when temperatures regularly fall below zero), with the mountain wind whipping at the corrugated iron roof of my unheated house, I was less confident; hundreds of kilometres from anyone I could call a friend and knowing that the *smokkelhuis* (informal drinking place) 20 metres from my house was the site of regular fights often involving knives, the presence of malignant and unseen forces was harder to deny.⁴ It was on evenings such as these that I felt particularly comforted by the cleansing, sweet smoke of the *Hottentots Kooigoed* plant that I burned around the house.⁵ This I did at the suggestion of a knowledgeable neighbour, who said that such smoke would protect me from dangerous ghosts that roamed the veld and village at night. Beyond its immediate effect on my senses, the smoke evoked memories of the beautiful fynbos-covered mountains from which I had picked the plants, and the friendly *ooms* (literally, 'uncles') Oom Jan and Red who had shown me where to find the pale grey herb.

One evening, two days after the suicide, while reading Michael Jackson's *Existential Anthropology* (2005), I became entranced by the itinerant anthropologist's deep insights into the human condition. Drawing on James Gibson's notion of 'affordances' and Jean-Paul Sartre's 'exigencies', together with Maurice Merleau-Ponty's phenomenology of 'continual birth', Jackson paints a picture of human life that is never settled, always at the moment of becoming as each person is presented with the myriad possibilities that the world offers up for the pursuance of a viable and meaningful life. 'Selecting' which path one will take at any instant is, for Jackson, less often a question of rational deliberation than it is a more-or-less intuitive movement wrought by history, culture and environmental and economic conditions (Jackson 2005: xiv–xv). This is a fluid world in which 'action acts upon beings who are capable of their own actions', and so, 'reaction, apart from being a response, is always a new action that strikes out on its own and affects others' (Hannah Arendt (1958: 190) quoted in Jackson 2005: 1).

As Tim Ingold points out, this mutual laying down of the conditions of life is not limited to the human realm, somehow cut off at the feet from the world which, in the end, *makes human life possible* (Ingold 2011: 8). Local *vee* (sheep and goat) owners and *veewagters* (shepherds) strive to do their best to create favourable conditions for the growth of their animals. At the same time, however, the *vee*, and the multitude of flows, substances, materials and organisms which constitute local ecosystems, require certain ways of being and doing of those humans interested in cultivating the lives of the *vee* as companions, meat, milk and money. A *veewagter*,

working with animals in an area known for jackal attacks, for example, cannot simply do as he wishes and let the animals roam free.⁶ Nor can he simply march his flock to where he would like them to be. He must allow them to ‘*waai*’ (wander) in order that they may find and eat enough food during the day, whilst keeping in mind where they are, attentive always to potential dangers. And so humans and nonhumans continually create their conditions of existence in a dynamic ecology which is never exactly the same from one moment to the next (Ingold 2011: 8).⁷

Riding this wave into the perpetually new (whilst simultaneously contributing to it), Jackson writes,

one’s sense of wellbeing is susceptible to constant change ... an affectionate glance, a gesture of recognition or concern, the company of close friends, or an unexpected gift can make one’s day, while a cutting remark, a snub, ill-health, or the loss of a job, or a falling out with a friend can cast a pall over everything. (Jackson 2005: x)

To this list of things that affect a person’s ‘sense of wellbeing’ one might add, for example, the death of a lamb or the illness of one’s favourite dog. Jackson’s words struck home because this *was precisely why* I was engaging in those daily rituals of food, entertainment, and cleansing, and they were, on reflection, true for my life in general. It is a point so obvious, so close to the everyday experience of life that I had failed to adequately consider it in my work up to that point. Following the dropping of that penny, it became clear to me that my ‘study’ would need to take this continual flux in and struggle for wellbeing as the matrix within which would be located *bossiesmedisyne* (literally ‘medicines of bushes’), whose role I could then attempt to trace and unpack.

Ecologies of wellbeing

Bruno Latour asserts that an ecology is nothing ‘but the deployment of all the attributes necessary for [anything] to subsist’ (Latour 2011: 801), and it is in this sense that it is useful to think of this matrix as a kind of ecology.⁸ The aim of this chapter is not to *map* such an ecology, to ‘lay it out’ as some kind of totality, instantly knowable to anyone who cares to read these lines. Such a project would not only require knowledge and skill (e.g. the microbiology of disease) way beyond my ken, it would also take me further into the realm of abstraction, *away* from that which I intend to approach – i.e. the visceral actualities of life without which wellbeing simply cannot be. Instead, the chapter offers a glimpse into *the ecology of organisms, practices, ideas, materials and substances within which wellbeing in the Leliefontein communal area subsists*. To be clear, though, the image of an ecology I have in mind

here should not be confused with the kinds of networks – of many interconnected, discrete nodes – described by many a paper claiming affiliation to the work of Latour and to Actor-Network-Theory (ANT) (see for example Contractor et al. 2011; Pavlovic & Meadows 2012). Relating, for example, God, people, *bossiesmedisyne*, veld, alcohol, state welfare, and poison through a series of connecting lines constituting a network of interlinked entities, might tell me something about the situation at hand. It would not, I suggest, say much about the ways in which people *live* and *live with* such entities.

Mirroring my own doubts about ANT (or at least about how it is commonly applied), Tim Ingold has recently pointed out that lines of life do not connect but ‘pass forever amidst and between’ (Ingold 2011: 64) as every action, in the flow of time, traces a line in the world where each life can be understood as a bundle of such lines.⁹ In place of a network of interconnected actors/-ants, he posits a ‘meshwork’ consisting of the intersecting and merging of the lines that trace organisms’ movements through, and mutual forming of, the world-in-becoming.

The meshwork is a rich, lively and useful image to think with. Yet, if ‘every being is instantiated in the world as a path of movement along a way of life’ (Ingold 2011: 4), it is then only through a process of abstraction that paths of life – forming, and being formed by, the stuff of the world – can be conceived of and represented as *lines* as such.

In the Kamiesberg, where paved roads are few and far between, the intermingling of paths of life is, if you simply look down at your feet, easy to see in living formation. Most of the footpaths which criss-cross Paulshoek have not been laid down in advance by the municipality, but have been worn into the earth itself through innumerable journeys walked as people make their way to the shops, to friends’ houses, to the bar, or to the veld to collect medicinal plants and firewood, check on stock animals, and so on. In the soft sandy earth of the veld, especially in the river beds, such an intertwining of paths is even more apparent as one’s own ever-lengthening *spoor* (track) mingles with those of donkeys, goats, sheep, jackals, snakes and a myriad other creatures seeking water, food and shade, or simply an easy route through the hilly landscape. These entangle with, amongst other things, the lives of plants and the constant erosion effected by water and wind.

In navigating the veld and following the lives of animals and humans, people pay close attention to *spoor* created through the actions of walking, playing, running, and hunting. Human life is often spoken of as a path, and church sermons regularly remind people of the path-like quality of life, of God as ever-present in our lives, His footsteps walking in our own. In an effort to write close to the bone of everyday life I suggest that, at least for the purposes of this chapter, it is unnecessary to make the conceptual shift from ‘paths’ to ‘lines’.

Cultivating *krag*, refreshing *gees*

My attention now suitably attuned, I noticed that people often referred to their 'krag' (vitality/ strength/ vigour/ power) as something which would wane under the stresses of life, but which they would continually aim to build up and refresh in order to take on the challenges of life once more. Drained of *krag*, one's *gees* (spirit) is weak and listless and one becomes vulnerable to both *Godsiekte* (natural illness) and *toorsiekte* (magical illness). Indeed one's *krag* and *gees*, both of divine origin, work in close relation in the generation of one's wellbeing. This is the ideal, of course, and for many people, if not most, such wellbeing remains highly elusive in a context weighed down by material want, alcoholism, illness (in particular HIV, diabetes, and high blood pressure), and spiritual war waged by malicious sorcerers. Nevertheless, among the vicissitudes and discouragements of everyday life, I became aware of practices and moments which 'built *krag*' and allowed for the refreshing of the spirit. Human interrelations such as the care offered by a doting aunt or moments of easy conviviality were central to these, but always in concert with the wider world – God, newborn lambs on grandparents' stockposts, medicine-infused air on mountainsides, or the pungent waft of *bossiesmedisyne* cooking in the kitchen.

Such practices went hand-in-hand with regular advice, informed by life experience, television and radio, school, and local medical clinics, about how people should live in order to be strong, healthy, and *volkrag* (full of *krag*) as opposed to being *pap* (weak), and sickly. It is often said that people should not, for example, carelessly expose themselves to the cold eastern wind without wearing the proper clothes; eat only shop-bought bread and meat lacking the *krag* of bread baked at home or meat raised on the bushes in the surrounding veld; drink too much alcohol; or generally not live in a godly way. *Krag* is both a part of everyday discourse and experience as well as being central to healing logics employed by local 'kruiedokters' (literally, 'herb doctors', experts in using plants, among other things, to treat everyday illness as well as 'magical' illnesses caused by 'poisons' sent by *towenaars* (sorcerers) who work with help from the malignant power of the Devil) in their work.

In her work on Chinese medicine and philosophies of health, Judith Farquhar has shown that medicine is not necessarily the 'grim and ghoulis business' that medical anthropology has often made it out to be. Rather than simply addressing 'suffering and death', she argues, 'medical practice might at times be a source not just of domination but of empowerment, not just of symptom relief but of significant pleasure' (Farquhar 1994: 471). My experiences in the Kamiesberg range have led me to wholeheartedly agree. When Oom Jan exclaims '*dis lekker medisyne*

daai! ('that's lovely medicine!') and rolls his shoulders in excitement upon finding a flourishing sample of the bitter *jankie berend* (*Sutherlandia frutescens*) plant, he is not thinking simply about the plant's ability to relieve a series of ailments. It is also a central component in his locally well-known medicinal brew which, alongside his active lifestyle, has contributed to him remaining fit and vital even in his mid-sixties.

Casting about for a language with which to think about and describe these things, my mind stumbled again upon Farquhar's work describing everyday practices of *yangsheng*, 'life nurturance', or 'self cultivation', that guide the lives of people living in contemporary Beijing, and in China more generally (Farquhar 2002, 2009). Through living life with a certain kind of regularity, eating well, wearing clothes fitting to the climate, engaging in gentle exercise and moderate sexual activity, and living in rhythm with the Earth's own cycles, people cultivate their capacity for life, ideally one which is long, happy and vital. Drawing on the work of 3rd–4th-century Chinese philosopher Zuangzi, Francois Jullien tells us that through practices of *yangsheng* one moves with and draws from the great 'world process' and the same source of energy (the 'heaven' within oneself and the world) which is its incitation. This *nourishes* one's *vitality* (Jullien 2007: 14). In a similar vein, since *krag* and *gees* derive ultimately from the Lord, and cannot be manufactured by human beings as such, peoples' aim in all those practices and advice designed to strengthen these elements was to orient themselves, and those they cared for, to the world in such a way as to channel these vital energies in beneficial ways. Like the farmer, mentioned above, who strives to cultivate or nurture the lives of his animals through working to create the best conditions for their growth within a living ecology, something similar occurs with *krag* and *gees*. As Sarah (friend, research assistant and Paulshoek resident) put it one day:

The *krag* that you get every day from God makes you stronger, because sometimes your *gees* gets weak so you can't really fight against everything that comes to strike you. So then if you have the *krag* every day from God then you have more *krag* to fight against the strikes from the Devil ... So that's how come that *krag* is there. So you are dependent on the Lord, and that's why many people go to the veld so they can be in the open, under heaven and in the open air, can speak with the Lord and he can put his *krag* down on you and make your body clean so the *gees* of the Lord can come into you. So if you come to the house and lots of people argue around you, you'll have enough fighting *krag* within you in order to [overcome dirt and problems].

Another way to replenish *krag* is through consuming *bossiesmedisyne* prepared for oneself or by a knowledgeable friend or relative. Sometimes it might be necessary to consult a *kruiedokter*, who acts as a kind of supporting intermediary between the forces of good (God) and the forces of evil (sorcerers, the Devil) helping or hindering someone's life. There are different means of divination, but one important way is through the use of a mirror. Studying the patient's reflection in the mirror, the *dokter* looks for a 'dark' spot indicating where the poison is, and what kind of poison it is. The medicine which he or she mixes and prescribes will be targeted at this specific poison, to clean it out and in this way remove what is experienced by the patient and known by the *dokter* as a kind of blockage or devouring presence, stealing vital energies and making it impossible to live well. As described by Gert, a locally well-known *kruiedokter*:

The poison sits on your liver and spreads out through your veins as it eats up your body's *krag* ... the *krag* of the medicines I make cleans that dirtiness out so that your body's *krag* can come back and you can be healthy and strong once again.

Practice or skill?

I agree with John Law that 'realities and distinctions are always done in practices ... they simply do not exist outside practices' (Law 2007: 17). The turn in social science towards an attention to practice as opposed to abstract conceptualisations of realities is to be welcomed. Human beings, after all, are obstinately corporeal organisms inhabiting a world which is similarly so. Nevertheless, I would add to this that at least as far as human beings are concerned (and probably for most other sentient creatures besides), realities and distinctions are always done in *skilled* practices. As a being at every moment multiply engaged with the complex terrain of life, a human must be attentive, by default, to a world which is never the same from one moment to the next. This requires an 'intimate coupling of perception and action', which, through practice, becomes increasingly attuned to the world (Ingold 2011: 58). He or she becomes ever more adept at making the slightest moment-by-moment adjustments necessary to respond to, and carry out tasks within, the changing conditions constituting the living ecology of which he or she forms a part.

Thus, as one *kruiedokter* told me:

A *kruiedokter* must be like a jackal – always watching, always aware because just as you block an attack from one side, they [sorcerers, others messing with bad medicine] will come at you from another.

Skills emerge as knowledge imparted in the form of everyday advice or as more formal training, such as that given by a *kruiedokter* to an apprentice, is tested in the everyday contexts of peoples' lives. In these ways, people become conscious of what may be causing *krag* (one's own, or that of friends, family or patients) to wane – be these 'normal' concerns such as arguments with one's relatives and friends, or the cold which bites through to the bone in the deep of winter, or more magical concerns such as poisoning encountered in dreams.

The development of perceptual skill in human social relations, in the bodily pressures inflicted by the climate, or in the messages one receives in dreams, flow, without division, into the skills necessary to effect a response, or a positive action of protection before the fact. A clear example of this might be knowing exactly when to crack the right kind of joke to lighten the mood. There is here no point where perception of social context and the words spoken can be separated one from the other. It is thus through such skills of perception and action that ecologies of wellbeing become known, and in turn are participated in and formed.

To reiterate my point made above, networked lines of connection run perpendicular to the paths of movement inherent in these skills and to the paths traced by the organisms, materials, and substances within which such skills find their efficacy. Put another way, an ecology formed of *paths* of life, not of *lines* of connection, is one in which *krag*, vitality, and life can subsist.

Because the skills involved in cultivating *krag* unfold in time and over time, the assortment of discrete practices outlined thus far in this discussion can only serve as an indication of their breadth and diversity. It is only through retracing, at some length, examples of this unfolding that such skills can be brought to life and understood. What follows is an account of a particularly poignant day that touches on several recurring themes connected to wellbeing and the lack thereof; sociality, God, alcohol, cleanliness and dirtiness, respectability, the search for viable sources of income, food and nature.¹⁰ I have made use of an extended, continuous narrative in order to demonstrate how these themes merge seamlessly one into the other as life is lived in the Kamiesberg range.¹¹

A journey through the mountains and back again

During the first three weeks of my life in Paulshoek, I had spent a fair amount of time getting to know two young men who were spending several months living and learning from a local *kruiedokter*. What I felt to be a genuine rapport had developed between us and I no longer felt awkward upon entering the *skerm* to chat, drink tea, and smoke. In fact, I had come to quite enjoy these chances to socialise amongst men of my own age.¹²

FIGURE 7.1 *An intermingling of lines of life, near Paulshoek. Also known as a dry river bed.*



Source: Photograph by Joshua B. Cohen

One of these young men, 26-year-old Sampie, was himself a *kruiedokter*, and one day he said that if I would help him (with my bakkie) to get back to his home village far away in the northern part of the Western Cape, he would show me how he did his work, and explain a bit about how he divines sickness using a set of keys on a chain and a mirror.¹³ Excited by this prospect, I agreed, and a week or so later Sampie and I, Sampie's friend Sam, and Sarah were packed into my bakkie, heading towards Sampie's home.

Sam and Sampie, it turned out, were drunk. The usually polite and timid Sampie was now incredibly friendly, his hand on my shoulder, telling me about his life of difficult, low-paid work and unemployment. With a real talent for singing, Sam would break out into hymn song, with Sarah and Sampie joining in enthusiastically where they could. Friendliness, however, quickly turned to boisterousness and the journey became more and more fractious as the two men began shouting at each other and then at Sarah and myself. The three-hour journey through the orange and yellow landscape of arid hills, scrub and rock was a test of my stamina as I attempted to negotiate the treacherous terrain opening up both inside and outside the vehicle.

For anyone, and especially for people who perceive a bleak and uncertain present and future, alcohol is a tempting, and in some senses effective, escape from one's day-to-day concerns; it is a quick and easy route to sociality and fearlessness. Hence Sam's hand on my shoulder. Yet it also pours fuel on smouldering fires of

resentment and jealousy that can explode into arguments and fights over money and personal rivalries.¹⁴ Sarah is a well-respected person within Paulshoek and beyond, and I have never seen any *sober* person being anything other than *ordentlik* (translated to me as ‘respectful’) towards her. Hence her – and consequently my own – anxious state in the bakkie.

Our sense of ourselves is, in large measure, developed through the recognition we see of ourselves in the eyes, and responses, of others (Jackson 1996). When people are drunk they often don’t really see you, they look past you as they tell you what *they* want you to hear, do what *they* want to do. This was certainly true of Sam and Sampie that day, and this had an immediate effect on my own sense of self in relation to these newly alienated subjectivities with which I was sharing my bakkie.

Conceptually, subjectivity is a bit tricky. Through drawing on the work of philosophers of the phenomenological tradition, anthropology has made huge strides in reconceptualising the body, not as a bare biological substrate upon which symbolic culture is impressed, but, as Thomas Csordas puts it, as ‘the *existential ground* of culture and self’ (Csordas 2002: 4; my emphasis). Human subjectivities freed from the head and allowed into the body as a whole have afforded anthropologists important insights into the active role of the embodied person in medicine, healing, knowledge and life in general. Nevertheless, focusing entirely on the ‘world-for-a-human-consciousness’ (Latour 1999: 9) raises the danger of driving a wedge between the rich, meaningful worlds of human experience and (what then emerges as) the meaningless existence of the rest of life and the world.

The rediscovery (in anthropology at least) of the work of biologist Jacob von Uexküll, alongside anthropology’s recent reconceptualisation of animism, has reminded academic social science thinking (for I doubt everyday thinking ever needed such a reminder) that intelligence, meaning, and subjectivity are not unique to the human realm.¹⁵ This welcome development offers a path beyond the impasse of having to pay attention *either* to warm human subjectivity *or* to the cold reality of everything else. Rather than assuming that so-called animists *project* soul, spirit, or subjectivity *onto* the world of objective nature, scholars such as Tim Ingold (2011: 67–75) and Rane Willerslev (2007) have suggested that anthropologists pay closer attention to what such people actually *do* in the world. This is to follow, with sensitivity, the ways of animals, plants and other entities as they relate to one another, to people, and to the world in general. In this manner character, intelligence and intentional worlds are not so much imputed or projected as *revealed*. This productive intellectual shift represents a move away from paralysing worry about how people, ensconced in the realm of mind, *construct* the character of nonhumans, to an interest in how humans and nonhumans *meet with* one another, and in relation to each other are transformed.

I cannot know what it is like to be a sheep! Nevertheless, through following and being involved in the lives of people as they relate to other people, goats, dogs, donkeys, sheep, the watersnake, God, and a host of other nonhumans, it has been possible to develop a sense of the intelligent beings mutually constituted by this entanglement. I have discovered how donkeys live up to their stubborn reputation, how goats are generally more intelligent than sheep, the tricky ways of the watersnake, and of course the varied personalities of the people I have come to know. Mediated through the skilled practice of life, we have all, in these meetings, been transformed in some way or another. Through this ongoing process we bring one another into being.

Anyway, to return to our trip through the mountains ...

While we were still within the bounds of Paulshoek 'community land', Sarah took note of a stand of *taaibos* (a kind of woody bush, up to 3 m high) that we passed on the way. The dead, dried branches of these bushes make excellent firewood and she wanted to return on our way back to collect some, so that she might warm her house later that night.¹⁶

Upon our arrival at Sampie's house I was welcomed inside, and introduced to Sampie's *grootmaak ma* Johanna, a friendly elderly woman who is completely blind in both eyes.¹⁷ Sampie, Johanna, Sampie's sister, Sam, Sarah and I sat around the immaculately tidy but worn-out living room, on tattered couches placed upon the last remnants of a rug. I had brought along food enough for all to share, and within minutes Sampie's sister had prepared plates of avocado sandwiches and sweet tea for us all. The offer of tea and food and the tidied and clean home lent the moment a comforting sense of propriety, counterpoised to the impropriety and nervous discomfort of the bakkie journey. Sarah, now much more relaxed, took out her notepad and pen and began to talk with Johanna about her knowledge of medicinal plants.

This gave Sampie and me a chance to talk; not, however, before he had sneaked around the back of the house to down what must have been a long draught of 'Namaqua Daisy' wine. Directing me into his bedroom, which doubled as his 'clinic', and shutting the door behind us, Sampie began to unpack his metal box of *kruiedokter* tools. Belying his intoxicated state, he carefully laid out his apparatus on his bedside table in an order and pattern very similar to that used by other *dokters* I had spoken with in the local area. First to go down was a 20 cm square patch of *rooiikat* (lynx) skin. On this he placed a special smooth, flat stone upon which he would mix his medicines, and on top of this a small mirror.

Unfortunately, he was too drunk to really do his work. Perhaps emboldened by the drink, though, he did ask me for R4 000 to help him buy a bakkie so that he could collect herbs in the high mountains. When that failed, he said he would make me my own set of magic keys in return for R1 000. I declined that offer, too.

Asking me to hold out my hand, he took out a glass jar containing what looked like scraps of orange-red dried blood and poured some of these into my open palm. These were, he told me, the *vuilgoed* (dirty things) he had sucked out of the bodies of previous clients. Using a razor blade to open the skin and a cow horn held to the mouth to create suction, many *kruiedokters* employ this technique to eliminate *toorsiekte* from the body. Picked up in the landscape, or sent by malevolent human others, these *vuilgoed* are the embodiment and exemplification of poison and negativity. Realising what I had in my hand, I quickly put them back in the jar. At this point, Sarah, concerned that Sampie had sequestered me in his room alone, came in to see what was happening. On seeing the contents of the jar, Sarah signalled to me that it was time to go and, wishing a farewell to Sampie's family, we were soon back on the road.

Collecting wood, cultivating *krag*

I had been saddened to see the burgeoning good and friendly relations between myself and the usually amicable Sampie spoilt by requests for large amounts of money and his willingness to expose me to poison. Whilst I was pondering my own naïveté, and questioning my right to refuse money to someone who had, after all, taught me a lot about his work, Sarah requested that we stop at the *taaibos*. She was then able to do one of her favourite things – break off wood for her fire at home. This everyday, seemingly mundane activity nurtured Sarah's *krag* and *gees* simultaneously in a number of ways, revitalising her (and me) as we tried to shake off the bad feeling – the pollution – that the day had engendered. While *taaibos* leaves can be boiled up and drunk as a flu medicine, on this occasion the plant would heal and nurture in other ways. As fuel, the wood would bring warmth to her home and to her children and newborn grandchild who live with her. The time and effort she devoted to the task in the veld would nurture the lives of her family in the near future.

Though it may sound silly to someone who has not tried it themselves, ripping large pieces of dead wood from a spiky *taaibos* without tearing one's hands to shreds takes *skill*. First one must identify which bushes have dried branches suitable for firewood, for not only do living branches not burn very well, but people are also very aware that if everyone were to take living limbs there would soon be no *taaibos* left. Approaching the bush and figuring out which branch could be taken, one must then thread a hand through the tangle of thin crosswise branches by which the older, inner part of the bush is encircled and feel out a suitable point at which to push or pull the branch against the main body of the plant. Ideally a successful break will result in a satisfying KRRACK! as a nice, thick and dry branch comes off in the hand. In time I have gotten marginally better at this, but

after a lifetime of practice, Sarah is a regular master. If Csikszentmihalyi and Bennett, the authors of a seminal paper on the anthropology of play titled ‘An exploratory model of play’, are right that play is ‘a state of experience in which the actor’s ability to act matches the requirements for action in [her] environment’ (Csikszentmihalyi & Bennett 1971: 45), then Sarah certainly ‘plays’ wood collection and evidently very much enjoys the process. Beyond this, collecting wood brings back fond memories of her childhood as a ‘*veldkind*’ (child of the veld), living with her mother and father on a farm in the high Kamiesberg mountains. As a *veldkind*, she told me of the special affinity she feels she has with the natural world, with God’s creation.

It is to the quiet of veld, remember, that Sarah often goes in order to receive *krag* and *gees* from God. Being in the veld is not a question of observing, smelling, and hearing from *inside* one’s head, peering out as an ‘acosmic subject’ (Merleau-Ponty 1962: 214). Rather, as Ingold has pointed out:

Feeling ... infuses our entire being. It is not so much a way of making bodily contact with specific persons or things as a kind of interpenetration of the self and its surroundings: a certain way the world has, as Merleau-Ponty put it, ‘of invading us’ and our way of ‘meeting this invasion’ (Merleau-Ponty 1962: 317). Feeling, then, lies not just in what we *do* but in what we *are*: in that commingling of the perceiver with the world he or she inhabits ... (Ingold 2007: 29)

A corollary of this is that the sight of the *vuilgoed*, though it did not enter my body in a way necessary to induce a *toorsiekte*, had in some way ‘invaded’ the two of us, as thought and as perceptual intermingling. Sarah had thought that Sampie’s aim in handing me the poison might have been to weaken my own *krag* in order to influence my decision about the money. Had his skill in doing so not been dampened by his intoxicated state, perhaps he would have been successful. In the vision of an open world posited by Ingold, there is no need for material things to be imbued with ‘agency’ for them to come to life (Ingold 2010). Whether Sarah’s theory was right or not, cast into the flow of time and the currents of our becoming, the *vuilgoed* had become an active, malignant presence needing to be cleansed. Upon returning to my house, I drank a glass of the bitter, cleansing medicine mixed for me by Oom Jan and, obeying an instruction which often accompanies the taking of *bossiemedisyne*, lay down and rested. For a host of reasons, this was successful in revitalising *myself*. But that is another story ...

At the closing of *this* story, it is clear that through having crossed and to some extent shared each other’s paths, the *taaibos*, Sarah, Sampie, Sam and I have, to a small extent at least, been transformed. Certainly, following that day, an embodied

knowledge of the very real and poisonous potential of *toor* has constituted me as a subtly different person and, in turn, as a different anthropologist.

Closing thoughts

Locating ‘traditional medicine’ within the everyday flux and struggle for wellbeing prizes open a space for ‘the sorts of vitalities and ways of knowing and being’ which, as Lesley Green points out, are rendered ‘unnameable’ by the logic of ‘thingification’ exemplified in neatly packaged Traditional Medicines Trade Marked (TM™) (Green 2012: 8). Scientifically proven, commoditised, easily transportable and profitable pills and salves are the aim here, carrying forward what Philippe Pignarre and Isabelle Stengers (2011) would probably call the ‘infernal alternative’ offered by South African capitalism. Indigenous knowledge systems (IKS) have been long neglected and abused and *we have no choice*, goes the logic, but to put these to productive economic use in gaining an advantage over our rivals. The heavy economic bias of the government’s IKS policy of 2004 makes this quite clear (DST 2004). The infernal alternative offered is this: either exploit IKS for all they’re worth, or live forever in miserable poverty. Just another example, in the end, of the ability of capitalism to recruit yet more willing participants to its inextricable march through terrains of ever deeper crisis.

As a fundamental means through which capitalism convinces of its own inevitability, this ‘capturing’ of thought and life can, Pignarre and Stengers argue, be thought of as sorcery. As such it is necessary to learn the means by which we might protect ourselves, break the spell, and agitate for paths other than these infernal alternatives. One way to do this, they suggest, might be to take more seriously the practices of people who protect themselves and others from magical capture. To ‘take more seriously’ does not mean that every sangoma or *kruiedokter* should be taken for the custodian of some true, ancient knowledge.¹⁸ Rather, it is to be open to the suggestion that sorcery is *not* limited to the fringes of the still traditional ‘third world’. In other words, to recognise that we (humanity) are all in danger of capture, and so require the means to protect ourselves and to undo spells that are cast.

Pignarre and Stengers suggest that those who would elude capture should cultivate a conscious ethos of invention and possibility in struggles to make ‘another world’ actual (Pignarre & Stengers 2011). That is, responses to power which, though perpetually creative, are not simply spontaneous and random but actively aware of the political implications, and potential for change, that such responses nurture. In a moment of intriguing symmetry between the knowledge of the halls of scholarship and that of Kamiesberg *kruiedokters*, Gert remains always, in his own words, ‘a dumb man’. By this he does not mean that he knows nothing

about medicine, protection and healing, but that the moment he decides he is 'clever', that he knows all, *then* someone will come to him with a problem he does not understand, *then* he will be attacked in a manner against which he has no defence. At the same time, with his characteristic sense of humour, this sometimes unsettling claim of being dumb (and many other seemingly untrue and funny comments besides!) in consultation with his patients, cultivates a warm and freeing atmosphere of possibility. In this atmosphere the inevitability of symptoms (e.g. of paralysis) that sorcery initiates is loosened, opening up the possibility that Gert's medicines will successfully carry out their work of protection and healing.

To properly tease out the significance of such symmetries would require more discussion than space here allows. I can only point to these as fertile ground for future work. Yet, to allow oneself to be 'dumb', light-hearted, and welcoming of possibilities beyond what seems already settled is a useful move – a good position from which to start writing and thinking in ways which elude the modernist, and capitalist, need to define, settle, and 'thingify'. Thinking in terms of *ecologies* – in the sense sketched out above – ensures that the space prised open by this approach is less likely to permit the use of pre-decided explanatory categories (such as nature, culture, society etc.) in accounts and explorations of traditional medicines and wellbeing.

When Sarah sought to cultivate *krag* by breaking firewood, her actions and thoughts blurred any such categorisations of reality. At no point did she attempt to 'take account' of culture or 'relate' her activities to the molecules blowing about in the medicine-infused air. The efficacy and vitality of Sarah's skilled practice sprang, in the same instant, from engaging in a pleasurable activity in contradistinction to the stresses of the day's adventures; from physically satisfying play; from a promise of a warm cosy home that evening; from loving family connections and memories; and from cleansing air, and the sights, sounds, and smells of the veld.

There is much to be learnt about this kind of blurring of established categories in the actor network literature. Of particular significance here is the active role granted to a multitude of nonhumans in the constitution of what social science normally terms 'society' – i.e. a uniquely human realm (Latour 2005). Of course, this means that the notion of a pure realm of nature then becomes equally impossible to maintain. This crucial insight unsettles the arguments of those who would seek to exalt either Science or Indigenous Knowledge as the bearer of truths cleansed of human interests and intentions. Divisionary and destructive wars of polemic, such as have surrounded attempts to deal with South Africa's HIV pandemic, have been waged along these battle lines: on the one side, those defending Science as the only possible answer, outing traditional medicine as so much social construction and hocus-pocus; on the other, led by former President

Thabo Mbeki and a biased reading of science studies, those denouncing Science as nothing but the abuse of neocolonial power (Green 2012). The result: a delayed rollout of antiretrovirals, contributing significantly to upwards of 3 000 000 HIV-related deaths (Chigwedere et al. 2008; Natrass 2008). The stakes are high, and strong theories that contribute to the unseating of such stultifying polemics are to be welcomed.

Yet, as I have pointed out, I am loathe to characterise Sarah's skilled practice as an 'assemblage' or a network of heterogeneous entities and practices which, connected, produce an effect. It is not in the 'coming together' of memories, play, landscape, air, and firewood that Sarah was able to cultivate her *krag*, but as a human being breathing, moving and thinking *through a world*, a living ecology—something perhaps more like a 'pathwork' – upon which her very life depends.

In order to convey this everyday flux and struggle for wellbeing in a manner not entirely drained of the liveliness of the entanglements by which they are constituted, I have followed the lead of the people I know in the Leliefontein communal area – i.e. to 'simply' tell a story.

Those quotation marks are quite intentional. On the one hand, telling a story *is* a simple matter: it seems to come to us almost as easily as breathing. On the other hand, this approach has allowed me – to some extent at least – to elude the usual pressures exerted on the anthropologist's thought by social science theory. Rather than aligning the world with predetermined categories of thought (culture/nature, subject/object, power/resistance, to name a few), diverse phenomena have been afforded breathing space to be woven together through practice in ways which hopefully mirror the realities I describe. The upshot of this is that the 'things' which emerge are less likely to be entirely and inappropriately bound and defined by the aforementioned modernist categories.

Comparing the storyteller to a craftsman working in the medium of human life, Walter Benjamin wondered 'whether it is not his [the storyteller's] very task to fashion the raw material of experience, his own and that of others, in a solid, useful, and unique way' (Benjamin 1969/1955: 108). Indeed, as a skilled practice among many others, storytelling is one key way in which realities are brought into being, are 'done' in John Law's terms. As people tell each other stories of their everyday lives in the Kamiesberg, often around a fire in the *skerm*, they recount their everyday, or not so everyday, experiences so that those sitting in companionship can know what the world, for them, is like and the kinds of entities of which it is formed. A good story will often carry across a message through the style of telling, events recounted and opinions expressed. The message conveyed by this tale of the myriad humans and nonhumans who played, and continue to play, their parts as mutually forging constituents of ecologies of wellbeing is simply this: that traditional medicine can be 'done' in ways that elude the usual stultifying categories

and polemics, and which bring into clearer focus what really matters – peoples' wellbeing in their day-to-day lives.

Notes

- 1 I return to a fuller discussion of these issues below. See also Green (2012).
- 2 Stretching from Garies in the South to the Richtersveld in the North, the Kamiesberg range forms an escarpment between the Sandveld on the west coast and Bushmansland to the east.
- 3 I have used pseudonyms throughout this chapter.
- 4 In May 2011 the new mayor, the previous owner of the main bar, realising the damage drink had done and was still doing in Paulshoek, decided to close the establishment. At the time of writing, there is a hope that it will be reopened as a general grocery store selling goods at affordable prices. I am happy to say that since the closure of the bar such violence seems to have – temporarily at least – abated to some extent.
- 5 'Kooigoed' means 'bedding' in Afrikaans. I was often told that the name derives from the fact that the soft, aromatic plant was used as bedding by previous generations of Nama people. *Hottentot* is a term – now considered pejorative – that was previously used to refer to Nama people.
- 6 In almost all cases they *are* men.
- 7 See also Haraway (2008) and Mien and Law (2010) on domestication as more than a simple enforcement of human mastery.
- 8 The term 'attributes' is used here in the philosophical sense, where a thing's attributes make it what it fundamentally is.
- 9 Gilles Deleuze and Félix Guattari have termed this a *haecceity* (Deleuze & Guattari 2004: 290). I'm not convinced, however, that this rather grand word is of any more use than 'a bundle'.
- 10 This is clearly not a comprehensive list and I want to flag another important theme, not mentioned in the narrative, which is the generally poor access that people have to biomedical services: a clinic visits only twice a month.
- 11 Since this story touches on some sensitive and dangerous issues such as *vuilgoed* and alcohol, I have changed certain details so that 'Sampie' and 'Sam' cannot be identified by anyone in the Leliefontein communal area who may read this chapter.
- 12 A *skerm* is a round, domed structure, about 6 m across and 2.5 m high, usually built with a circular wall of dried *muisoor* (literally, 'mouse ear', so called because of the resemblance of the bulbous leaves to the ears of mice) bushes stacked one upon the other. With one entrance at ground level, (normally) a roof of plastic or material sheeting, and a circular fireplace in the centre, it is a place for drinking tea, eating food, socialising, and taking shelter from the heat of summer and the cold of winter. Most often found at stock-posts, some people also have them in their gardens in the village.
- 13 A 'bakkie' is a South African term used to describe any type of light pick-up truck.
- 14 See Ross (2010: 28–29) for an excellent discussion of similar issues in a shack settlement on the outskirts of Cape Town.
- 15 See for example Von Uexküll 1957, 2001.

- 16 Aside from certain species of protected plants and animals, every resident in Paulshoek has free rights to the resources – firewood, medicine, building material – found on the *gemeenskap* (community) land that surrounds the village.
- 17 ‘*Groot maak ma*’, literally ‘big make mom,’ is applied to a woman who raises you in lieu of your ‘proper parents’. Sampie’s parents had died when he was a boy and so Ouma (‘Granny’) Johanna had taken on this responsibility. In fact, it is very common in this community for people of my generation to have lost at least one parent to illness or violence.
- 18 ‘Sangoma’ is a term widely used in South African society to refer to healers of various southern African traditions. Sometimes also referred to as ‘traditional healers,’ sangomas draw on their abilities to communicate with ancestral and spirit realms in order to diagnose and treat a wide array of ailments and problems. There has historically been a distinction between sangomas and herbal doctors, with the latter’s work having less to do with ancestors and more to do with the preparation of herbal medicine. However, the boundaries are somewhat more blurred today, and many sangomas will also work with herbs and other medicines.

References

- Benjamin W (1969/1955) *Illuminations: Essays and reflections* (trans. H Zohn). New York: Schocken Books
- Chigwedere P, Seage GR, Gruskin S, Tun-Hou Lee SD & Essex M (2008) Estimating the lost benefits of antiretroviral drug use in South Africa. *Journal of Acquired Immune Deficiency Syndromes* 49(4): 410–415
- Contractor NS, Monge PR & Leonardi PM (2011) Multidimensional networks and the dynamics of sociomateriality: Bringing technology inside the network. *International Journal of Communication* 5: 682–720
- Csordas T (2002) *Body, meaning, healing*. Hampshire: Palgrave Macmillan
- Csikszentmihalyi M & Bennett S (1971) An exploratory model of play. *American Anthropologist* 73(1): 45–58
- Deleuze G & Guattari F (2004) *A thousand plateaus* (trans. B Massumi). London: Continuum
- Farquhar J (1994) Eating Chinese medicine. *Cultural anthropology* 9(4): 471–497
- Farquhar J (2002) *Appetites: Food and sex in post-socialist China*. Durham, NC & London: Duke University Press
- Farquhar J (2009) Rising and resting: Practical habit and health knowledge in Chinese everyday life. Paper presented at the 7th International Conference on Traditional Asian Medicine, Thimpu, Bhutan (6–11 September)
- Green L (2012) Beyond South Africa’s ‘indigenous knowledge – science’ wars. *South African Journal of Science* 108 (7/8): Art. #631, 10 pages. <http://dx.doi.org/10.4102/sajs.v108i7/8.631>
- Haraway DJ (2008) *When species meet*. Minneapolis: University of Minnesota Press
- Ingold T (2007) Earth, sky, wind, and weather. *Journal of the Royal Anthropological Institute* 13(S1): S19–38
- Ingold T (2010) The textility of making. *Cambridge Journal of Economics* 34: 91–102

- Ingold T (2011) *Being alive: Essays on movement, knowledge and description*. Abingdon: Routledge
- Jackson M (1996) Introduction: Phenomenology, radical empiricism and anthropological critique. In M Jackson (Ed.) *Things as they are: New directions in phenomenological anthropology*. Bloomington & Indianapolis: Indiana University Press
- Jackson M (2005) *Existential anthropology: Events, exigencies, and effects*. New York: Berghahn Books
- Jullien F (2007) *Vital nourishment: Departing from happiness*. New York: Zone Books
- Latour B (1999) *Pandora's hope: Essays on the reality of science studies*. Cambridge, MA: Harvard University Press
- Latour B (2005) *Reassembling the social: An introduction to Actor-Network-Theory*. Oxford: Oxford University Press
- Latour B (2011) Networks, societies, spheres: Reflections of an Actor-Network theorist. *International Journal of Communication* 5: 796–810
- Law J (2007) *Practising nature and culture: An essay for Ted Benton*. Version of 12 January 2007. Accessed August 2011, <http://www.heterogeneities.net/publications/Law2007PractisingNatureandCulture.pdf>
- Mien M & Law J (2010) *Emergent aliens: Performing indigeneity and other ways of doing salmon in Norway*. Accessed August 2011, <http://www.sv.uio.no/sai/english/research/projects/newcomers/publications/working-papers-web/Emergent%20aliens%20Ethnos%20revised%20WP%20version.pdf>
- Merleau-Ponty M (1962) *Phenomenology of perception* (trans. C Smith). London: Routledge & Kegan Paul
- Nattrass N (2008) AIDS and the scientific governance of medicine in post-apartheid South Africa. *African Affairs* 107(427): 157–176
- Pavlovic D & Meadows C (2012) Actor-Network procedures. *Lecture Notes in Computer Science* 7154: 7–26
- Pignarre P & Stengers I (2011) *Capitalist sorcery: Breaking the spell* (trans. A Goffey). Basingstoke: Palgrave Macmillan
- Rohde R, Hoffman T & Allsopp N (2003) *Hanging on a wire: A historical and socio-economic study of Paulshoek village in the communal area of Leliefontein, Namaqualand*. Programme for Land and Agrarian Studies Report 17, University of the Western Cape.
- Ross F (2010) *Raw life, new hope: Decency, housing and everyday life in a post-apartheid community*. Cape Town: University of Cape Town Press
- DST (Department of Science and Technology, South Africa) (2004) *Indigenous Knowledge Systems policy*. Pretoria: DST
- Von Uexküll J (1957) A stroll through the worlds of animals and men. In CH Schiller (Ed. & transl.) *Instinctive behavior: The development of a modern concept*. New York: International Universities Press
- Von Uexküll J (2001) The new concept of Umwelt: A link between science and the humanities. *Semiotica* 134 (1/4): 111–123
- Willerslev R (2007) *Soul hunters: Hunting, animism, and personhood among the Siberian Yukaghirs*. Berkeley: University of California Press

Are petitioners makers of rain? Rains, worlds and survival in conflict-torn Buhera, Zimbabwe

Artwell Nhemachena

IN DROUGHT-BATTERED ZIMBABWE, the universality of meteorological scientific facts explaining the droughts that occurred from 2000 to 2011 was open to contestation, often in the public media. Explanations of the droughts which appeared in the media suggested that ideas about the causation of droughts are far from having been settled once and for all among the citizens of Zimbabwe. One comment in a Harare newspaper explained the droughts in terms of the El Niño climate pattern building up in the Pacific.¹ Another theory was that the droughts could only be averted by recourse to ‘traditional’ ceremonies including *mukwerera* – literally meaning ‘a request for rain’ but commonly known as ‘rainmaking’ – and cleansing ceremonies to purge the nation of blood spilt during the liberation war fought in the 1970s.² To a modernist sensibility that is inclined to scientific rationality, the idea of ‘rainmaking’ would be confined to the domain of the archaic, mystical and mythical as opposed to that of objective, quantifiable and ascertainable ‘things’ in the world. The idea of ‘rainmaking’, in such a modernist conceptualisation, belongs to the realm of the ‘past’, the ‘primitive’ or ‘backward’ eras where ‘gods’ ruled the roost and subjected human beings to vicissitudes and uncertainties. But then time does not move, at least as neatly as modernism implies, from the past to the future, since the ‘gods’ of uncertainty who have exited from the modern scientific world appear to have been simply replaced by modern scientific ‘gods’ of certainty who, a reading of Okri suggests, have yet to listen to the speech of poisoned dolphins, the cries of the stratosphere, the howls of the deforested Earth, the screams of people without hope and without food (Okri 1997: 132). Listening to the dolphins, the stratosphere and the Earth would, however, appear to imply a turning back of the clocks and logics of modernity, a reversion to or revisiting of ‘animism’, which cannot distinguish between ‘animate’ and ‘inanimate’ things. This chapter does not seek to invert these binaries but rather to engage with what modernity/coloniality scholars call transmodernity and border thinking (see Escobar 2002: 7–8). Transmodernity, as understood by Dussell, and border thinking, as understood by Mignolo, are projects

in which both modernity and its alterity are meant to coexist and cross-fertilise, rather than replace, one another (Dussell 1993: 76, Mignolo 2001, cited in Escobar 2002).

Questioning modernist dichotomies between belief and knowledge, nature and culture, this chapter dwells on the idea of *mukwerera* or rainmaking, and the problems that attend its translation into the language of realism. It explores the kinds of relationships that are cultivated by villagers in Buhera, Zimbabwe, in their everyday life and in struggles to survive the droughts that affect the region. The chapter looks at what is understood as *ukama*, kinds of relationships which are not confined to interhuman relations, and asks what these might mean if they are not translated into the conceptual categories of modernist thought.

The world, beings and knowledge practices related to droughts and rains

While the relations between President Mugabe's Zimbabwe and the Western countries were frozen in a polemic that pitted Mugabe against Britain and by extension Africa against the West, villagers in Buhera, a district in the south-eastern part of Zimbabwe, related with beings of different kinds in their everyday life practices. Everyday life among the villagers is lived on the basis of open relations between humans and other-than-humans. Such open relations with beings and entities of different kinds are known as *ukama*. Interviews I had with village heads Samuel and Bere, *mbuya* ('female leader') Magaya, who is a healer, and Monica, a resident of the village headed by Samuel, indicated that humans are connected and related not only to other human beings but also to the *njuzu*, that is, some half-human and half-fish beings that live under water; the human beings are also considered in such villagers' conceptions to be connected to the invisible ancestors. From the *njuzu* humans get *ruzivo*, a form of expertise for healing ailments, and the *njuzu* are also considered to be present in some streams, rivers, pools and springs which do not dry out even in the years of severe droughts. However, when humans violate the *njuzu* by using dirty, sooty or metal containers to fetch water from such rivers, springs, pools or streams, the *njuzu* migrate away in the form of 'localised' whirlwinds, and the places subsequently run dry, since these water sources are considered to be '*pamisha*', that is, the villages or headquarters of the *njuzu*. Villagers reported hearing sounds of cows mooing, drumming, singing and whistling in the rivers, streams, pools or springs which are home to the *njuzu* beings. This is the character of *ukama* relations, as I will explain later in this chapter, with both the *njuzu* and the ancestors considered to be affecting the rains or bringing about droughts.

The idea of understanding and seeking to modify weather conditions by relating to these beings would cause consternation to the 'moderns', written of here

in a Latoureaan sense to mean those who rely on a radical dualism between 'nature' and 'cultures' which Latour calls the 'Internal Great Divide' (Latour 2004). Might it be possible to think with different versions of engaging with the world? When the villagers in Buhera speak of rivers as villages and headquarters of beings that are half-human and half-fish, who also manifest themselves in the form of localised winds, and sing and play drums just as humans do, it is worth exploring what such an approach offers as a way of thinking about what it is to know the world, rather than writing it off as mere 'belief', or as a cultural version of 'nature' that stand as the opposite of a scientific and apparently 'noncultural' 'nature'. I want to counterpose this approach to the meteorological sciences of rainmaking, and the production of nature as objects with which one has extractive relationships. Both of these approaches, I argue, are ways of making relationships in the world. Along with De Castro (2004), I want to argue that to 'translate' the one conceptual language into the other is to situate oneself in the spaces of the equivocation and to dwell there. To translate is to emphasise or potentialise the equivocation, that is, open and widen the space that is imagined not to exist between the conceptual languages in contact, a space that the equivocation precisely concealed.

Encounters in the early colonial period in Africa gave rise to challenges of translation between different modes of engaging with the world, and what transpired during these early encounters helped to shape the contemporary understandings of the world. Endfield and Nash's (2002) paper, for instance, explores interactions and reactions, in the early colonial period, of missionaries and the people they encountered in African contexts of frequent droughts. The missionaries considered the introduction of irrigation technology and agricultural settlement as both moral and practical solutions to the problem of droughts. Endfield and Nash point out that the missionaries regarded the work of the 'rainmaker' as erroneous, a folly and a curse, with the result that 'rainmaking' was scorned as a simple absurdity too ridiculous for sober argument. In their turn, the people whom the missionaries encountered in the region associated the droughts with the arrival of Europeans, some of whom killed the local kings' animals including the leopards associated with rains. The misunderstandings between the missionaries and the people they encountered in these situations arose from the challenges of translation of their different modes of engagement with the world. Missionaries were meeting people who did not make a (radical) separation between 'nature' and 'culture', humans and nonhumans, 'belief' and 'knowledge'. And they were meeting people who understood *Mwari* (God) as speaking through rocks, caves or other aspects of the environment and not through the Bible (Daneel 1970).

Understanding God only in terms of the Word in the Bible partly explains the challenges of translation during and after the early encounters, in that from the missionaries' point of view God was in essence separated from the environment,

whereas for the people they encountered God was, as indeed were other invisible entities, immanent (as much as He was transcendent) in the environment and could speak through it. The contestations created enduring categories such as 'rainmaker' and 'rainmaking' which, I will argue, do not speak to the ways in which *mukwerera* are conducted in Buhera. I begin by offering some clarification of the concepts of 'rainmaking' and 'rainmaker' which, as used by the missionaries cited in Endfield and Nash (2002), do not accurately describe *mukwerera* ceremonies in Buhera.

These concepts, for example, erroneously imply that there is production or manufacturing of rain, and that the *svikiro* (mediums) are the makers or producers of the rains.³ The concepts further give the false impression that the people who perform the ceremonies can put together or assemble all the ingredients needed to produce the rain, much like what manufacturers might do when making material goods. As I will argue below, the *mukwerera* ceremonies involve petitions for rain from the beings understood to manifest themselves in the form of wind. Although mention of requests to the winds for rain is scant in the literature (Gelfand 1959: 13), emphasis has often been placed on material 'objects' used to make such requests such as rain stones (see for instance Dah-Lokonon 1997). The emphasis, I contend, should not be merely on the 'objects' but on the wind (considered to have similar sensitivities to humans) as understood by the petitioners for rain.

Contrary to what the concepts 'rainmaking' and 'rainmaker' suggest, villagers in Buhera do not engage in 'rainmaking' but rather in petitioning for rain. Even the *svikiro* medium in Buhera does not profess to be a 'rainmaker' or to engage in 'rainmaking', as portrayed by some scholars of practices elsewhere in Zimbabwe (see for instance Chitehwe 1954; Gelfand 1959; Vuifhuizen 1997). In response to my question about what is commonly understood as 'rainmaking' ceremonies, the *svikiro* said, '*tinokumbira mvura kubva kumhepo*' ('we request rain from the wind'), that is, from ancestors understood as intermediaries between God and humans. The word they use for the request for rain is '*mukwerera*'. To make this request, they assemble in their numbers under the *muchakata* tree to petition the *mhondoro* for rain.⁴ A petition being subject to action or inaction (delayed or otherwise) by the petitioned, 'petitioning' appears to be a more appropriate way of describing the villagers' requests for rain than the commonly used term 'rainmaking'. The rain is not necessarily regarded as an inanimate thing, as people often sing to rain so that it will fall and they can have plenty. The *mukwerera* are not simple requests, however; as will be explained below, there has to be a number of people and other beings present to make the petitions effective. But children sometimes sing even as they herd cattle: '*Mvura naya, naya tidye makavhu, mvura naya naya tidye mupunga*' ('Rain, may you fall; rain, may you fall so that we can eat rice. Rain, may you please fall so that we can eat pumpkins'). These modes of engagement with the weather world are an acknowledgement of different forms of life manifested in

the wind, the clouds and the rain, which are understood not as objective things but as capable of hearing petitions and intervening to let the rain fall and thus make life possible. The environment is here understood differently from the conception of an environment and its weather that informs the meteorological sciences (see also De la Cadena 2010), but this may simply be due to the fact that human beings understand it from different angles, and so the different views may not reflect errors, irrationalities or failures of logic but rather different sides of the same thing. This is not to lapse into relativism but to underscore that understandings of the world are necessarily partial, depending on the time and the place at which one begins to make an inquiry about it.⁵

Navigating difference within the village community in relation to petitions for rain

To petition for rainfall the villagers in Buhera assemble under a *muchakata* tree. There are many *michakata* trees in the villages in spite of deforestation, because villagers shy away from cutting down these trees.

The *michakata* are not just trees or sacred places but villages of the *mhondoro* ancestral beings (a concept which seems to have been translated by scholars such as Bourdillon (1976, 1999) as ‘shrines’), in the same way that some rivers and pools are regarded by the villagers as villages of *njuzu* beings. Although all *michakata* trees are revered, it is the particular *muchakata* where ceremonies are conducted, which is given most importance. The *svikiro* said, ‘*Panzvimbo idzodzi pamisha yevamwe vanhu saka panotogara pachitsvairwa*’ (‘Such places are the villages of other people [referring to ancestral beings] so we regularly sweep them’). It appears that what they engage in during this assembly is not a mere ceremony or ritual but a petition that interweaves worlds. During the performances the beings of the supposed past, in the form of the *mhondoro* ancestral founders of the clan, are regarded as present, petitionable, and as manifesting their presence by speaking through the mediums or by appearing in the form of lions. Thus, somewhat resembling the interactions between living humans and ancestors among the Nayaka described by Bird-David (1999), the performances draw together humans, other-than-humans, the past, the visible present and its invisible presences.

Although the ceremonies to petition for the rains are open to villagers, not all of them participate or meet the expectations of the *mhondoro* ancestor, who is understood by some villagers to mediate between the villagers and God in their petitions for rain. Christians such as Brian and Maria, who belong to the Apostolic Faith Mission and the Apostolic sect of Masowe, do not want to participate, as they describe the ceremonies as *zvinhu zvemweya yetsvina* (things that are related to ill winds); they prefer to pray for rain. Although they argue that they rely only on

the Bible to pray, they also place significance on place: their prayers for rains are offered on Gombe Mountain which, as I will explain below, is considered by some villagers to be inhabited by dead people of the *hera* totem. In such a moment, the relation between tradition, the church, and the mountain becomes clear. While the Pentecostals contend that they talk to God directly without using intermediaries such as ancestors, the *svikiro* medium and *mbuya* Magaya, who is a healer, have different views. From their points of view the churchgoers simply replace ancestors with their leaders and prophets, whom they prefer to use as intermediaries between them and God. In many ways these contestations among the villagers offer conflicting interpretations of the relations between the Shona *mhondoro* and God (who has been known from precolonial times among the Shona as *Mwari*, *Musikavanhu*, *Nyadenga*, *Mutangakugara*, *Dzivaguru* or *Chikara*, as Bourdillon (1976) reported). Some missionaries regarded the ways of the people they met in early colonial Zimbabwe as heathen, and sought to reduce God to the Word (see Jeater 2007), but other missionaries noted that *Mwari*'s attributes were those of God (Bullock 1927), the only difference being that among the Shona, the *mhondoro* mediated between *Mwari* and the people. For these reasons *svikiro* mediums were considered by some scholars to be the prophets (Gelfand 1956; Mutswairo 1983), and were likened to the bishops and archbishops in a Christian society (Gelfand 1956: 17). Thus Crawford argued, 'For a person who believes in the *mhondoro*, the possession of a prophet of the Pentecostal churches by the spirit of God, Christ or the Apostles, appears in no way untoward' (Crawford 1967: 87).

What the Pentecostals and the rest of the villagers who attend the *mukwerera* ceremonies do appears to me to be petitioning for rain; the difference between them is in one of the terms they use, that is, 'praying' (which is arguably also a way of requesting) and '*kukumbira*' or requesting rain. Their practices are separate or different, but related in their substantive sense. These practices to avert droughts rely on relations between the visible and invisible entities and beings, such as ancestors for those who perform *mukwerera*, and *ngirozi* beings from the heavenly world for those who pray to God for rain. However, the challenge in such a village where members have different ways of engaging with the weather world is to 'democratise' the practices, to make space in order for the different knowledge practices to coexist.

The petitions and requests are a mode of engagement in everyday life that is applied to humans and nonhuman beings alike. Such petitions are used not only to ask for the help of providence but to navigate difference and conflicts. Among the villagers, difference is not necessarily treated with indifference or opposition but rather as an invitation to make requests: such requests and petitions constitute bridges across difference among humans and between them and other beings or entities. I was struck by the fact that healers and other villagers who are members

of Pentecostal and Apostolic churches do not just visit places such as mountains, rivers, pools and groves without making requests or praying first. They pray to request permission to enter safely, even before they begin their journeys to such places. They not only ask one another as church members to join in the visits to such places, but also request other entities and beings to accompany them. In this regard some church members, who on account of their affiliation to the church felt that they could not partake in the petition for rain, or contribute *rapoko* grain that is used in the *mukwerera* petitioning ceremonies, made requests to the chief and to the *svikiro* medium so that they could be excused.

Altering things and relations within the human domain without petitioning other beings in domains that are beyond (but still connected to the human) often results in reprisals and disruption of relations of reciprocity among the beings and entities in the environment. It is not just the relations between the visible entities and beings that matter for the wellbeing of humans in Africa, but their relations with the invisible beings also, such as ancestors (see White 2001). For this reason the past is often played out in the present, as a way of honouring the ancestors. In this sense, an emphasis on the linearity of time fractures relations of reciprocity within the environment and, as Garuba argues in his chapter in this volume, there is a need to recognise 'the complex embeddedness of different temporalities, of different discordant formations and different epistemological perspectives within the same historical moment'. But in Zimbabwe, and in Buhera in particular, rethinking modernity implies a focus on its notions not only of time but also of work: invisible beings such as *mhondoro* ancestors are regarded as working on some days to ensure that humans and other entities have rains, and resting on other days. Normally each *mhondoro* has a *chisi* (rest) day during which he is honoured, and villagers are not permitted to work on this day. Failure to observe the *chisi* day results in reprimands from the *mhondoro*. One example, as narrated to me by a number of villagers and by the *svikiro* medium, was when the chief failed to personally comply with the *mhondoro*'s expectations about the *mhondoro*'s *chisi* rest day; the *mhondoro*, speaking through his *svikiro* medium, reprimanded the chief and threatened to visit drought on his area, even if only on a small area in the chiefdom. Such threats were issued by the *mhondoro*, speaking through his medium, to the chief in 2009: prior to this date the chief had altered the day of the *chisi* rest day from Thursdays to Fridays because his (the chief's) father had died on a Friday, and he sought to honour him. The *mhondoro* founder of the clan was very angry about this change and, speaking through his medium, he summoned the chief and told him that it would not rain in his area until he restored the *chisi* rest day to Thursdays. The chief was told that on the day he changed the *chisi* it would rain in his area. The chief in turn summoned his headmen and village heads and told them that the *chisi* had reverted to Thursdays. He had initially altered the day of the *chisi* without seeking consent either from

the *svikiro* medium or from the *mhondoro*; he was scornful of the *svikiro*, who had just succeeded her late father as a medium, on account of her being female. The demand by the *mhondoro* for his rest day (or for his leisure time, to use a modernist concept) underlines for me the anthropocentric character of modern understandings of the concept of work, which exclude other beings and entities that perform work or activities that make it possible for human beings to survive or to have life. The work and activities of such beings and entities are simply taken for granted in the modernist understandings of political economies, which privilege human beings and treat other beings and entities as objects or as nonexistent.

Conducting the ceremony

Although petitions are a way of engaging difference, not every villager requests or petitions for recusal, however, and for this reason the *svikiro* medium is often dejected by the poor attendance or nonattendance at the ceremonies, which she contends benefit every villager when the rain eventually falls in the area. Attendance at the *mukwerera* is variable. In my experience, when I had agreed with the *svikiro* that I would attend one near her homestead in 2011, it was aborted because villagers did not come in their numbers to participate. Instead the *svikiro* went on a different day to another village some distance away to assist in their *mukwerera*. To me she merely narrated how the *mukwerera* happens, as I could not attend it that year. The *svikiro* and her brothers, Paul and Anton, maintained that *mukwerera* is being misunderstood and unnecessarily opposed by some villagers out of lack of knowledge, and that knowledge about such ceremonies is being lost because it is not written in books and other texts. The following description, which sets out the ideal version of the ceremony, is based on accounts given to me by village headmen Samuel and Bere, as well as by the *svikiro* medium and her brothers.

After the *matakapona*, which is a gathering for thanksgiving following harvests, people begin to prepare for the *mukwerera* at which they will petition the *mhondoro* for rains for the next season. Mature and married nephews of the paternal side cut firewood for the brewing of the beer. *Rapoko* grain is collected from the villages and the *mhondoro* is informed of the impending *mukwerera*. Elderly women soak the *rapoko* grain, which is used for brewing the beer. The people who cut the firewood have to abstain from sexual intercourse until the end of the *mukwerera*, for the *mhondoro* considers sexual intercourse to be impure. Women who are breastfeeding are also not allowed to participate; breastfeeding is also considered to be impure because the *mhondoro* detests milk. After the beer has been brewed the *mhondoro* is informed that his beer is ready for consumption. During the *mukwerera* there is drumming, singing and clapping of hands. People have to kneel down and clap their hands when making the petitions. They also have to use Shona,

the vernacular language of the region. Headmen Samuel and Bere, as well as the *svikiro* medium, pointed out that it often rains even as people are about to leave the *rushanga* (an enclosure of spaced poles around the *muchakata* tree where the *mukwerera* is held) for their homes.

During the *mukwerera* one clay pot full of beer reserved for the people of the *mhondoro's* clan is placed in the *rushanga*. A nephew of the clan pours a little of the beer in four directions around the *rushanga* and then he gives the remaining beer to the elders of the clan. The rest of the people then form a circle around the *rushanga* and each one is given a *mukombe* (a gourd container) full of beer. As each one drinks the beer, they sit down. The remaining beer is left in the *rushanga*. Clay pots and the *mukombe* are left in the *rushanga*, and they are collected by elderly women the following morning. The elderly women have to ululate '*kupururudza*' as they collect the items; they have to do this in shrill tones even though there may not be anyone else visibly present, since they regard the *mhondoro* beings as present, though invisible.

Ukama and animism

The account above shows that the *mukwerera* is conducted through forms of relatedness, understood as *ukama*, between human beings and invisible ancestral persons. It is also necessary that villagers relate well to each other during the *mukwerera*; from the point of view of some villagers, even before and after the *mukwerera*, relations among different beings and entities, if upset, may result in droughts. For instance Martin, an elderly man whom I met in July 2010 when he was taking a rest at the shopping centre in the village, contended that the violence in which some villagers and citizens of Zimbabwe had died during the decade from 2000 had angered God, who had then visited the recurrent droughts on Zimbabwe. Martin had just cycled some 20 km from a school where his son teaches. He had gone there to seek his son's assistance with money for food; Martin had only harvested five kilograms of maize during that year.

The *ukama* relations that characterise the *mukwerera* petitions for rain involve human beings, but the participants are not restricted to those who share biological kinship, as suggested for instance by Gelfand (1981). As alluded to earlier in this chapter, *ukama* includes relations between different kinds of beings and entities. It is not restricted to particular bodily forms or to those humans linked by marriage or affinal kinship. Rather, *ukama* is broader than kinship in the sense that it encompasses relations with rain (to which some villagers sing), animals, birds, mountains, *njuzu*, ancestors and God or invisible beings, understood as wind or air. *Ukama* is open, in the sense that it encompasses different beings and entities in the world that these beings and entities are understood to dwell in and to visit.

Although in *ukama* there is no radical distinction between human life and the lives of other beings and entities, the *ukama* is not necessarily a form of animism, for a number of reasons including the fact that animism emerged as a category from within modernist ontologies which presumed radical separation between human beings and other entities and beings. Animism has been defined in many but related ways, as noted by Bird-David (1999: S67). First, it is defined as the belief that inside ordinary visible tangible bodies there is a normally invisible, normally intangible being, the soul. Second, it is characterised as a religious belief involving the attribution of life or divinity to such natural phenomena as trees, thunder, or celestial bodies. Third, it is defined as the belief that all life is produced by a spiritual force, or that all natural phenomena have souls. Fourth, it is defined as the belief in the existence of a separable soul-entity, potentially distinct and apart from any concrete embodiment in a living individual or material organism. Fifth, it is defined as the system of beliefs about souls and spirits typically found among many preliterate societies. Lastly, it is defined as the belief, common among many preliterate societies, that trees, mountains, rivers and other natural formations possess an animating power or spirit.

These definitions presume from the outset that there are clearcut distinctions between nature and belief; and thus 'to animate' presumes that the thing or object is inanimate in the first instance. It is to impose modernist naturalist ontologies (used here in Blaser's (2009) sense) onto other ontologies. Secondly, the definitions presume that this category of belief is universal, in the sense of being found everywhere; yet among the Shona Buhera villagers there is no equivalent of the English concepts of 'belief' and 'spirits'. As pointed out above, the *svikiro* medium does not consider the *mhondoro* ancestor that speaks through her as a spirit, a soul or divinity, but rather as a relation – that is, as a grandfather. And where people in Africa view such ancestors not as 'spirits' but as relations, they often bear pain on their account, and also spend money and provide other material assets required in performing ceremonies to bring them home (see for instance White (2001) in relation to practices in KwaZulu-Natal, South Africa). In Buhera, the villagers relate to the ancestors, who, as in other parts of Africa, are considered to be dead but alive (see Mbiti 1970; Nyathi 2001), in that their *mweya/mhepo* ('air' or 'wind', terms used interchangeably among the villagers to refer to the souls or spirits of deceased human beings) continue to live and to influence the human world; they do this not through the category of belief but through *kutenda*, which means to be thankful or grateful, for the harvests and for the rains for instance, or for anything good that is done, including by fellow villagers. It is such *kutenda* which oils the relations of reciprocity in *ukama*; it keeps reciprocity and flows alive to the extent that one who fails to *tenda* (thank) is often likened to a *muroyi* (witch). The Shona have a phrase, '*kusatenda huroyi*', which means 'failure to

thank is witchcraft' because it blocks or stops the flows that render life. Animism, understood as the attribution of life by human beings to inanimate things, misses another important point, too, in that it presumes that it is always the visible human beings who will be speaking and making the attributions, whereas when the female *svikiro* medium spoke about different worlds inhabited by different beings, it was the deep male voice of the *mhondoro* (conceived as wind) inhabiting her that I heard. And as in other parts of Zimbabwe, what such mediums say is not attributed to them but to the *mhondoro* that speak through them (Lan 1986).

In my encounter with the *svikiro* medium and the interview with the *mhondoro*, *ukama* is shown as a mode of relating with the other to the extent of being prepared to 'host' another being inside the body and letting the voice of that other being speak.⁶ It is a form of hospitality where beings not only physically meet, but enter and use other beings' bodies. In this sense the body is not necessarily private, since it remains open to welcoming other entities into its interior. And this embodiment of other entities often results in other *hama* (relatives) nestling around the persons who embody such other entities, in order to consult them and get advice about rains. What is interesting to note in the case of the *svikiro* medium is that what unites villagers who consult her is not her external physical ('natural') body but the *mhondoro* entity that speaks from within her. The *mhondoro* is not merely a subjective or an 'objective' entity, since he moves in and out of his medium's body, inhabiting the body when he wants to say something and leaving the body when he has finished. Because he moves in and out of his medium, the logic of his being operates outside the Cartesian categorisation of what is inside the body ('subjective') as opposed to outside the body ('objective') (see Matson 1982). The *mhondoro* wind, in this case, moves in and out of the body of his medium and it is through this movement in and out that he is able to advise villagers on matters of weather.

Ukama and the world

The openness of the body and the ontological hospitality it exercises to accommodate other beings and entities correspond in some way to the openness of the world, where different beings and entities come together and relate to one another. When moving from one place to the other one is often greeted with the croaking of frogs, the singing of birds, the buzzing of bees on their way to collect nectar for their hives or to find water. And for purposes of this chapter, it is important to underline the ways in which movement in the world is often related to *ukama*. Villagers stress the relationship between movement and *ukama* by saying that *hama dzinofambirana* (relatives visit one another). And as indicated above, the concept of *ukama* is not reducible to relations between human beings, but rather includes the idea that other entities and beings relate as much among themselves as they do

with human beings. For the *svikiro* medium, for instance, the movement of bees around and into her house often precedes the arrival of human visitors. So the first visitor is the bee, which announces that other visitors of the human species are coming. Beings and entities that are met are not swiftly categorised as entities that are different from human beings, but rather there are often moments of pause, of hesitation, during which the beings that meet assess what kinds of entities they are encountering. For instance, the prophets with whom I visited mountains, after some moments of pausing and watching, understood the movement together of a baboon and a goat to mean that the two entities were *ngirozi* (heavenly) beings, as normally they do not stay or move together. In this way *ukama* is a mode of relating that not only makes difference liveable but also explains why different entities and beings move together in the world, as if difference does not exist.

Since in *ukama* beings and entities are related, such beings and entities are deemed to have and to share embodied knowledge about their environment. And although it is often embodied, this knowledge is not appropriated or monopolised by particular entities because it is dependent on *ukama* relationships. Knowledge has no locus, but is diffused among different entities and beings in these relationships. It is co-produced not only by human beings but also by different entities and beings that are not regarded as mere objects of knowledge, but as subjects embodying knowledge. In this sense it is not merely 'knowledge of', but rather 'knowledge with' the environment; it is not merely 'knowledge of' the world but 'knowledge with' the world. In the parts of Buhera that are inhabited predominantly by the Shona people, villagers often ask, '*Nei wati kuchanaya?*' (literally, 'With what reason did you say it will rain?'). To such a question, the respondent would answer, 'I heard the *haya* [rain bird] singing.' It is through such other beings and entities that villagers comingle and relate with what they know – the environment, including the weather. For instance some villagers, including village headmen Samuel and Bere, pointed out that Gombe Mountain drones and sets itself alight with the approach of the rainy season. The mountain is regarded as *hama yevahera* (a relative of the *hera* people, partly due to the fact that *hera* people used to stay on it and some of them were buried there). The *haya* (a rain bird which survives on water that collects in tree trunks) sings with the approach of the rainy season. *Madendera* (the ground hornbills, huge black and red striped birds) migrate and sing with the approach of the rainy season. Some trees come into leaf as the rains approach. Also with the approach of the rainy season, a cloud appears like a pool of water around the sun and the moon. A small white frog with long legs which lives in tree trunks croaks, and a wind called *nhurura* starts blowing. Clouds called *mvumi yemvura* which are thick, stable, white and rain-bearing appear.

The beings and entities that relate through *ukama* are often not reducible to their morphological appearances, as on the one hand they can be what they look like,

but on the other hand they may be other than or more than this. A mountain can be a mountain on the basis of its morphological features, but it can be more than a mere mountain on the basis of it being the ‘host’ of invisible entities. A baboon can be a baboon on the basis of its bodily appearance, but it may well be something else on the basis of the invisible entities or beings inhabiting it. Even wind is not reduced to its meteorological sense as an atmospheric phenomenon; though it can be such, it may well be something else that does not look like a mere wind. As pointed out above, the wind *mhepo* is also understood by the *svikiro* medium as a *mhondoro* ancestor who, though he is understood as wind, can also be more than mere wind when he manifests in his human medium or when he is manifesting as a lion. And the lion can be a mere lion, but it can also be more than this when the *mhondoro* is in it. Likewise the *svikiro* medium can be a mere human being, but she can be other than merely human when she is ‘hosting’ the *mhondoro*. Thus an entity can be one entity yet it can also be another entity; it can be what it is yet it can be what it is not.

Ukama relations maintain openness to possibilities for such switches. The openness of the relations has some resonance with Ingold’s (2007: S31) argument that in ‘animistic’ cosmologies there is attribution of supreme importance to the winds and such ‘animism is not a system of beliefs about the world but a way of being in it characterised by openness rather than closure’; and by this openness he alludes to sensitivity and responsiveness to an environment that is in flux. For Ingold,

there is no separation between the substances and the medium since the wind, rain and other weather phenomena enter into substances and the substances are in the wind, in the weather. That is substances and the medium are mingled in an open world with no insides and outsides but comings and goings. (2007: S31)

Having much resonance with Ingold’s argument, entities and beings in Buhera, as noted above, are not static: clouds and rains come and go, winds come and go, animals and birds come and go, the croaking of frogs and the singing of birds come and go, seasons themselves come and go and even the *mhondoro* ancestral being who is ‘hosted’ by the *svikiro* medium comes and goes, that is, he appears and disappears, disappears and reappears, and the *njuzu* beings appear and disappear in the rivers, too.

But there are also unbecomings in the world in that, as hinted above, some animals and birds which migrate or move around in the environment are killed by villagers. Gombe Mountain is being cleared of trees by some villagers, as I witnessed during visits to the mountain. Also, in a similar sense, the interparty violence in Zimbabwe that has afflicted some villagers constitutes what I will call

unbecomings, not only in the sense that such violence has been linked by villagers to the droughts, but also in the sense that killing is itself an unbecoming rather than a becoming. Though I cannot pursue this issue further for reasons of space, it is important here to note that during my main fieldwork in 2011 subsequent to the period referred to in this chapter, some villagers pointed out that because their *ukama* had been ruptured by interparty violence, they could not attend parties and other gatherings together as they no longer saw eye-to-eye with their assailants. Violence in this sense prevented the formation and maintenance of *ukama* relationships among human beings and, as Martin, the elderly villager referred to above, said, between them and the broader cosmos.

It is the uncertainties of the rains that explain rain petitioning ceremonies and the *ukama* relations that accompany them. If the villagers were always certain that rain would fall, I am not sure that they would engage in such ceremonies. Thus, uncertainties create the need to forge and maintain *ukama* relationships, partly as ways of creating fallback positions or some sort of insurance when things go wrong or do not work as expected. They create the need to work together as *hama*, since life is lived on the basis of relations of reciprocity among different beings and entities. Existing literature on matters of rains and droughts has so far adopted a humanistic view of the ceremonies, in the sense that no attention is paid to relational issues between entities and beings in the cosmos. This could be because many of the anthropologists researching rains and droughts in Zimbabwe have so far been writing from modernist positivistic stances, focusing mainly on the observable and the objective. Imposing the anthropologists' epistemological and ontological frames results in a loss of some of the nuances of the practices. In anthropological studies there is a need to pay serious attention to challenges of translation, and to exercise caution so as to avoid imposing the anthropologists' frames on the ontologies of the people who are being studied. In this way, greater insight into their modes of engagement with the world will be gained.

Notes

- 1 Zimbabwe: Experts predict drought, *The Herald*, 20 July 2009.
- 2 For example, Negation of traditional values blasted, *The Herald*, 20 January 2003; Zim 'needs' cleansing ritual, *News 24.com AFP Special Report*, 28 April 2009.
- 3 A *svikiro* is the medium of the clan ancestor, through whom he speaks and acts from time to time.
- 4 The *muchakata* (plural *michakata*), known to Western botanists as *parinari curatellifolia*, is the tree considered to be the village of the ancestors. The *mhondoro* is the clan ancestor responsible for rain.
- 5 Interesting ideas related to the weather emerging from the sciences are that the wind, the clouds and the rain are not merely physical phenomena but that they are also biological,

full of life, in that they contain bacteria which are being identified as rainmaking agents, since their presence in the atmosphere and the clouds facilitates precipitation (Rainmaking bacteria ride clouds to 'colonise' the Earth, *National Geographic News*, 12 January 2009; *Evidence of rainmaking bacteria discovered in atmosphere and snow*, Louisiana State University, 29 February 2008). Both the scientists and the *svikiro* mediums reveal that there are ordinarily invisible life forms which are crucial for precipitation, though they differ in their characterisation of the life (in terms of bacteria or of *mhondoro* ancestors) and in the ways in which they engage with the life forms to enhance rainfall.

- 6 I interviewed the *mhondoro* on 6 July 2010 when he spoke to me through his medium. During my initial interviews with the medium he (the *mhondoro*) did not manifest his presence. However when he eventually spoke through his medium on 6 July 2010, he informed me that he had been present during all the interviews I had had with the medium.

References

- Bird-David N (1999) 'Animism' revisited: Personhood, environment, and relational epistemology. *Current Anthropology* 40 (Supplement February): S67–S91
- Blaser M (2009) Political ontology. *Cultural Studies* 23: 5, 873–896
- Bourdillon MFC (1976) *The Shona people: An ethnography of the contemporary Shona with special reference to their religion*. Gweru: Mambo Press
- Bourdillon MFC (1999) The cults of Dzivaguru and Karuva amongst the north eastern Shona peoples. In M Schoffeleers (Ed.) *Guardians of the land*. Gweru: Mambo Press
- Bullock C (1927) *The Mashona (The indigenous natives of Southern Rhodesia)*. Cape Town: Juta & Co
- Chitche SSM (1954) Rainmaking in Mashonaland. *NADA the Southern Rhodesian Native Affairs Department Annual* 31: 24–26
- Crawford JR (1967) *Witchcraft and Sorcery in Rhodesia*. London: Oxford University Press
- Dah-Lokonon GB (1997) 'Rainmakers': Myth and knowledge in traditional atmospheric management techniques. In P Hountondji (Ed.) *Endogenous knowledge: Research trails*. Dakar: Codesria
- Daneel M (1970) *The god of the Matopo Hills*. Leiden: Afrika-Studiecentrum
- De Castro EV (2004) Perspectival anthropology and the method of controlled equivocation. *Tipiti Journal of the Society for Anthropology of Lowland South America* 2(1): 3–22
- De la Cadena M (2010) Indigenous cosmopolitics in the Andes: Conceptual reflections beyond 'politics'. *Cultural Anthropology* 25(2): 334–370
- Endfield GH & Nash DJ (2002) Missionaries and morals: Climate discourse in nineteenth century central Southern Africa. *Annals of the Association of American Geographers* 92: 4, 727–742
- Escobar A (2002) World and knowledges otherwise. Latin American Modernity/Coloniality Research Program. Paper presented at the Tercer Congreso Internacional de Latinoamericanistas en Europa, Amsterdam (3–6 July)
- Gelfand M (1956) *Medicine and magic of the Mashona*. Cape Town: Juta & Co
- Gelfand M (1959) *Shona ritual with special reference to the Chaminuka Cult*. Cape Town: Juta & Co

- Gelfand M (1981) *Ukama: Reflections on Shona and Western cultures in Zimbabwe*. Gweru: Mambo Press
- Ingold T (2007) Earth, sky, wind and weather. *Journal of the Royal Anthropological Institute* 13(S1): S19–S38
- Jeater D (2007) *Law, language and science: The invention of the 'native mind' in Southern Rhodesia*. Portsmouth: Heinemann
- Lan D (1986) *Guns and rain: Guerrillas and spirit mediums in Zimbabwe*. Berkeley & Los Angeles: University of California Press
- Latour B (2004) *Politics of nature: How to bring the sciences into democracy*. Cambridge, MA: Harvard University Press
- Matson WI (1982) *Sentience*. Berkeley: University of California Press
- Mbiti JS (1970) *Concepts of God in Africa*. London: Society for Promoting Christian Knowledge
- Mutswairo S (1983) *Chaminuka: Prophet of Zimbabwe*. Washington DC: Three Continents Press
- Nyathi P (2001) *Traditional ceremonies of Amandebele*. Gweru: Mambo Press
- Okri B (1997) *A way of being free*. London: Phoenix House
- Vuifhuizen C (1997) Rainmaking, political conflict and gender images: A case of Mutema chieftaincy in Zimbabwe. *Zambezia* 24(1): 31–49
- White H (2001) Tempora et mores: Family values and the possession of a post apartheid countryside. *Journal of Religion in Africa* 21(4): 457–479

Metaphors for climate adaptation from Zimbabwe: Zephaniah Phiri Maseko and the marriage of water and soil

Christopher Mabeza

'AN ATTEMPT TO DO something beyond the usual-usual of development' was the founding intention of the Zvishavane Water Project (ZWP), one of the first indigenous Zimbabwean NGOs, whose origins are widely credited to a local farmer, Zephaniah Phiri Maseko (Wilson 2010).

Over a period of 50 years of observation and experimentation, Zephaniah Phiri Maseko's innovative farming methods based on water-harvesting techniques using canals, pits, and reservoirs have transformed his piece of land into a homestead of plenty. His work has earned many accolades, including being invited to the Oxford University Farm in 1985, an Ashoka Fellowship in 1997 to honour his innovation in water harvesting, and the National Geographic Society/Buffer Award for Leadership in Conservation in 2006, which he shared with Nicaraguan national Jaime Incer. In their citation the National Geographic Society stated:

This year's awardees are being recognised and honoured for their outstanding leadership and their vital role in managing and protecting the natural resources in their regions. They are inspirational conservation advocates, who serve as role models and mentors in their communities.¹

More than 8 000 people from 14 countries have visited Mr Phiri Maseko over the years to learn about his water harvesting techniques (Wilson 2010). Smallholder farmers have visited Mr Phiri Maseko's plot as well, and some 50 of them are said to be implementing his water harvesting techniques (Wilson 2010). In 2010, the Centre for Applied Social Sciences at the University of Zimbabwe conferred upon him a lifetime achievement award. Efforts are under way by the Midlands State University in Zimbabwe to award him an honorary degree.

Mr Phiri Maseko's extraordinary farming successes would have been difficult to imagine in this landscape in the 1970s. His plot in rural Zvishavane, like all land demarcated for Africans during the colonial era in Zimbabwe, has poor soils and

is thus not suitable for agricultural production. Zvishavane is located in agro-ecological regions 4 and 5 which receive about 500 mm of rainfall annually, making a compelling case for adaptation to climate variability in these regions. Moser and Ekstrom (2010) define adaptation as follows:

Adaptation involves changes in social-ecological systems in response to actual and expected impacts of climate change in the context of interacting non-climatic changes. Adaptation strategies can range from short-term coping to longer-term, deeper transformations that aim to meet more than just climate changes goals, and may or may not succeed in moderating harm or exploiting beneficial opportunities.

Mr Phiri Maseko's adaptive strategy is a system of agricultural production that runs counter to conventional wisdoms of agricultural science in the marginal rainfall area in Zvishavane. For example, he constructed deep contours that conserve water on his plot, in contrast to the type of contour prescribed by the colonial authorities that drained water away from the plot.² Rainfall in Zvishavane 'comes rapidly and leaves rapidly'. A farmer's task is to 'plant' as much water as he or she can in order to realise adequate harvests. Mr Phiri Maseko makes use of deepened contours, infiltration pits and mulching, and this ensures that both water and soil do not leave his plot but rather stay and 'marry'. He practises mixed farming; he is very much against monoculture. A closer look at Mr Phiri Maseko's agricultural practices shows that he uses both seed that is open-pollinated and hybrid seed that he buys from seed houses. The underpinning of his philosophy is that every drop of water counts, and therefore that most of the rain that falls on his plot should be 'planted'. He has constructed stone structures which trap the water and direct it to the fields where it is needed (see Figure 9.1). He harvests dishwater, which is stored in an underground tank, to water his fruit trees, some of which are not indigenous to Zvishavane but from other parts of the country, for example the Musawu.

His is a blend of traditional and modern practices; for example, he uses readings from his rain gauge and also interprets weather patterns by observing fruit trees and birds. His farm, home to a plethora of plant and animal species, is a product of many years of hard work.

A 'water plantation' in a marginal rainfall zone

Between 1970 and 1999, with his own resources, Mr Phiri Maseko constructed canals, pits and reservoirs to harness run-off water. He built stone structures and check dams in order to trap water that flowed down the rock outcrop next to his home, as shown in Figure 9.1. The structure he constructed first was meant

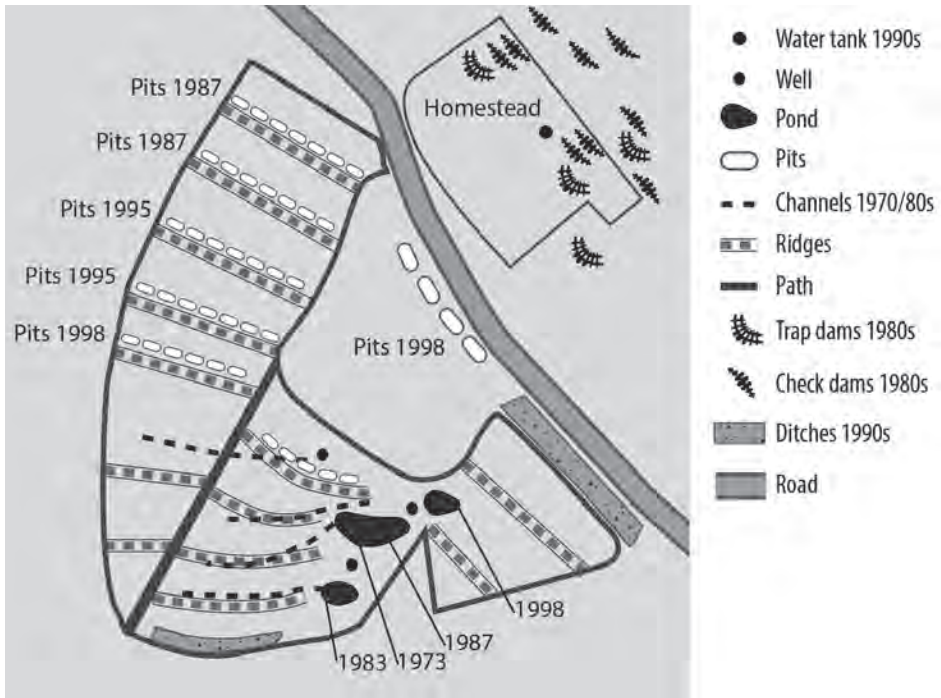
FIGURE 9.1 *Mr Phiri Maseko's stone structures that trap water*



Source: Photograph by Christopher Mabeza

to harvest water from the rock outcrop, and he calls it the 'immigration centre'. Water from this structure is then 'ushered' to various parts of the plot. The water reservoirs offer water a 'permanent resting place from which to safely resist the debilitating consequences of uncontrolled waste through run-off and erosion' (Witoshynsky 2000: 5). Thus was born the idea of 'planting water'. He has transformed his homestead into what he calls 'a water plantation'. The plot mainly has sandy, loamy and clay soils. Sandy soils allow seepage of water, loamy soils are rich in nutrients to feed the plants, and clay soils hold water. Some of the water flows into the 'immigration centre', the major trap dam where he welcomes the water to his plot and tells it where to go – a description typical of the Phiri sense of humour. The water in the immigration centre seeps through the soil and flows to his fields, where it waters his crops and fruit trees and also fills his wells. Most of the water does not leave his plot, mainly because it is held by the clay soils and the deepened contours, thereby creating a 'Garden of Eden' with many species of plants and animals. The year 2012 received low rainfall, to the extent that most wells in Mr Phiri Maseko's neighbourhood ran dry. This was in direct contrast to the situation of the Phiri family, who were spoilt for choice because all three of the wells on their plot were full of water 'planted' through the innovations of Mr Phiri Maseko. His plot was a hive of activity, with many people coming to fetch water there.

FIGURE 9.2 Map of Mr Phiri Maseko's farm, 1999



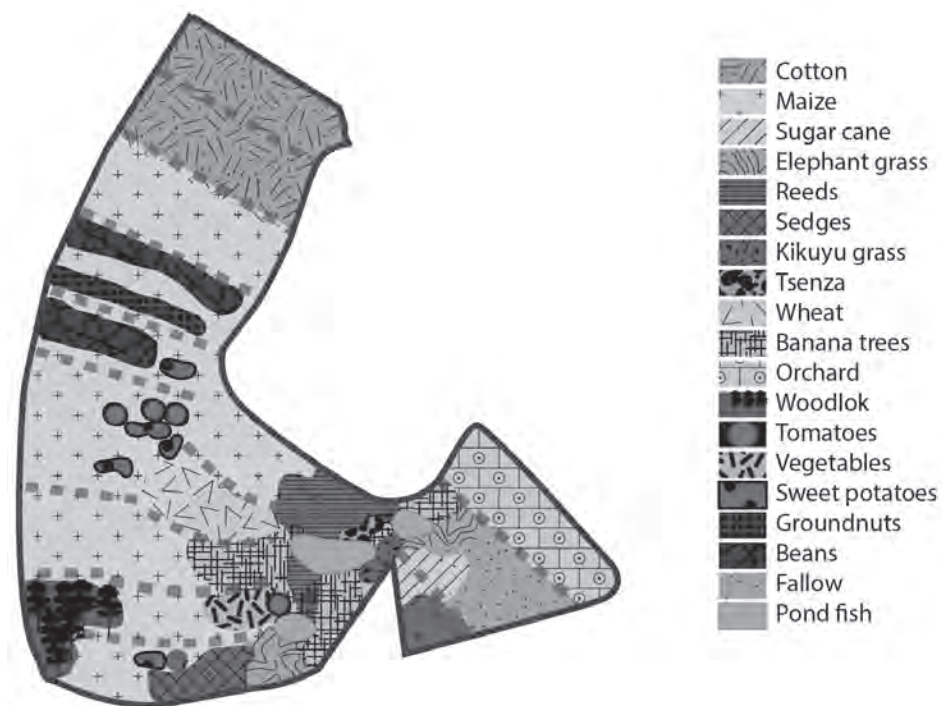
Source: Redrawn from drawing by Ken Wilson

A count that I did with Mr Phiri Maseko showed that there were over 30 different species of plants and trees on his plot. Vertiva grass and fruit trees like banana and pawpaw were planted along the edges of canals to hold the soil and stop it from falling into the water, and also to minimise evaporation. He practises crop rotation in order to maintain soil fertility. Some of the crops he plants include beans, ground nuts, beans, maize, sugar cane, onions, sweet potatoes and other vegetables (see Figure 9.3). For example, in the spring months of August and September he plants beans and maize. The maize is mainly sold as green mealies to neighbouring villages. In December he plants tomatoes on the ridges because there is a possibility of waterlogging. He harvests dry grass on the edges of his plot and uses it for mulching. Sugar cane is planted in the deepened contours because it requires a lot of water.

Mr Phiri Maseko, known as the 'Water Harvester' opposes government programmes of extracting underground water.³ He castigates such programmes as amounting to 'reaping where you have not sown'. Water should be 'sown' for you to be able to 'reap' it. Mr Phiri Maseko uses his metaphors as an art of diplomacy. He does this so impressively that his message about water harvesting easily gets home,

and motivates other farmers to follow suit. This is evidenced by the number of smallholders who have copied his techniques. He proudly declares how as a person of Malawian descent (ridiculed by some and embraced by others) he has been a source of motivation to Zimbabweans in the region. He calls himself a *mubwidi* (with tongue in cheek), a derogatory term used by native Zimbabweans to refer to people of Malawian descent who joined the 'Great Trek' to seek greener pastures in what was then Southern Rhodesia (now Zimbabwe). (The term resonates with another derogatory term, *makwerekere*, used by South Africans to denote foreigners.) The local people regard people of Malawian descent as 'second-rate citizens' or 'cast-offs of creation'. Most of the so-called *mabwidi* (the plural form of *mubwidi*) came to Zimbabwe as migrant workers and did menial jobs as farm and mine workers. Mr Phiri Maseko's father came to the country in 1914 as a preacher of the Church of Christ. The fact that he was a migrant from Malawi meant that Mr Phiri Maseko (senior) was not permitted to have a home in the rural areas of Southern Rhodesia. However, through his association with the then prime minister of Southern

FIGURE 9.3 *The cropping system on Mr Phiri Maseko's farm, 1999*



Source: Redrawn from drawing by Ken Wilson

Rhodesia, Garfield Todd (also a Church of Christ preacher), the elder Mr Phiri Maseko was allocated a plot in Msipane, in rural Zvishavane.

It was as a result of this experience of discrimination that Mr Phiri Maseko sought to innovate and prove that he could do better than the locals. He sought solace in the Holy Bible, where he read about the Garden of Eden and decided to replicate it on his plot. The term *mubwidi* has continued to reverberate in his brain, and has become a major influence in his life. The term oils the Phiri innovation machine. His innovations symbolise his determination to reassert his dignity, which was eroded by racial segregation at the hands of both colonial authorities and locals, although the ravages of time are beginning to take their toll on him. In 2012 he turned 85, and his best days are long gone. He is slowing down because of poor health, and this is negatively affecting his capacity to maintain his water plantation. Part of the fence surrounding his plot has collapsed, leading to stray cows eating vegetables in his garden. Clearly, his golden age was between 1996 (when he left the ZWP) and 2004 when his health began to deteriorate. During this time he managed to purchase a car, cows and farming implements, and pay school fees for his children, using money he earned from selling produce on his plot. It was also during this time that he refined most of his water harvesting innovations. For instance, he dug the 'immigration centre' reservoir, and by sustained and careful observation, realised that if it was filled thrice then he had harvested enough water to take him through to the next rainy season. It is these innovative water harvesting techniques that could be used as a model in regions that are prone to drought.

Mr Phiri Maseko's metaphors

The water harvester is engaged in an intimate conversation with his 'guests', the nonhumans on his plot. Participants in this conversation include water, soil, plants and other entities. Their voices exude confidence because of the hospitality of their host. These are voices with dignity; they have 'signatures' (Ross 2003, cited in Morreira 2010). There is a symbiotic relationship that ensures achievement and harmony on his farm. Metaphorical language is very evident in these conversations.

Mr Phiri Maseko's innovations rest on this brand of philosophy characterised by his use of metaphors that speak of the relationships between water, soil, plants and people. For example, he says that when water flows from the rock outcrop to his plot he tells the water that its 'days of ill manners are over', referring to the water's 'ill manners' in eroding the soil, and making it clear that such behaviour is not tolerated on his plot. Metaphors convey a deeper level of comprehension of meaning and significance. The 'essence of metaphor is understanding and experiencing one kind of thing in terms of another' (Lakoff & Johnson 1980: 125). Kendall and Kendall posit that metaphors are 'cognitive lenses we use to make

sense of meaning' (Kendall & Kendall 1993: 149). According to Thompson, metaphors 'transfer meaning from one domain to the other' (Thompson 1990: 103). Accepting Thompson's view of metaphors as having the capacity to generate divergent ways of making sense of the world, this final section of the chapter probes Mr Phiri Maseko's use of metaphors to interpret the world in a way that gives 'plurality to meaning'. In a 2008 article by Lancaster that presents a case study of drought resistant farming, for example, Mr Phiri Maseko is quoted using several metaphors, including that of the 'immigration centre' dam that collects the water already alluded to. This is the first port of call for the water, where he welcomes it in a metaphoric gesture that is typical of his hospitality – a hospitality which has ensured high yields on his plot. He asserts that the farmer's duty is to 'harvest water', especially in Zvishavane with its very low rainfall, and so reduce soil erosion. He compares the soil to a tin, one of whose duties is to hold water. He says that 'gullies and erosion are like holes in the tin that allow water and organic matter to escape. These must be plugged', and that implementing such measures as these ensures that you begin to 'rhyme with nature' (Lancaster 2008).

In a speech given by KB Wilson in 2010, Mr Phiri Maseko is quoted as saying, 'One of the jobs of the farmer is to prevent soil and water from eloping and running-off together but to marry and raise a family together' (Wilson 2010). Failure to do so would be to abrogate one's duties as a farmer. Mr Phiri Maseko asserts that failure to 'plant water' on the part of a farmer erodes his or her dignity. It amounts to a 'momentary descent into nonbeing' in the same manner as the owner of the cock that loses in Geertz's famed Balinese Cock Fight (Geertz 1973: 445).

Mary Witoshynsky, in her book on the life of Mr Phiri Maseko, elaborates further on his use of metaphors). His idea of water harvesting continues to be central to these metaphors. He says, for example,

I asked myself, 'Zepheniah! What can you do to harness the small bit of rain that falls on your plot? What can you do to have water for your crops and family? What can you do to keep water in your soil during our droughts that sometimes last for years without rain?' That is when I began my water plantation. (Witoshynsky 2000: 13)

What is evident in this metaphor is that Mr Phiri Maseko takes up the gauntlet of erratic rainfall and makes the decision to prioritise water harvesting as a way of adapting to climate variability. He says that he 'plants water as he plants crops' and that his plot is not just a grain plantation but that it is a 'water plantation'. The size of the fruit such as mangoes that he harvests from his plot bears testimony to the

abundance of water on this 'plantation'. He has also planted reeds on the plot, and people come from neighbouring villages to buy these reeds to make baskets.

The Bible is also a source of Mr Phiri Maseko's metaphorical language. He makes reference to it as follows: '[The Bible says] "You are the salt to salt the food for the people". I am saying, let Zvishavane Water Project be the salt to show the community a better way' (Witoshynsky 2000: 47). The ZWP was founded in 1987, and its major objective was to construct wells using Mr Phiri Maseko's water harvesting techniques. It was founded against the background of a rise of waterborne diseases in the Msipane area of Zvishavane, because of the unavailability of clean water. The other mandate of the ZWP was to help people in Zvishavane and the neighbouring Chivi district to construct nutritional gardens. About 80 wells, 40 small reservoirs and 20 nutritional gardens were constructed under the auspices of the project. Mr Phiri Maseko was mainly involved in the activities of the ZWP in an advisory role. He donated a piece of land for use by the project for the purposes of demonstration. However, currently this piece of land lies unutilised for reasons best known to the ZWP. He left the ZWP due to a deterioration of relations with the then project manager.

What is evident in Lancaster's case study is a narrative of an anthropogenic ecology/ecosystem based on stewardship of relationships (Lancaster 2008). Mr Phiri Maseko's use of metaphors gives us an insight into his brand of thinking. He is the embodiment of the person-in-ecosystem philosophy which emphasises the importance of interaction between an individual and the environment. This concept of interconnectedness is very much explicit in Mr Phiri Maseko's way of thinking. It is because of this way of thinking that he treats water, soil, trees and plants as subjects and not as objects. He sees these things as integral members of his household, as part and parcel of his family, that therefore should coexist and cooperate with him to bring about a 'bountiful plot'.

In particular, the soil is very important to the people of Zimbabwe. The soil is life; it is the major source of livelihoods in the rural areas. Traditional Shona people label themselves as *vana vevhu* (sons and daughters of the soil). Unfortunately most of the rural areas are dry, and communities often labour in 'fruitless struggle with fragile soils and erratic rainfall' (Witoshynsky 2000: back cover). One of the main reasons for the two Chimurenga (liberation) wars in Zimbabwe was the land question. However, it would be an oversimplification to say that the Zimbabwean liberation struggle was only about land (Mhanda 2011). The struggle was for self-determination, equality and the restoration of human dignity (2011). This is not to dispute the importance of land; because of its importance to the Karanga people of Southern Zimbabwe in the Shona economy and religious beliefs, land was used by the black nationalists to rally the black population to support the liberation war.

Use of metaphors is Mr Phiri Maseko's way of creating a medium that expresses the commensurability of humans with nonhumans (water, soil, plants, trees etc.). To him, 'talking' to these members of what I will term his 'extended family' makes him understand how they 'feel', 'think' and 'function', so that he gets to understand them and puts them to maximum use in order to exorcise the ghost of food insecurity on his plot. Understanding the needs of his 'extended family' will ultimately help him to achieve his objective of 'rhyiming with nature'. In his extended family there are marriages, a good example of which is that of water and soil. This marriage ensures that there is harmony on his plot, since the two 'marry' and raise a happy family. Neither soil nor water is lost to soil erosion. The happy family are the crops that Mr Phiri Maseko harvests, thus helping him to adapt to climate change by consolidating food security. If a farmer conserves his soil and water, his harvest will be plenty.

Self-reliance is very much in evidence in Mr Phiri Maseko's philosophy. He shuns aid from donor organisations. He fears that he would become a 'slave' to the whims of these organisations, as he is very mindful of the maxim that 'he who pays the piper calls the tune'. With the use of local materials and his own resources, he has transformed an impoverished plot into an 'oasis'.

Organic farming as an alternative to use of synthetic fertilisers is central in this method of farming. Mr Phiri Maseko says, 'Synthetically fertilised soil is bitter.' According to him, therefore, synthetic fertiliser harms the soil which he sees as a member of his family. If the soil is harmed then disequilibrium ensues, resulting in food insecurity. Mr Phiri Maseko's way of thinking has helped to make organic farming the buzz word in some parts of Zvishavane, where crops are being produced without the use of synthetic fertilisers and pesticides. Organic farming encourages agricultural practices that are both environmentally and economically sustainable.

Learning from the water harvester's conversations

Lessons drawn from this philosophy are crucial to rural development. Postcolonial governments perpetually cite lack of aid from the West as the reason for underdevelopment in the rural areas. Like a tongue probing a decaying tooth, they keep stepping around the ragged edges of the chasms created in the dark time of colonial rule. The West is blamed for everything bedevilling their countries. Unreliable rainfall is couched in the language of discredited pseudo-accusations against former colonial masters who, 'unhappy with our successful land policy', come in the dead of night to 'destabilise our weather conditions'. Yet innovations by individuals like Mr Phiri Maseko are a shining example of how rural smallholder farmers can, against all odds, make use of cheap local resources to ensure food

security. State actors can organise field demonstrations by innovative individuals and try out the Phiri models throughout the country. In other words, developmental policies should promote self-reliance rather than the donor syndrome. Such innovative individuals should be honoured in their own countries as a way of recognising their immense contributions to knowledge.

Agricultural practices like those demonstrated by Mr Phiri Maseko make us rethink the whole programme of land resettlement in Zimbabwe. If a smallholder farmer in the 'fragile, water-stressed environment' of Zvishavane can 'offer a path of hope' by creating a 'plot of bounty', is land resettlement really the only solution to food security (Zaidman 2002)? Mr Phiri Maseko's water-harvesting techniques can be used as a pilot project to assist smallholder farmers in realising food security.

But beyond the practical significance of Mr Phiri Maseko's farming methods, the philosophy on which they are based has a further significance in that it resituates human presence in the environment as an equal to soil and water. According to the Phiri philosophy, humans and nonhumans are all actors who should continuously interact with each other; humans should 'talk' with the nonhuman actors so as to help achieve sustainability and food security. Through the use of his metaphors, Mr Phiri Maseko asserts that humans and nonhumans are all part of God's great big family and therefore there should be 'peaceful coexistence' among them. His thinking is a breath of fresh air in an environment which has relegated local initiatives by smallholder farmers to the back seat of developmental policies. This counter-modern narrative generates a way of thinking about the world based on a rejection of the division between subjects (humans who have rights) and objects (things, animals, places, which have no rights). This echoes the Amerindian views of Alberto Acosta, who advances the idea of a 'declaration of the rights of nature' (Acosta 2010). Acosta argues that promoting the rights of nature does not compromise the quality of the lives of human beings, especially those of marginalised groups. Rather, respect for nature as an equal helps in building societies that easily adapt to the vagaries of climate change. Rural communities tend to benefit from this approach, in that by regarding natural resources as subjects, as demonstrated by Mr Phiri Maseko, they are able to adapt their farming methods and other ways of relating to the natural environment so as to enhance the sustainability of these resources. Knowledge generation premised on binaries of subjects and objects, on the other hand, can result in policies which are half-baked and out of touch with the needs of the rural communities who are in the 'frontline' of the adverse effects of climate change.

The knowledge structure of Western science has been interpreted as the imposing face of neocolonialism (Maldonado-Torres 2008). In other words, science seen through the lens of modernity helps to legitimise Eurocentric hegemony (see Martinez-Pinzon 2009). This control manifests itself in many ways, such as the

domination of received narratives of Western science in so-called developmental projects in the developing world. Maldonado-Torres further posits that ‘those who inhabit the underside of western modernity’ can through impressive innovations help in consolidating food security (Maldonado-Torres 2008: xiii).

Mr Phiri Maseko’s adaptation to the climate of the region where he farms has shown how the interconnectedness between humans and nonhumans can serve as a potential way of ensuring food security. It can offer a great deal to contemporary debates on land management, ecological farming, climate adaptation and food security.

Notes

- 1 www.kubatanablogs.net/kubatana/?p44 (accessed December 2012). Kubatana.net is an online community of Zimbabwean activists.
- 2 In the colonial era, people were forced to construct contour ridges which drained water from the land, and which led to gully formation and soil erosion.
- 3 This name was coined by Mary Witoshynsky, and is the title of her book about Zephaniah Phiri Maseko. See Witoshynsky (2000).

References

- Acosta A (2010) Toward the Universal Declaration of Rights of Nature: Thoughts for action. *AFESE Journal* 24 August: 1–17
- Geertz C (1973) *The interpretation of cultures: Selected essays*. New York: Basic Books
- Kendall JE & Kendall KE (1993) Metaphors and methodologies: Living beyond the systems machine. *MIS Quarterly* 17(2): 149–171
- Lakoff G & Johnson M (1980) *Metaphors we live by*. Chicago: University of Chicago Press
- Lancaster B (2008) Case study: Drought resistant farming in Africa. *The Ecologist* November. (Accessed December 2012), www.theecologist.org/how_to_make_a_difference/food_and_gardening/360257/case_study_drought_resistant_farming_in_africa.html
- Maldonado-Torres N (2008) *Against war: Views from the underside of modernity*. Durham, NC: Duke University Press
- Mhanda W (2011) *The making of a freedom fighter*. Harare: Weaver Press
- Morreira S (2010) Seeking solidarity: Zimbabwean undocumented migrants in Cape Town. *Journal of Southern African Studies* 36(2): 443–448
- Moser SC & Ekstrom JA (2010) A framework to diagnose barriers to climate change adaptation. *Proceedings of the National Academy of Sciences of the United States of America* 107(51). (Accessed July 2011), <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3009757&tool=pmcentrez&rendertype=abstract>
- Thompson S (1990) Metaphors the Chinese age by. In P Spencer (Ed.) *Anthropology and the riddle of the Sphinx*. London: Routledge

- Wilson KB (2010) Overview of Zephaniah Phiri's Book of Life, on the occasion of his Lifetime Achievement Award. Speech given at University of Zimbabwe (24 August)
- Witoshynsky M (2000) *The water harvester: Episodes from the inspired life of Zephaniah Phiri*. Harare: Weaver Press
- Zaidman Y (2002) *Zimbabwe's hope: In memory of Zephaniah Phiri Maseko*. (Accessed December 2012), http://www.opendemocracy.net/democracy-zimbabwe/article_553.jsp



Knowledge objects: An Amerindian woodcarving of the kingfisher constellation, whose stars are known elsewhere as Aquila the Eagle. Carving: Uwet Manoel Antônio dos Santos. Photograph: David Green

– a third intervention –
sciences and publics

'How can we get people to change their behaviour?' The question came from a natural scientist, whose concerns were urgent and anxious, rightly so, as we had just heard several alarming presentations on environmental challenges. 'There are three ways,' responded an economist without hesitation: 'Education, hurting people's pockets, and improving law enforcement.'

I felt a pang of disciplinary envy, wishing that my own training in anthropology could equip me with such certainty.

Later, over salmon patés, an environmental artist came to talk to me. Her tone was equally urgent, but bordered more on the outraged. 'Why should logic, money, or policing be the only reasons for people to look after environments?' she asked. 'Why is it so difficult to speak in these kinds of meetings about what it is to be human, or to want to live? The environmental arts,' she began to explain, 'are about making stories and images and experiences that people can respond to differently; so they can think with all their senses and reconnect with what it means to be alive because of an environment. It's just so different. It's about working with people's motivation; their will to live; their desire to be well. But if the starting point is compliance and control ...' she trailed off, shaking her head.

This volume as a whole makes the case that opening up different possibilities for the relationship between sciences, states and publics is vitally important – and possible. Yet the misunderstandings and incomprehensions even between the arts and the sciences, let alone knowledges and ways of knowing that lie off campuses altogether – so often end in frustration, even rage. What are the possibilities for different forms – and tenors – of dialogue?

The chapters that follow aim to open different kinds of conversations about environments and ecologies, in which the objects that we conventionally use to define 'nature' can be looked at in different ways, and less visible aspects can come to the fore. In Helen Verran's phrase, these are 'vulnerable dialogues': fragile; new; easily up-ended by more familiar logics.

Beginning these conversations requires the ability to move beyond three easy options: rejecting different versions out of hand as false; unconditionally accepting every version as true, or offering the pretence of tolerance. 'Working difference' – another of Helen Verran's phrases – takes courage, and patience and the ability to self-reflect and to hear the unexpected. The value of the work is in surfacing ways of thinking about nature that exceed the limits of the natures defined by capital, by culture, or by classification.

Engagements between disparate knowledge traditions: Toward doing difference generatively and in good faith

Helen Verran

HOW TO BE RESPECTFUL of difference but not intimidated or stymied by it in practical engagements between practitioners of disparate knowledge traditions? How to imagine struggles to do difference together? This is becoming a significant issue in the academies of the global South, as indigenous knowledges and their practices begin to find a place in the academy in response to the ‘pulls’ of market mechanisms and globalisation, and the ‘pushes’ of postcolonial critiques of the sciences (natural and social). Increasingly, too, we need to consider acts of connecting and separating not only with respect to alternative knowledge traditions, with their disparate metaphysical commitments, but also in the less challenging circumstances where knowledge circulates between disparate knowledge communities, like those, for example, of environmental policy-makers, ecological scientists and environmental activist NGOs.

In many institutional settings in remote Australia there is a need to practise modern science together with an indigenous knowledge tradition. More often honoured rhetorically than in actuality, there are nevertheless some situations where those working with a scientific sensibility genuinely try to learn from Aboriginal experts. Landscape burning is one of these (Andersen 1999; Bowman et al. 2004; Ockwell 2008). In this chapter I tell a story about the opening episode of a workshop that was designed to show environmental scientists how Yolngu Aboriginal landowners go about firing their lands (one of a series staged under the aegis of a local indigenous environmental organisation and its sister cultural foundation); the story provides an experiential basis for my theoretical consideration of how to imagine such engagements.¹

This workshop had an unfortunate beginning – a disagreement between the senior scientist and one of the instructing elders over whether two plants were the same or different. Perhaps a trivial disagreement, it brought the concept of difference into stark relief. In the discussion that follows the story, I use this disagreement as an occasion to articulate a technology – a set of questions I identify

as an interrupting tool. I contrast my interrupting tool with two orthodox accounts of knowledge which explain 'other' knowledge away. These more conventional responses to 'difference' suppose that the analyst can step outside the situation where difference is experienced.

A story

The women sat by a neat fire on the sandy river bank; as the landowning elders they had arrived early. Waiting for the others who were to join them, they had collected *ganguri*, long thin yams, from nearby patches of jungle. By the time the scientists found them, the fire was already beginning to die down to the hot ashes into which the yams would be placed. These tubers are best near the end of the dry season and collecting them is an integral part of *worrk*, of burning the bush as a form of land care. The arriving scientists joined the elders there on the sand, passing around their bottles of iced water. Those most intimate with the old women and their husbands took up shady positions close by. Visitors who felt themselves strangers respectfully chose to sit behind them, further up the bank.

This encounter on the banks of that little river had been carefully planned. The place where it took place, Wathawuy, is just south of the airfield and the huge open-cut bauxite mine that dominates the landscape, in the most north-easterly tip of north-east Arnhem Land in Australia's Northern Territory. Quite close to Nhulunbuy, a mining town and the largest centre of population in the region, Wathawuy and its surrounding lands are owned by the Yolngu Ngaymil Aboriginal clan. It was the site decided on for a formal presentation by the Aborigines: they were setting out to show their protocols for firing a tract of land to environmental scientists, and to tell how they justify these protocols. Wathawuy is located in the Dhimurru Indigenous Protected Area and is part of Australia's system of reserved lands by which it meets its obligations under international treaties on preserving biodiversity.

We all sat, hot, in companionable silence waiting for the fire to die down and the yams to cook. The creek gurgled as it flowed around rocks. A senior Yolngu man stood, and crossed to the opposite bank of the stream. Apparently at random, he broke twigs from some straggly, dry bushes. One of the women began stripping the stringy bark off sticks that had been gathered to make the cooking fire. Returning with the twigs, the man requested the kitchen knife from one of the women. He began whittling the sticks to produce one with a point and another with a flattened surface about halfway down its length. He gouged out a hole in the centre of this surface. As his wife held the stick with the flat bed section, the fire-maker began twirling the pointed stick in the hole.

The women began to laugh as he twirled and twirled, apparently with little effect. Those sitting further up the bank overcame their shyness, edging closer, and closer, and closer. Eventually their obvious eagerness to see provoked more hilarity than the would-be fire-maker's failure to produce much smoke, though his hands twirled the stick to a whirl. The instructors went on, changing places as twirlers of the stick and steadiers of the bed. The hole in the flat bed stick became deeper, the smell of singeing became stronger.

Watching, it became obvious that the trick at this stage was to judge the moment when the collecting pellet of smoulder was large enough to sustain being shaken out into a nest of shredded stringy bark. Once the smouldering pellet was inside, the nest was blown on to ignite it. What was important now was to know when to stop blowing and let the nest, breaking into flames, fall onto the pile of kindling collected on the ground. Too late and your eyebrows would be singed. Too soon and the pellet's smoulder would fail to become a flame. The oldest of the women took on the role of blowing the smoulder into flame amid much shouted advice in the Yolngu *matha* (language – literally, 'tongue'): 'You'll lose your eyebrows!' 'Careful of your nose!' Eventually, to everyone's great satisfaction, she produced a flaming ball, letting it drop onto the pile of sticks which merrily took up the flames. As the ignited kindling burned away, the scientists respectfully posed their questions.

'What is the name of this wood?' 'Do you use the same wood for both parts?' 'Can you show me the plant?' 'We call this "sand paper bush".' 'Does it have to be dead?' 'I want to try. Is that alright?' 'Is this sacred? I don't want to do it if I shouldn't'. The Yolngu Aboriginal instructors obliged with answers in a mixture of English and Yolngu language. Willingly showing the enthusiastic learners how to arrange the sticks, they guided their hands. 'Yes, the wood should be dry.' 'You need to hold the twirling stick very lightly.' 'You'll get blisters. You'll injure your hands.' 'The trees are the same one. One is the grandchild of the other – *māri/gutharra*. That means they are the same one, really.'²

There was a moment of deep, awkward silence. It was obvious that the scientist to whom this was addressed was extremely disconcerted by this claim of sameness about plants that to him were clearly different. The peculiar explanation that their sameness was that of the grandparent-grandchild relation no doubt added to his discomfort.

The scientist later wrote about this moment:

[Having watched carefully, I tried] to copy what I had learnt. [Looking for some sticks] I found that although I knew what species I was looking for, I found it very difficult to find the correct type of stick ... I told the man [who

had done the demonstration] that there were no sticks [nearby]. He laughed and showed me lots of suitable sticks.

He selected some dead sticks from a Tarenna and a Litsea. He told me they were the same. I said it was not true, and proved it by comparing the smells of crushed leaves of each plant. Litsea leaves have a pungent smell while Tarenna does not have any smell, indeed Litsea has alternate leaves [and] Tarenna has opposite leaves, and both belong in very different botanical families. He said they were the same in the sense of making fire sticks, but acknowledged they looked different. I suggested they were like a man and a woman, the same but different, and he agreed with this analogy. (Dhimurru Land Management Aboriginal Corporation 1998)

Cultivating a postcolonial impulse in doing difference between knowledge traditions

I will suggest below that this moment of collective awkwardness over whether plants are the same or different might be usefully described as epistemic disconcertment, and propose that the scientist's allusion to the more personal and familiar 'war of the sexes' is allegorical rather than analogical. Allegory bespeaks tolerance of worlds that are not clearly defined and neatly organised, and that may not cohere well, but it also diffuses or even traps the impetus towards invention and change that can come from a sharply felt encounter with difference. We need to learn to get beyond producing or invoking allegory as a soothing balm for the tensions of difference, applied in moments of epistemic disconcertment.

My contention is that both Aborigines and scientists need to learn to find ways to recognise and explicitly manage the positions that are thrown up in the tensions that epistemic disconcertment expresses, albeit drawing as they must, from their own (incommensurable) epistemic resources. That is what I mean by doing difference generatively and in good faith. Difference in this usage is not difference allowed by a common sameness, but rather difference *before* coming to concepts. Learning to recognise and value such difference, learning to refuse the step which requires a colonising reduction to a shared category, and acceptance that we may not be metaphysically committed to a common world, is what is involved in cultivating a postcolonial impulse.

What is epistemic disconcertment? 'Epistemic' refers to knowledge and how we account for what it is; our story or theory of knowledge. 'Disconcertment' conveys the sense of being put out in some way, and when qualified by the term epistemic it implies that our taken-for-granted account of what knowledge is has somehow been upset or impinged upon so that we begin to doubt and become

less certain. In the story I have just told I attributed epistemic disconcertment to the figures of the senior Aboriginal instructor and the scientist, but I too, as a witness to the disagreement in my capacity as cultural broker and ethnographer, and capable of simultaneously recognising the truth of both claims, experienced a moment of existential panic, what I am here calling epistemic disconcertment. I have been noting and describing such moments of epistemic discomfort since I first experienced it in Nigerian classrooms in the 1980s (Verran 1999, 2001) and then later in my work with Aboriginal Australians (Verran 1998, 2002a, 2004). I have several times previously suggested that cultivation of epistemic disconcertment is crucial for postcolonial knowledge work (Verran 2001, 2009, 2011). And now others, too, recognise the significance of epistemic disconcertment in more ordinary situations (I'Anson & Jasper 2011; Instone 2010: 99; Law & Lin 2011).

Epistemic disconcertment: Beyond allegory as balm

In this chapter I am extending the descriptive sensitising of my earlier writing by proposing a homoeopathic tool to systematically respond to such moments of panic by expanding them; in other words, by provoking further epistemic disconcertment. Taking seriously the adage formulated in Latin by Paracelsus, an early humanist thinker, *similia similibus curantur* (like cures like) – implying that we should treat unease with that which will exaggerate the condition – I have devised a set of questions about knowledge practices which I imagine as quasi-epistemic hooks that might serve to catalyse a generative response. That participants will be responding with quite disparate and incommensurable epistemic resources – that is, from within very different knowledge paradigms – makes peculiar demands on any such tool.

Epistemic disconcertment is bodily and hence personal, but I do not take this experience as a matter that concerns only individuals and their responsibilities. It is an expression of our solidified collective institutional habits. There is a momentary existential panic associated with recognising a way of ordering plants that does not carry the familiar way of dividing up the lumpy-bumpy, blooming-buzzing here-now, and which throws into disarray comfortable categories like matter, space, and time that actually do not feel like categories but rather seem to be reality itself. This speaks to the livewire insidious tentacles of the institutions and unacknowledged beliefs within which we negotiate our existential positioning as knowers. The ways, for example, in which we take what we know to be either somehow inside or outside us, our need for some routine, perhaps even ritual, means of solidifying the here-now and effecting duration. The multiple pulls of these intense habits of knowing are felt bodily, but they do not reside only in bodies. The bodily tension points to the vast inertia of the mesh of institutions,

categories, arranged materials, and communicative protocols and processes which is knowledge.

This framing recognises that it takes enormous effort to contain admissible meanings, to limit them to just one single meaning, for example the meaning of the biological classes to which *Litsea* and *Tarenna* belong. I am suggesting that this vast collective effort can and should be acknowledged when disparate knowledge traditions seek to engage with each other. The point is not that those efforts are somehow wrong. Not at all. The point is to recognise the effort as such, to recognise why it is important that the meaning of the classes to which *Litsea* and *Tarenna* belong be maintained as singular, and to learn how such effort might also be applied in alternative ways to achieve other ends, for example connecting in the here-and-now, in order to contingently go on together in projects that involve epistemic matters where participants in the projects draw on different epistemic resources. We need to make an effort to show ourselves how to work in good faith with respect to the disparate epistemic or knowledge practices involved.

I am taking epistemic disconcertment as a type of experience that alerts us to the tensions of the relations that exist within what we 'feel' as epistemic rightness, something which we are generally unaware of, until that is, it is rent asunder. Only then might we remember the bodily ease, the relaxation that comes with the sense of comfortable rightness (epistemic 'concertedness?'). We experience this sense of comfort with, say, a satisfying explanation. Epistemic dis/concertedness is bodily and personal, and individuals can become sensitised to it. But not only that, it is also analytical and methodological and can be collectively cultivated, as I am doing here through textual means. And, importantly, it can also be collectively denied.

At the end of this chapter I will set out a new imaginary of doing difference in which I consider how, working with epistemic dis/concertedness, we might grasp generative possibilities for going on together doing difference. However, I conclude this first introduction of the concept by pointing to the way in which allegory can act as balm for the unease of epistemic disconcertment, and so close down possibilities for generative tensions. Among its many roles, allegory is a potent protector of institutionalised epistemic practices whose purpose is to circumscribe and avert epistemic disconcertment.

Allegory is meaning that does not delude itself about 'being literal'. It is closely related to the rhetorical devices of irony and metaphor, and as the scientist in my story understands, can in some situations be taken as analogy – that is, explaining one thing in terms of another. Where, under the influence of singularism, the dominant assumption about meaning is that it is 'literally true', allegory is taken to be 'a special effect', so to speak. Allegory means something other than what is actually said. It is the art of saying one thing while conveying another, and expecting at least some of those who hear the allegory to 'read between

the lines'. Allegory will thrive in political situations where commentators fear the consequences of speaking outright; so for example in 2011 a Chinese professor might publish a review of the movie *Dogtooth* rather than talk explicitly about the repressive roles of the Chinese Communist Party in contemporary People's Republic of China. As I see it, in turning to allegory, the scientist has the correct impulse. The problem is that his repertoire of allegory is so limited. And that is exactly what the new working imaginary for engagements between practitioners of disparate knowledge traditions, which I introduce in the final section of this chapter, is designed to attend to.

By way of introducing that new working imaginary, in the next section I lay out two conventional theoretical explanations of difference as displayed in this disagreement. These are two contesting working imaginaries for doing difference which both involve re-framing of the sort I argued against in *Science and an African Logic* (Verran 2001). I re-present first a conventional explanation offered by anthropology, and then an explanation offered by an Australian professor of indigenous studies. In offering these conventional accounts of difference I tie them back to my ethnographic story. In doing this I do not wish to second-guess the old Aboriginal man and the scientist who, in an embodied sense, participated in the workshop. Rather, in attributing particular views of how science and Aboriginal knowledge might relate, I see myself dealing with characters in my story. These characters have an unknowable relation to the men-in-the-flesh who inspired them; it is as *dramatis personae* that I am using them to situate the theoretical accounts.

Difference reared up unexpectedly in the disagreement over the fire-making sticks, and we need to recognise that there are thoroughly conventional theoretical ways of explaining it. As participants in engagements such as I have just described, most Aborigines and scientists would probably arrive already equipped with some version of these stories of difference; these versions matter in the sense that they are tools or devices which frame the collective action. They can get in the way of going on together. In formulating a third approach I will suggest a tool that is *not* a framing device, in the sense of proposing a move to a meta-position, to the 'outside' of knowledge. On the contrary, I will suggest that we need to learn how to work with tools that can make the move in the other direction, towards an infra-level of practices – that is, we need to go deeper 'inside' the encounter, inside the experience of difference. It is crucial to find a way of doing difference *before* coming to (generalising) concepts (Deleuze 2004: 1).

My gripe with these orthodox stories of difference is that they are absolutist. Explaining the other in terms of itself, each actually explains the other away. When taken together, they envisage only implacable division. They are of limited use when people like the old fire-maker and the scientist want to simultaneously maintain and dissolve difference, in ways that are authentic and generative in terms of their own

disparate knowledge practices. The old stories are not mutually generative in the sense that they can allow and support simultaneous separation and connection of the old man's world and the scientist's. They do not enable the negotiation of useful links that can go along with maintaining significant divisions.

Two meta-epistemic framings: Averting epistemic disconcertment

Scientific representationalism

Here is a scientific explanation of the Yolngu Aboriginal knowledge tradition. It gives an account of the difference between science and an Aboriginal knowledge tradition with respect to how reality is known and the nature of the real – that is, it explains ontological difference. It is a story of ineluctably separate subjects and objects which I take from a paper included in a book published by the Australian Academy of Science for the Australian Bicentenary in 1988, edited by an eminent Australian historian of science. The account, 'Aboriginal Conceptions of the Working of Nature', written by an anthropologist and an archaeologist, is the first chapter of the collection (Hiatt & Jones 1988). In this paper, we have a careful appreciation of Yolngu Aboriginal knowledge by experienced and respected social scientists. The paper begins with a quotation taken from Boris Pasternak's *Dr Zhivago*: 'These cosmogenies belong to an ancient world – a world peopled so sparsely that nature was not as yet overshadowed by man ... This ancient world ended with Rome, overpopulation put a stop to it' (Hiatt & Jones 1988: 1).

Here we have the balm of allegory applied even before any unease has been felt. The means for containing epistemic disconcertment that might arise in a serious consideration of an Aboriginal Australian knowledge tradition as part of a self-congratulatory history of Australian science is announced at the beginning: this knowledge tradition is a 'living fossil', a form of knowledge that 'we' have progressed beyond. Elaborating this conventional view of how 'indigenous knowledges' relate to science, the authors propose that

like innumerable other peoples, Aborigines believe that reality comprises two coextensive domains. One is inhabited by human beings, and knowledge of it is gained through the senses. The other is inhabited by gods, ghosts and demons ... Entry into their domain may be achieved spontaneously by the act of dreaming; conversely, their entry into the domain of mortals may be contrived through the act of ritual. The Dreaming or Dreamtime, as this dimension of reality is often called, is conceived as an ultimate reality, eternal and beyond explanation ...

As conceived by Aborigines, totems are beings of great power who once roamed the earth performing wonderful deeds of creation and who now lie quiescent in focal points of the landscape. Before disappearing they left behind in the care of men tokens of their being: carved stone or wood, songs, designs ... and so on. (Hiatt & Jones 1988: 10)

The paper goes on to argue that Aboriginal knowledge should be understood by analogy to an ancient European account of knowledge: the Platonic doctrine of forms.

It seems reasonable to assume that we are dealing with philosophy and art ... an attempt to represent or epitomise the structure of the cosmos. Regarded on that basis *manikay* ['song complexes owned by a consortium of clans'] exhibit some striking features in common with Platonism ... Forms and particulars [sensible things] coexist in their different realms but whereas the latter are visible and ephemeral, the former are invisible and eternal. (Hiatt & Jones 1988: 19)

In science, subjects are removed, judging observers who accumulate information through the senses. Objects are material stuff imagined as located in empty space-time, and the material world that objects constitute is the foundation of the knowledge that knowing subjects possess. The logic of scientific thought ensures true knowledge, since the structure of logic mimics the given structure of the material world. That, of course, is a cartoon of science's realist version of foundationist metaphysics. I am dealing in cartoons here (see Verran, 2001: 14 for more discussion of this question).

As this account of difference has it, *Wangarr* (often called 'The Dreaming' in English) is a foundation for Aboriginal knowledge, just as the material world is a foundation for scientific thought. In that regard, the knowledge traditions are the same in being representationalist. The difference between the two knowledge traditions lies within this sameness.

The paper shows Aborigines as struggling to represent a transcendental domain in the secular domain where they are human beings. Aboriginal knowing subjects are identical, in this sense, to scientific knowing subjects. Both knowledges are representationalist. There is, however, a difference in the objects represented. 'Their' objects are transcendental, 'ours' are material. That *difference* is found within the sameness that both the knowledges *represent*. Aboriginal knowledge, then, can be found as different but nevertheless *within* the sciences' paradigm of representational knowledge, and the authors have a ready explanation for the

difference. As an ancient and original style of knowledge, Aboriginal knowledge is perhaps like many Australian plants and animals. This ancient form has remained alive in Australia, where remoteness created a natural museum. A picture of history as linear and evolutionary is embedded in this configuration of the two metaphysics. It confirms science as the ultimate authority, being more historically evolved, and more empirical.

So sure are the authors about the meta-sameness which frames the difference between science and Yolngu knowledge, that they ascribe a serious category mistake to their erstwhile respected informants. According to the scientists, what is clearly a representation is mistaken for reality itself. This ascription of a category mistake to 'the other' is the means by which the authors escape a fatal contradiction that otherwise would flaw their commentary. In this escape they also remove themselves to a knowing position 'above' that of their Yolngu friends and of 'primitive' knowers generally. The academics suggest that in their enthusiasm for their knowledge, Yolngu and other primitive knowers mistakenly take their knowledge as *actually being* that other domain, the transcendental. 'Primitives' fail to understand, say Hiatt and Jones, that *all* knowledge is a representation, a product of logical thought. Interestingly, in arguing this, the authors slip up in their otherwise very careful attention to presenting the Aboriginal tradition as live and contemporary.

So profound was the conviction of dependence on the world beyond the senses that cultural products like songs, dances, sculptures and designs were themselves deemed to have emanated full-blown from transcendent sources. (Hiatt & Jones 1988: 19)

This attribution of a category mistake is particularly telling. It amounts to denial that Aborigines are the authorities on the nature of their metaphysical commitments. Yet, the authors of this paper are clearly impressed with Aboriginal intellectual life and have close and intimate ties with their Aboriginal friends. Why do they fail to heed what Aborigines tell them on this particular issue? If the Aborigines' claims were to be taken seriously, they would render unsustainable science's claim that the two traditions share commitment to knowledge as representation, with the difference residing only in the types of objects being represented. Commitment to the tolerant sentiment that as knowers, Aborigines are 'just like us', is based on bad faith if it explains *away* the difference between the knowledge traditions as really sameness.

Indigenous essentialism

While anthropological accounts of Aboriginal knowledge are quite common, there are relatively few Aboriginal accounts of science vis-à-vis Aboriginal knowledge.

I take the version I re-present here from an eminent Aboriginal Australian who has worked closely with the Yolngu Aboriginal community. She is Professor of Indigenous Studies at the University of Melbourne (Langton 1998). For this commentator the Aboriginal knower

is conceived of, not merely as a body enclosing a singular conscious being, but rather as spatialised by virtue of totemic affiliation. Persons with inherited spiritual essence shared with non-human beings share the world of those beings including their natural habitats, as a most personal responsibility ...

A cosmology of totemic affiliation poses a different set of relational values between the human and non-human from the inherent hierarchy ... of values attributed to subjects of natural science ... such as [separating] and privileging [the] environmental over [the] social. (Langton 1998: 27–28)

Langton insists that Aboriginal subjects, the knowers of Aboriginal knowledge, *are* the transcendental domain of Spirit Ancestors along with the world they know. The Aboriginal knowing subject and the known world are one; knowledge is performance or enactment, and not representation, and certainty too is constituted in performance. The account carries the claim that science's story of its knowledge is mistaken in several ways. The false epistemic consciousness of science, which not incidentally permits its colonialist commitment to a spatial universalism, suggests that it ought to outgrow its immature empiricism.

Difference here lies in the fact that, unlike Aboriginal knowers who *are* expression of a transcendental cosmos through having an inherited essence of places they know, science has human knowers and the material world they know as *a priori* separate from each other. The mistake in science's story is profound, from the Aboriginal point of view, but it is a mistake that can be explained. Adopting Aboriginal metaphysics as a meta-framing device, this author has the difference between the two traditions of knowing resulting from the fact that peoples who have deep cultural roots in the places they know, which have been developed over many millennia, inevitably have very different epistemic relations with those places than immigrant communities deriving from vastly different regions. For this Aboriginal knowledge authority, the difference between science and Aboriginal knowledge is just what one would expect of a recently derived knowledge tradition which originated far away from the places it purports to know. Science is too young and too mobile; it needs to settle down and learn from 'us'. The Aboriginal account of difference also appeals to history, but here history is not evolution but rather constancy in place. Rooted in place, science might eventually discover and become

the essence of place as Aboriginal knowledge is, having, in the Aboriginal account, been co-constituted in original acts of creation.

Here too a sameness, knowledge as an essentialist expression of cultural origins, locates difference within it. This time the balm of allegory allows the knowledge traditions to each have an original purpose, one which expresses the time and place where the tradition came to life. But science is recent and expresses the greedy intentions of historical European imperial courts; its claims to know *here* are both invalid and illegitimate. This configuration of difference found within sameness leaves Aboriginal explanations of difference as authoritative. It effects a description of science vis-à-vis Aboriginal knowledge traditions that inverts science's account of its relations to Aboriginal knowledge.

Juxtaposing the two orthodox framings

These commentaries each contain an account of metaphysical commitments and offer explanations of difference. Each one amounts to the statement: 'Recognise us as the ultimate authority, and we will let you have your difference.' Both are absolutist and iconoclastic towards the other. When we put them together and treat them with equal respect and candour, absolute separation and inevitable and implacable division seems to be the only option. In the light of these competing and incommensurable explanations, I want to briefly reconsider that awkward moment at Wathawuy that developed over alternative claims of the sameness and difference of the plants from which the fire-making sticks were plucked. I want to elaborate on the incident that tripped up the old man and the scientist in the light of the different stories of difference I have just recounted. I am attributing these generic explanations of 'the other' to my characters in the text here. How this links up with what the old man and the scientist in-the-flesh actually told themselves, or if they had any explanatory story about the incident, is not the issue.

The encounter at Wathawuy between scientists and Yolngu Aboriginal knowledge authorities was focused on practical matters. Rehearsal of such accounts of difference as I have just elaborated was not the point of the exercise. Participants took themselves to have shared understandings of the environment/the land – difference was not what they understood themselves as doing. However, connecting things up proved both difficult and elusive (see Verran 2002a, 2002b). There was authentic encounter on a personal level but cognitively the episode failed to get beyond mere spectacle. Perhaps one of the reasons for this was the unrecognised reality that mutually incommensurable accounts of sameness/difference were circulating. In pursuing this idea I speculate on how each of my characters – 'the scientist' and 'the old fire-maker' – might explain the other's claim about the fire-making sticks.

The scientist in this little drama assumes that the knowledge category by means of which the old man recognises sameness – his *māri-gutharra* – represents the transcendental spiritual domain. In terms of the scientist's understanding of the old man as a knower, he thinks the man is saying that the sticks and the types of bushes they come from are the *same* on the basis of an ideal category of being. Perhaps the scientist feels that evoking sameness through human family relationship is quite fitting for a 'spiritual category'. After all, as he sees it, the old man, being committed to ideals, *believes* the sticks/types of bushes are the same. Perhaps the scientist understands this 'belief' as of the same sort as his own 'belief in God'. As science has it, faith is the only way to be certain about an ideal category. It may be that the scientist is beginning to feel that his participation in the workshop is a matter of his private, spiritual growth; that part of his self that is outside the orbit of science is what is being called on here. For the scientist, what it comes down to is that he is reasoning on the basis of observation, and the old man is doing the spiritual thing – being religious. Respectfully, the scientist sees before him a venerable 'primitive'. In finding a way to go on with the joint enterprise, the scientist understands himself as a private individual being tolerant and respectful.

The old Aboriginal man in this dramatic version also understands himself as being tolerant in going along with the scientist. He recognises that the criteria of sameness he is using are not those the scientist is using to derive the category 'botanical family' – the smell of crushed leaves, observable leaf placement and so on. He knows that the sticks and the plants are linked to different clan lands and to different clans; the origin of those links is of the utmost interest to him. In fact, what connects plant, stick, area of land and clan is stronger than 'a link': the stick, the plant, the clan, and the area *are* each other – that is how transcendently justified categories work – they stand in for each other. For the old man the sticks, like clan members, *are* live exemplifications of formal categories, differentially located in the formalised recursive system of categories called *gurrutu*, which is translated into English as 'the kinship system'. For the old man, doing the sticks' sameness and difference by using them to make fire is doing clan sameness and difference. *Bāpurru* is the Yolngu term for this complex entity of a *gurrutu* group. It happens that the *Bāpurru* involved here, in the form of the sticks, are relationally located as particular reciprocals in *gurrutu*. Their relationship is unity.

The old man is doing a formal logic whose entities are in some ways akin perhaps to geometry, where a pencil line on paper and the distance between two points is one and the same. He hears the scientist speaking 'baby talk'. In helping babies and children learn, he is continually pushing them beyond 'baby eyes', beyond such irrelevant difference/sameness distinctions as the scientist has just expressed. Taking the scientist seriously as a learner, he explains the (formal)

relation between the two plants – ‘they are the same one really’. The old man sees before him a ‘beginning learner’ and tolerantly takes care in instructing him.

Both the scientist and the fire-maker identify a connecting sameness, but in each case sameness is achieved by rendering ‘their’ tradition as already ‘within our tradition’, effectively explaining difference away. Symmetrically refusing that move, and instead taking both stories together, allows only for absolute separation between the stories. When it comes to engagement in good faith between disparate knowledge traditions, tolerance is a good beginning but in the end it is not enough; it is merely a way of not taking the other seriously (Stengers 2011). Mutual interrogation, which can reveal ‘our’ traditions to ourselves, as much to the other, is what is called for here.

Questions about knowledge practices: An interrupting technology opposing the balm of allegory

I have identified two means of using allegory as balm that can circumvent epistemic disconcertment. Both allegories manage potential contradictions by shifting ‘upwards’ to a framing device for explaining ‘the other’ away. As devices they shift the commentator, the author of papers such as this, to a *meta* position with respect to the knowing they are commenting on. Accepting such a positioning carries profound implications for how the commentator is configured as knower, for how she can know, and for what she can know. For a commentator to accept such a *meta* positioning implies that there is one set of answers to such questions for those whose knowing is being examined by the commentator, and another set of answers for the commentator herself. The assumption is that the commentator is a removed, judging observer with the gods’-eyes view. My commitment to materialist multiplism is not compatible with such notions of framing and meta-positioning. If I am to comment, I need to find a way of staying in the same plane of knowing as those whom my stories are about. Thus, instead of a meta-framing device, I offer a burrowing device, one that insidiously gets ‘inside’ those clotted routines and practices by which knowledge is collectively generated, with the aim of loosening things up, and which can equally well be operated by all participants, not only the commentator.

Knowledge practices? Aborigines have knowledge practices; scientists have knowledge practices. A modest and tolerant basis for engagement? Maybe. But I need to be explicit here. The category of knowledge practices chosen can all too easily be a way of imposing a sameness in which ‘our’ categories (knowledge/belief, practices/concepts, abstracting/situating) are mapped in an absolutist way onto ‘their’ collective life. I need to be careful to avoid being taken as proposing knowledge practices as a ‘translating sameness’. That would be just replicating the theoretical moves I have criticised in rejecting meta-framing devices. Part of that

avoidance is refusing to slip into the easy assumption that knowledge practices are something ‘out there’ waiting to be ‘found’. I am remembering the lesson of my ‘finding’ a Yoruba numeration system when I was struggling to articulate the difference of Yoruba numbers, and more particularly remembering the difficult and painstaking work I needed to do later, to show myself *how* I had both contrived that finding of a ‘waiting out there’ Yoruba numeration system, and assiduously hidden the contrivance of finding from myself (Verran 2001: 71–91).

I introduce ‘questions about knowledge practices’ as an analytic burrowing tool, by way of alluding to Stengers’ notion of ‘an ecology of practices’ (Stengers 2005a). Contingent and strategic as a category in use, my ‘knowledge practices’, or Stengers’s ‘ecology of practices’, is a tool only ever constituted fleetingly, and with some on-the-ground difficulty. Necessarily, in each instance of its use, the category ‘knowledge practices’ is re-formulated as a set of propositional questions, using the resources of the situation being analysed.

Stengers notes that she came to see the need for the tool she proposed as ‘an ecology of practices’ to help physicists deal with two serious challenges that their discipline is facing, but which physicists are unable to attend to without making things worse because they are bereft of appropriate tools. The first of these she identifies as the inappropriate clinging to a habitat of an intellectual life that is long since dead, the ‘habitat’ within which physics as a tradition of analysis came to life. Back then, as it came to life in 17th-century Europe, physics made a claim about an imagined, ideal ‘physical reality’ as that which it knew – a totally knowable reality to whose existence physics was committed. Stengers, who has worked for many years with physicists, is trying to show that to insist that there is a fully knowable reality, and that only physicists can know it, is actually to misrepresent physics’s epistemic practices. It is a waste of energy to insist on that sort of singularism.

Like physicists, in struggling to work together through responding in good faith as practitioners in Aboriginal or environmental science traditions of expertise, the practitioners I work with need new ways to articulate the means of their expertise. My offering of ‘questions about knowledge practices’ to experts like the senior Aboriginal fire-maker and the authoritative environmental scientist, and more generally those who would engage ‘other’ knowledge practices with some intimacy, is made in the same spirit with which Stengers engages physicists.

Knowledge practices are those collective, routine socio-material ways of carrying on that enable people to say ‘we know’ with at least some degree of certainty. They can be understood as accomplishing what would count as an answer to one or more of a series of questions, albeit that most practitioners would feel that these are a rather odd series of questions: Who knows? (‘How are knowers configured as outcomes of the practices of knowing?’ – glossed as ‘knowing subjectivities’). What do we/they know? (‘What entities are co-constituted along

with their knowers in these practices? – glossed as ‘ontologies’). How do we/they know? (What methodological means do we/they adopt in practices that co-constitute knowers and the entities they know? – glossed as ‘methods’). How do we/they know that we know? (How is enough certainty co-constituted along with knowers and what they know?’ – glossed as ‘epistemologies’).

We can understand this series of questions as a provocation. Were they to be seriously entertained on all sides, as questions about ‘our’ knowledge practices, they would add to the unease of engagements between practitioners of disparate knowledge traditions. The suggestion that these questions would actually be answered in advance of anything we *say*, simply by our sticking to *doing* our practices as usual (practices which we usually do not bother to articulate), will likely inflame things further. The questions, by infecting knowers with the painful condition of epistemic disconcertment, would add to the tensions and discomfort of engagement with difference. It is a treatment that mimics the destabilisations of the engagement itself.

The questions, posed by a commentator inhabiting the same plane of knowing as those whom her stories are about, can be understood as the stutterings of an idiot (Stengers 2005b: 995). The term ‘idiot’ here refers to one of philosophy’s conceptual personas, a shadowy, mysterious

something else ... that appears from time to time or that shows through and seems to have a hazy existence halfway between concept and preconceptual plane, passing from one to the other ... The [old rationalist] Idiot says ‘I’ and sets up the cogito [and] also lays out the plane [in which concepts appear].

The poser of questions about knowledge practices, the new idiot, has no wish for the indubitable truths of singularism, the simplifications of rationalism, but insists on ineluctable and irresolvable complexity (Deleuze & Guattari 1994: 61).

What exactly do these new idiot questions, designed as a tool for treating epistemic disconcertment by provoking it further, actually do? How do they work as a burrowing device that loosens things up? One thing they ‘do’ is to elicit support for mutual engagement, through precise tightening of the surface tensions of epistemic difference. They work to maintain action as collective *before* the arrival at (generalising) concepts. In concluding the discussion, I develop and illustrate this answer by going back to my ethnographic story and offering a third commentary.

A working imaginary for doing difference together before coming to concepts

Imagine the shocked silence that I described following the articulation of the disagreement between the senior Aboriginal man and the scientist over whether two

plants were the same or different. Now imagine the intensified collective discomfort if I (neither Aborigine or scientist), had at the time idiotically asked questions of the workshop practitioners. *How is this disagreement revealing of what you know; how is it showing your ontology? How is your configuration as knower, your knowing subjectivity coming into play here? How are the means that your collective cognitive processes adopt in generating concepts on show here? How does this disagreement implicate the means you collectively engage in, generating (enough) certainty?* What inappropriate temerity on the part of a know-nothing cultural broker/ethnographer it would have been to ask those questions then and there. Recognising that, I acknowledge that if the tool I have designed is to have any use it must be wielded 'in place' by the participants themselves. This chapter, and in particular this conclusion, is an attempt to show how that might be done.

I am offering a third commentary on my ethnographic story. I am mobilising those questions I articulated in the previous paragraph as a tool that might both help to exaggerate the epistemic disconcertment we all felt, to offer a challenge; and to provide a quasi-epistemic means to foster a common plane of knowledge-making within which we might all work collectively. To begin with, I suggest that we can see a move to the *insides* of the routines of both Aboriginal and scientific knowledge practices already happening in the engagement I described in my story.

In responding to the disagreement that flared so intensely at the very beginning of the workshop and finding a way to go on, letting the disagreement pass into the background, the two experts implicitly posed, for themselves and for the other, at least one of the above questions. The scientist offered the suggestion that the plants could be recognised as simultaneously the same and different, just as men and women are simultaneously the same and different, a proposition with which the fire-maker agreed. The problem is that things stopped there, and the allegory worked as a balm for epistemic disconcertment, usefully also providing a loophole through which a commentator could scramble to a meta-position, to reframe from 'above' an event in which she was marginal to begin with. The commentary I offer here eschews escape through that loophole, refusing the comforts of dualism for the commentator, although not denying possibilities for others (scientists and/or Aborigines) to be committed to a metaphysical dualism. Beginning as, and remaining, uncomfortably marginal in the event itself, this commentary re-performs it, perhaps convincingly, perhaps not.

I claim that participants in engagements such as the workshop on firing need to be able to wittingly go further with the allegory they came up with. They need to reliably be able to recognise *at the time* that such a turn to allegory is a beginning, not a way to end the discomfort of difference. There need to be established protocols and procedures for grasping the opportunities offered by expressing a felt need for allegory in *that* here-and-now, in order to do some

philosophical work within the real time of the event where the engagement is taking place.

The allegory that the sameness/difference of plants was a version of the sameness/difference of men and women was collectively taken as a soothing tactic; a means for covering up, closing down, and moving on. But nevertheless it contains within it an explicit recognition that *how* 'we' know, as a senior Aboriginal man and as an authoritative scientist, is different: the collective cognitive processes we each adopt in generating concepts are not the same. That is the implication of the content of the allegory. Using this starting point, how could my burrowing tool of 'questions about knowledge practices' dig deeper into the event to adduce some of the specificities and particularities of difference without resorting to a meta-framing that explains the other's knowledge away?

The scientist is a Linnaean: for him the *Tarenna* and the *Litsea* are species, units in a linear, hierarchical taxonomy. Each plant type features as a unit in a higher unit, a genus, which in turn features as a unit in a family. In shock he says, not only are these plants different species, they are units in different families! You do not find them as connectable units until you get to the level of the Linnaean category 'order'. In mobilising the Linnaean classification system (kingdom, phylum/division, class, order, family, genus, species) he is engaging the familiar abstracting, one/many generalising methods of the sciences.

The senior Aboriginal man, with his startling claim that the plants are the same, understands them as parts of a whole. He generalises and comes to concepts using a form of generalising not much engaged in the natural sciences. Plants, like everything else in the Yolngu universe, are parts of an interrelated, vague whole. According to what Yolngu commentators have been telling scientists for several hundred years now, one of the elements that emerged as this universe came into being is a formalised cyclical manner of being of this whole, known to Yolngu as *gurrutu*, which anthropologists renamed 'kinship'. In this cycle the two plants that generate fire occupy one position, the null position in the cycle. Their oneness is an outcome of their being distinct particulars that occupy a single position within a formalised, although still ontologically vague, whole.

In pop psychology, which I take to be the origin of the allegory offered by the scientist, the possibility for men and women to be simultaneously the same and different similarly relies on the contrast between generalisations of the form one/many and whole/parts. The popular imagination that this allegory draws on is based on contesting concepts of men and women. Some popular commentators argue that being male and being female are 'units' of the experience of being human, and together they add up to the category 'human': men and women are fundamentally different but complementary – 'men are from Mars, women are from Venus'. On this reading one can only experience being human through first experiencing being

as a specific man or a specific woman. Such commentators are adopting a one/many form of generalising. In contrast, other commentators, engaging a whole/parts form of reasoning, insist that men and women should be understood as parts of a whole 'humanity' (it is only experience of being human that makes possible the particularity of experience either as a man or as a woman or, some more liberal commentators add, both as a man and a woman). Or alternatively, men and women are imagined as sexual parts of a coupling, which is possibly what the scientist had in mind in proposing his 'analogy'. This is the form of *gurrutu* generalising that links man and women in the relation of husband and wife.

Irrespective of how the allegory is cashed out, the point is that it contains within it recognition of alternative ways of coming to concepts, and also that in consequence, different concepts are in play. Embedded within the allegory, the question 'how do we know?' can be found. What the burrowing tool of questions about knowledge practices can do, is bring this to the surface, and 'give to the situation the power to make us think, knowing that this power is always a virtual one, that has to be actualized ... [it must be something] that makes us think and not recognize' (Stengers 2005a: 185). What is required is thinking together, rather than merely recognising that we have experience in common here and using the allegory to close things down.

Together we should cultivate the collective disposition to interrogate the familiar: the agreed sense that men and women are simultaneously the same and different. *That* is what needs further questioning. Let us have some further fun with this allegory by considering what the participants might have said to themselves. 'In terms of questions about knowledge practices (Who knows? What do we know? How do we know? How do we know we know?), what are we saying when we agree that claiming that these plants are the same/different is like claiming that men and women are the same/different?' Pursuing the tension through stories of the endlessly entertaining and vexing relations between men and women, all the while recognising that what we are doing together here is making a particular use of the burrowing tool of 'questions about knowledge practices', could change the way we do difference. Participants could get to the point of saying that the event of the disagreement, together with its ready allegory, points to a salient difference here and now, one we would do well to take note of: knowing through vague wholes is different than knowing through specified units, and differing cognitive skills are involved. Maybe just that recognition could offer a way to name the problem that had the scientists coming to learn from the Aborigines in the first place.³

Notes

- 1 Discussion of some of the issues that arose in that series of workshops is given in Verran 2002a, 2002b.
- 2 The old man is referring to reciprocal positions in the *gurrutu* or kinship system through which most ongoing life is ordered in this region. For an introductory description of *gurrutu* see Exhibit 4 *Singing the Land Signing the Land* on the website <http://singing.indigenouknowledge.org/>
- 3 Members of the Yolngu Aboriginal community at Yirrkala, especially the Ngaymil Clan, the Dhimurru Land Management Aboriginal Corporation, environmental scientists employed by the NT Parks and Wildlife Service, teachers and students from the secondary section of the Yirrkala School, and students Margaret Ayre and Jonathan Wearne are gratefully acknowledged. This research was funded by an Australian Research Council Linkage Grant.

References

- Andersen A (1999) Cross-cultural conflicts in fire management in northern Australia: Not so black and white. *Conservation Ecology* 3(1): 6. (Accessed July 2010), <http://www.consecol.org/vol3/iss1/art6/>
- Bowman DMJS, Walsh A & Prior LD (2004) Landscape analysis of Aboriginal fire management in Central Arnhem Land, north Australia. *Journal of Biogeography* 31: 207–223
- Deleuze G (2004) *Difference and repetition* (trans. P Patton). London: Continuum
- Deleuze G & Guattari F (1994) *What is philosophy?* (trans. G Burchell & H Tomlinson). London: Verso
- Dhimurru Land Management Aboriginal Corporation (1998) *Worrk. Dhalinbuy 1995, Wathawuy 1996, Garrathiya 1997*. CD ROM. Nhulunbuy: Dhimurru Land Management Aboriginal Corporation
- Hiatt LR & Jones R (1988) Aboriginal conceptions of the working of nature. In RW Home (Ed.) *Australian science in the making*. New York: Australian Academy of Science with Cambridge University Press
- l'Anson J & Jasper A (2011) 'Religion' in educational spaces: Knowing, knowing well, and knowing differently. *Arts and Humanities in Higher Education* 10(3): 295–314
- Instone L (2010) Encountering native grasslands: Matters of concern in an urban park. *Australian Humanities Review* 49: 91–118
- Langton M (1998) *Burning questions: Emerging environmental issues for Indigenous peoples in Northern Australia*. Darwin: Centre for Indigenous Natural and Cultural Resource Management, Northern Territory University
- Law J & Lin W (2011) Cultivating disconcertment. In M Benson & R Munro (Eds) *Sociological routes and political roots*. Oxford: Wiley-Blackwell
- Ockwell DG (2008) 'Opening up' policy to reflexive appraisal: A role for Q methodology? A case study of fire management in Cape York, Australia. *Policy Science* 41: 263–292

- Stengers I (2005a) Introductory notes on an ecology of practices. *Cultural Studies Review* 11(1): 183–196
- Stengers I (2005b) The cosmopolitical proposal. In B Latour & P Weibel (Eds) *Making things public: Atmospheres of democracy*. Cambridge, MA: Massachusetts Institute of Technology Press
- Stengers I (2011) Comparison as a matter of concern. *Common Knowledge* 17(1): 48–63
- Verran H (1998) Re-imagining land title in Australia. *Postcolonial Studies* 1: 237–254
- Verran H (1999) Staying true to the laughter of Nigerian classrooms. In J Law & J Hassard (Eds) *Actor Network Theory and after*. Oxford: Blackwell Publishers
- Verran H (2001) *Science and an African logic*. Chicago: University of Chicago Press
- Verran H (2002a) A postcolonial moment in science studies: Alternative firing regimes of environmental scientists and Aboriginal landowners. *Social Studies of Science* 32(5–6): 729–762
- Verran H (2002b) Transferring strategies of land management: Indigenous land owners and environmental scientists. In M de Laet (Ed.) *Research in science and technology studies: Knowledge and society*. Oxford: Elsevier & JAI Press
- Verran H (2004) A story about doing the dreaming. *Postcolonial Studies* 7: 149–164
- Verran H (2009) On assemblage: Indigenous knowledge and digital media (2003–2006), and *HMS Investigator* (1800–1803). *Journal of Cultural Economy* 2(1–2): 169–182
- Verran H (2011) Comparison as participant. *Common Knowledge* 17(1): 64–70

The making of *Sutherlandia* as medicine

Diana Gibson and Sanja Kilian

LESSERTIA FRUTESCENS, KNOWN TOO as *Sutherlandia frutescens*, is a highly valued South African plant that is widely used as a ‘traditional’ medicine.¹ It is the focus of a range of ethnobotanical and scientific studies² and of randomised placebo-controlled clinical trials (RCT) in humans (Johnson et al. 2007). In this chapter we focus on the South African-initiated Phases I, II(a) and II(b) RCTs³ to scrutinise contestation about natures, i.e. reality and rationality, or different understandings of what is real, and of why certain things happen, as well as how these can be known (Green 2012). We argue that the trials engage this medicinal plant in seemingly unrelated ways: for example as a single botanical entity, a trial product, a regulatory object, and, somewhat counter-intuitively, as a whole system. The holism, i.e. the theoretical assumption that all the different facets that make up plants-as-medicines are interconnected, lies in a particular framework underlying the *Sutherlandia* trials, i.e. a reverse pharmacology approach (Patwardhan et al. 2008) for an African traditional medicine (Johnson et al. 2007).

The reverse approach draws on local knowledge and historical evidence of the use of plant medicines to select ‘candidates’ for further study and to do large-scale observational studies of the medicinal effects of these plants, in conjunction with the ‘relevant’ science. Reverse pharmacology was developed in India and is extensively used in China. Ayurvedic and Chinese medicines draw on long, documented histories of the use of plant and herbal mixtures for health promotion and healing. Such documentation is rare in South Africa. An African reverse pharmacology approach thus pushes the conventions of the approach further, by taking local oral historical narratives and experiential knowledge of the healing properties of plants by users and healers seriously. Reverse pharmacology also differs from the usual process of drug discovery and the search for new molecular entities or compounds used in Western pharmacology. Instead of screening plant extracts, isolating active principles and developing a drug before testing it in clinical

trials, a plant such as *Sutherlandia* is tested as an African natural medicine. An African reverse pharmacology approach thus sits somewhat uneasily with models of clinical trials for individual pharmaceutical components or molecules (Gibson 2011b).

This chapter, then, concerns the jostling of natures in a particular South African context and is about the resultant tension between the need for trials to standardise and, if possible, describe the properties of *Sutherlandia* in standard terms equivalent (in Western pharmacological language) with those used for other medicines, and the emergent, unexpectedly arising properties and propensities of *Sutherlandia* as a traditional and a phytomedicine and an organic entity.⁴ This is because the African reverse pharmacology approach is concerned with the synergy between compounds in the plant medicine as a whole. Rather than fixating on the individual pharmaceutical substances (not all of which have been identified), this approach theorises that the entire plant acts as a broad spectrum adaptogen that increases the body's resistance. The aim of the approach is not necessarily to register a drug, but rather to test an existing and much utilised plant medicine for safety, quality and efficacy. The focus is on *Sutherlandia*'s synergism: its complexity, multiplicity and relationality.

As Turnbull points out, synergy is about matter and processes working together, producing effects and making connections. It involves movement and emergence (Turnbull 2009). By contrast RCTs, in conjunction with the processes of 'doing the science' of the medicine, arguably abstract the plant's pharmaceutical and biochemical components, and elide heterogeneous knowledges, beliefs, meanings and practices that surround *Sutherlandia*. Once more there is tension inherent here. Clinical trials can be seen to represent the extraction of the liveliness of the plant, its connected ways of knowing and doing, and to equate it with, for example, pharmaceutical compounds and define it as a drug. Trials aim to stabilise the plant-as-medicine, yet they can do so only temporarily.

While the trials subscribe to the necessity of scientific testing of *Sutherlandia*, which is essentially a reductionist tendency, the effort continues to maintain its potential connectivity to a broader understanding of the plant's nature. As Prof. D, then director of the South African Herbal Science and Medicines Institute (SAHSMI), explained to a parliamentary committee in 2011,

we are not here talking about pharmaceuticals. Phytomedicines from plants are more important as adaptogens, they help the body to adapt to a wide variety of challenges, allow immune systems to become stronger and fight off infections. They are multi-complexes and synergistics, that is their importance and our aim.⁵

A great deal is at stake in the trials of *Sutherlandia*: this bitter-tasting plant is a key entity in the materialisation of an innovative hybrid knowledge domain of plant medicine and sciences, the development of frameworks for the study of traditional medicines, the advancement of regulatory guidelines concerning clinical trials on traditional medicines, and the mooted registration of such medicines. In this chapter we argue that there is not one *Sutherlandia* but many, connected by the clinical trials.

In this regard we follow Law's premise that reality often seems to be, or is presented as, independent, prior, definite, singular or coherent. The reason for this is that reality is 'done' in a particular way (Law 2009: 1). In the case of the RCTs, *Sutherlandia* and its related knowledges are enacted as a singular coherent whole, even if for a transient moment (Law & Mol 2008). In this process the realities of dispersed knowledge practices are not visible, but they may also be enacted, although at times inadvertently.⁶ We draw on material semiotics, as developed by Latour, Law, Mol, Callon and others, to describe human elements such as pharmacists, biochemists, directors of institutions, traditional healers; and nonhuman elements, including medicinal plants, preparation processes, ancestral spirits and photographs, in the same terms and under the assumption that they are shaped in and through their relations in practice.⁷ For the purpose of the trials, the phytomedicine, through its interactions with a range of practitioners and their various modalities in one context, becomes connected to other sets of human and nonhuman elements and their relations in practice.

In this process, the active capacities and materiality of *Sutherlandia* as plant and organic entity is as important as that of the other actors and actants in this narrative of clinical trials and hybrid knowledge in-the-making (Jones & Cloke 2008).⁸ All the above modalities are vicariously linked through the use, as well as the life-enhancing actions, of an organic nonhuman entity, *Sutherlandia*.

The chapter is about the genesis of a plant medicine in messy practices of making complex connections between things, concepts and people, through a process akin to the tying of threads into a net. It can be visualised as a work-net that comprises actors, materials, ideas, texts and other elements that also perform this work-net in practice. These assemblages are always contingent and have to overcome resistance from constituent entities, be they plants, interest groups, couriers or technologies, in order to emerge as strong, coherent and durable – at least for the duration, for example, of a clinical trial. Yet such relations, as well as the matters and realities that they produce, may shift and change in shape. In the case of *Sutherlandia* trials, material things, such as phytomedicines, proposals, presentations, protocols and scientific publications, cannot be separated from the enactment of relations. *Sutherlandia* is 'done', or made real, in practice. *Sutherlandia*, we argue, is enacted in a variety of ways in diverse sites and at different times.

We thus interrogate the entities that materialise in reality and through practice in the making of a phytomedicine (Mol 2002).

Nonetheless, the African reverse pharmacology approach, as well as *Sutherlandia* itself, are focal points of debates and ambiguities in South Africa. Much of the contestation has been, and still is, about traditional medicine and science in relation to antiretrovirals (ARVs) in South Africa. The support that a former minister of health expressed for traditional medicines to treat people living with HIV unfortunately exacerbated the subsequent positioning of plant medicines as oppositional to ARVs. Not surprisingly, when the idea to test African traditional medicines as whole plant medicines was first formulated by Prof. D, a fellow scientist publicly negated it as unsystematic ‘dabbling with promiscuous molecules’ that interact in unpredictable and unforeseen ways, and thus not ‘proper’ science. HIV activists warned that research on traditional medicine was pseudoscience, rooted in belief and not in rationality (Geffen 2010). *Sutherlandia* has arguably become metonymic for many contestations surrounding science, phytomedicine and indigenous knowledge (Gibson 2011a). The controversy lies partially in the denunciation by science of knowledge practices that appear to lack stable, firmly established characteristics or attributes (Stengers 2010).

This chapter reports on a three-year study at multiple sites in South Africa to explore knowledge production, translation and even hybridisation in ‘doing’ the trials of a traditional medicine: the first of its kind in the country. The chapter first enumerates the coming together of many elements: the people, institutions, paperwork, presentations, the *Sutherlandia* trails, the science, etc. Then the emergence of a science of traditional medicine is introduced and the way that *Sutherlandia* was enacted-into-being is explored. In this regard *Sutherlandia* is discussed as traditional medicine, as botanical entity, as a trial product and finally as a regulatory entity.

Enacting trails: Tying a work-net

According to Latour, controversies can be studied by following actor-networks (Latour 2005: 128). Because the latter word has a somewhat ambiguous meaning, Latour recommends the use of ‘work-net’ instead. This is because it is ‘the work, the movement, the flow, and the changes’ that are of import (Latour 2005: 143). Because we wish to develop a non-dualistic approach to the understanding of *Sutherlandia* as a plant medicine in a clinical trial, we try to give an account that includes the interaction of humans, things, ideas and entities, and to envisage these as actors and actants, acting or being acted upon in social and political processes. Material semiotics understands bodies of knowledge as produced in and through patterned work-nets consisting of a multiplicity of shifting associations and

dissociations between human and nonhuman entities. Thus, life cannot be reduced to the human, natural, scientific or material world. Instead, all entities, scientists, plants, institutes, protocols, technologies etc. can be understood as hybrids, or what Latour calls 'quasi-objects' and 'quasi-subjects', with boundaries that shift and are constantly renegotiated (Latour 1993). In everyday life we approach a singularity, such as a clinical trial, as if it were a single unit or a point, but in reality it is ordered through a composite work-net behind and beyond it (Law 1992; Prout 1996). Generally these work-nets are imperceptible but if, for example, a medicines trial fails, or is discontinued because of adverse effects, poor trial protocols or even fraudulent results, the work-nets become closely scrutinised and are thus rendered visible.⁹ Usually such work-net packets or assemblages are understood as particular entities, reasonably stable and durable, if only briefly. The advancement of the knowledge domain of *Sutherlandia*-made-medicine similarly involves the making of a web of relations that translates or transforms its components. It also extends over time and space. We will accordingly examine it as the development of innovative connections through the creation of hybrid knowledge.

The story begins with one actor, SAHSMI, of the University of the Western Cape. In the office of the former director, amid stacks of papers, flash disks, CD ROMs and books about plant medicines, there is a PowerPoint presentation prepared by the director, and used in the USA to promote the idea of scientific research on African traditional medicines as plant medicines. These slides are representations of realities assembled in material-semiotic relations (Law 2009). The first is titled 'Traditional Medicine', and sets out the terrain: the number of traditional healers in South Africa (200 000), the number of medicinal plants used (3 000), the number of medical doctors in the country (> 20 000), the number of patients (30 million), the monetary value of medicinal plants traded (about R4 billion), as well as the maladies for which the plants are utilised.

The following appears on another slide: 'Reverse Pharmacology: African Innovation Model'. The slide then visually and diagrammatically represents the differences between Western drug discovery models and African reverse pharmacology. Another slide defines the latter as the science of integrating and understanding documented indigenous knowledge of African traditional medicines as standardised phytotherapy with therapeutic potential, through exploratory and experimental crossdisciplinary research and development.

When Prof. D used the slides in presentations, he posed and extrapolated a problem: historical and current indications intimate that many plant medicines in South Africa are probably safe for human use, yet this has never been scientifically tested. Their usage is contested by many, and whether such plant medicines are efficacious is equally unknown. In the PowerPoint presentation and the discussions to which it gave rise, he identified the pertinent actors, linking scientists, traditional

healers, doctors, medicines, plants, patients and problems to be explored, as well as a potential model for doing so. A biochemist from the University of Missouri was interested in what Prof. D had presented, and they put together a team; the team submitted a funding proposal for their work to the National Institutes of Health (NIH). The aim was to explore the interface of indigenous knowledge of traditional medicines with that of science, and to study traditional medicines scientifically, one of these being *Sutherlandia frutescens*, one of the ‘actants’ in this story. The International Centre for Indigenous Phytotherapy Studies (TICIPS) raised a second problem, namely, that little was known about the plant’s safety and efficacy in people with early-stage HIV. This also needed to be scrutinised. In practice, a heterogeneous work-net was being assembled to undertake these investigations.

The proposal was funded by the NIH, and TICIPS came into being as the holder and controller of the funding, and therefore of the relations between the other entities in the ‘work-net’. It linked US and South African scientists, a number of universities, two medical schools, the Missouri Botanical Garden, the Traditional Medicine Unit of the Medical Research Council of South Africa, the Research Chair of Indigenous Health Care Systems, medical doctors, nursing staff, hospitals and trial centres in Cape Town and Pietermaritzburg, traditional healers, research participants, as well as capsules filled with *Sutherlandia* leaf powder or dried lettuce leaves (the placebo), first in a Phase I and then in Phases II(a) and II(b) RCTs in humans. Prof. D’s PowerPoint presentation can thus be seen as a product of earlier practices which then in its turn assembled potential realities, including that of reverse pharmacology, as a framework for research (Callon 1986: 196–223). The PowerPoint also shaped and diffracted realities.¹⁰

Underlying these trials were the multifaceted networks of interests of a foreign donor in relation to a lower-income country. The output and publication of trial results were to be driven by the US partners, in TICIPS (see Petryna 2009). Nature and society, plants, medicines, policies and regulations were being collected and would in time become increasingly compelled to conform to the definitions and roles put forward for them by TICIPS. Rather than trying to keep the particular knowledge frame of pharmacology stable, the participants in this process were slowly composing a fusion of science and traditional medicine through the ongoing development of new relations (see Callon 1986: 196–223). Innovative alliances were being forged and entities mobilised in the constitution of a science of traditional medicine. Diffuse bodies of knowledge and science were being opposed, and sometimes intertwined in intricate ways.

Actors and entities were, accordingly, being associated and enrolled in the work-net, their roles delineated and momentarily accepted. TICIPS defined the characteristics of other actors in the work-net, i.e. the participating scientists, health care staff, consenting patients and traditional healers, as well as the actants,

plants, producers, tests, assays, laboratory work, hospitals, clinical measurements, questionnaires and tests. A relationship between them was interposed in accordance with TICIPS's concerns, and thereby TICIPS made itself indispensable (Callon 1986: 196–223). For the purposes of the trials, the selected traditional healers and herbalists were grouped as representatives of indigenous knowledge, and enacted as representatives of a range of relevant collectivities: all the traditional healers, plant sellers and local communities where *Sutherlandia* was utilised. Eight healers, four herbalists and four diviners (two from the Western Cape and six from Kwazulu-Natal) became the envoys for all the dispersed bodies of knowledge, and knowledge custodians, to be introduced later in this chapter.

The Phase I trials for the study of safe use in healthy human volunteers were done in the Western Cape, where TICIPS is situated. An earlier ethnobotanical study with local communities had been conducted here previously, and *Sutherlandia* is widely used in the region. Representatives of traditional healers' associations were invited to, and participated in, *indilingas* ('circles' in isiXhosa), where stories about plant use, treatment and such were exchanged by healers, herbalists and scientists. The healers were interested in the validation of their own knowledge, in the collaboration with scientists and in the potential this held for their future financial benefit. Like the medical staff, they hoped for a safe and efficacious medicine to alleviate the suffering of people living with HIV. The scientists were interested in the toxicity, quality and efficacy of the plant. They hoped to learn more about its chemical behaviour and constituents.

These interactions were all about practices. The scientists made presentations and conversed, the healers spoke and demonstrated. Both groups handled medicinal plants. *Amayeza* ('medicine' in isiXhosa) stores and *muthi* ('tree/plant medicine' in isiZulu) markets were visited. Traditional medicine materialised in discussions on and displays of plant use, but also in many repeated performances of rituals performed.¹¹ The ancestors were invoked, *impepho* (*Helichrysum petiolare*) was burned and liquor poured as libations. In this process, as Latour writes, 'tiny bridges were launched to overcome the gaps created by disparate frames of reference' (2005: 177).

Phase II, testing oven-dried *Sutherlandia* in HIV-positive people, took place in Kwazulu-Natal, the province with the highest HIV prevalence in South Africa and a low take-up of antiretrovirals. Kwazulu-Natal has the highest number of traditional health practitioners in the country, and the largest *muthi* market in South Africa is in Durban, the province's commercial capital. Healers are relatively well organised under the aegis of the Traditional Healers' Council. Six healers were selected to become partners and collaborators in the project, and the research team signed a memorandum of understanding with them.

The healers helped to design the study, and to recruit and evaluate the research volunteers. Healers collaborated in the development of research questions, analysis, interpretation, and sharing of results. Healers, herbalists, doctors and scientists, through practices, mediated their knowledge practices, with and through hybrid entities. In the process some of the elements in the work-net, such as healers, and the indigenous knowledge they engendered, were transmuted into photographs, PowerPoint presentations and texts. One photograph, which subsequently formed part of a large number of local and international presentations, shows team members sitting in the *amayeza* shop of one of the participating herbalists. The three diviners in the team are wearing their traditional regalia. In the background are shelves with rows of dried bottled plant material, some herbal products that would not be out of place in a pharmacy, a number of Dutch medicines, as well as a few plastic buckets for mixing ingredients. The photographs are products of practices, representations that depict a particular reality and transport it over space and time. Such images are assemblages, sets of moulded and patterning practices that do 'reality work' in particular ways – for example, in the case of the photograph, as a representation of the hybridisation of actors, knowledge and things in practice.

A variety of other representations and texts were generated. Apart from clinical measurements, the study needed other quantifiable measures of its outcomes: for perceived stress, symptoms of depression, and quality of life. These entities are understood and experienced in different ways, in various frameworks of meaning and in relation to different sets of clinical/therapeutic resources. Through deliberation and practice, the participating scientists and healers translated international standard scales for depression and the healers added to them; for example, quality of life was understood and subsequently transformed by the healers into *izinga/iqophelo lempilo* (quality/spirit of life), a more fluid concept that also relates to African cosmology. The healers reviewed and revised questionnaires to reflect vernacular usages in Pietermaritzburg and Durban. In February 2008 a cow and a goat were ceremoniously handed over to traditional healers on behalf of the TICIPS team to seal the collaboration and knowledge exchange.¹²

In this way a hybrid science materialised in the skills of scientists, technicians, doctors, project managers and traditional healers. Material things, *mpepho*, ancestral spirits, questionnaires, dispersed 'knowledges', a reverse pharmacology model, people (doctors, nurses, patients, research assistants), photographs and institutions were brought into an assemblage, organised and ordered to fit with technical expertise, concepts and texts and so transformed into an array of similarly heterogeneous scientific outcomes. The making of *Sutherlandia* as medicine involves a set of ongoing practices that delineates and enacts the plant medicine in unusual and sometimes overlapping manners in a variety of sites (Law & Lien 2010).

Enactments of *Sutherlandia*

Sutherlandia is enacted in different practices within the work-net of which it forms a part. It is an agent or actant, a traditional medicine, a botanical entity, a trial product, a regulatory object. In this section we examine each of these practices as it contributes to the overall enactment of *Sutherlandia* as a medicinal plant.

An actant

Material semiotics interprets agency as the effect of relations between entities. It focuses on the multiplicity of mutually constitutive and positioning actants, thereby raising the 'non-human-ness' of agency (Jones & Cloke 2008: 79). In this regard Jones and Cloke argue for a rethinking of the material agency of plants. Although in this chapter we do not fully explore the vitality of this medicinal plant, it is biologically active and has a lively material presence in the study, as well as in trials. For example, an unforeseen outcome of the Phase I clinical trials was the unambiguous evidence that *Sutherlandia* improved appetite. It also reduced the duration of common infections in trial participants (Johnson et al. 2007). The plant enhances mood or emotional state (Gericke 2001). Although the results of the Phase II(b) trials have not been published yet, anecdotal reports indicate that *Sutherlandia* may affect viral replication and immune functioning in positive ways in people with early-stage HIV (Gericke 2001). Nonetheless, one criticism of the clinical trials by activists for ARV treatment in South Africa is predicated on the possibility that *Sutherlandia* may affect the body's ability to metabolise antiretrovirals (Mills et al 2005). However accurate this may be, *Sutherlandia* arguably has transformative ability.

This was emphasised by people who regularly drank *Sutherlandia* decoctions. They often referred to it in ways that we came to think of as 'agency talk'. For example, Mrs P, a diagnosed cancer patient who had been using *kankerbos* ('cancer bush', a local name for *Sutherlandia*) for four years, said, 'It saves my life every day, my white blood cells remain stable.' A traditional healer, Mrs B, reported, 'It listens when I tell it what I need it to do, then it does the work.' Mr L, who frequently used the plant for diabetes, opined that it 'keeps my diabetes under control'. He also said that it '*gee my los maag* (loosens my bowels)'. Prof. J, a pharmacist, reported that 'its ongoing biological activity has been demonstrated'. As a material organic entity it has a relational effect. Early on, during preparation for the Phase II(b) trials in Cape Town, Prof. J reported that the capsules filled with plant material would be irradiated because 'they [the organic plant material in the capsules] have developed spores'.¹³ Later, during a meeting, he raised a loss in content weight of the encapsulated plant matter as a puzzling issue. Something was happening with the (now irradiated) plant material, although what or why was unclear. The question was whether the organic material in it had been weighed incorrectly, or if the plant

itself was ‘doing something’. ‘Can it be losing moisture, or is it doing something else?’ Prof. D asked.

We use the above examples to show that even in powdered form, *Sutherlandia* has a propensity to action. As a plant organism it has creative liveliness. This was reiterated when a botanist, Prof. M, who showed Gibson how to identify *Sutherlandia*, reminded her of the qualities of plants:

They have life, sustain life, but because they cannot move, people think of them as passive, i.e. people doing things with plants. But plants are a world of their own, they arguably ‘act’ through growth, reproduction, photosynthesis; plants make life possible ... You could say they are life, they produce chemical compounds to function ... to survive ... to protect themselves from pests, animals, other plants ... Plants do things.

Sutherlandia seeds germinate, grow, flower and reproduce. When Gibson visited ‘Tannie’ (Aunty) Sara, a dedicated user and prescriber of *Jantjie Berend* (another local name for *Sutherlandia*) on a farm near Nieuwoudtville, she had dug up a small plant and put it in a jam jar to take home. The plant looked somewhat contorted: the main stem and one branch pointed in one direction while the two newly grown branches had twisted to the opposite side, towards the light from a window. Gibson and Tannie Sara also saw the plant in the veld when they went to admire the display of Namaqualand spring flowers and to collect medicinal plants. Suddenly Tannie Sara put her finger to her lips to caution silence. She had heard the *tseep* sound of a sunbird: the bird, with its iridescent malachite plumage, was perched on a *Sutherlandia* branch, sipping nectar. They found other plants growing behind a fence, on the verge of deep tyre tracks and perched between rocks on a hill. One was tall and upright, another small and growing close to the ground. One had been grazed by sheep, the others were unscathed.

So *Sutherlandia* arguably has the power of agency, or ‘agentivity’ (Rival 2010). It is an actant, relationally linked in a web, attracting and making a difference to the soil, birds, sheep, and the two people scrutinising it (Law & Mol 2008). Depending on the circumstances, the plant takes on various forms, it reproduces, is resistant to drought and pests, and it spreads to new sites. *Sutherlandia* is also acted upon. It is a quasi-object: it participates in action and is not merely a recipient of it, even as it is grazed, sipped, or picked and prepared by Tannie Sara to treat her husband’s diabetes.

A traditional medicine

In trial protocols, at least 25 different regional names for *Sutherlandia* are recorded in Afrikaans, English, Dutch, German, isiXhosa, isiZulu, Sesotho and Setswana, (Powrie 2004; Van Wyk & Albrecht 2008). Many of the plant names relate to

its local use, for example *kankerbos* ('cancer bush', Afrikaans), *insiswa* ('dispels darkness', isiZulu), *phetola* ('to change', Setswana), *lerumo lamadi* ('spear of the blood', Sepedi) etc. It is utilised for a diversity of complaints and conditions, such as to treat cancer and tumours, depression and stress, as a tonic, to purify the blood, for eye diseases, to treat wounds, skin conditions and inflammation, to enhance appetite and prevent wasting, as an emetic, and for stomach, kidney and liver complaints, influenza, haemorrhoids, diabetes, urinary tract infections, back pain, or even gonorrhoea (Van Wyk & Albrecht 2008). Some nomenclatures refer to the appearance of the plant's red, butterfly-shaped flowers, for example *kalkoebos* ('turkey bush'), *hoenderbelletjie* ('the wattle of a cockerel'), *eendjie* ('duckling'), or to the seedpods of the plant, for example *blaasbossie* (for its balloon-like pods), *blaasertjie* (balloon-like pea), *klapper* ('cracker'), or its downy leaves, for example *unwele* ('hair') or its taste, for example *bitterbos* ('bitter bush').

Sutherlandia is given and taken fresh or dried, as a decoction or infusion, a paste, a tincture or snuff. It is mixed with boiling water, other plant material and even brandy. In this regard *Sutherlandia* is iconic of healing pluralism, i.e. all the knowledge practices, formal and informal, regulated and unregulated in South Africa. It is, for example, one of the most popularly used and sold medicinal plants in the Western Cape (Mintsa Mi Nzue 2009). The use of the plant was first documented in 1680 in relation to Dutch colonists at the Cape, who learned about its medicinal properties from the Khoisan (Pappe 1847, 1850). During our research we were surprised by the variety of people who used it to treat themselves or others, ranging from lay people to medical doctors, *bossiedokters* ('bush doctors'), Rastafarians, herbalists, diviners and practitioners of natural medicine.¹⁴ In all cases, people valued the plant for its ability to transform in a positive way.

It became apparent in the course of the research that healers have different levels of knowledge of medicinal plants.¹⁵ An *inyanga* (herbalist) from Strand in the Western Cape, Mr X, calls the plant *unwele* and harvests it near the Eastern Cape town of Stutterheim, the area in which he received his training and with which he is familiar. He learned about it from his father during a long apprenticeship. Mr X sells dried plant material to local traditional healers, or mixes up a brew, combined with other plant medicines, for clients. An *igqira* (diviner) and dedicated community healthcare worker from Somerset West, Mrs H, uses *kankerbos* to treat a woman whom she suspects is HIV-positive. Mrs H has performed the necessary rituals, but also encouraged the woman to be clinically tested. Mrs H learned about the medicine from her 'teacher' during training in Transkei. Some of the plants she uses for 'cultural things', such as ceremonies and rituals, were revealed to her in dreams by her ancestors. When she visits Transkei, she collects her own plant medicines in the mountainous and forested areas of Hogsback. Sometimes she buys the plants from a trusted local herbalist. Mrs H harvests plant materials under

different circumstances, in the daytime or at night, on a hillside or lower down in the valley. When Gibson showed her a branch of *S.frutescens*, Mrs H said it was 'female': she sometimes mixed it with 'male' plants which she picked higher up on the mountain. Depending on advice she receives from the ancestors, she blends the plant with others, or uses it singly, but always keeps in mind that there must be a balance in the mixture (gender, wet/dry/colour etc.) to restore equilibrium in the sick person. The ways in which Mrs H utilises the plant always involve rituals and invocations of the ancestors. Sometimes she strengthens the plant medicine (and the patient) with drumming sessions.

Mr P, a *bossiedokter* from Atlantis, collects *kankerbossie* mostly around Cape Town and up along the West Coast. He treats himself, his family and relatives with plant decoctions for fever, infections and as a general tonic. Mrs L, a professional woman from the West Coast area around Langebaan, drinks at least a litre of plant infusion each day. She has been doing so for two years and is convinced that it combats her diagnosed cancer. An elderly man from Worcester uses a paste of dried plant leaves to treat lesions on his skin. In Bonteheuwel, Cape Town, Mrs C harvests the plant from her garden to treat a recently widowed woman for depression.

Sutherlandia, as a traditional medicine, is variable and ambiguous and its related knowledge is dispersed. On one of the shelves in the office of Prof. D there are four large bottles with dried, chopped medicinal plant material. They all contain *S.frutescens* and are marked Settlement A1, Settlement A2, Settlement B1 and Settlement B2. These are two small areas in the Hardeveld of the Matzikamma municipal area where scientists, plants and communities were brought together in an ethnobotanical survey and study. SAHSMI and community members planted and irrigated experimental plots to develop a community-based programme for the management of medicinal plants in this area. A booklet, *Medicinal Plants of the Hardeveld*, was produced (see Johnson et al. 2008).

All of the above instances are linked in the emerging hybrid science of *Sutherlandia* trials in an often vicarious assemblage of relations, alignment of interests, messy heterogeneity and dispersed knowledges.

From participating healers in the trials, it became apparent that people usually prepared two handfuls of plant material at a time, mostly the leaves. The scientists took an average measure of different handfuls and rounded this off to 800 mg in powdered form. This became the dosage to be tested. Because the plant has a bitter taste, it was tested in capsule form. All the entities above – the surveys, plots, ancestors, booklets, colour and gender combinations, the communities in Matzikamma, the irrigation system and the *Sutherlandia* as traditional medicine enacted through practice – were not necessarily coherent, but they are nonetheless connected syncretically to perform a component (or knot) in the work-net that was continuously being devised.

Material entities or knowledge objects, such as *Sutherlandia*, are made real as part of practice, but in multiple ways. They form components of work-nets, which constitute them bit by bit or even patch them together like a patchwork quilt (Law & Mol 1995; Mol 2002). For the purposes of clinical trials, *Sutherlandia* needed to be enacted as at once a plant medicine based in indigenous knowledge, with the dosage engendered through local use, and as a botanical entity, clinically tested and studied in laboratories and hospitals. There are thus a number of practices through which *Sutherlandia* is ‘made’ or enacted in different locations. Sometimes versions of *Sutherlandia* interconnect, for example as a botanical entity and as trial product, but even so their related practices may differ.

A botanical entity

For trial purposes, *Sutherlandia* had to be relationally performed or enacted as a single, specific botanical entity, namely *Lessertia frutescens* (L.) Goldblatt and J.C. Manning (syn. *Sutherlandia frutescens* (L.) R.Br.). The long nomenclature used for the purpose of the trials indicates controversy surrounding the reclassification of *Sutherlandia* into the genus *Lessertia* by Goldblatt and Manning (2000). A number of South African botanists argue that the reclassification has not been proven by morphological and genetic research and, while based on (as yet unsubstantiated) shared phylogenetic relationships and evolutionary history, *Sutherlandia* and *Lessertia* may indeed be similar and related, i.e. they may essentially be sister groups. But the reasons for reclassification are seen by some as unconvincing. Many continue to use the better known nomenclature *Sutherlandia* (Van Wyk & Albrecht 2008). We return to the issue of reclassification later, but first attend to the botanical entity in relation to the trials.

For the purposes of the trials a sufficient amount of plant material was needed, obtained and prepared according to international standards. Once a batch of plants from the farms where they were commercially cultivated had been assigned to the trials, a botanist received a specimen sample to identify and authenticate it. This happened for every trial. Like the botanist described by Latour, he or she had to ‘translate’ a specimen into a scientific reference (Latour 1999). Botanists can only do so because the sample specimen becomes mobile and can be recombined with other devices such as taxonomical classificatory ‘tools’, herbarium specimens, microscopes etc. In every trial the plant is precisely defined by its scientific name, according to the binomial system and according to its morphology.

The fact that it is an indigenous plant is mentioned as part of the identification and authentication process. It belongs to the Cape Floristic Region or Cape Floral Kingdom and is part of the Fynbos biome. Dr M, for instance, already knew what class (*Magnoliopsida*), order (*Fabales*), genus (*Sutherlandia*: reclassified into *Lessertia*) and species (*frutescens*) the plant belonged to: he could actually

identify it by sight (see Goldblatt & Manning 2000; Van Wyk et al. 2002). But he could also use pictures or drawings of the plant to identify it. He could furthermore search for samples of the plant in the herbarium to make a comparison, first by direct visual examination and then, if necessary, by scrutinising them under a microscope. To show Gibson how the plant could be classified as a genus (for example *Lessertia*), he used a dichotomous taxonomic key: a method that (as understood) is based on a model that enables the botanist to categorise, say, the genus, by making reasonable assumptive choices following a carefully set out sequence and structure of identification. Possible alternatives were offered at each point in the decision-making process, and each selected choice led the botanist to a subsequent choice. Dr M thus systematically chose between available options about, for example, a set of possible characteristics (class, character and state) related to the twig, stipule, leaf, arrangement of flowers on the plant (inflorescence), flower, fruit (seedpod) and seed of the specimen he had. He ended up with enabling characteristics to describe identifying features of the plant – some based on what he already knew, and some on what he observed.

It is a shrub: its stems are smooth or have a few projections or growths (i.e. are glabrous). Its many leaves grow mainly at the stem tips. The leaves have short stalks (petioles), small structures located to either side of the base of the petiole (stipulates), and the leaves are compound, with leaflets arranged on either side of the stem (pinnate). There are about eight pairs of opposite leaflets, as well as a terminal leaflet. Each leaflet is broad and rounded at the base and tapering toward the end, and is longer than it is wide (ovate-oblong), elliptic to narrowly oblong and varies from smooth (glabrous) to downy (sericeous), depending on the place of origin (provenance). It has red flowers that bud in an angle between branch and stem (axillary) in clusters, in which the flowers are arranged along a single central axis (racemes) (see also Roberts 1990; Smith 1966; Van Wyk & Albrecht 2008; Van Wyk et al. 1997). Dr M identified the plant as *L.frutescens*, thereby using the more frequently employed species name. Dr M might furthermore write that the plant grows wild in the dry parts of South Africa, especially the Western Cape, including the West Coast, the western Karoo, and parts of the Eastern Cape region (Xaba & Notten 2003).

Despite the name change and morphological variability, for the purposes of the trials, different ontologies and related practices are synchronised to form a whole. *Sutherlandia* is enacted as a botanical entity: unambiguous, clear-cut and outside time. It has an evolutionary history across time and a distribution across geographical space. For the purposes of the trial it is performed as a single, natural botanical entity ‘out there’ in nature. While its many names in various local languages are noted, it is nevertheless classified and scientifically performed as a specific species in the clinical trials, and thus as discernible from other plants

and from other forms of life. It can grow in the sand, on a verge or a ridge, against a mountain or in a jam jar, and it can be used fresh, dried, mashed up, in a floral arrangement, as a decoction or tablet, pollinated by sunbirds, eaten by sheep or ingested by humans: it is nonetheless unequivocally *Lessertia frutescens* (L.) Goldblatt and J.C. Manning (syn. *Sutherlandia frutescens* (L.) R.Br.). The scientific botanical description enacts it as universal factual knowledge whether or not the plant has been reclassified, was used by Khoisan herders, Dutch colonists, *bossiedokters* or traditional healers, or whether it is studied in a laboratory or tested in a clinical trial. Once the plant, irrespective of its local name, history or use, has been identified botanically, it is *L.frutescens*, it stays ontologically stable across space, time and locality (Gibson 2011b). Once again, *Sutherlandia*'s liveliness is abstracted, and some forms of practice are disengaged. The broad aim of the trials is to investigate the plant as holistically as possible, but nonetheless as a single generic botanical entity. While performing a generic definition, the trials simultaneously bring it into existence as new hybrid knowledge.

A trial product

In a paper about the engagement between natural products, chemists (i.e. pharmacists) and traditional healers in studies of plant medicines in Africa, Verran (2010) writes that these medicines, for example dried plant-powder capsules, should be understood as participants in the practices of both chemists and healers. Like the plant potion that Verran discusses, the *Sutherlandia* capsules involve entities with the role of agents that emerge from the work that pharmacists and healers do with the plant and its powders (Verran 2010: 4). These unobservable entities are not 'passive bits of nature', but should be understood as having a particular capability to act. Thus scientific investigation does not so much examine 'what is', but rather constitutes a 'series of becomings' (Verran 2010: 5).

The active entities are of interest to healers, chemists and regulators: perhaps in time also to pharmaceutical companies. These substances and their knowledge contents, as Law stresses, are actualised in a whole range of material forms. They are the outcome of connectedness in which varied things – compounds, assays, test tubes, chemical profiles, molecules, drying ovens and skilled practitioners, biochemists, pharmacists, packagers and other entities that would abscond if left alone – are entangled in patterns and relations that for a time surmount their resistance (Gibson 2011b; Law 1992). In this way the product, the leaf-filled capsules with all their measurements and representations, is performed into being.

As a trial product *Sutherlandia* is accordingly understood as an effect of sociomaterial practices. The pharmaco-kinetic essence of *Sutherlandia* has not yet been fully explored, but it is known that its principal active constituents include pinitol (a compound with anti-diabetic properties), canavanine (which increases appetite), the

amino acid GABA (which produces a feeling of wellbeing) and asparagine. A novel triterpenoid glucoside has also been isolated and characterised in the plant (Van Wyk & Albrecht 2008). More recently, four flavanol glycosides, Sutherlandins A–D, have been isolated (Fu et al. 2009). For the trial process, *Sutherlandia* and its practices had to be captured and engaged for long enough for the trials to take place. These included the preparation of capsules as a product to be tested for safety and efficacy in participants, each of whom had given informed consent.

To produce this entity, leaf powder was arranged as total daily dosages, to be taken in tablets of 200 mg. The plant was sourced from a reliable supplier who adhered to strict international standards of cultivation, manufacturing and handling of raw plant material. The emergence of the trial product was an effect of the relations that were assembled and held together in it. The plant, producers, manufacturers and prescribed standards were equally effects of the process. The plant material was purchased and delivered in cut and dried form in compliance with EUepGAP standards.¹⁶ Although the plant was always ‘authenticated’ by a botanist, specimens from the specific delivered batches were retained. Batches were numbered and leaf powder samples kept on file.

For the Phase II(b) trials, the producers sent the plant material to the Council for Scientific and Industrial Research by air, packed in double-lined plastic bags sealed within cardboard boxes, to be spray-dried. Samples were again stored. The powdered plant and the placebo were airmailed to a company to be encapsulated. This was done according to regulatory and other guidelines for clinical trial products. Every step of the process had to be certified. The final product, the filled capsules, was packed in specified quantities in sealed and secured containers with specific labels. The containers were transferred to the SAHSMI by courier, placed in plastic bags, labelled and stored at a precise temperature in an air-conditioned laboratory room. At specific points en route representative product batches were retained for analytical purposes.

A few sample containers were tested for microbial counts, experimentally irradiated, and sterilised with a gamma irradiation dose of 18 kGY min. Microbial counts were done again on a sample, and a certificate of analysis was generated. Finally, the containers were allocated to trial participants in accordance with randomised codes, relabelled with a particular sticker and sent to the trial site to be stored under strictly maintained trial conditions.

For the duration of each trial a dossier of the product is developed and maintained, and tests are done on a regular basis for identification, mass and content uniformity, microbial and heavy metal contaminants, dissolution and stability of the capsule. The capsules are identified according to physical and organoleptic features. This involves the embodied experience and knowledge of pharmacists concerning the sensory properties of the leaf powder. In the case of

the *Sutherlandia* trial discussed here, a panel of six people checked the capsules at regular intervals for colour (light brown), taste (very bitter), odour (slightly mouldy, plant smell) and feel: the contents had the texture of fine dry powder, which later became lumpy, and when exposed to air became sticky (hygroscopic).

All of the above potentially involve a process of abstraction: as the plant-as-medicinal-capsule is standardised, dried and packaged, it is rendered equivalent – that is, it becomes equal or interchangeable in value, quantity, significance and meaning. Because of the particular practices and expectations of clinical trials, some standardisation occurs, some forms of practice are eliminated, some connections severed. This is necessary for the trials and their results to be legitimated and accepted as authoritative.

Somewhat against the grain, the encapsulated plant material remains active and emergent: hence the need to continuously measure its chemical stability. It has a high number of constituents that belong to different chemical classes and exhibit different analytical behaviour. To measure stability during the trial, two markers were selected: quercetin (a yellow crystalline pigment present in plants and used in food supplements to reduce allergic responses or boost immunity) and kaempferol (a yellow crystalline solid with a range of pharmacological activities: anti-oxidant, anti-inflammatory, anti-microbial, anti-cancer, cardioprotective, neuroprotective, anti-diabetic, anti-osteoporotic, estrogenic/anti-estrogenic, anxiolytic, analgesic, anti-allergic).

A chemical profile was established through high performance liquid chromatography (HPLC) and infra-red spectroscopy. For the purposes of the trials, a series of HPLC chromatograms at baseline were produced over time to show the HPLC fingerprints with spikes for quercetin and kaempferol. These are visual representations of complex chemical data. They are enactments and abstractions.

To ensure uniformity of dosage the capsules were measured according to standard pharmacopeia methods. Content uniformity was based on free and total levels established through HPLC methods. Flavonoid and other marker compounds such as amino acids, and triterpenoids such as *Sutherlandiosides*, were monitored by means of infra-red spectroscopy. The capsules were again checked for contaminants and monitored for the time it took to dissolve in the gastrointestinal tract. In this way a stability profile was built up, maintained and monitored throughout the duration of the trials. This profile will be used later for the interpretation of the clinical effects and plasma level data obtained in the trials.

The above are some of the ways in which *Sutherlandia* becomes a trial product: as certified, as uncontaminated, as easily soluble, as numbered batches and labelled products. Representative of all these properties, and collected in a dossier for regulatory purposes, are the numbers, tables, diagrams and chromatographs that can, in the end, express *Sutherlandia* as a trial product.

A regulatory object

For the purposes of the trial, *Sutherlandia* was increasingly performed as a regulatory entity in the drawn-out process of obtaining the approval of the Medicines Control Council (MCC) for the Phase II(b) trials. What precisely such a regulatory traditional medicine as product of the regulatory process entails, was not altogether clear. In South Africa, the MCC is the statutory regulatory authority responsible for the registration of clinical trials of all medicines, pharmaceutical, complementary or traditional. One of its expert bodies, the African Traditional Medicines Committee, has drafted a ‘more encompassing framework’¹⁷ for the envisaged regulatory guideline, but the blueprint for the *Sutherlandia* trials was pharmaceutical. Since the guidelines for traditional medicines were not in effect, the encounter of *Sutherlandia* as a trial product with the regulatory body was partially based on the anticipation of potential questions the MCC might have concerning the product. The regulatory framework thus seems to be unfolding as an increasingly pharmaceutical one, as the process of trying to gain approval expands.

As stated, the aim of the trials was not to register a drug, but to test a phytomedicine to ascertain whether the plant as a whole (composed of an array of biologically active ingredients) ‘works’ as a medication for people living with HIV (who do not yet qualify for ARVs). In response, the MCC increasingly asked for the elucidation of pharmacologically active ingredients. The initial queries were general, and focused on ascertaining what the active ingredients of *Sutherlandia* are. Related to this were questions about colourants and excipients (a pharmaceutically inert material such as the substance the capsule coating is made of) – the kinds of questions usually asked about drugs, for example about the grade and quality of capsule excipients and, if of animal origin, whether they are TSE/BSE-free.¹⁸ The colourants must comply with FDC (Food, Drug and Cosmetic) colour indexes and their CI (Colour Index) number or equivalent must be stated.

The particular version of reality, the entity at stake here, is explicit. It is progressively enacted by the regulators as a pharmaceutical, i.e. a drug (see Law & Lien 2010). As a dosage, a drug usually consists of the active pharmaceutical ingredient(s) (pharmakon) and the excipient. Because *Sutherlandia* is a phytomedicine, the active ingredients may be simultaneously unknown and yet require co-factors (the synergistic interaction of their various compounds) to be therapeutic.

Prof. J, the pharmacist, told the MCC that the precise active ingredient of *Sutherlandia* had not been conclusively established. He listed the various known wide array of ‘ingredients’ as follows: free amino acids, l-canavanine, GABA, pinitol, flavonoids, triterpenoids and unidentified polysaccharides. He indicated the current indeterminacy of these compounds: they are associated with a variety of effects claimed in regard to *Sutherlandia*. He stressed that the trials were not aimed

at registering a medicine, but at testing safety and efficacy. If possible, the trials might provide more information about active components, pharmaco-kinetics and bioavailability. He reiterated that no excipients or colourants were used, and that this was an organic product.

A subsequent MCC query asked for justification for use of quercetin as a biological marker. Prof J responded again that the application was not for the registration of a medicine and that several chemical constituents had been identified in the plant: it is a complex plant medicine. Nonetheless quercetin is present; it is acknowledged for its anti-viral, anti-allergic, anti-proliferative and anti-inflammatory activities. Its chemistry is known, it can be quantified in the product as well as in the blood and urine, and its pharmaco-kinetic characteristics are known.

Quercetin can be calculated for a capsule or a batch. It can even become a measurement for all *Sutherlandia* capsules. It can be compared to levels in capsules in other sites. It can be a future standard, a normative measurement to assess any *Sutherlandia* phytomedicine that may be registered (Law & Lien 2010). Quercetin as a marker can eventually mediate between ‘the lively assemblage’ of this phytomedicine, its agent entities, and companies that wish to register and market it (Law & Lien 2010). Active ingredients, biomarkers, product formulations, product content, excipients and colourants are concerns for the regulation of pharmaceuticals and their translation into products for registration. They enable the MCC to authorise the trials based on strictly set parameters. In the process of producing the trial product *Sutherlandia*, assemblages were framed and realities done in particular ways. Regulatory products such as this are the effect of patterned and patterning practices.

Inconclusives

According to Latour, that which gets to count as ‘Nature’ (i.e. ‘Scientific Nature’) is the product of a very specific lensing or focus that is used to form a particular image/perception/understanding of nature, a series of processes for standardised enquiry. Instead, he argues for a plurality of natures. For example, a single botanical entity can be very different in its presence as a trial product, a regulatory object, or a decoction.¹⁹ The trials described in this study are aimed at engaging a plant medicine holistically, yet also in separate enactments as a single botanical entity, a trial product and a regulatory object. Players, plants, knowledges, ideas, expertise and such bump up against each other in a variety of interactions and associations.

Sutherlandia as a traditional medicine is materialised in a different way from *Sutherlandia* as a botanical, or as a trial product. While performing a generic definition, the trials simultaneously bring it into existence as new hybrid knowledge. In the process there are many heterogeneous practices (Callon 1986).

Knowledge takes various material forms. It is enacted into reality as symposium presentations, trial protocols, microbial counts, stability reports, HPLC fingerprints and suchlike. It is a process constantly under revision, full of surprises and the unexpected. Places, people, things that do not 'normally' belong or come together are linked, albeit somewhat precariously. Clinical trials of an African medicine mix together a variety of people, texts, laboratory work, clinical measurements, local communities, spoonfuls or handfuls of *L.frutescens*, powdered leaf capsules etc. and ultimately, if the trials succeed and the science 'holds', so to speak, the trials transmute them into scientific papers and guidelines for other trials which circulate new 'truths' (Law 2007). The hybrid knowledge of *Sutherlandia* trials involves not only the plant itself, but the structures simultaneously generated and enacted into reality. One of these is a regulatory framework. It has an underlying assumption about the clinical trials, i.e. potential drug development, modification and marketing. For its purposes, regularity, standardisation, equivalence and control are necessitated: if *Sutherlandia*'s processes, entities and many connectivities are all allowed to surface all the time, a medicine cannot be registered. Reduction and stabilisation are emphasised. In the work-net thus assembled, a few individual entities come to represent large assemblies: the healers enact all dispersed indigenous knowledge, the hospitals where the trials happen come to represent all healthcare facilities, the numbered batches sent to the trial sites in pill bottles and distributed to patients represent all *Sutherlandia* phytomedicine, the consenting participants symbolise all people who are HIV-positive and have a CD4 count below 400. In conferences, TICIPS and its scientists speak for all those involved.

Simultaneously, the underlying philosophy of the trials, i.e. of reverse pharmacology, encourages connectivity rather than the severance of heterogeneous relations and entities. The liveliness of this phytomedicine includes interactions with all the various practitioners, including all their contextualised and localised knowledges and practices, and it connects them (Verran 2010). There are various, occasionally overlapping or competing versions of reality: the scientific, pharmaceutical, botanical and traditional (Iyioha 2011). For science, the last of these is seen as the projection of belief onto an object, i.e. the plant medicine. Science is regarded as autonomous and unconstructed, the factual. If the trials currently under review gain ethical clearance and are successfully completed more data will become available, particularly in numerical formats and scientific representations; the network and its diverse untidy relations will be reconfigured and become less visible, and the realities enacted will be more readily accepted as factual.

Latour cautions us that the assemblage thus engendered is not necessarily stable and needs to be made and re-made all the time (Latour 2005). If some of the elements, such as the administrative structure, the laboratories and the institutional support are not regularly 'performed', the work-net may be impacted. The relations

brought into being are not always smooth and can be filled with conflict, and they risk becoming incompatible, adversarial and even collapsing.

Latour also argues that we should accord ontology to nonhuman entities (Latour 1999). In this process it is important to recognise the meaningful action of *Sutherlandia*. The materiality, vitality and life-enhancing capacities of this plant medicine relationally shape new identities and configurations that emerge in, and through, the network assembled. Political, economic and regulatory entities gather and form associations around *Sutherlandia*.

Acknowledgement

Thanks are due to the National Research Foundation for funding this research. We express our appreciation also to Lesley Green, Mario Blaser, Helen Verran, David Turnbull and Quinton Johnson for valuable suggestions made to us during the writing of this chapter.

Notes

- 1 This plant has two scientific nomenclatures, as well as an enormous variety of local names. For the purposes of this chapter we refer to it as *Sutherlandia*, the name commonly used by the trial researchers in everyday practice.
- 2 See Chadwick et al. 2007; Chinkwo 2005; Fernandes et al. 2004; Grandi et al. 2005; Katerere & Eloff 2005; Mills et al. 2005; Ojewole 2008; Prevoo et al. 2008.
- 3 In this case a randomised double-blind placebo trial.
- 4 In molecular biology 'emergent' refers to a property in a system that cannot be predicted from the starting conditions. (Accessed August 2012), <http://medical-dictionary.thefreedictionary.com/emergent>
- 5 Prof. D was a key informant in my research.
- 6 See Law (2009) for a discussion of collateral realities.
- 7 See Callon (1986); Latour (1993, 1999, 2005); Law (1992, 2009); Mol (2002).
- 8 Even if it is not recognisable as a plant anymore, for example when it is in powdered form, *Sutherlandia* still responds like organic matter and is also made up of active organic compounds which interact – thus it remains an organic entity.
- 9 See the case of Dr Werner Bezwoda. (Accessed March 2010), <http://www.medscape.com/viewarticle/408908>
- 10 A metaphor used by Haraway (1991).
- 11 See Verran (1998) for a discussion on the multiplication of reality-enacting rituals in which land materialised in disputes between Australian settlers and aborigines.
- 12 Personal account, N. Gqaleni, South African Research Chair in Indigenous Health Care Systems and member of the TICIPS team tasked with collaboration with Traditional Health Practitioners.
- 13 In these trials, which are funded by the South African Department of Science and Technology (DST), the plant material is spray-dried. Unlike the NIH-funded focus on

- publications as outcomes, the DST is concerned with the product, the encapsulated plant medicine.
- 14 *Bossiedokters* should be distinguished from herbalists and practitioners of natural medicine, in that the former draw on a different cosmology, as well as using medicinal plants mostly from the Cape Floristic Kingdom, while the latter usually receive their training in formal institutions such as universities of technology, colleges etc.
 - 15 Thornton (2009) emphasises the historical and current linkages between earlier San, Khoi, and European herbal practices and African traditional healing and knowledge concerning medicinal plants, their preparation and use. Such specialised knowledge can borrow from and combine with other knowledges (such as biomedicine and over-the-counter medicines) and plants disclosed through dreams.
 - 16 EUepGAP is the European Union's standardised certification for Good Agricultural Practice.
 - 17 Personal comment, Chairperson of MCC.
 - 18 TSE/BSE refers to Transmissible Spongiform Encephalopathy/Bovine Spongiform Encephalopathy.
 - 19 Personal comment in discussion on Latour, Lesley Green.

References

- Callon M (1986) Some elements of a sociology of translation: Domestication of the scallops and the fishermen of St Brieuc Bay. In J Law (Ed.) *Power, action and belief: A new sociology of knowledge?* London: Routledge
- Chadwick W, Roux S, Van de Venter M, Louw J & Oelofsen W (2007) Anti-diabetic effects of *Sutherlandia frutescens* in Wistar rats fed a diabetogenic diet. *Journal of Ethnopharmacology* 109: 121–127
- Chinkwo K (2005) *Sutherlandia frutescens* extracts can induce apoptosis in cultured carcinoma cells. *Journal of Ethnopharmacology* 98: 163–170
- Dold A & Cocks M (2002) The trade in medicinal plants in the Eastern Cape Province, South Africa. *South African Journal of Science* 98(1): 589–596
- Fernandes A, Cromarty A, Albrecht C & Jansen van Rensburg C (2004) The antioxidant potential of *Sutherlandia frutescens*. *Journal of Ethnopharmacology* 95: 1–5
- Fu X, Li X, Wang Y, Avula B, Smillie T, Mabusela W, Syce J, Johnson Q, Folk W & Kahn A (2009) Flavonol Glycosides from the South African medicinal plant *Sutherlandia frutescens*. *Planta Medica* 75. (Accessed January 2011), <https://www.thieme-connect.com/ejournals/abstract/plantamedica/doi/10.1055/s-2009-1216472>
- Geffen N (2010) *In defence of science: Seven points about traditional and scientific medicine*. 8 September. (Accessed October 2010), <http://www.aidstruth.org/features/2010/defence-science-seven-points-about-traditional-medicine>
- Gericke N (2001) *Sutherlandia* and AIDS patients: Update 13 March 2001. *Australian Journal of Medical Herbalism* 13(1): 9–15
- Gibson D (2011a) Indigenous knowledge, clinical trials and science of *Sutherlandia frutescens* (L.) R.Br 1 (*Lessertia frutescens*). Paper presented at The Futures of Culture Conference, Stellenbosch (3–6 September)

- Gibson D (2011b) Ambiguities in the making of an African medicine. *African Sociological Review* 15(1): 123–137
- Goldblatt P & Manning J (2000) Cape plants: A conspectus of the Cape flora of South Africa. *Strelitzia* 14. Cape Town: National Botanical Institute of South Africa & Missouri Botanical Garden
- Grandi M, Roselli L & Vernay M (2005) *Lessertia* (*Sutherlandia frutescens*) and fatigue during cancer treatment. [*Lessertia* (*Sutherlandia frutescens*) et la fatigue en cancérologie]. *Phytotherapy* 3: 110–113
- Green L (2012) Beyond South Africa's 'indigenous knowledge – science' wars. *South African Journal of Science* 108(7/8): 34–43
- Haraway D (1991) A cyborg manifesto: Science, technology and socialist feminism in the late twentieth century. In D Haraway (Ed.) *Simians, cyborgs and women: The reinvention of nature*. London: Free Association Books
- Iyioha I (2011) Law's dilemma: Validating complementary and alternative medicine and the clash of evidential paradigms. *Evidence-Based Complementary and Alternative Medicine* 27. (Accessed June 2011), <http://www.hindawi.com/journals/ecam/2011/389518>
- Johnson Q, Syce J, Nell H, Rudeen K & Folk W (2007) A randomized, double-blind, placebo-controlled trial of *Lessertia frutescens* in healthy adults. *PLoS Clinical Trials* 2(4): 16
- Johnson Q, Valentine A & Perez-Fernandez R (2008) Ecology and phytochemical analysis of the medicinal legume, *Sutherlandia frutescens* (L.)R.Br., at two locations. In F Dakora, SBM Chimphango, AJ Valentine, C Elmerich & WE Newton (Eds) *Nitrogen fixation: Towards poverty alleviation through sustainable agriculture*. Dordrecht: Springer Science & Business Media BV
- Jones O & Cloke P (2008) Non-human agencies: Trees in place and time. In E Knappett & L Malafouris (Eds) *Material agency: Towards a non-anthropocentric approach*. New York: Springer
- Katerere D & Eloff J (2005) Antibacterial and antioxidant activity of *Sutherlandia frutescens* (Fabaceae), a reputed anti-HIV/AIDS phytomedicine. *Phytotherapy Research* 19: 779–781
- Latour B (1993) *We have never been modern*. Cambridge, MA: Harvard University Press
- Latour B (1999) *Pandora's hope: Essays on the reality of science studies*. Cambridge, MA: Harvard University Press
- Latour B (2005) *Reassembling the social: An introduction to Actor-Network-Theory*. Oxford: Oxford University Press
- Law J (1992) *Notes on the theory of the actor network: Ordering, strategy and heterogeneity*. Accessed August 2010, <http://comp.lancs.ac.uk/sociology/soco54jl.html>
- Law J (2007) Making a mess with method. In W Outhwaite & S Torner (Eds) *The Sage handbook of social science methodology*. Beverley Hills & London: Sage
- Law J (2009) *Collateral realities*. (Accessed December 2010), <http://www.heterogeneities.net/publications/Law2009CollateralRealities.pdf>
- Law J & Lien M (2010) *Emergent aliens: Performing indigeneity and other ways of doing salmon in Norway*. Walton Hall & Milton Keynes: Open University
- Law J & Mol A (1995) Notes on materiality and sociality. *The Sociological Review* 43: 274–294
- Law J & Mol A (2008) The actor enacted: Cumbrian sheep in 2001. In C Knappett & L Malafouris (Eds) *Material agency: Towards a non-anthropocentric approach*. Dusseldorf: Springer

- Mills E, Cooper C, Seely D & Kanfer I (2005) African herbal medicines in the treatment of HIV: Hypoxis and Sutherlandia: An overview of evidence and pharmacology. *Nutrition Journal* 4: 1–6
- Mills E, Foster B, Van Heeswijk R, Phillips E, Wilson K, Blair L, Kazuhiro K & Kanfer I (2005) Impact of African herbal medicines on antiretroviral metabolism. *AIDS* 19(1): 95–97
- Mintsa Mi Nzue, A (2009) Use and conservation status of medicinal plants in the Cape Peninsula, Western Cape Province of South Africa. MA thesis, University of Stellenbosch
- Mol A (2002) *The body multiple: Ontology in medical practice*. Durham, NC: Duke University Press
- Ojewole J (2008) Anticonvulsant property of *Sutherlandia frutescens* R.Br. (variety incana E.Mey.) (Fabaceae) shoot aqueous extract. *Brain Research Bulletin* 75: 126–132
- Pappe L (1847) *A list of South African indigenous plants used as remedies by the colonists of the Cape of Good Hope*. Cape Town: OI Pike
- Pappe L (1850) *Florae Capensis Medicae Prodrromus*. Cape Town: AS Robertson
- Patwardhan B, Vaidya A, Chorghade M & Joshi S (2008) Reverse pharmacology and systems approaches for drug discovery and development. *Current Bioactive Compounds* 4: 1–11
- Petryna A (2009) *When experiments travel: Clinical trials and the global search for human subjects*. Princeton & Oxford: Princeton University Press
- Powrie L (2004) Common names of Karoo plants. *Strelitzia* 16. Cape Town: National Botanical Institute of South Africa & Missouri Botanical Garden
- Prevo D, Swart P & Swart A (2008) The influence of *Sutherlandia frutescens* on adrenal steroidogenic cytochrome P450 enzymes. *Journal of Ethnopharmacology* 118: 118–126
- Prout A (1996) Actor-network theory, technology and medical sociology: An illustrative analysis of the metered dose inhaler. *Sociology of Health & Illness* 18(2): 198–219
- Rival L (2010) Animism and the meanings of life: Reflections from Amazonia. In M Brightman, V Grotti & O Ulturgasheva (Eds) *Shamanism in rainforest and tundra: Personhood in the shamanic ecologies of contemporary Amazonia and Siberia*. Oxford: Berghahn
- Roberts M (1990) *Indigenous healing herbs*. Halfway House: Southern Book Publishers
- Smith C (1966) *Common names of South African plants*. Memoirs of the Botanical Survey of South Africa No. 35. Pretoria: Department of Agricultural Technical Services
- Stengers I (2010) *Cosmopolitics I* (trans. R Bonono). Minneapolis: University of Minnesota Press
- Thornton R (2009) The transmission of knowledge in South African traditional healing. *Africa: The Journal of the International African Institute* 79(1): 17–34
- Turnbull D (2009) *Working with incommensurable knowledge traditions: Assemblage, diversity, emergent knowledge, narrativity, performativity, mobility and synergy*. (Accessed November 2011), <http://thoughtmesh.net/publish/279.php>
- Van Wyk B & Albrecht C (2008) A review of the taxonomy, ethnobotany, chemistry and pharmacology of *Sutherlandia frutescens* (Fabaceae). *Journal of Ethnopharmacology* 119(3): 620–629
- Van Wyk B, Van Heerden F & Van Oudtshoorn B (2002) *Poisonous plants of South Africa*. Pretoria: Briza Publications
- Van Wyk B, Van Oudtshoorn B & Gericke N (1997) *Medicinal plants of South Africa*. Pretoria: Briza Publications

- Verran H (1998) Re-imagining land ownership in Australia. *Postcolonial Studies* 1(2): 237–254
- Verran H (2010) The natural products chemist and the traditional healer: A thought experiment about science's engagement with the public in Africa. Paper presented at a workshop on The Public Understanding of Science in Africa, British Institute of East Africa, Nairobi (22–24 September)
- Xaba P & Notten A (2003) *Sutherlandia Frutescens*. South African National Biodiversity Institute. (Accessed August 2010), <http://www.plantzafrica.com/plantqrs/sutherfrut.htm>

Conservation conversations: Improving the dialogue between fishers and fisheries science along the Benguela Coast

Tarryn-Anne Anderson, Kelsey Draper, Greg Duggan, Lesley Green, Astrid Jarre, Jennifer Rogerson, Sven Ragaller and Marieke van Zyl

IN MID 2010, Tarryn-Anne Anderson and Astrid Jarre sat in a sparsely furnished office at the Department of Agriculture, Forestry and Fisheries (DAFF), in Cape Town. With them sat a scientist from the Linefish Research team. The conversation had until then been focused on the possibilities of taking seriously the knowledge claims made by local fishers, and had, to put it lightly, come up against a brick wall. ‘Fishers,’ the scientist explained, ‘have a small-scale knowledge of the sea. This is not relevant when you need to make large-scale hypotheses. Only science’, he told us, pointing to the graphic representation of the southern African coast on his computer screen, ‘can give us all the numbers from the wide scale. This is what is needed to make management decisions.’

Into this comment was packed a range of assumptions about differences between ‘traditional’ knowledges and scientific knowledges: assumptions that are steeped in understandings of ‘race’ and coloniality; in a particular way of thinking about space and time; in the beliefs that the use of numbers equates to objective research, and that fishers work only at the local level.

This chapter reports on a seven-site research project that has sought to work closely with fishers to rethink the dominant ways of formulating those differences. Taking as a starting point the recognition that fishers have a valid working knowledge of the sea, the project has sought to explore fishers’ knowledges in a range of different kinds of marine harvesting activities. All of the sites are located along the southern African coastline, in the Benguela ecosystem which spans both the Atlantic and the Indian Oceans and two countries: South Africa and Namibia.

Both countries have a significant dependence on commercial fishing, and the South African coastline in particular is dotted with coastal settlements that rely heavily on the availability of seafood. However, as elsewhere, catch data in the Benguela ecosystem over time reflect decreasing fish stocks. Long-term climatic variability and overfishing have become matters of concern. While fisheries science has documented the decline of fish stocks and has played a primary role in

developing strategies for managing threatened marine resources, its approaches have been extraordinarily contested by people whose livelihoods depend on fishing. Without agreement over the knowledge basis of management, the conservation of southern African fisheries is in a tenuous situation. In this chapter, we focus on particular moments of disagreement, and how these moments can be used to formulate new questions concerning how to improve the dialogue between fisheries science and fishers' knowledge.

This research does not seek to advocate for or against science, nor for or against so-called 'fishers' knowledge'. What we are trying to attend to is both the call from fishers to be more inclusively involved in the management of fisheries, as well as the call from scientists to develop new ways of gathering data, such as local water temperatures, that are not dependent on often prohibitively expensive stand-alone instrumentation. Science has traditionally been used to manage data, and not people, but with the rise of environmental governance it has become an extension of the state, and its advice guides the formulation of policies that, once adopted, become the grounds of law enforcement and policing. Where fishers have no input into fisheries research and distrust its findings, noncompliance is inevitable. Yet opening up the possibilities for fishers' participation in fisheries management requires careful research on the dialogue itself, including how various parties know the sea and its creatures; the possibility that there are ways of knowing that traverse

FIGURE 12.1 *Fishermen and their catch*



Source: Photograph by Kelsey Draper

the categories ‘fisher’ and ‘scientist’; and that there may indeed be some important (and perhaps intractable) differences between how fishers and scientists understand the issues involved in managing marine resources.

The legislative framework: A marriage of extraction and conservation

The South African government and affiliates in fisheries science have implemented a range of policies aimed at mitigating the over-exploitation of threatened marine resources. The Marine Living Resources Act (MLRA) (No. 18 of 1998), as amended by the Marine Living Resources Amendment Act (No. 68 of 2000) was legislated to transform the country’s lucrative fishing industry as part of the government’s redistribution agenda, as well as to regulate fishing activity in terms of guidelines for sustainability. However, while the sustainability of the marine resources is addressed in the policy, it is within a market framework that these concerns are situated, in an attempt to marry the imperatives of extraction and those of conservation (Van Sittert 2003: 200).

The cancelling of permits that resulted from implementation of the policy, and lack of effective redistribution, were greatly resented by fishers who had lost their livelihoods at a time when they had expected greater support in the post-apartheid democracy. As is documented by Oliver Schultz and Marieke van Zyl, one result of this has been an attitude of increasing noncompliance among many of the affected fishers (Schultz 2010; Van Zyl 2008). Those dependent on fishing for a living speak of negative experiences with fisheries management structures and processes, stemming largely from their encounters with the politics surrounding the granting of fishing licences and quota allocations, amid many allegations of corrupt practice. This situation has led to an apparently incommensurable divide of distrust and antagonism between those earning a living off the sea and those trying to manage these fisheries in the interest of conservation.

Researchers David Crosoer et al. (2006) and Lance van Sittert (2002) have shown that, in the wake of the passing of the MLRA, the large, industrial fishing companies weathered the storm best, while many small-scale, long-term fishers lost their quotas, leaving them unemployed. Reasons for the manner in which this reform took place include the post-1994 context of pressure from global financial institutions to reform South Africa in accordance with neoliberal ideals, and a process of policy development that was not sufficiently participatory in relation to the smaller-scale fishers.

Similarly, the Institute for Poverty, Land and Agrarian Studies based at the University of the Western Cape has conducted research into the challenges within fisheries, particularly for small-scale fishers. Moenieba Isaacs, Mafaniso Hara and Jesper Raakjaer Nielsen have written of the effects of permit loss and redistribution

on small-scale fishers in the Western Cape (Isaacs et al. 2005). According to these researchers, one of the major problems with the new permit legislation is that not everyone who fished for a living prior to apartheid's end has now been allocated rights to do so. Contrary to the state's approach, they argue that to deal with the growing poverty of fisheries in South Africa, the state needs to take on an interventionist role by insisting on changes within the big fishing corporations that have largely carried on with 'business as usual', and supporting small-scale fisheries' business ventures.

Certain regulations formulated in terms of the MLRA allow individual fishers to obtain a single permit, generally for one species only. Small-scale fishers, in many cases, do not have large enough permits to enable them to fish comfortably for a living. Fishing corporations however, are still able to fish profitably because they fall within the category of commercial fishing, whereas small-scale fishers are categorised as neither commercial nor recreational fishers, hence receiving permits for neither. While the policy recognises the need for change, this happens slowly and during the process many fishers are left with no permits or only interim permits, the inadequacies of which require attention. At the time of writing, the Small-Scale Fishers Policy, aimed at addressing these issues of job security and vertical redistribution, and published in draft form for consultation in 2010 (DAFF 2010), is still under review. While it has been formulated to address the specific needs of small-scale fishers, the time it is taking to be finalised, and then implemented, means that the frustrations of the affected fishers have been building, and the issues have become even more contested as they wait to hear how their lives will be further affected.

More than just addressing the issue of permits, Isaacs and Hara also suggest that with regard to the small-scale fishers, factors such as the impacts of HIV and AIDS on fishing communities need to be considered when policy is formulated (Isaacs & Hara 2008). Their study is important, as it focuses attention on the ways in which factors that are not fisheries-related impact on the lives of fishers and on how they earn their livelihood. Not only issues of healthcare, but also those relating to education, skills development and social welfare are all relevant to the management of small-scale fisheries. Hara argues that because of these interrelated challenges, it is vital that management processes be approached differently for small-scale, long-term fishers, and that the management model of industrial fisheries cannot be transplanted to the small-scale fishery context (Hara 1999). However, giving voice to all those involved in small-scale fisheries is a hard task. Hara and Raakjaer explain that one reason for the difficulty experienced in changing approaches to fisheries management is that it is hard for small groups of fishers and new entrants into the fishing industry to influence a policy that needs to change from favouring capital-intensive fisheries to one that also considers

the conservation of marine resources and the social aspects of fisheries. This is because economics occupies a central role in fisheries debates, and policy-making procedures have to take South Africa's market competitiveness into consideration while also addressing the challenges of small-scale fisheries and the need for marine conservation (Hara & Raakjaer 2009).

Another prominent body of research has come out of the University of Cape Town's Department of Environmental and Geographical Science. Merle Sowman, Maria Hauck and colleagues have made important contributions to the project of getting fishers recognised as knowledge holders who need to be involved in fisheries management (Hauck & Sowman 2001, 2004; Hauck et al. 2002). They have been one of the main groups of researchers in South Africa to engage with notions of co-management, in papers such as 'Coastal and fisheries co-management in South Africa: An overview and analysis' (Hauck & Sowman 2001) and the book *Waves of Change: Coastal and Fisheries Co-Management in South Africa* (Hauck & Sowman 2004), which have brought social aspects of fisheries to the fore. Coming from environmental and geographical science, these projects were able to carry weight in science-based discussions where the social sciences have traditionally not been involved. They advocate that fishers be asked to collect data and provide input when it comes to making fisheries management decisions. Hauck argues that government needs to play a greater role in fisheries in order to see sustainable fisheries management such that the needs of all those involved in fisheries are met (Hauck & Sowman 2004). Van Sittert argues, from his position as an environmental historian, that local histories need to be incorporated into fisheries debates. This is difficult, as most debates are centred on data-driven research and interests, and while attempts are being made to hear the views of fishers, there is not space in the policy formulation process for working with these inputs (Van Sittert 2003).

Currently, in terms of the United Nations Food and Agriculture Organisation's Commission on Fisheries, South Africa is committed to implementing an Ecosystems Approach to Fisheries (EAF), though by the end of 2012 implementation to a sufficiently significant degree had not yet occurred. This approach aims to provide a framework within which human and nonhuman factors can be taken into consideration in fisheries management (Shannon et al. 2010), and is in contrast to the traditional fisheries management paradigm – that of single stock assessment. This change in paradigms is not an easy one to effect, not only because of the difference in approaches, but also because of the differences of opinion within marine science over what constitutes data. While the single stock assessment approaches focus heavily on mathematical modelling and on the management of one species at a time, the EAF approach not only welcomes multispecies ecosystems modelling, but also demands that qualitative data be incorporated into the data, and into the resultant analysis and recommendations.

Yet there has been some resistance to this approach, largely relating to the incommensurability of biological modelling, on the one hand, and social research that does not presume to render people as biological objects whose actions can be predicted and modelled, on the other.

A theoretical framework for rethinking the categories of 'fishers' and 'scientists'

Our work is the study not only of how people represent the environment, but of how the human-nonhuman collectives of the environment relate to one another on the levels of both thought and action – how they mutually constitute one another via their routes through life. This approach warrants a rethinking of the categories by which we identify individuals and collectives – such as 'fishers' and 'scientists'. Thus, instead of trying to document (and hence re-establish) an apparent division between scientists and fishers, the work explores points of congruence and partial connections that could be used as the basis for dialogue. Instead of presuming difference to be defined by the argument that 'scientists know but fishers believe', the approach asks questions about how different ways of knowing the world generate different objects of interest, and different ways of putting them together, and particular ways of talking about them. For example, a scientist who has fished throughout his (or her) life may know the sea in ways that are difficult to communicate in a scientific meeting, and a fisher who uses particular technologies like GPS and anemometers, and takes sea temperature readings, has a great deal to offer a scientific discussion on unusual seasonal weather. If, however, one has already decided that fishers and scientists are separate categories whose ways of knowing are radically different, then research that documents those differences reinforces the categories. The focus of the work, therefore, has been on ascertaining how people know the marine environment and speak of it. Our interest is in how knowledge is created, moved, distorted, blocked and used in the practices of fishers and scientists and in the dialogue between them, in the hope that by addressing the complexity and interconnectedness of these knowledges and ways of knowing, we might be able to offer reflections, suggestions, critiques and concrete tools to an emerging community of learning (Lutz & Neis 2008). In what follows we present a range of extracts from the studies we have undertaken which draw attention to the complexity of 'knowing'.

During Jen Rogerson's research in Lamberts Bay, Kelvin spoke to her of how he is able to feel through his body when a storm is approaching, and Hennie O spoke of how he has learned to tell the signs of change through the way the sea looks and how clouds change. For many fishers, relying on technology is not an option as they do not own devices and equipment that predict weather. For this

reason, over the course of their years at sea, Kelvin, Hennie O and others such as Ernest have developed practical skills and ways of learning. For those working in the sciences practical skills can often seem unapparent, as the practices of the sciences are such that data arising from these practices are enumerated, and the embodied ways in which people come to know are eclipsed. In many instances, technology has come to be seen as removed from the human body, and because the sciences generate knowledge using such technology, it can appear as if the people working in this scientific manner do not engage with their bodies (Ingold 2000: 296). However, for Palsson the art of using technology is in making it an extension of the body, as if the technology is not there (Palsson 1994). In the case of Ernest and Dikkie, two other fishers from Lamberts Bay, this notion is made clear in the way that they understand their boats and handlines to be a part of them. For scientists too, though, learning to use technology requires extensive use of the body. Just as learning to drive a car is an embodied process, so too is learning to use equipment and technology for recording and collecting data.

Kelvin's approach to forecasting the weather in Lamberts Bay is very difficult to translate into the calculative and enumerative logics of the sciences; it possesses a particular quality of embodied knowledge which has also been illustrated by Anderson's work on the production of skippers' logbooks in Kalk Bay (Anderson 2011). Yet the embodied knowledges expressed by fishers are not so very different from the nature of the knowledge held by disciplines such as marine fishery science. Perhaps if there were an instrument that could measure the rocking of Kelvin's boat in combination with the direction of the waves or sudden changes in current, this knowledge would not be so easily discounted as subjective or ambiguous. Not only is the disregard of this weather-predicting knowledge, and of in-depth local ecological understanding such as that expressed by Vernon in Walvis Bay, doing an injustice to the professional expertise of the fishers; it is also a clear indication of the scientific approach's lack of trust in the human body. That lack of trust is part of the intellectual heritage of the sciences, in which the effort to describe only 'objective' knowledge has the effect of obscuring from view what a scientist with years of experience would, much like a clinician, come to prize as 'clinical skill'. Intuitive, instinctual and experiential knowledge is used in all spheres of human activity, from driving a car to predicting the weather. The issue is that the 'nature' defined by science derives from a specific way of generating knowledge about the world: it is not the world itself. And where fishers rely on ways of knowing the world that derive from, for example, embodied skill, their participation in the formal national conservation conversation is severely limited.

Not speaking about embodied knowledge, and defining it as purely subjective, potentially alienates a percentage of the people whose activity impacts on the marine environment. And indeed, almost all fishers express a sense of

alienation from the state-based science. Koos, a fisher from Stilbaai, expresses a feeling of being considered a nuisance, a presence that people would prefer to just make disappear, and he is obviously insulted by what he perceives to be the government officials' view of him. In Van Zyl's ethnography of Kassiesbaai, it is made clear that fishing quotas and licences are a very personal issue for fishers and they demand the right to have a conversation about how these quotas and licences are allocated, that is to be addressed on a human level by the state (Van Zyl 2008). Like Koos in Stilbaai, like Vernon in Walvis Bay, Kelvin in Lamberts Bay also exemplifies the frustration felt at having one's highly specialised set of skills disregarded as irrelevant. Fishers view their skills and instincts as something of which to be proud, and are offended when these forms of knowledge are ignored.

It is through apprenticeship that the fishers learn from their 'elders' in the craft. Palsson notes that

the period of apprenticeship is a critical one. It is precisely here, in the role of an apprentice at sea, that the mate learns to attend to the environment as a *skipper*. Working as a mate under the guidance of an experienced skipper gives the novice the opportunity to develop self-confidence and to establish skills at fishing and directing boat and crew. (Palsson 2006: 81)

Fishers are not that different to hypotheses-testing researchers, as they not only gather data through activity and observation, but also actively test this information and see how they can make it work for them (Stanley & Rice 2001). Fishers build up their skill set through trial and error, much like processes of experimentation, with a careful consideration of dynamic factors in play, a comparative framework of past experience, the development of specialist skills, and the goal of learning more and expanding their knowledge base.

Fishers' knowledge may have deep historical roots, but people do not simply re-enact age-old tradition for the sake of it. A clear finding across the studies was that fishers of the Benguela ecosystem are increasingly augmenting their knowledges and skills with new technologies such as cellphones, fish-finders and the internet.¹ Ragaller's research in Gansbaai allows recognition of the ways in which fishers' bodies are increasingly significantly hybridised by the impact of technologies on day-to-day decision-making and social interaction (Ragaller 2011). By tracing the intersections of various forms of knowing, doing, human and ecological shifts and technological choices, we begin to see the ways in which networks emerge on a local and regional scale to maximise resource extraction in relation to rights to fish, and to challenge the apparent divide between sciences and fishers.

This finding is important in a context of scarce research resources. While most scientific research projects do not have the human or economic resources to send several researchers out to sea every day in the same area, fishers themselves are capable of collecting the large amounts of data needed across temporal and spatial scales through their daily activities. This is a feature of their livelihood that is amenable to cooperation with science. While researchers can benefit from their immersion in the field, fishers in turn can assist and benefit from the generation of new data. What makes this problematic, as became evident through the analysis of skippers' log books in Kalk Bay (Anderson 2011), is that the contributions of the fishers are often, literally, left 'on the margins', where comments written to 'the powers that be' are ignored, and only the hard data are focused on.

The act of recording catch data in a logbook requires a translation of fishing practice into a format which is open to interpretation by DAFF scientists. While many fishers do refer back to catch data in their logbooks from previous years when deciding on where and what to fish, the logbooks are not their primary resource.

Rather, logbooks from previous years act as a secondary and supplementary resource to intuitive, experiential knowledge. The production and maintenance of logbooks does not begin and end with the processes of filling in tables. The data in each skipper's logbooks are intimately tied to the practice of fishing and one's knowledge of the sea. (Anderson 2011: 31)

As Anderson discusses, logbooks are essentially a record of a skipper's interaction with the environment, an interaction which must be collated and coded in a very specific way. Anderson notes the argument of Paige West that problems arise where one attempts to merely translate local knowledge into scientific categories. Where this kind of translation occurs, the production, theorisation, transmission and encoding of that knowledge should be taken into account (West 2005). In the context of skippers' logbooks it is important to realise that not all the recorded information survives this act of translation. The act of recording data in a logbook, as a state-sanctioned document, serves to legitimate that particular information and recognises it, over the other information gathered, as *the most important* information that a fisher could possibly offer (Anderson 2011: 40).

However, this does not mean that the other 'extraneous' information cannot find a place in the official conversation and be instrumental in fostering a generative dialogue between variant knowledges. One such example is to be found in Duggan's work in Stilbaai, and concerns sea temperature data (Duggan 2012).

In an interview conducted in mid-2010, fisher Oom ('Uncle') Louis suggested that

about six years ago we were in Gouritz ... and for the whole of December, the water here was as hot as Durban's water – it was 22, 23, 24 degrees the whole of December ... the water was so hot there came a lot of tunny [tuna] with it.

Over the course of his many conversations with Oom Louis, Duggan frequently encountered the long-term fisher's conviction that he had witnessed a warm water phenomenon in 2004, the year he had seen tuna (a fish which he would usually not expect to catch in Stilbaai) coming into the bay with the water. As Duggan states, 'It is evident that Oom Louis is thinking through a far longer temporal scale than the stereotypes would suggest.' (Duggan 2012: 56). When Duggan mentioned this to Prof. Jarre, one of the supervisors of the project, in early 2011, she was able to locate two sea temperature series for the period to which Oom Louis referred:

What was striking about these two temperature series was that the localized temperature anomaly data derived from the nearby Ystervarkpunt monitoring station showed no significant variability in sea temperature over the December period mentioned by Oom Louis, whereas the broader regional scale series indicated a distinctly hotter period, the precise temperature of which – 22°C to 24°C – correlated precisely with Oom Louis' observations ... The reasons for the Ystervarkpunt station's inability to register what was noted in the DAFF series as a significantly warm water period are unclear. It has been suggested that the coastal location of the lighthouse means it is unable to accurately record water temperature at depth or a distance from shore, thereby skewing the recordings. A similar phenomenon was reported to me by the Stilbaai Harbour Master who mentioned on occasion that the daily water temperature measurements they are required to take are meaningless given that they are taken in a metre of water inside a harbour. In this conversation the Harbour Master suggested the measurements of the fishers to be far more accurate and indicative of current water temperature at a range of depths ... The Ystervarkpunt series pertains specifically to anomalous sea temperatures yet failed in this case to note any significant anomaly where a local fisher was quick to point one out. (Duggan 2012: 56–58)

Duggan discusses this moment as one of 'convergence and divergence, in which local anecdotal data not only displayed a strong correlation with broader regional-scale data but also challenged the findings of a local monitoring station' (Duggan 2012: 57). This would suggest that fishers are aware of temperature variability

and that they make use of accurate monitoring practices. Fishers like Oom Louis, through their years of monitoring, are able to quickly note anomalies. By taking the temperature at spots where fish are caught, fishers are potentially able to generate a rich data set which is linked to fish movements and feeding behaviour, pointing to a potential to enrich the data available to an EAF assessment of ecosystem variability and health.

Such concurrence suggests that overlaps and commonalities do exist and are important first steps towards opening up conversations pertaining to shared concerns and observations. Fishers at many of our research sites took great interest in sea temperatures and wind patterns, with a number of fishers in Stilbaai suggesting a willingness to conduct research on behalf of Marine and Coastal Management (MCM).²

A further potential point of connection surfaces through the studies of Anderson, Draper, and Ragaller, where the dynamic adaptability of fishers with respect to Information and Communication Technologies (ICTs) has become evident (Anderson 2011; Draper 2011; Ragaller 2011). ICTs, providing ease of access to real-time data, augment existing networks of communication and practice in the fishery. This appropriation of new technologies, with a simultaneous reduction in reliance on older ones such as VHF radio, demonstrates that adaptability. Yet, rather than replacing phenological and meteorological knowledge with reliance on technology, what emerges is an integration of new technologies into established practices and histories, including histories of exclusion. Considering the abundant use of ICTs in the context of both small-scale and industrial fisheries, it may be that the space for innovation lies in online and mobile technology (Draper 2011; Ragaller 2011). Anderson draws on the examples of the South African Bird Atlas Project 2 (SABAP2) and the Cell-Life project, ICTs which have both been used successfully as tools for data-gathering of various kinds (Anderson 2011).³ When considering recent ICT innovations, and the adaptive potential of fishers to the use of such technologies, it becomes possible to envision a new method of data collection in fisheries research which better supports participation by fishers in the scientific process.

What we have seen with our investigations of the political ontology of fisheries along the Benguela ecosystem, is not only how discrepant world views can conflict and cause contention, but perhaps more importantly for the future of sustainable marine resource management, how these discrepant world views have more in common than previously thought. This understanding has come about through careful investigations into the relational networks that are mobilised by a claimed world view, not just by looking at what claims are made. Palsson provides an important perspective on the shift away from what he terms the regime of the aquarium, or the modernist ideology in environmental studies (Palsson 2006).

In the context of fisheries, this means addressing social-ecological implications of governance that move away from assumptions of discontinuity, control, and hierarchy. The regime of the aquarium metaphorically implies seeing the ocean as a collection of aquaria and marine biologists and the state as keepers of these aquaria. Fascination with single species and individual animals emphasises control and captivity, while naturalising the human world through implanting 'nature' into spaces of artificiality such as the aquaria (Palsson 2006). In restructuring anthropology through an integrated practice that incorporates human ecology *and* social theory, it becomes possible to consider multiple ways of knowing and engaging with the environment. This provides the opportunity to experience the possibilities of being enmeshed within a social-ecological assemblage. It allows for a redefining and rephrasing of the ways in which we enquire about and sustain our interconnected position within a social-ecological network. A shift away from the regime of state science offers opportunities for the incorporation and utilisation of fishers' knowledge, experience, and networks of communication, making it possible for them to operate in parallel with scientific knowledge and processes while taking account of the dynamic nature of the fisheries. The fluidity of the fisheries must be emphasised, and governance structures must therefore also recognise this when designing their approaches to fisheries management. Social-ecological frameworks begin to address this expanded space, considering the implications of livelihoods, public health, accessibility, rights, and knowledge contestations that are diverse across the Benguela ecosystem.

In conclusion: Understanding more than fish

To speak of fishers' knowledge is to invoke a form of categorisation that specifically separates the knowledge that fishers produce from the knowledge that scientists produce. We accept that there are differences. What to do with these differences is a question central to this chapter. Clearly, scientists as well as fishers depend on their senses and experience to make judgements. We have also seen how fishers rely on technology and data to make their decisions about how and when to fish. What we have seen with our investigations of the political ontology of fisheries in the Western Cape is not only how discrepant world views can conflict and cause contention, but perhaps more importantly for the future of sustainable fisheries management, how these discrepant world views have more in common than previously thought. As we have shown, the history of fisheries management in South Africa has given little room to the voices of fishers and has marginalised them as knowledge-producing members of the fishery.

By way of conclusion there are two points to be made here. Firstly, the disconnects between fishers' knowledge and fisheries science and management

are worth viewing productively. Managing the harvesting of the ocean entails understanding more than fish. An EAF is the first formalised attempt to address the need to include humans in fisheries management, yet it also falls down in some respects. It is here that we see our work contributing towards a productive approach to disconnects such as those made evident above. Secondly, fishers' knowledge is not something confined by tradition. It is not a fixed body of knowledge that fishers draw on like a reference book; rather, it is constantly created and recreated in varying circumstances.

The intention behind the project described in this chapter is to explore routes towards constructive conversation. It has been our aim to show that one of the profound causes of conflict in fisheries management is not only the competing interests of those involved, but also the contested ground of legitimacy and authority in terms of expertise. In order to develop an EAF based on an inclusive view of those humans and nonhumans within the ecosystem concerned, the knowledge of fishers needs to be drawn in to scientific debate.

Our research suggests that there is the possibility for conversation between fishers and scientists, despite the seemingly intractable differences that currently inhibit this conversation. We have attempted to show not only how fishers' knowledge is acquired and assembled, but also how it is actively engaged and analysed by fishers in the process of reaching consensus. When we look at how these different intersections/interconnections interact, we get a view of not only how they are different, but of how decisions about physical and thoughtful routes through the world are also political decisions. These political decisions determine the manner in which marine resources are accessed. As such, it is these interconnections that we consider to be a powerful resource for reconfiguring possibilities for fisheries management in the Benguela ecosystem coastline.

Acknowledgement

Six of the eight co-authors of this chapter are graduate students in social anthropology at the University of Cape Town (UCT), and all are part of a five-year research collaboration between the UCT Department of Anthropology and MA-RE, the Marine Research Institute at UCT. Funding for this project is gratefully acknowledged from the SeaChange Fund of the National Research Foundation, the South African Research Chair in Marine Ecology and Fisheries, and the Africa Knowledges Project in the Programme for the Enhancement of Research Capacity at UCT. Without attributing to them opinions, errors or omissions, we acknowledge the insights and support of Barbara Paterson, Barbara Neis, Rosemary Ommer, Lance van Sittert, Jackie Sunde, Robert Morrell, Larry Hutchings and John Field.

Notes

- 1 A fish-finder is a SONAR instrument used to locate fish underwater by detecting reflected pulses of sound energy.
- 2 MCM was the primary fisheries management and research section within the Department of Environmental Affairs and Tourism (DEAT), until a cabinet reshuffle in 2009 and a departmental restructuring saw the DEAT separated into a Department of Environmental Affairs and the DAFF. The MCM no longer exists.
- 3 See <http://sabap2.adu.org.za/> and <http://www.cell-life.org/>

References

- Anderson T (2011) Tracking the movement of fish: Skippers' logbooks and marine knowledges in fisheries management. MA thesis, University of Cape Town
- Crosoer D, Van Sittert L & Ponte S (2006) The integration of South African fisheries into the global economy: past, present and future. *Marine Policy* 30: 18–19
- DAFF (Department of Agriculture, Forestry & Fisheries, South Africa) (2010) Invitation to comment on the draft policy for the small-scale fisheries sector in South Africa, Notice 852. *Government Gazette* No. 33530, 3 September
- Draper K (2011) Technologies, knowledges, and capital: Towards a political ecology of the hake trawl fishery Walvis Bay, Namibia. MA thesis, University of Cape Town
- Duggan G (2012) In the realm of the kob kings: Rethinking knowledges and dialogue in a small-scale fishery. MA thesis, University of Cape Town
- Hara M (1999) Fisheries co-management: A review of the theoretical basis and assumptions. *Southern African Perspectives* 77: 1–32
- Hara M & Raakjær J (2009) Policy evolution in South African fisheries: The governance of the sector for small pelagics. *Development Southern Africa* 26(4): 649–662
- Hauck M & Sowman M (2001) Coastal and fisheries co-management in South Africa: An overview and analysis. *Marine Policy* 25(3): 173–185
- Hauck M & Sowman M (2004) *Waves of change: Coastal and fisheries co-management in South Africa*. Cape Town: Juta Academic
- Hauck M, Sowman M, Russell E, Clark B, Harris J, Venter A, Beaumont J & Maseko Z (2002) Perceptions of subsistence and informal fishers in South Africa regarding the management of living marine resources. *South African Journal of Marine Science* 24: 463–474
- Ingold T (2000) *The perception of the environment: Essays in livelihood, dwelling and skill*. London: Routledge
- Isaacs M & Hara M (2008) *Mainstreaming of HIV and AIDS into South African small scale policy*. Programme for Land and Agrarian Studies Research Report No. 39, Programme for Land and Agrarian Studies, School of Government, University of the Western Cape
- Isaacs M, Hara M, Raakjaer J & Nielsen J (2005) *South African fisheries reform: Past, present and future?* PLAAS (Programme for Land and Agrarian Studies) Policy Brief No. 16, School of Government, University of the Western Cape

- Lutz JS & Neis B (Eds) (2008) *Making and moving knowledge: Interdisciplinary and community-based research in a world on the edge*. Montreal & Kingston: McGill-Queen's University Press
- Palsson G (1994) Enskilment at Sea. *Man* (new series) 29: 901–927
- Palsson G (2006) Nature and society in the age of postmodernity. In A Biersack & J Greenberg (Eds) *Reimagining political ecology (New ecologies for the twenty-first century)*. Durham, NC: Duke University Press
- Ragaller S (2011) Tracking the movement of fish: Skippers' logbooks and marine knowledges in fisheries management. MA thesis, University of Cape Town
- Schultz OJ (2010) Belonging on the West Coast: An ethnography of St Helena Bay in the context of marine resource scarcity. MA thesis, University of Cape Town
- Shannon L, Jarre A & Petersen S (2010) Developing a science base for the implementation of the ecosystem approach to fisheries in South Africa. *Progress in Oceanography* 87: 289–303
- Stanley RD & Rice J (2001) Fisher Knowledge? Why not add their scientific skills to the mix while you're at it? *Conference Proceedings: Putting Fishers' Knowledge to Work*. Fisheries Centre, University of British Columbia (27–30 August)
- Van Sittert L (2002) Leviathan bound: Fisheries reform in South Africa, 1994–2000. In T Lemon & CM Rogerson (Eds) *Geography and economy in South Africa and its neighbours*. London: Ashgate
- Van Sittert L (2003) The tyranny of the past: Why local histories matter in South African fisheries. *Ocean and Coastal Management* 46: 199–219
- Van Zyl M (2008) Heritage and change: The implementation of fishing policy in Kassiesbaai, South Africa 2007. MA thesis, University of Cape Town
- West P (2005) Translation, value, and space: Theorizing an ethnographic and engaged environmental anthropology. *American Anthropologist* 107(4): 632–642

Cape Flats Nature: Rethinking urban ecologies

Tania Katzschner

REPOSITIONING URBAN ECOLOGY AND natural resource management in relation to the promotion of wellbeing of people and their places seems particularly urgent and important in South Africa's fast-changing cities. In Cape Town the challenge is particularly acute. Poverty, continuing socioeconomic disadvantage and inequality, and political fracture arising from colonial and apartheid legacies predominate in a region that is also one of the world's 25 most threatened biodiversity hotspots.¹ Cape Town lies within the Cape Floristic Region, which is the smallest and richest of the world's six floral kingdoms, and is the only floral kingdom on Earth that lies within a single country.² Such an area is thus precious for the future of life itself in global terms, and calls for extraordinary efforts at conservation. This juxtaposition of extreme social need for development and extreme natural need for conservation has sparked several recent attempts to rethink biodiversity protection in Cape Town (Ernstson 2011).

This chapter tells the story of the now defunct project called Cape Flats Nature, which struggled throughout its eight-year lifetime (2002–2010) to develop generative approaches to nature conservation alongside the promotion of community development. The reason for telling this story is to show how urban nature conservation practices are enacting natures, and are relationally constructed through social and political practice. The chapter is concerned with the politics, practices and poetics of conservation within urban contexts. The Cape Flats Nature project aimed to reconnect people with history, place and knowledge, and challenge the ontological division which has 'the social' ineluctably separate from 'the natural'. Cape Flats Nature developed a vision of socioecological practices working across shifting and permeable boundaries between nature and society, boundaries which it made and remade in its efforts to address protection of biodiversity in a context of poverty and marginalisation. This chapter partially articulates that vision: partially, because it is an account told from the perspective of particular, interested forms of participation in the project; but partially also in the sense that this is far from the whole story.

FIGURE 13.1 Cape Flats Nature sites



Source: Redrawn from map supplied by City of Cape Town, 2012

Cape Flats Nature was a partnership project for which I was an activist, an administrator, and an author. I worked initially (1998–2005) as an environmental resource management officer in local government, where engagement with the project was part of my job. I was one of the project’s founding partners, while working for the City of Cape Town Environmental Management Department.³ In that capacity I initiated and helped to conceptualise the project, formalised the partnership across institutions, and wrote the project proposal and the terms of reference for the project coordinator who was being recruited to develop and grow

the partnership project. I was a member of the partnership's Project Advisory Group. Subsequently I worked as an environmental educator and researcher based at a university, and now as an author I write about and analyse the project. This position as both 'insider' and 'stranger' who cultivates a degree of analytic separation, offers the possibility of writing from a position of double participation. At the same time, these multiple roles blur the boundaries between academic and activist worlds and knowledges.

Cape Flats Nature

On a field trip, a young woman from a settlement bordering one of the urban reserves offered to sell us a female terrapin. The animal was displayed for us as good-for-sale, dangling in the air from a wire pushed through her shell. In the ensuing engagement between settlement dwellers and conservators, the terrapin was removed (without payment) by the nature conservation officer and driven off to re-hydration and safety. Outraged, one of the women demanded 'Give me food! Give me food!' Her resourceful income-generation strategy had been thwarted. As we drove off, discussing the illegality of her behaviours, her friend mimed the writing down of our registration number. In her world, we were the thieves. (Soal & Van Blerk 2005: 3)

This iconic incident described by Sue Soal and Rubert van Blerk, who visited the Macassar Dunes area and who evaluated the Cape Flats Nature project after its first phase in 2005, reveals the multiplicity of worlds that lie within the city, and the multilayered and decidedly fluid reality, the uncommon ground we cannot help sharing. The incident reveals the importance of creating a dialogue between cultural and natural processes, and the relevance of such a dialogue for present urban problems of the kind with which the Cape Flats Nature project attempted to engage. It also raises complicated and confusing questions.

The low-lying area of Cape Town known as the Cape Flats is an area characterised by social fragmentation. Beginning in the leafy suburbs at the foot of Table Mountain, a trip down Lansdowne Road into the heart of the Cape Flats tells an important story about urban nature conservation in the city. Lansdowne Road traverses the Cape Flats with its informal shack settlements, skirts the dwindling farmlands of Philippi, and finally runs to ground in the vast sprawl of makeshift shelters and low-cost housing in the metro south-east where the majority of Cape Town residents live. There, social reality is far removed from life at the top end of the road.

Along the way the road travels through an urban landscape of factories and warehouses; you see power lines, people pushing trolleys, stray dogs, barbed wire

perimeters, security fences, ‘fresh lamb’ for sale, broken windows, street vendors, a scrap metal cart pulled by a donkey, and vacant lots littered with glass and strewn with rubbish. But the road also passes something else. In the midst of this burgeoning industrial landscape, almost hidden, lies a ‘place of collective hopes and dreams’ (Pitt & Boulle 2010: 7). There is a water body, a seasonal wetland teeming with life. Many different species of birds frequent this wetland and it is the home to some endangered species (both fauna and flora) – for example, it is the last refuge of a rare fern, *Isoetes capensis*. In addition to a rare plant, the wetland also offers something equally rare and endangered for urbanised people: a carefully bounded space in which to feel unbounded, and to sense freedom and isolation and potential respite from an agitated world of survival and obligations, a place to connect with nature. This is the Edith Stephens Wetland Park, a community and education centre buzzing with activity, one of the original pilot sites of the Cape Flats Nature project and its nurturing hub. Cape Flats Nature initially focused its activities on four pilot sites: the Edith Stephens Wetlands Park, Wolfgat Nature Reserve, Harmony Flats and Macassar Dunes, all situated in marginalised, previously neglected areas surrounded by low-income communities, but all with very different contexts, sizes and challenges (see the map in Figure 13.1, which shows the Cape Flats Nature sites in the context of the City of Cape Town’s nature reserves). Two of the pilot areas, for example, already enjoyed official protection status but had never been adequately managed and protected. None of the sites had dedicated on-the-ground management teams or positive relationships with the surrounding communities.

The lowlands of Cape Town is an area that to date has been under-conserved and has experienced massive urban sprawl dating from the implementation of planning policies in the apartheid era, when it served as a dumping ground for black people affected by forced removals from the city centre, or arriving from the rural areas in search of work. In apartheid Cape Town, conservation focused largely on looking after the Cape Peninsula mountain chain. This, of course, is important, for the mountain is outstanding in terms of its biodiversity. However, what many people don’t know is that the low-lying area of the city is home to a unique group of plants known as the Cape Flats Flora; many of the plant species in this area are extremely rare, and some grow nowhere else on Earth. Thus the effect of the mountain chain being the sole and dominant site of state interest in nature conservation had the effect of ensuring that the interests of the wealthy ‘white’ communities living around the mountain were well catered for, while those of the majority of people and their places (i.e. the places that give them a sense of wellbeing, of feeling at home, of being connected to the spirit of the place) were ignored. The history of urban nature and urban ecology is inseparable from the social, political, and economic history of a place. In the contexts of colonial and apartheid Cape Town, it is evident that urban nature was a racialised dimension of the city.

Despite a general context of neglect in the apartheid era, the story of conservation on the Cape Flats formally began with the creation of the Edith Stephens Wetland Park, as a result of a donation to the city in 1955 by Edith Stephens of three hectares of wetlands that now form part of the park. The land was placed in the care of Kirstenbosch National Botanical Gardens by Stephens, a forward-thinking lecturer in botany at the University of Cape Town whose main concern in making the donation was to conserve and protect the rare *Isoetes capensis* that grew there (Maze et al. 2002). However, only from the mid-1980s onwards was Edith Stephens Wetlands Park earmarked as a place of potential environmental, social, and economic significance (Davis 2005). And only in the late 1980s and early 1990s did botanists start to explore the dwindling biodiversity on the Cape Flats systematically, and identify what might be required to conserve its floral richness.

It is important to understand that South Africa's political transition also signalled its return to the international community of nations. That made it imperative for the country to catch up with the many international environmental conventions, protocols and frameworks that had been introduced during its years of exclusion, especially since the Rio Earth Summit in 1992. South Africa ratified the Convention on Biological Diversity in 1997, and in doing so endorsed the objectives of the convention which included mainstreaming of biodiversity into all governmental policies, plans and programmes. Ratification also meant that South Africa became eligible to access funds from the Global Environment Facility. As a country with exceptional biodiversity and human capacity, coupled with its agenda for social and economic transformation, South Africa was quickly identified by the implementing agencies of the Global Environment Facility as a recipient of funding for priority programmes that would conserve globally significant biodiversity. Preconditions for receiving the funds were the development of a new biodiversity policy for the country, and the identification of country priorities. These priorities included the Cape Floral Region. In 2004, the Cape Floral Region Protected Areas were inscribed as a World Heritage Site.

In Cape Town the 1980s and 1990s were characterised by fragmented conservation management and a focus mainly on the Cape Peninsula mountain chain environment. The establishment of the Table Mountain National Park in 1998 consolidated management along the mountain chain, and enabled the focus of staff employed by City Biodiversity Management, a branch of local government that falls under the broader Environmental Resource Management Department, to include the under-conserved lowland areas. Several flora conservation studies during the 1990s confirmed the importance of the latter areas (Davis 2005). Within this context of global recognition, support and attention directed towards one of the richest areas for plants in the world, the City worked towards honouring its international responsibilities and commitments by drafting an Integrated Metropolitan

Environmental Policy in 2001 (CCT 2001). A biodiversity strategy was approved in 2003 which set the framework of priorities for current biodiversity conservation work (CCT 2003). One of its strategic objectives was to identify terrestrial and freshwater priority sites and corridors, and to ensure their effective management. In addressing this objective, the City applied scientific conservation planning techniques to prioritising remaining biodiversity sites in the city and producing a fine-scale conservation plan, known as the Biodiversity Network, which was formalised in 2002 and finalised as a bioregional plan in 2010. All Cape Flats Nature pilot sites formed part of this Biodiversity Network (see the map in Figure 13.2, which shows the Cape Flats Nature pilot sites in the context of the Biodiversity Network).

FIGURE 13.2 Cape Flats Nature sites in the context of the Biodiversity Network of the City of Cape Town



Source: Redrawn from map supplied by City of Cape Town, 2012

An earlier project at the Edith Stephens wetland site in the late 1990s had aimed to establish a community park on the site to create jobs through invasive alien plant removal, as part of the renowned Working for Water programme,⁴ and also to provide a recreational centre and a reserve that integrated the various communities (Maze et al. 2002: 95). The establishment of the park provided an opportunity to demonstrate how a site could serve broader community interests. The initiative was led by a steering committee that included diverse partners. On the basis of this successful experience at the Edith Stephens Wetland Park, which was designed and built through some daring experiments in engineering, ecology, landscape design and city planning, the new Cape Flats Nature project was founded in 2002 to establish role models for community involvement in conservation at four pilot sites, including the park.

A partnership emerges

Cape Flats Nature emerged in 2002 as a partnership project of the South African National Biodiversity Institute (SANBI) with the City of Cape Town, the Table Mountain Fund of the World Wide Fund for Nature and the Botanical Society of South Africa, supported by Table Mountain National Park, a member of the South African National Parks organisation (SANParks) and CapeNature, a public institution with statutory responsibility for biodiversity conservation in the Western Cape. All the partners brought different resources to the project, including support, funding, knowledge, legitimacy and operational resources. It is important to understand that there is no single organisation or institution within Cape Town responsible for nature conservation and biodiversity management, so coordinating, streamlining, harmonising and integrating priorities and projects and supporting and enhancing their respective strategies is always a challenging and complex process. These organisations shared a common interest in exploring and demonstrating how to manage priority biodiversity sites in the city, in a way that would benefit surrounding low-income urban communities. The project experimented with introducing the notion of nature, as well as an understanding that natural systems are part of this urban environment, into the domain of urban planning of the built environment, and specifically in a context of previous neglect and deprivation, poverty and disadvantage.

Cape Flats Nature was implemented through SANBI in two phases from 2002 to 2010, when it was terminated, to the disappointment of those involved. The aim of Phase 1 of the project, which lasted from 2002 to 2006, was to demonstrate that conservation sites can be managed in ways that benefit and involve local communities. The overall aim of Phase 2, which ran from 2007 to 2010, was to deepen and spread the lessons of good practice that had been developed in the

demonstration phase and in other projects in the city more broadly, and to learn lessons about how to do this so that the practice could be spread even further in future, through the Biodiversity Network. Through the successes and failures of this period a solid practice of community development-oriented urban nature conservation began to emerge.

The Cape Flats Nature project sought to impact on people's behaviour and attitudes towards their places. It sought the infusion of an idea about nature into the community; and also (increasingly), the infusion of an idea about including people into the policy and practice of nature conservation (Soal & Van Blerk 2005: 1). It sought to accomplish these mirrored objectives not through 'management' or imposing external constraints (fences, adversarial policing), nor through abandoning nature sites to the inevitability of human settlement. It pursued its objectives through engaging with the understanding, beliefs and attitudes of those who might otherwise, through conventional policy and practices relating to nature conservation, come into conflict with people and thereby imperil the environment itself (Soal & Van Blerk 2005). Its vision, to paraphrase Zwai Peter, the area manager for Cape Town City Parks and previously Cape Flats Nature's communications manager, was 'to put people in the middle of nature, to put nature in the middle of people and to find a way of forging a relationship between them that is mutually beneficial and self-sustaining' (Peter, quoted in Pitt & Boule 2010: 25). This could be criticised as anthropocentric, but needs to be understood in a context in which conservation is widely seen as 'green uniforms and epaulettes', i.e. fencing, keeping people out, and instituting adversarial policing. The practice contributes to destabilising people's understanding of what Capetonian 'urban nature' is, who it is for, where it can be engaged and protected, and who is permitted to do this (Ernstson 2011).

Such an undertaking and practice as that which Cape Flats Nature was aiming to achieve is arguably both inspirational and naïve (Soal & Van Blerk 2005). An underpinning of the project's founding ideal was that change at the level of internal belief systems and attitudes – of individuals, organisations, institutions and indeed, whole communities – is both possible and necessary to protect and promote biodiversity on the Cape lowlands. According to Tanya Layne, SANBI's Urban Nature Programme Developer (and first project coordinator of Cape Flats Nature), it is not possible to conserve biodiversity without empowering people as citizens at the same time (Layne interview). This project was an intervention, not just into biodiversity at the pilot sites at which it works, but also into the mindsets of those living around the sites – attempting to build a critical awareness of and relationship to nature amongst those who might conventionally be dismissed as mere enemies of conservation. It was also building a critical awareness of the role of people in conserving nature amongst those who might conventionally dismiss them and

their work. This would demand particular skills of the biodiversity practitioners, and also institutional processes to support the development of these skills and the growth of this practice (Layne interview).

Initially I was one of the founding partners of the project, working for the City of Cape Town. It is important to note that while Cape Flats Nature was partially constituted by the City, it was simultaneously an intervention into its operations, so the organisation I represented was also a 'target' of the project. In deliberately creating tension between Cape Flats Nature as a project and the City as its institutional environment there is a very fine line to negotiate between the risks of loss of learning and loss of collegiality, and also a fine line to negotiate to keep your partners on board and sympathetic to your organisation's culture, needs and constraints. The project could develop in implicit opposition to existing practice, or it could work in collaboration with that practice.

After its first major funding cycle ended the project was evaluated in 2005, and the evaluation examined the overall question initially posed by the Cape Flats Nature partnership, i.e. 'Is it possible to conserve natural ecosystems in a way that meets the mainstream socioeconomic development agenda of the lowest income communities in the city?' The evaluation of the project (Soal & Van Blerk 2005) shows that the demonstration phase of the project was easily able to prove that this is so, and most importantly that 'there is no alternative' (Soal & Van Blerk 2005: 2). There is little point in differentiating between those groups of people who want to understand ecosystems, defend the environment, or protect nature, and those who want to revive public life (Layne interview). In Steve Hinchcliffe's words, 'It has become common to say that nature can't be thought as somehow evacuated culture, the blank space left when values, politics and so on have gone' (Hinchcliffe 2008: 88).

Lee and Stenner note that environmentalism is caught up in dualistic presuppositions, for many environmentalists cling to the belief that nature can ultimately be separated from society (Lee & Stenner 1999: 95). This is why the objective of much environmental action is not to embed human action and human society more deeply in heterogeneous or hybrid relations; instead it seeks to diminish the impact of this society on natural entities by protecting nature from human interference. It also perpetuates a cultural myth that encourages us to 'preserve' people-less landscapes that have not existed in such places for millennia.

It is important to understand the inevitability of the Cape Flats Nature approach, i.e. that conservation thinking and strategy, particularly in an urban environment, necessarily embraces, even fuses with, the social aspect. Further, it is important to recognise that this is a significant break with conventional approaches to conservation that focus exclusively on conservation for its own sake, seeing people's engagement with nature as a means to an end, but not as an end in itself (Soal & Van Blerk 2005). It is also a significant departure from a dominant mindset

within our country which I believe is bedevilled by belief in the existence of an inherent and unfortunate conflict between social and environmental responsibility, and by perceptions that there is competition between so-called ‘brown’ and ‘green’ issues, or that one can only pursue either a conservation or a development agenda.

The work of Cape Flats Nature was pioneering and vulnerable, as it fell into the cracks between institutional boundaries. Growing people and relations is a qualitative process – it does not fit neatly in institutional tick boxes. In the current moment, with the sense of multiple social and environmental crises pervading the development of policies and strategies, there is also a pervasive culture of busy-ness. In this context it is hard to insert a practice of stopping, thinking, listening and learning, even for those of us committed to such a practice. The Cape Flats Nature project came to a very sudden and unexpected end in 2010, despite its successes and achievements and substantial buy-in and commitment across all the partner institutions. The project was vulnerable as it fell between ‘mandates’ and institutions – some that focused on social issues and saw nature as an add-on; and some whose focus and core business was biodiversity, and which saw the social as an add-on. Both the City of Cape Town Biodiversity Management Branch and SANBI were experiencing budget problems, which resulted in the restructuring and closing down of the Cape Flats Nature project. It is not easy to determine whose core mandate such a project is. This experience reveals the complicated, conflicted, long-term, politicised, messy, unpredictable and uncontrollable nature of social-ecological transformations.

Enacting natures

In Cape Town nature is powerful – materially, institutionally, and discursively. Materially, the Cape Peninsula mountain chain often makes, or at least mediates, our weather. Being recognised as a biodiversity hotspot brings with it legally binding international treaties with which the City must comply. Table Mountain and its nature comprise the City logo. But recognising the mountain as such a large-scale actor does not imply that its nature is singular, or rather the recognition does not imply that this nature is only singular. We might say that there is a family of natures in Cape Town, and like many of the human families of the area, the family of Cape Town natures is (still) racially divided despite the ending of apartheid. The apartheid government used racial categories to classify South Africans by law into a general hierarchy of ‘types’, with correspondingly differential access to human rights and freedoms, including the right to inhabit the city. This racialised multiplicity of nature, which I suggest is intuitively recognisable to most residents and citizens of Cape Town – full citizens and those previously enjoying partial or no citizenship, as determined by the apartheid race categories – lies at the core of

Cape Flats Nature's approach. The recognition of this multiplicity, usually only implicit, enabled the generativity of the project. In this chapter I try to capture this generativity by articulating five sets of socioecological practices which worked across shifting and highly permeable boundaries between nature and society, boundaries which in turn were made and remade through Cape Flats Nature's efforts to address protection of biodiversity in a context of poverty and marginalisation.

The Cape Flats Nature approach was qualitative; it was focused on growing people and relationships, as is clear in the book that documents the work of the project, *Growing Together* (Pitt & Boulle 2010). By nature this was slow and unpredictable work, which did not fit easily into big institutional processes that require boxes to be ticked as outcomes are met. We are so accustomed to always searching for the shortcut, the technique or the tool which we can apply to a situation without thinking. There are dangers of reducing and simplifying situations and processes that lie at the heart of the analytical way of thinking. In order to grow the Cape Flats Nature practice, organisational forms and processes were needed that allowed for movement across traditional boundaries of mandate that separate biodiversity management and socioeconomic development. New key competencies and leadership skills were required, such as intercultural competencies.

Beyond purification: Challenging science to grow with community

While the approach developed in Cape Flats Nature was grounded in conservation planning science, it also challenged the science to grow with it (Layne interview), and to go beyond its commitment to purification (Latour 1993: 10). In his book *We Have Never Been Modern*, Bruno Latour (1993) argues that the paradoxical holding of pure ideals and the concomitant living out of messy 'hybridity' is at the heart of the 'Modern' condition. Latour writes that many scientists shy away from the disorderly mixture revealed by science in action, and prefer the orderly pattern of scientific method and rationality. His studies convincingly show that in the specificity of practice it is very difficult to show where, for example, 'society' ends and 'technology' begins, or similarly the boundaries between 'nature' and 'culture', or 'nature' and 'society'.

The project started with a somewhat 'fixed version of nature' in responding to its brief of catalysing sustainable management at four pilot sites. The four original pilot sites that the project was to engage with had already been predetermined as critically endangered biodiversity sites, before the project started. These sites were, of course, identified as priorities by conservationists working for the City of Cape Town and SANBI, through scientific calculations made in an office using technology, models, computer programs and a computer screen that produced a map for choosing sites of conservation priority, called the Cape Town Biodiversity Network.

One of the objectives of the City of Cape Town Biodiversity Strategy was to identify, prioritise, and manage the remaining biodiversity sites (CCT 2003). Internationally accepted conservation planning techniques and sophisticated analyses were used which carried great weight and authority. Since the 1980s and 1990s new technologies and visualisations have been developed which possibly add to the confidence and influence the conservation science profession has gained. The techniques employed to calculate the 'value' and significance of vegetated green open spaces, through primarily identifying and counting the number of different species they contain and determining the biodiversity network, are techniques well-situated within the 'modernist settlement' (Latour 1993), a settlement that keeps nature 'out there', at a safe distance from being 'tainted' by social, cultural or political processes (Ernstson 2011). But in addition to acknowledging the 'expertocracies' of first world conservation science and their technocratic outlook and top-down designation of natural areas, attention should be paid to things that are more easy to ignore than to attend to. There is a growing recognition and desire to move beyond deductive reasoning, and come up with more rigorous modes of holistic or emergent thinking that reflect different natures and engage a different, holistic/intuitive/depth mode of cognition .

In general, approaches to natural resource management and nature conservation are running with the nature/culture divide in an unproblematised 'scientific' way. Urban ecology as a discipline and a practical approach has mainly focused on spatial patterns of urban ecosystems and patterns of biodiversity (Alberti 2008; Alberti et al. 2008). Humans have mostly featured as passive groups, or as anonymous forces behind urban development and pollution. The basis for nature conservation and biodiversity protection has historically been the creation of protected areas that often exclude people. Failing to view people as an integral part of nature, this 'traditional' approach to natural resources management has repeatedly produced negative social impacts such as loss of rights to residence and to use natural resources, which in turn leads to precarious livelihoods, and loss of access to places of cultural value. This leaves me wondering how we can better view and integrate humans as actors or agents into social-ecological processes.

Human geographer Steve Hinchliffe notes that taking facts as the only guides for action could lead to quite outlandish outcomes. Citing Williams et al., he says that in the extreme, 'real conservation' in the form of maximising biodiversity potential would result in it really only making sense to conserve the earliest diverging lineages of bacteria (Williams et al. 1994, cited in Hinchliffe 2008: 89). He further argues that objects of conservation are not fully formed or always fully present but are rather in the process of being made present; he criticises the fraught practice of making things present and questions what exactly those present represent (Hinchliffe 2008). In his view the question for conservation cannot simply be about present presence,

the gathering up of all that matters once and for all and then devising means of rendering these things eternally present (Hinchliffe 2008: 96).

The processes of rendering the city 'legible' in this manner necessarily give rise to a very specific spatial order – while some things are held constant, other things are removed from view (such as the movement and fluidity of natural and social interactions). Cape Flats Nature practice strove toward new possibilities of practice, and challenged traditional nature conservators to expand their view of nature conservation areas to see these areas not only as something exclusively 'protected' by experts and conservation managers within zoned nature reserves, but also as something that marginalised citizens of Cape Town could engage with and claim as belonging to their everyday occupations, practices, identities, and histories.

For the purposes of the City of Cape Town analysis, nature conservation areas included reserves which already enjoyed formal conservation status, other areas managed for biodiversity but without yet having official conservation status, and what were known as the Botanical Society's original core flora sites. The analysis tool selected additional natural habitat remnants to meet local vegetation and species targets (Oelofse 2005). Interestingly, one of the key pilot Cape Flats Nature sites that served as the initial nurturing hub, the Edith Stephens Wetland Park, was included as it was known and recognised as an important original core flora site. Much advocacy, communication and education work had already gone into this site, as it had been previously identified as a critically important contributor to Cape Town's biodiversity and as a result enjoyed political attention, buy-in and commitment. While it would not have featured on the Biodiversity Network map in terms of the latest fine-scale conservation planning, officials in the Environmental Management Department of the City considered it wise not to suddenly drop it from the current prioritised Biodiversity Network, a move which could have been viewed as contradictory, or a shifting of the goalposts. It was recognised by all partners that not to include a previous 'core' botanical site and priority area, one that had gained so much political traction and what one could call unofficial conservation status without formal legal protection status, would seem messy, counterproductive and politically confusing. Nonetheless, debates would surface frequently and plague the project as to whether Edith Stephens Wetland Park deserved its place in the Biodiversity Network, even if it was so valued by the community and if the place was becoming more and more alive.

This point is well illustrated by the ongoing concern of some of the officials in the Biodiversity Management Branch of the City of Cape Town, which expressed their preservationist aspirations, to find stable spatial zones for nature, mostly in nature reserves. Although the environmental movement now seeks to integrate a focus on the 'relational' or 'ecological' into nature conservation practices, there is still a strong traditional reliance on 'zoned' natures, a desire to

demarcate places of nature from spaces of society, i.e. a purification of space. Key performance indicators and benchmarks of the City of Cape Town's Biodiversity Management Branch are how many hectares are conserved, not how many people changed, in terms of changed values or changed mindsets. The City of Cape Town Environmental Agenda 2009–2014 sets out, for example, a 2014 target in terms of biodiversity conservation: at a minimum, 60 per cent of areas identified to meet its biodiversity targets will be under formal management, including proclamation and stewardship agreements, and will be secured for future generations (CCT 2009). The idea that we can solve socioecological problems through some form of spatial separation remains powerful, although arguably the traditional environmentalist approach has much to say about nature and little to say about humans and work and relationships (Cronon 1996).

Protecting and caring for nature is something largely seen by the Biodiversity Management Branch, and also by educational institutions such as the Cape Peninsula University of Technology where nature conservators study, as something for reserve managers and scientists to manage. There exists a dominant expert-driven way of talking about 'biodiversity', 'red data species', 'indigenous vegetation remnants' and 'ecosystem services' among the partner conservation organisations such as the City of Cape Town, SANBI, the Botanical Society of South Africa, CapeNature and SANParks. If the world were actually so cleanly divided between the domains of humans and those of nature, and between work and play, there would be no problem and environmentalists could patrol the borders and keep the categories clear; yet the dualisms fail to hold, the boundaries are not so clear. This issue would raise its head whenever there were interviews to recruit new conservators. The more senior nature conservationists on the panel would generally be favourably inclined towards people with the 'right' nature conservation background, education and credentials, whereas some of the Cape Flats Nature team members on the panel would insist on some social competencies and were alarmed at the 'othering' discourse, naïve assumptions and ignorance of context that some interviewees expressed.

From the outset, then, there existed an understanding (even if tacit) amongst officials working in the Environmental Management Department and Nature Conservation Department at the time that in addition to the 'objective' selection of sites to be prioritised (i.e. one not based on any 'in-place' knowledge on the part of researchers who had a subjective experience of particular sites), the Edith Stephens site already had quite a competent and successful actor network in the making. Actor-Network-Theory (ANT) originated within studies of science and technology during the 1980s by a group of scholars, most notably Bruno Latour, Michael Callon, and John Law (see for example Latour 2005). ANT proposes that the world involves co-relations of all manner of things, and not just people – it draws attention

to features of the world that are usually downplayed or ignored. It is an analytical approach that takes the world to be composed of associations of heterogeneous elements; and it defines its theoretical task in terms of tracing these elements, and providing an account of social life which incorporates nonhuman elements as actants in the processes that make things happen. Agency is distributed, which is to say that it is a relational effect, the outcome of the assemblage of all sorts of social and material bits and pieces. It is these actor networks that get things done, not subjects or objects in isolation.

Through assembling at the Edith Stephens site a network of people, stakeholders, the original *vlei* (lake), the rare *Isoetes* fern, a seasonal wetland, an environmental education building, signage, stone benches, a grassed amphitheatre, a landscaped garden, a stormwater detention pond, a bird hide, land set aside for urban agriculture, electricity pylons, trees and a fence that welcomed people in rather than sending out the message to 'keep out', as was traditionally the case, a complex relational actor network had been mobilised and created that built durable links and relations and that made things happen – linkages between communities, plants and things, between culture and nature, had already been woven. While Tanya Layne, the original Cape Flats Nature project coordinator, said that a shell had been created but that there was nothing living within it (Layne interview), a sustainable assemblage had been created that gained agency, and that later demanded more life and constant maintenance. This assemblage comprised, as John Murdoch would put it, rich ecologies of the human and the nonhuman, the social and the natural, the material and the immaterial (Murdoch 2006: 127).

Control: From standards to engagement with infrastructure assemblage

The City of Cape Town works mainly through results-based management, with emphasis being placed on prediction and control: for example, preparing a map of a terrain that can be used to plot the route to be travelled through it and predict the destination, or devising foolproof indicators that can attest to the successful outcome of a task. Key performance indicators and benchmarks of the City of Cape Town's Biodiversity Management Branch, already described in the previous section, show the significance attached to 'number' and to quantitative approaches generally. Within the City of Cape Town there is a demand to know rigorously and precisely exactly what difference an organisation is making with respect to particular projects completed within a particular timeframe. Words like 'indicator' and 'outcome' and 'impact' and 'assessment' predominate. Yet 'results' are not always easy to see, count or measure, not always robust and accurate enough to be quantifiable.

Initially Cape Flats Nature managed to secure a large amount of international funding for its practice, which meant that this practice had to be managed tightly through logframes (a uniform evaluation format often required

by donor organisations), outputs, controls and tick boxes – in other words, tightly specified standards. The standards had our work decomposed into specific auditable accomplishments, competencies and performances; a narrow managerialist language was in use. Nature conservation in its application, however, is inherently dynamic. There are ‘results’ that are not easy to see, and what counts as success needs to be investigated more deeply than by a simple counting process. Grading or evaluating reserve managers purely in terms of whether or not the predicted targets have been met could mean missing many crucial processes, relationships and networks. Failure to achieve the desired results could have nonetheless generated a huge amount of learning for practitioners, organisations and the system as a whole; and in this sense a huge amount of development, or capacity for development, might have taken place, yet none of this latter is noted or easily measured within the managerialist assessment framework.

The 2005 evaluation of the project noted that it was precisely at the point of Cape Flats Nature’s greatest impact that you could see it the least. If the real task of such a project is understood as building relationships, networks, buy-in and understanding, then the hallmark of this work lies in the quality and continuity of relationships that are built with surrounding communities (Soal & Van Blerk 2005: 15). People, then, are not simply seen as a means to an end, and not simply as tourists with economic clout. Poor people, recognised as citizens with all the same needs, rights and interests as any other people, are squarely in the sights of the practice being pioneered by Cape Flats Nature (Soal & Van Blerk 2005: 15). Emerging out of such relationships are all manner of potential benefits to both people and the environment.

Tanya Layne explains how for a long time it appeared to the untrained eye or to an outsider as if the conservation manager of Edith Stephens Wetland Park was failing to achieve the required outcomes (Layne interview). There were many visible features, such as the grass that was unmown, plovers’ eggs, goats grazing, the state of the toilets, the overgrown amphitheatre, and the bird hide that took years to repair, that could give the impression that the reserve was poorly or unsuccessfully managed. There was the moment of the communication manager refusing to take visitors around the park because of these perceptions (Layne interview); there was a meeting at the park which was opened by a municipal official with the suggestion that Cape Flats Nature was not doing as well as it could, as evidenced by the slightly unkempt look at the park (Soal & Van Blerk 2005: 9). Yet other aspects that are more invisible and immaterial, such as relationships developed, capacity built, learning experiences and creation of a sense of community, would arguably tell another story, and would indicate that Cape Flats Nature was meeting its objectives.

Further, the struggle of the park’s management to contain the growth of the water hyacinth which had invaded the stormwater detention pond seemed on the

surface to be unsuccessful, and gave the impression that the park was not being well managed. The reserve manager and staff frequently attempted to clear the water hyacinth, yet received very little support and assistance with this work; nor did they have the necessary equipment, such as a boat to get to the islands in the middle of the pond towards which the weed had drifted (Layne interview). The water hyacinth problem rapidly became uncontained, and one-off funded efforts to deal with it were wasted, since there was no secure follow-up plan in place. While the Cape Flats Nature team believed that the reserve manager had made every effort to address the problem and continued to do so with limited staff capacity, another perspective is that this should have been the responsibility of the City's Stormwater Department.

In going to the root of the difficulties we discovered that the hyacinth problem had been born out of a problem with the quality of the water that flowed through all the communities in the area. Rather than being viewed as separate infrastructural circuits managed by separate municipal line functions, it would have been much more useful to explore how water, sewerage, waste, transport, energy, and electronic communications systems had evolved and related to each other in this environment (Graham 2010: 50). Graham (2010) demonstrates that infrastructural assemblages are involved in the active social production of urban natures, for example, when the hydrological systems of entire continents are shaped over centuries by practices of urban water engineering and river management, or through the ways in which capitalism sustains long-distance resource grabs – for food, energy or water – that add to the power of political or economic urban elites (Graham 2010: 12). Such productions of nature are profoundly political, even though these politics are often obfuscated by conventional ways of thinking about infrastructures as being wholly technical, separated from the entirely different and equally asocial domain of 'nature'. That perspective underlines the cyborg nature of contemporary urbanisation: the ways in which the technological circulations sustained by infrastructural assemblages inseparably blend together the social relations of urban life, and the relations between cities and the natural and biospheric processes upon which they rely (Graham 2010: 12).

The impossibility of keeping nature and culture separated conceptually and spatially is well illustrated by the water hyacinth problem that literally spills over, leaks into, perforates and transgresses those neat boundaries. The material flows show how porous some conventional boundaries are, and unravel and disturb current spatialities. The reserve manager understood that addressing the problem within a simplified spatial zone couldn't work: all the related problems needed to be addressed simultaneously. She tried to bridge these separated domains, roles and responsibilities and started shifting conventional ways of thinking about infrastructure as being wholly technical, separated from the entirely different and equally asocial domain of 'nature'. Not only did she develop a relationship with

the city's Roads and Stormwater Department but, inspired through a mentoring relationship with a businesswoman, she also decided to engage with the City's Economic Development Department to clear the water hyacinth and instead plant *waterblommetjie* (a plant used in many local dishes and seen by Capetonians as typical of local culinary culture) as a food and a source of economic opportunity. Such an infrastructure network would, besides blending the social and technical, also operate in effect to continually transform the natural into the cultural.

Boundaries: Access rather than fences

Macassar Dunes Nature Reserve (MDNR) is a significant 'outdoor lawn' of iNkanini informal settlement and the surroundings, so the community has no excuse for not being environmentally friendly. The Reserve is a mother to the destroyed and threatened dune system along False Bay coast. A mother is always in trouble, but this one is pressurised by urban development that creeps towards the sea from Khayelitsha. Residents from different areas are relocated to iNkanini daily. Some of the newcomers see the Reserve as dangerous, and an ideal place for their unwanted household accessories and rubble. Some people take the bollards that mark the boundary of the MDNR. (Hlangalandile Mananga, Site Control Officer, quoted in Pit & Boulle 2010: 125)

Fencing off sites may seem to be the best way to manage and protect special areas and sites, but much experience in Cape Town and elsewhere has shown that no fence is high enough to withstand a hostile or indifferent community, nor the developers' bulldozers. Making sites more accessible may lead to the loss of one or two species on a site, but a greater loss would ensue from fragmentation of the land and the pressure of surrounding infrastructure (Pit & Boulle 2010: 23).

The idea that biodiversity can be served far more effectively in the long term if the community 'becomes the fence', and defends the site from efforts to degrade it or deploy the land for other use, was slowly introduced in the Cape Flats Nature project. Especially in South Africa, with its difficult apartheid history, the idea of nature being something exclusively protected by experts and conservation managers within zoned nature reserves can be counterproductive. Any effort made towards biodiversity conservation would lose ground gained, and be damaging and unhelpful, if it were perceived to entrench the boundaries within an unequally divided city, and advance the dream of the wealthy at the expense of the poor. It is really important to strive for a different sensibility among so-called environmentalists or conservationists, otherwise these 'experts' will continue to be criticised for caring more for critters, rare frogs, baboons and butterflies, than about the poor and about so-called priority, urgent and 'brown' concerns. Previously

off-limits areas of the city need to come alive as places for formerly marginalised citizens of Cape Town so that these areas also belong to their identities, histories and everyday concerns. It is critical in this context to invite people in, and to acknowledge that boundaries are needed, rather than fences. Fences might treat symptoms, but education and engagement address problems. For example, at one of the pilot sites referred to above, Harmony Flats, a range of options such as picnic benches was explored, and trees and hedges were used as visual markers and boundaries that would also be aesthetically pleasing and would contribute to drawing people into the site, rather than deterring them.

With regard to law enforcement, policing and acts of illegality, it is also important to consider that designated authority might have a short lifespan, particularly in the world of informal settlements, poverty and those unfamiliar with the cultural (and legal) cues of a uniformed nature conservator. Nature conservation practices under apartheid kept people out. The association between old-style conservation and apartheid itself is strong for many, and so new thinking in conservation dovetails neatly with a dismantling of apartheid's fences and the opening of access to all. This desire is embodied in the current slogan of SANPark's Table Mountain National Park, 'one park for all forever'. This approach draws strongly on a culture that allows the free use of nature irrespective of whether this is perceived as respectful or abusive; the only way to moderate and engage with it is to continue to allow access to and even use of vulnerable sites. To deny this would set these sites up in direct opposition to the very people who are needed to conserve them (Pitt & Boule 2010).

Ambiguity: Non-coherence, ignorance, mystery, and just not knowing

The Cape Flats Nature approach was to go out to people where they were, on the basis of the idea that nature and nature conservation could be a part of one's everyday life, and was embodied through the presence of conservators in ordinary everyday life (Soal & Van Blerk 2005: 16). This practice, too, caused consternation and debate. One much celebrated success in Cape Flats Nature was the introduction of dedicated on-the-ground management, that is, installing conservation managers at each of the pilot sites. The new generation and cohort of mostly black conservators eventually became staff of the City of Cape Town within a bureaucratic institutional context, yet having benefited from a nurturing environment within Cape Flats Nature. Much of the Cape Flats Nature teamwork was only intuitively connected to biodiversity, and frequently this was not valued by traditional nature conservation managers within the City of Cape Town. Therefore valuing and supporting some of this work and approach constituted a big 'ask' of the large bureaucracies to which the project had to relate (Layne interview). Often colleagues from the City of Cape Town did not see biodiversity management and priorities in the same way as the

new Cape Flats Nature conservators. There were many activities that the Cape Flats Nature team engaged in that weren't explicitly part of their job descriptions, and they were often challenged as to the best use of their time and the amount of attention they paid to core business tasks.

How do we rate the fact that sites might be used as a venue for gang peace talks, that adult drug rehabilitation support groups use the facilities while the children of those involved take part in educational activities outside, and that community youth groups are involved in various conservation volunteer activities at the park, aimed at reducing the risks of drug use (Layne interview)? From the beginning, the Cape Flats Nature team engaged as members of the community and was responsive to community concerns. Tanya Layne relates how, when a young boy drowned in a seasonal wetland, the team mourned with his family, fellow learners and the rest of the community. When the community approached the project and asked them for trees during Arbor Week, the Cape Flats Nature team helped them to source the trees even though this was not formally part of the programme. Layne stresses how, from the outset, the team saw themselves as part of the communities in the area, and equally the communities as part of them. The project engaged many sensibilities: head and heart, perception, intuition, feeling and imagination. In this way it also shifted and changed all that it touched. Paula Hathorn, for example, relates how it shifted the very nature of nature for her in the course of her work there as a capacity building manager. She relates how she began to feel connected and reconnected with nature, although her own notion of access to nature had previously been quite 'boxed', or regulated through environmental education or group activities (Hathorn interview).

In Macassar, another of the original pilot sites located around a significant dune system along the coast of the peninsula, solutions to problems of community-environment relations were not at all obvious. Cape Flats Nature was immersed in a conflictual place where there was a history of an oppositional struggle to government, and a culture of 'toyi toying' protest by the community against the municipality; thus there was arguably little trust between the two parties. Cape Flats Nature supported both the municipality and the community in a dialogue about conservation of the dune system, without taking sides or offering a solution. The project chose a process of open-ended dialogue, and knew very well that in doing so there was a chance that they might lose the dunes. The decision was to support a dialogue and to work towards an open engagement that was not prescriptive or predetermined. Intuitively the project team knew that there was a need to build the capacity of both sides; the community voice had to be empowered, while at the same time role players in the municipality had to be empowered to engage with communities. The approach required holding opposites together, which needed strength of character. The Cape Flats Nature practice involved a light touch which

would allow for social situations, possibilities, ideals and visions to develop. The project team resisted the idea that a decision could be engineered according to plans set out in advance. At no stage was the team clear whether they would be effective in protecting the dune system, which was the issue that had been the point of entry. To date there has been success in protecting and gaining awareness for the importance of the dunes and avoiding further encroachment and development in areas unsuitable for habitation.

Tanya Layne reflects on how Cape Flats Nature functioned as a catalyst: much development in the communities around the sites happened in the course of the project's activities, though it is not measurable; yet there is a strong belief that what happened was a result of the project's presence and the work it did, including relationship-building work. At the annual Fynbos Forum, for example, the new young, vocal black conservators made a huge impact (Layne interview). The Fynbos Forum is an affiliation of researchers, planners, managers, landowners and a range of other stakeholders that has met annually since 1981 to discuss environmental management issues and research results, and to formulate priorities for future research and conservation management actions required to ensure the conservation and sustainability of fynbos ecosystems. Until recently this was a forum primarily of conservation scientists who were involved in assessing biological resources. More and more, however, it is focusing also on ensuring institutional capacity and considering socioeconomic issues. Similarly, at meetings of Cape Action Plan for the People and the Environment, a partnership programme that seeks to conserve and restore the biodiversity of the Cape Floristic Region and adjacent marine environment while delivering significant benefits to the people of the region, community champions have been present with a voice of their own. Enabling this voice has shifted the possibilities for the excluded and powerless to be part of the process of biodiversity conservation, and in turn has changed the fora themselves.

Reflexivity: Engaging together in cycles of learning

One of the most enduring aspects of Cape Flats Nature's practice, and a significant part of its legacy even though the project itself has closed, is the process that evolved there of being thoughtful, of paying attention, as manifested in the commitment to continue with what has become known as the Champions' Forum. This forum was formed in the initial stages of Cape Flats Nature's existence, when it commenced its work by facilitating a workshop that focused on specific activities that could enable the park to come alive. Recommendations formulated at the final workshop of the initial project design process, involving all four pilot sites, shaped Cape Flats Nature's intervention fundamentally (Layne interview). One was the prioritisation of the need for the City to provide dedicated on-the-ground management for each

of the sites; for many years the City had had to protect and manage its biodiversity with inadequate staff. Community leaders also saw this step as critical, as they wanted 'a real person to talk to' about realising their plans for the sites. A second recommendation was to accept a request made at the integration workshop that participants wanted to be enabled to learn from each other across the sites; this led to the formation of the Champions' Forum (Layne interview).

The Cape Flats Nature initiative thus brought active 'champions' of the four sites together to share and learn from one another, and also to inform its ongoing work. As Pitt and Boulle explain in *Growing Together*, the idea of the forum was not to have conservators teaching communities, but for conservators and community partners to engage jointly in a cycle of learning and adaptation in pursuit of a social ecological system that is resilient and self-sustaining (Pit & Boulle 2010: 25). The forum would help to break down feelings of isolation among those involved, and generate learning without any teaching. It provided a space where people could engage seriously with each other and with the subject matter. The reflection and monitoring processes that the forum should engage in should not simply involve gathering information for the participants to use, but should entail a process of changing all involved as a result of these reflections. The Cape Flats Nature project saw itself as integral to, not separate from, the processes of social change that they were nurturing. With the establishment of the Champions' Forum the project created space for learning, learning together, unlearning, reflecting, and becoming. Paula Hathorn fondly relates how they would hoot with laughter together, would think and play together. There were no procedures or guidelines as to how this process would unfold, but she certainly believes that the forum opened minds and hearts and helped participants to be willing to learn from all their experiences, even if these experiences seemed to go against everything they had been taught (Hathorn interview).

Engaging with each other in a cycle of learning also included drawing on the 'power of place'. Cape Flats Nature practice entailed using the sites as healers and teachers, and helping to create social capital and effective neighbourhoods in the communities involved (Pit & Boulle 2010: 23). There was a belief in the transformative power of place, in places being alive, and in the possibility of being touched by a place. As a constellation of 'living centres', to use the language of architect Christopher Alexander, each of the centres is different and each is alive, or coming alive, through the stories, questions, images, conversations, and invitations to action you bring to them. And yet, as they stand together, they are whole, a cohering field of study and practice. Cape Flats Nature assisted in making the power of place more easily evident so that meaningful events and collective learning could transpire there.

Conclusion

The Cape Flats Nature approach was qualitative; it was about growing people, places and their emerging relationships, as is clear in the book that documents the work of the project (Pitt & Boule 2010). Its work was slow, and had unpredictable outcomes, something that does not fit easily into the paradigm of a big institution that requires results to be assessed in terms of boxes ticked. Establishing the project as a creative partnership gave it strength, in that the different partners could hold each other accountable and remind each other of their original commitments and visions. The partnership gave the actors more courage and strength to walk outside the mould. It also, by design, gave the project more diversity, since there was a need to fit in with all the different institutional habitats and practices, constraints and mandates that affected the work in some way. It also reduced the vulnerability of the project. SANBI's urban conservation unit was the constitutional home of the project at the time of its closure, and because of SANBI's institutional and financial difficulties at that time, the project in that form had to come to an end. The City, on the other hand, had made a commitment to employing the conservators who had been nurtured by the Cape Flats Nature team.

The socioecological practices of Cape Flats Nature not only embraced the complexity and multiplicity of collective life, but also brought more life, more warmth, and more charge to the project's impact on the site, and on the communities with whom it worked. The work it did involved questioning the assumptions, values and beliefs that support our unsustainable social practices, and creatively relearning how to design institutions, communities and cultures in harmony with living systems. Cape Flats Nature worked towards re-naturing the urban, and towards an urban nature and urban ecology released from the sole domain of the 'natural scientists'. Many of the issues relating to urban nature have no clear boundaries, no well-defined essences, no sharp separation between their own hard kernel and their environment. In dealing with them we do not have the social or political world on one side, and the world of objectivity and profitability on the other. Cape Flats Nature was an attempt at a more just 'socioecological or sustainable assemblage', produced by forming learning alliances and engaging in a practice through our hands and hearts, and in so doing experiencing nature as a process, something animate rather than an object. This kind of 'living together' has the capacity to make space for new types of encounter. It entails necessarily flexible and ongoing processes, rather than a commitment to fixed and certain measurables as outcomes.

Acknowledgement

I acknowledge the support, constructive critiques and feedback of Lesley Green and Helen Verran in the process of preparing this text. I also thank Tanya Layne and Paula Hathorn for so generously and openly making themselves available for interviews, dialogue and reflection. My colleagues in the Contested Ecologies reading group as well as in my Actor-Network-Theory group are also acknowledged for their inspiration, collaborative sense-making, generous sharing, intellectual crossovers and hybrid thought. Members of the Cape Flats Nature team, as well as urban nature conservators, environmental activists, members of NGOs and community-based organisations working for environmental and social justice, changemakers, environmental educators and academics with whom I have had conversations are also acknowledged.

Notes

- 1 A biodiversity hotspot is a place that harbours exceptionally high levels of biological diversity, and where this diversity is threatened in some way. Cape Town is located within an area of world-class biodiversity and unique conservation value. The city has a high proportion of endemic species (i.e. species which occur nowhere else in the world) and endangered species. As a result the Cape Floral Kingdom is known as a 'global hotspot' but also the 'hottest hotspot', i.e. the most threatened biodiversity hotspot (CCT 2003).
- 2 The areas of the world are classified in several different ways in the field of geography. Zoogeographic provinces look at the animals of the world and their distribution. Ecoregions take both plants and animals into account. Looking at the world's floral kingdoms is a means of making sense of the different regions of the world in terms of their distinctive flora.
- 3 The City of Cape Town is the official name of the local government authority responsible for municipal management of Cape Town.
- 4 The Working for Water Programme, which was launched in 1995 as part of the post-apartheid government's Reconstruction and Development Programme, was a scheme centred on the eradication of alien vegetation. It was billed as a flagship public works project to create jobs and combat poverty. Concerted intervention was aimed at restoring the productive potential of the land, and investing in 'the most marginalised' sectors of South African society with the intention of promoting social equity. People were trained to join alien eradication teams and to work in industries that made invasive plants into marketable products. See <http://www.dwaf.gov.za/wfw/> for further details of this programme.

References

- Alberti M (2008) *Advances in urban ecology: Integrating humans and ecological processes in urban ecosystems*. New York: Springer
- Alberti M, Endlicher W, Bradley G, Marzluff JM, Ryan C et al. (2008) *Urban ecology: An international perspective on the interaction between humans and nature*. New York: Springer

- CCT (City of Cape Town) (2001) *Integrated metropolitan environmental policy*. Accessed November 2012, www.capetown.gov.za
- CCT (2003) *Biodiversity strategy*. Accessed November 2012, www.capetown.gov.za
- CCT (2009) *Environmental agenda 2009–2014*. Accessed November 2012, www.capetown.gov.za
- Cronon W (Ed.) (1996) *Uncommon ground: Rethinking the human place in nature*. New York: WWNorton
- Davis G (2005) Biodiversity conservation as a social bridge in the urban context: Cape Town's sense of 'the urban imperative' to protect its biodiversity and empower its people. In T Tryzna (Ed.) *The urban imperative*. Sacramento: California Institute of Public Affairs
- Ernstson H (2011) *Making Capetonian urban nature public: Recognising rehabilitation project, 'The dressing of the princess' beyond its immediate locality*. Accessed March 2011, <http://www.rhizomia.net/>
- Graham S (Ed.) (2010) *Disrupted cities: When infrastructure fails*. London: Routledge
- Hinchcliffe S (2008) Reconstituting nature conservation: Towards a careful political ecology. *Science Direct* 39: 88–97
- Latour B (1993) *We have never been modern*. Cambridge, MA: Harvard University Press
- Latour B (2005) *Reassembling the social: An introduction to Actor-Network-Theory*. Oxford: Oxford University Press
- Lee N & Stenner P (1999) Who pays? Can we pay them back? In J Hassard & J Law (Eds) *Actor-Network-Theory and after*. London: Routledge
- Maze K, Katzschner T & Myrdal B (2002) Conserving an embattled flora: Mainstreaming biodiversity issues in urban Cape Town. In SM Pierce, RM Cowling, T Sandwith & K MacKinnon (Eds) *Mainstreaming biodiversity in development: Case studies from South Africa*. Washington DC: World Bank Environment Department
- Murdoch J (2006) *Post-structural geography*. London: Sage Publications
- Oelofse G (2005) Towards achieving biodiversity targets for a global urban biodiversity hotspot city. In City of Cape Town *The City of Cape Town's biodiversity strategy network* (Appendix C). Cape Town: City of Cape Town
- Pitt B & Boulle T (2010) *Growing together: Thinking and practice of urban nature conservators*. Cape Town: SANBI & Cape Flats Nature
- Soal S & Van Blerk R (2005) *Report to Cape Flats Nature on the outcome of an evaluation*. Cape Town: Community Development Resource Agency

Interviews

- Tanya Layne, original Cape Flats Nature Project coordinator, now SANBI's Urban Nature Programme Developer, Cape Town, 24 January 2011
- Paula Hathorn, Cape Flats Nature capacity building manager and project manager, now SANBI Learning Network Manager, Biodiversity Information Management, Cape Town, 27 January 2011

Spotting the leopard: Fieldwork, science and leopard behaviour

Ian Glenn

*Can the Ethiopian change his skin, or the leopard his spots?
then may ye also do good, that are accustomed to do evil.*

– Jeremiah 13 v 23. King James version

THE BIBLE PROVOCATIVELY LINKS the Ethiopian and, of course, the leopard with evil habits so ingrained that they are almost impossible to change. But if we say that the leopard cannot change his spots, are we talking of the species or the individual, particularly as we now know that each leopard's spot pattern is unique. And, to push the pun of my title further, how can we know about leopards, either individually or in general, when it is so difficult for observers to spot these highly elusive, solitary and shy predators in the wild?

Yet the stakes in understanding leopard behaviour and the rewards for getting it right are extremely high: for conservation, of course, and for issues such as setting hunting quotas or guiding game ranch management; but even more importantly for tourism, because leopards have become the most sought-after and difficult to see of the Big Five, the major marketing tool of African photographic (and, to a much lesser extent, hunting) safaris. A private game reserve with leopards that are relaxed in the presence of vehicles or that allow tourists to approach them is worth far more than a private game reserve with no leopards, or with leopards not habituated to human presence. (One of South Africa's best known luxury private game reserves, where many leopard documentaries have been made, was on the market for a reputed two billion rands a few years ago – approximately 300 million US dollars at the time – and much of that value must be put down to the presence of the leopards that distinguish this private reserve from many others.)

Over the past 40 years in South Africa, leopards have been the subject of numerous studies and documentaries, some by scientists, some by field guides and game rangers, some in which guides, rangers and scientists have collaborated. This chapter traces some of the history of these studies and of ways in which

collaborations have been formally acknowledged, yet notes that tensions between ways of spotting the leopard remain. To understand these tensions, we need to place them in a larger context which has a historical dimension: that of the often uneasy relationship between scientist and fieldworker. This relationship of differing fields of knowledge, practice, and influence, to invoke Bourdieu, has often played itself out through the different media that fieldworkers and scientists utilise and the different prestige and rewards involved for each group.

The study and the field

While early scientific explorers often saw themselves as working on behalf of a central categorising figure such as Linnaeus, they were by no means completely deferential to such figures. To justify their own publications and experience, they typically had to invoke the value of observation on the ground against theories developed a continent away. The Swedish naturalist Anders Sparrman (1748–1820) may have been taking a partisan potshot on behalf of his teacher Linnaeus when he attacked the rival theorist Buffon, but his tone is typical:

It frequently becomes necessary for me to correct in this manner, the voluminous works of this illustrious author; which, indeed merit this correction so much the more, as the errors in them, being in other respects not unfrequently dressed up in an elegant style, have, in fact, imposed on many with charms which ought to be the attendants on pure genuine truth only, and unadulterated nature. It is therefore probable, that the sportive genius of M. De Buffon, must at times have operated in imposing likewise on its owner; but I am willing to hope, that this gentleman being *by profession* the interpreter of nature and truth, will on this account see with the greater pleasure, any strictures and remarks which are necessary to preserve the science of nature from falsehood and error. (Sparrman & Forster 1785: II 88)

Sparrman, however, returned to and was welcomed by a scientific establishment. A much more complex case was that of the French ornithologist and travel writer François Le Vaillant (often written Levaillant) (1752–1824). Le Vaillant came to the Cape not as a formal scientific representative, but more or less illicitly as a collector on behalf of the Treasurer of the Dutch East India Company, Jacob Temminck.

Le Vaillant turned his time in Africa into travel account and anthropological enterprise, but particularly into various forms of nature media: specimens, accounts of hunting and animal behaviour, books on birds, maps (Glenn 2007, 2009; Rookmaaker et al. 2004). In each of these fields he was an important and

influential figure. But while Stresemann sees him as the founding figure of modern ornithology, it was clear that Le Vaillant himself was not fully accepted by the scientific establishment of his time (Stresemann 1975). He failed in his attempt to secure a post as '*naturaliste*' at the Natural History Museum in Paris and even at the end of his life was still trying, and failing, to be accepted as a member of the French academy of sciences.

What I wish to suggest, as a media scholar, is that the tensions between field worker and scientist carry over into forms of media production and symbolic value, but also into explicit commentary.

In the publicity for Le Vaillant's volume of travels sent out to journals, his publishers made an explicit but cryptic comment that was almost certainly aimed primarily at Jean-Jacques Rousseau, who drew so much of his social theory from studying travellers' accounts:

In a word, this work becomes a solid and upright reference point for the philosopher and the savant who up till now have only been able to study the savages and marvels of nature through risky comparisons, false perceptions, or through frivolous novels. This is the correction, if it may be said, of the imposing errors of the genius, all the more accredited as the homage given to him is general and public. (Le Vaillant et al. 2007: xxxvii)

Thus on the one hand we have the admiring deference to the categorising genius; on the other, as the earlier quote from Sparrman shows, scorn for the classifier far from the action and observation in the field. Later attacks by Le Vaillant on the 'genius' of the metropole seem to target Buffon and the scientific enterprise that loses touch with the field:

I pardon those voluminous works, those immense compilations where one puts old books to use, where texts are cited all the way, or where, because they are old, the dreams of imagination or ignorance are presented as eternal truths. But, when seized by the mania for science, and not finding in one's self the proper resources to spread its progress, that one should from the depths of one's collection claim to establish principles and prescribe laws, that one should abuse the happy gifts of genius to propagate old errors and cover with all the graces of elocution the proven lies of our fathers – whether one disguises them, makes fun of them, or appropriates them for some cause – I can not pardon the writer who thus takes up the detritus of others, whatever pains he may have taken to dress up the tatters. (Le Vaillant et al. 2007: 1–2, original footnotes suppressed.)

While this complaint echoes that of Sparrman, a later comment suggests that Le Vaillant's critique of the collections of natural history of the day goes further, as he finds that these collections neglect the essentials of behaviour:

In the course of 1777, a favourable circumstance led me to Paris. Like every other stranger who arrives for the first time in the capital, I brought my tribute of admiration for the collections of the curious and the learned. I was dazzled, enchanted by the beauty and the variety of forms, the richness of colours and the prodigious quantity of the individuals of every species who, like a forced contribution, came from the four corners of the earth to class themselves methodically, as much as that can be done in a space that is unfortunately always too limited. In three years of residence, I saw, I studied, I got to know all the important collections. But, I will say, these superb displays soon made me uneasy; they left in my spirit a void that nothing could fill. In this pile of foreign trophies, I only saw a general deposit where different beings, stored without taste and without choice, slept profoundly for science. Their manners, their affections, their habits – did nothing give me any precise indications about these essentials? (Le Vaillant et al. 2007: 9, original footnote suppressed.)

Modern science may see ethology (the study of animal behaviour in natural environments) as inherently prone to imagination and exaggeration, but for Le Vaillant, as for Sparrman and many other early naturalists, it was just the opposite. The science of the museum or cabinet or display was inherently a 'pile of foreign trophies' that had lost its local roots and knowledge. Le Vaillant explains why he sees 'their manners, their affections, their habits' as essentials missing from these collections:

How often have I not seen in collections, otherwise quite intriguing, sometimes forced divorces, sometimes alliances that are monstrous and against nature. Here they place, as male and female, two beings who had never met; further a male and his female are presented and classed as two different species, etc. (Le Vaillant et al. 2007: 9)

One of Le Vaillant's major lasting contributions to ornithology was his observation of reverse sexual dimorphism (where the female is larger than the male) in birds, particularly in raptors. Through observation of mating and sexual behaviour in nature, the ethologist is able to correct the display and categorisation of the scientist or cataloguer. Sexual behaviour becomes the extreme case of what the study- or laboratory-bound scientist cannot know.

Le Vaillant's leopard

Le Vaillant's description of himself shooting a leopard (which he variously calls a Panther and a Tiger) when he was at the Cape has proved a central episode for later explorers seeking to demolish his reputation by turning him into a myth-making French fabulist (Le Vaillant et al. 2007). In my introduction to the critical edition of his *Travels into the Interior of Africa via the Cape of Good Hope*, I discuss some of the questions raised by the very varying accounts of this episode (Le Vaillant et al. 2007: xlix–l). The episode combines several elements: a hunting story that moves for dramatic emphasis into the present tense at points; reference to indigenous nomenclature and hunting lore; praise (implicit here, but to become explicit in later episodes) for a Hottentot servant's bravery combined with scorn for the Dutch farmers; and the move to scientific classification at the end of the episode. Le Vaillant's account concludes:

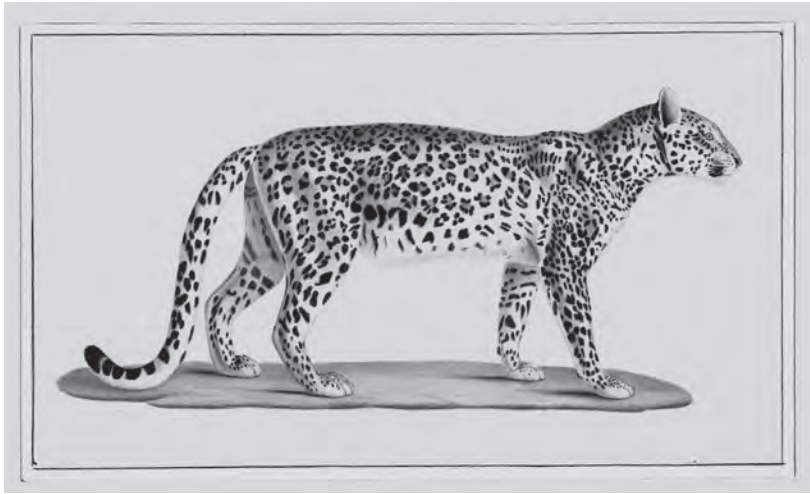
This was my first try, and the Tiger, by chance, was a huge one. It was a male, and from the end of its tail to its whiskers he measured seven feet two inches with a circumference of two feet ten inches.

I recognised in him all the characteristics of the Panther so well described by Buffon. But, throughout the Colony, it has no other name than the Tiger. This usage has prevailed, even though in this part of Africa there are no Tigers to be found, strictly speaking, and there is a big difference between these two kinds of animal. The Hottentots call it *Garou*, *Gama*, which is to say, *Spotted Lion*.

In general in the Cape colonies, people fear the Panther much more than the Lion. The latter never comes without giving warning of his approach by terrible roars which are the signal to prepare for defence. It is as if he believed himself to be stronger or thought it was more noble to attack a forewarned opponent. The other, in contrast, combines cunning with ferocity. It always comes stealthily, stalking adroitly to have the advantage of surprise and, pouncing on its prey, carries it off before one is even aware of its approach.

Later I had other opportunities to see many of these animals, as well as another species called *Luypar* by the Dutch (this is what the French call leopard), as well as another smaller species they call *Tiger-Cat* and that is Buffon's Ocelot – I shall speak of these as I tell of later encounters. (Le Vaillant et al. 2007: 38–39, notes suppressed.)

FIGURE 14.1 Male leopard from the interior of Africa



Source: Image courtesy Library of Parliament

If the *Tiger-Cat* is the Serval, *Felis serval*, what of the other species, the *Luyyar*? Here Le Vaillant was in good company with Sparrman and others in believing that there was more than one type of leopard and, as the original notes added, recent reports from the Cape Leopard Research Centre suggest that the surviving leopards from the Cape differ morphologically from much bigger animals elsewhere in Africa, though most scientists simply regard this as variation within the species (Le Vaillant et al. 2007).

For the scientist, Le Vaillant's description of the leopard hunt may lack value, but his accounts of his adventures influenced and inspired a generation of young naturalists (and hunters), and shaped a taste for narratives about and descriptions of wildlife. To express the tension in contemporary form: most people visiting Africa to see wildlife are driven much less by any scientific curiosity than by wildlife documentaries, photographic essays or even personal accounts.

Modern leopard studies: Technology

Some two hundred years after Le Vaillant's original account of the leopard hunt, two very different studies of leopard behaviour started in South Africa, apparently in mutual ignorance of each other, though taking place only a few kilometres apart. In the Kruger Park, Ted Bailey, an American scientist who had made his name studying bob-cats in Idaho in the 1960s, was sent to South Africa, with the advantage of new radio telemetry – the fitting of collars that emitted a radio signal that researchers could monitor and use to find animals – to aid in his

studies (Bailey 2005). As Benson points out in *Wired Wilderness*, this was a crucial movement in US-based wildlife studies and was exported worldwide (Benson 2010). Meanwhile, on the Londolozi and Mala Mala private game reserves, just to the west of the Kruger Park, new guides like Ian Thomas and Lex Hes were trying to understand lion and leopard behaviour with a view to being better guides, but also with ambitions of producing field guides, photographic essays, and wildlife documentaries (Hes 1992).

Other major figures also started work during this period, particularly J du P Bothma who, after completing a PhD at Texas A&M University, returned to South Africa and the University of Pretoria where he became the Eugène Marais Chair of Wildlife Management in 1970 and subsequently the Director of a new Centre for Wildlife Management.

The major development here that allowed for research to be put on a more scientific footing was the use of telemetry in collars placed on captured leopards. Earlier researchers such as Roger Smith, who worked in the Rhodes Matopos National Park in what was then Rhodesia, had resorted to highly inventive ways of trying to track leopard movements (Smith 1977). Smith put out bait in the form of shot prey for leopards, into which he inserted tiny beads. He then was able to trace the relevant leopard's tracks and, in turn, territory, by distinguishing its scat from that of other leopards in an ingenious form of Hansel and Gretel science.

But it was the work of Bailey and Bothma, in particular, that made studies using telemetry the basis for scientific studies of leopards. Yet these studies themselves depended on other bodies of knowledge. To be able to trap the leopards in order to collar them, the researchers needed to be able to work with trackers who knew where leopards were moving, and with hunters who had ideas on how to bait cages to attract leopards. In particular, they needed to work with veterinary scientists who knew how to drug the leopards and handle release protocols effectively.

The collars were certainly not unproblematic. Many reports mention that they cease functioning too soon or function erratically, and it was often difficult for those using the results of this method to know what to make of a series of check marks on a grid, though there were clearly benefits in having a much better understanding of leopard ranges.

Hes and other guides, such as Nils Kure at Mala Mala, were working with rather different motives and means (Kure 2003). For them, the challenge was to understand leopard behaviour well enough to be able to predict movements and ensure sightings. Much of this effort was driven, in the early days, by competition between guides and private game reserves. And most of these guides had some form of scientific training: Mala Mala, where Kure worked, for example, had a policy of only hiring guides who were graduates with science degrees.

In their work, guides early on came to realise the benefits of working with leopards, especially females with cubs, that were habituated to vehicles and did not automatically flee from them. This insight, it seems, led private game reserve management to allocate resources to having trackers spend time with leopards, in order to habituate the leopards to the presence of vehicles.

Habituated leopards turned out to be doubly valuable. Private game reserves where guests had a much better chance of seeing leopards drew better reviews and more tourists, and over time were able to increase their charges considerably. At the same time, those studying or filming leopards had a much better chance of getting good materials than people in other reserves.

These contrasting methods of studying leopards raise complex ethical and scientific questions for both scientists and guides. The scientists could be accused of risking injuring or incapacitating the animals, while the guides and documentary makers might be seen to be deceiving visitors or viewers by not telling them that the animals in question had got used to the presence of vehicles. One documentary maker told me, matter-of-factly, that it was useless trying to film any wild animals unless one had spent at least a month with them to get them habituated to the presence of the film crew. And when questioned, guides are usually adamant that the animals remain wild, even though they may be used to a human presence or indifferent to it, even to the point, as Kim Wolhuter confessed, where one leopard sprayed over him while he was filming outside his vehicle (Aupiais & Glenn 2008). Scientists, on the other hand, may evince contempt that filmmakers and private game reserves are in effect displaying the behaviour of 'tame' animals.

Tracking

Another way of knowing what leopards do was to follow their tracks. While this was not very practicable in the Bushveld, various researchers in the Kalahari began to rely on tracking as a primary tool. Bothma drew an analogy between his work in the USA on snow tracking of hares and sand tracking, and worked with game ranger EAN le Riche and local indigenous guides, acknowledging their role generously in publications (Bothma & le Riche 1984, 1989, 1990, 1994, 1995; Bothma et al. 1997). By following tracks, Bothma and his fellow researchers were able, for example, to determine hunting success rates for female leopards with cubs as opposed to females without cubs, or males.

Louis Liebenberg has produced the most ambitious and sophisticated account of tracking as not only a form of pursuit, but also a process of neo-scientific hypothesis formation and anticipation (Liebenberg 1990; Liebenberg et al. 2010). Perhaps influenced by Liebenberg and Bothma, Stander took the next logical step, by acknowledging the work of indigenous trackers. He listed more-or-less illiterate

trackers as co-authors in major journal articles on leopard and other mammal behaviour. What we have here is thus an illustration that scientific and traditional knowledge complement and supplement each other (Stander 1998; Stander, Ghau et al. 1997; Stander, Haden et al. 1997). Stander felt compelled to measure the accuracy of the trackers' identification of spoor before then relying on the reconstruction of behaviour from their interpretations.

Overlaps, tensions, contestations

As new technologies and observations emerged from these studies, knowledge circulated in many ways. As field guiding emerged as a new career, largely from the example of the guides at Londolozi and Mala Mala, guides working in organisations such as the Field Guides Association of Southern Africa wanted to ensure that students drew on serious scientific knowledge to give themselves professional status. Another way of attempting to move from the rigours of daily guiding towards a higher career status was for guides to write a book or produce a documentary, or even become a motivational speaker drawing on what had been learned while guiding, as Ian Thomas, one of the early Londolozi guides, did with his lessons for corporate life based on the behaviour of lion prides. Guides and documentary makers, in their turn, produced field guides to mammals or drew on their collaboration with scientists for publications (Astley Maberly & Goss 1986; Hes & Mills 2000). In addition, there are now dozens of books of reminiscences by game rangers and guides. Different forms of knowledge of leopards and other animals found different media and forms of expression, but convergences and connections were established that over time drew what seemed to be the parallel universes of Bailey's science and Hes's fieldwork closer together.

Private game reserves, for a mixture of motives, found it very useful to have collared animals or, in time, animals with radio chips inserted. Some critics claim, usually off the record, that the success of many private game reserves in finding rare animals depends to a lesser or greater extent on these radio signals.

The prestige of science, as embodied in university-based figures such as Bothma, has also been invoked to help in the planning of game ranch management and even hunting, usually with larger claims of conservation attached to these enterprises (Bothma 1996; Bothma & Van Rooyen 2005). In other cases, scientific advisors to documentary productions, like Phil Richardson who has a PhD in zoology, have become documentary makers in their turn. Most of the leading documentary producers in South Africa do, in fact, have some form of university scientific training or have worked closely with scientists.

Yet, while this dissemination of knowledge and the collaboration across boundaries suggests a harmonious and increasingly close relationship between

ethology and science, larger questions remain. What was left for science to achieve when observers in the field had the same tools that scientists did, but were spending far more time in the field than any scientists could? What is left for formal sciences where the people in the field have more data than scientists can amass, and the same methods of capturing these data? Can science tell us anything meaningful about leopard behaviour when the scientist does not, to recall Le Vaillant's original complaint, have the richness of observation in the field to understand various aspects of behaviour? And what then makes an observation, or even years of observation, 'science', or gives observation, even repeated observation, scientific validity?

The leopard spotter

Natasha de Woronin is in many ways the product of the tensions described above. She is the former head of Leopard Research at Londolozi, and worked with Lex Hes and John Varty. She has benefited from the richness of observation and data inherited from more than 30 years of continuous observation of leopards there, but now works at Erindi in Namibia, where she heads the Global Leopard Project.

I first heard of her work from people in the guiding industry who told me that she had made unique observations of leopard behaviour and physiognomy that contradict much of what is the received scientific wisdom on the animals. I have spent several days interviewing her and tracking animals with her and have been intrigued by the challenges she faces. Working with collared leopards that she then follows in a vehicle and on foot, she has certainly spent more time observing wild leopard behaviour than any other scientist or ethologist. Over the past three years at Erindi alone, she has logged some 2 360 hours of observing leopard behaviour – and to this one should add the thousands of hours of observations at Londolozi.¹ Compare this to the mere 40-odd hours of observation Bailey managed in his study (Bailey 2005: 45).

De Woronin has terabytes of data: radio telemetry movements, photographs, field notes. She has witnessed hundreds of leopard kills, seen evidence of striking individuality in leopard behaviour, and yet has no scientific qualifications or publications and thus lacks credentials and perhaps credibility as a leopard researcher.

De Woronin certainly sees herself as inheriting the traditions of both field observation and scientific research:

Over the past 3 years I have gathered 2 360 hours of direct observational data and I truly believe that this is the key to understanding a species. Long-term studies like what Bailey did but with direct observations like Lex's work help

us to understand what is actually happening within a population ... There is so much to be learnt and seen to help understand this elusive species and I feel that the only way to unlock the secret life of leopards is to watch what they do!²

So, what would be needed for her to become, to make the obvious analogy, the Jane Goodall of leopards? Would it be a striking book of observations of leopard behaviour, or would that precisely be what would disqualify her in the views of many scientists? (Kure's (2003) book, for example, though it covers a more-or-less scientific set of topics, seems to have had little effect on the science literature.) Does she need to write like a scientist or proceed laboriously through the equivalent of scientific initiations to be able to write science? And, to invoke problems addressed by Ingold and Haraway, would scientific conventions permit De Woronin to comment on what she sees as the complexity of leopard behaviour (Haraway 2008; Ingold 2007)?

FIGURE 14.2 *Natasha de Woronin tracking leopards using telemetry*



Source: Photograph by Ian Glenn

The Goodall parallel is revealing because of Goodall's own multiple trajectories: first as object of her husband Hugo van Lawick's early documentaries, then as author of popular books, then as Cambridge PhD, and then as an activist figure who manages to combine various media traditions successfully. While Goodall seems to overcome the tensions inherent in the combined roles of populariser-activist-scientist, her work has drawn criticism from some scientists who feel that she lost the necessary scientific detachment by naming animals, or that she altered the behaviour of chimpanzees she was observing by interacting with and feeding them.

The leopard's spots

When I tracked leopards with De Woronin, I was struck by her predictive rules of thumb which enabled her to predict, with what seemed to be uncanny prescience, where the leopard would be, when it would start hunting, what it would be doing, for how long it would feed at a kill, and so on. Very little of this kind of observation of leopards is present in any of the scientific literature, for the obvious reason that no scientists have assembled this kind of experience of the leopards' worlds. De Woronin has also kept meticulous notes and observations, including data such as times and GPS tracking, and so, from this point of view, her work seems to negate the objection raised by Bothma to treating observations as science:

As you will know, merely collecting sightings (not observations) is not nearly research. Seeing is one thing but understanding and interpreting what you see is observation which is the basis for research. Moreover, as you will also know research must be done in a structured way to answer specific key questions and to test hypotheses. Interpretation of observations and analytical testing is the next step. One can have a bucket full of sightings and not have any idea what it really means.³

Much of science and many of Bothma's own papers in fact comprise observations of this kind of consistent behaviour, and it would be quite easy to imagine De Woronin writing a series of academic papers on things like leopard feeding strategies, based on her observations.

Where the tensions between objectivist-scientist and subjectivist-observer (to simplify the opposition) becomes more acute is when indigenous guides or observers like De Woronin insist on the individuality of animals – the unique spots of each leopard become, so to speak, the signs of a unique character and individuality, rather than a sign of a common behaviour or biological destiny. (In this sense, Jeremiah is the predictive *w*-scientist.) For many scientists, this

individuation, particularly if marked by the giving of a name, is a betrayal of scientific detachment. Bothma, irritated by some practices in nature documentaries, simply states, 'As soon as someone starts giving animals names they are being biased.'⁴

And yet, the bias may not all be the subjective observer's rather than the objective scientist's. Some examples may clarify the nature of this problem. When I first met Wilson Masia, a guide at Royal Malewane private game reserve, and one of only a few Master Trackers,⁵ he spoke with great warmth about a lioness, Black Dam Mfazi, whom he admired, particularly after a close shave in a meeting with her on foot when she was a young lioness and charged him. She started off as a solitary lioness, yet managed to lure a male from his pride when she was in oestrus, have cubs and in turn found a dynasty that became dominant in the region. When I visited Royal Malewane a few years later, and asked after the lioness and her pride, Masia was dismissive. Black Dam Mfazi had died and her daughter had inherited the pride, but showed, in his view, terrible qualities of judgement. She took her pride into rival territory recklessly and was not a patch on her mother as a leader and strategist. His description was closer to that of a novelist describing the Corleone family after the patriarch's death than to a depiction of the imperatives of selfish genes; his animals were closer to the richness and complexity of fictional characters and narrative, than to the automatons of science.

De Woronin, too, in describing leopard behaviour, is contemptuous of most narrow behavioural scripts for the animals, and particularly of film crews who turn up expecting to be able to predict what they will find. In her view, leopards are far more social, in complex ways, than any other observers have reported.

Leopard sexuality raises the most complex issues. De Woronin, rather like Le Vaillant, is dismissive of the ability of the scientist in the laboratory to understand what happens in the field and has a very different view of male leopard sexuality from that of any other observer. She is, for example, adamant that while male leopards typically control the territory of more than one female with whom they mate, they may show very different behaviour with the different females and their cubs, down to joint feeding with some at carcasses, but not with others. For a scientist (and particularly a male scientist?), this may amount to humanising leopards sentimentally; for De Woronin, it is obvious that sexual behaviour differs strikingly and is not a simple issue of reproductive maximisation.

A crucial argument of most knowledgeable observers may not be against science but against versions of it that reduce animals to automata. The selfish gene hypothesis is now certainly the dominant narrative trope in nature documentary; it reduces the complexity and range of animal sexuality and is perhaps not always very useful as a predictor of behaviour. Orford, for example, working on a contraceptive programme in Etosha, found that female lionesses had a far higher rate of semen in their uteruses

than humans, suggesting that the deterministic view of procreation as a function of genetic survivalism only is a simplifying myth (Orford et al. 1988). The former Londolozi guide Ian Thomas, too, when I asked him about his sense of how much to trust the selfish gene hypothesis, said that often lions simply behave in ways that do not fit this model, for example by killing lionesses who might be able to bear cubs, and that there are additional complex strategies involved such as those used by lionesses who seem to be able to fake oestrus to reassure males while delaying reproduction.

Conclusion

Studying a complex and endangered species may produce the kinds of insight and humility, and an awareness of other forms of knowledge, that science needs. Bothma writes:

A final thought: science for the sake of science or an academic career is a waste of time and funding in my mind. As a supervisor I always insisted that any thesis or dissertation must have a final ‘So what?’ chapter. If it cannot be implemented then it does little to advance science. There is also a huge difference between science and knowledge. In my career I often learned most from ‘uneducated’ field guides or rangers and especially from the San trackers who had no idea what a research paper or journal was. To them knowledge was the key to survival.⁶

In De Woronin’s case, much of her energy and work goes towards advocacy and work with hunting groups and policy-forming bodies, in which she tries to use her understanding of population dynamics and the likely effect, for example, of killing the dominant male leopard in a region, to influence regulations and behaviour. Her work needs to be able to persuade sceptical communities, such as farmers who typically blame leopards for all their stock losses, about the need to protect the leopards. She may need to use links with wildlife documentary makers to get funding, recognition and space for her efforts to achieve scientific acceptance, yet be aware all the while that popular recognition carries the risk of scientific disdain.

As we move towards greater and greater capacities for amateur observers to be able to capture wild animal behaviour and reflect on what it means – and here the obvious example is the ‘Battle at Kruger’ YouTube phenomenon, where a tourist captured striking amateur footage of lions and crocodiles fighting over a buffalo calf that eventually escaped (Rijsdijk 2010)⁷ – and even to record behaviour that forces scientists to re-evaluate their thinking, leopard research and fieldwork may provide a model for other forms of collaboration and lead to new forms of media representation, and to more complex scientific accounts.

The most interesting work will surely take the form of the most advanced science prompting the best observations, and vice versa. For example, though many behavioural ornithologists decry the move of the discipline to a focus on DNA and genetics, this move can throw surprising light on bird behaviour. Professor Michael Cherry of the University of Stellenbosch's Zoology Department recently pointed out to me that genetic studies of birds show that species previously thought to be monogamous are in fact highly promiscuous, prompting a rethink of many assumptions about behaviour and surely prompting sharper observations in the field.⁸ I suspect that Le Vaillant would have been intrigued and delighted to know this, while De Woronin is searching for further ways to give scientific backing to her observations about leopard sexuality.

Notes

- 1 De Woronin, personal communication July 2011.
- 2 De Woronin, personal communication July 2011.
- 3 Bothma, personal communication August 2011.
- 4 Bothma, personal communication August 2011.
- 5 This 'Master Tracker' status is conferred based on Louis Liebenberg's certification process through Cybertracker (see <http://cybertracker.org/tracking/qualified-trackers>).
- 6 Bothma, personal communication August 2011.
- 7 See for example <http://www.youtube.com/watch?v=LU8DDYz68kM>
- 8 Cherry, September 2012.

References

- Astley Maberly CT & Goss RJ (1986) *Maberly's mammals of Southern Africa : A popular field guide*. Johannesburg: Delta Books
- Aupiais L & Glenn I (2008) Close Call. *Private Edition* 1: 32–36.
- Bailey TN (2005) *The African leopard: Ecology and behavior of a solitary felid*. Caldwell: Blackburn Press
- Benson E (2010) *Wired wilderness: Technologies of tracking and the making of modern wildlife*. Baltimore: Johns Hopkins University Press
- Bothma J du P (1996) *Game ranch management*. Pretoria: Van Schaik
- Bothma J du P & Le Riche EAN (1984) Aspects of the ecology and the behaviour of the Leopard *Panthera pardus* in the Kalahari desert. *Koedoe* 27(1): 259–279
- Bothma J du P & Le Riche EAN (1989) Evidence of a flexible hunting technique in Kalahari leopards. *South African Journal of Wildlife Research* 19: 57–60
- Bothma J du P & Le Riche EAN (1990) The influence of increasing hunger on the hunting behaviour of southern Kalahari Leopards. *Journal of Arid Environments* 18: 79–84
- Bothma J du P & Le Riche EAN (1994) The relationship between minimum air temperature and daily distances moved by Kalahari leopards. *South African Journal of Wildlife Research* 24(1&2): 18–20

- Bothma J du P & Le Riche EAN (1995) Evidence of the use of rubbing, scent-marking and scratching-posts by Kalahari leopards. *Journal of Arid Environments* 29(4): 511–517
- Bothma J du P, Van Rooyen N & Le Riche EAN (1997) Multivariate analysis of the hunting tactics of Kalahari leopards. *Koedoe* 40: 41–56
- Bothma J du P & Van Rooyen N (2005) *Intensive wildlife production in southern Africa*. Pretoria: Van Schaik
- Glenn I (2007) Francois Levaillant and the mapping of Southern Africa. *Alternation* 14(2): 25–39
- Glenn I (2009) Levaillant's Bird Books and the origin of a genre. *Alternation* 16(2): 91–101
- Haraway DJ (2008) *When species meet*. Minneapolis: University of Minnesota Press
- Hes L (1992) *The leopards of Londolozi*. London: New Holland
- Hes L & Mills G (2000) *The complete book of Southern African mammals*. Cape Town: Struik
- Ingold T (2007) *Lines: A brief history*. London: Routledge
- Kure N (2003) *Living with leopards*. Johannesburg: Sunbird
- Le Vaillant F, Glenn I, Farlam I & Lauga du Plessis C (2007) *Travels into the interior of Africa via the Cape of Good Hope*. Cape Town: Van Riebeeck Society
- Liebenberg L (1990) *The art of tracking: The origin of science*. Cape Town: David Philip
- Liebenberg L, Louw A & Elbroch M (2010) *Practical tracking: A guide to following footprints and finding animals*. Mechanicsburg: Stackpole
- Orford HJL, Perrin MR & Berry HH (1988) Contraception, reproduction and demography of free-ranging Etosha lions (*Panthera leo*). *Journal of Zoology* 216(4): 717–33
- Rijsdijk I-M (2010) Between a croc and a herd place: *Battle at Kruger* and nature interpretation. *Communicatio* 36(3): 359–70
- Rookmaaker LC, Mundy P, Glenn I & Spary E (2004) *François Levaillant and the birds of Africa*. Johannesburg: Brenthurst Press
- Smith RM (1977) Movement patterns and feeding behaviour of leopards in the Rhodes Matopos National Park, Rhodesia. *Arnoldia Rhodesia* 8(13): 1–16
- Sparman A & Forster JGA (1785) *A voyage to the Cape of Good Hope, towards the Antarctic polar circle, and round the world* (tr. JGA Forster). London: Robinson
- Stander PE (1998) Spoor counts as indices of large carnivore populations: The relationship between spoor frequency, sampling effort and true density. *Journal of Applied Ecology* 35: 378–385
- Stander PE, Ghau & Tsisaba D (1997) Tracking and the interpretation of spoor: A scientifically sound method in ecology. *Journal of Zoology* 242(2): 329–341
- Stander PE, Haden PJ, Kagece & Ghau (1997) The ecology of asociality in Namibian leopards. *Journal of Zoology* 242(2): 343–364
- Stresemann E (1975) *Ornithology from Aristotle to the present*. Cambridge, MA: Harvard University Press

Contesting ecological collapse: Rapa Nui, the island at the end of the world

David Turnbull

In the middle of the Great Ocean, in a region where no one ever passes, there is a mysterious and isolated island; there is no land in the vicinity and, for more than eight hundred leagues in all directions, empty and moving vastness surrounds it. It is planted with tall monstrous statues, the work of some now now-vanished race, and its past remains an enigma.

Pierre Loti, *L'Île de Pâques* (cited in Orliac & Orliac 1995: 11)

SINCE ITS REDISCOVERY IN the 18th century, Rapa Nui has played a central role in our cartographic imaginaries, as revealed for example in the ‘Surrealist Map of the World’ (1929).¹ In more recent times historical ecologists and archaeologists like John Flenley, Kevin Butler, Paul Bahn, and Jared Diamond have portrayed Rapa Nui (Easter Island, Ile de Pâques) as the paradigmatic example of the dangers of cultural excess (Diamond 2005; Flenley & Bahn 2002; Flenley et al. 2007). According to these accounts, in their unquenchable pursuit of superiority and dominance the islanders built ever larger stone sculptures and in the process cut down all the trees, thereby marooning themselves and bringing about the collapse of their civilisation. Woe is us, the end of the world is nigh, because we unthinking consumers are heading down the same path. There is, however, a plausible counter narrative. For archaeologists Terry Hunt and Carl Lipo the history of the island is a story of resilience and adaptation. The Rapa Nuians did indeed stop statue-building, but they cut the trees down hoping to develop new forms of agriculture in support of an increased population (Hunt & Lipo 2007, 2010, 2011).

Right from the beginning every aspect of Rapa Nui’s ecology has been contested. It has been invented, imagined, invaded, measured, mapped, monitored, discovered, deforested, despoiled, developed, deconstructed – and yet the island somehow evades our grasp. It has been interpreted, investigated, interpolated, painted, sketched, filmed, and yet it is continuously framed and reframed as enigmatic, mysterious and conflicted. These invasions, evasions and framings occur

FIGURE 15.1 *Rapa Nui (Easter Island) one of the most isolated islands in the world*



Source: Redrawn from the map by David Pratt for the website 'Easter Island: Land of Mystery'

very largely in the context of Western colonial expansion and the accompanying canon of the arts and sciences. Photographers, painters, ecologists, economists, anthropologists, poets, and musicians, along with whalers, slavers, and sheep farmers, have all tried to capture Rapa Nui, but only very recently have the Rapa Nuians themselves had a voice, albeit a voice modulated by colonial geographic imaginaries and impacts. Treating these conflicting representations of Rapa Nui performatively, as this chapter proposes, allows for an exploration of the ways in which representations have been readily deployed to articulate the narratives that shape understandings of the island in line with assumed and unexamined spatio-temporalities – narratives that have nonetheless failed thus far to produce the definitive, unified explanatory synthesis dreamed of by archaeogeneticists (Renfrew 2010). I argue that a performative approach cannot of itself aim for an overarching understanding; rather, it can provide an alternative explanatory framework, and if it is held in tension with the various representational approaches referred to above, while including in its analysis an examination of itself and of the indigenous positions, it could provide a basis for the emergence of new ways of knowing and being in Rapa Nui.

Reading through the chapters in this volume, it is evident that they are connected not just through their emphasis on environmentality, but also in their articulation of the tropes of ‘following paths’, ‘telling stories’, ‘gathering’, and ‘relational practices’. Josh Cohen, Marisol de la Cadena, Helen Verran and Lesley Green all allude to the ways in which the environment is not simply known or represented by the indigenous inhabitants they have worked with. Rather, these authors find that in enacting their relational practices, the inhabitants and their environment co-produce each other. In moving through, following paths, ‘walking the forest’, coming to know, telling stories, gathering together, indigenous peoples are ‘doing’, ‘making’, ‘enacting’ the environment, and vice versa. In other words, we make and shape the world as we seek to know and use it, just as it makes and shapes us. Or as Tim Ingold neatly puts it, ‘we know as we go’ (Ingold 2000). Eduardo Viveiros de Castro and Mario Blaser point out that this co-production of the world and the people in it dispenses with a nature/culture divide and opens up ontological multiplicity. It also reveals an important, but unemphasised, shift from representationalism to performativity, which is especially salient given that so many authors in the collection point out how indigenous relational practices such as *ayllu* and ubuntu are erased, silenced or ignored in standard Western representationalist accounts.

Since I want to take a performative approach myself in exploring the conflicting archaeological understandings of Rapa Nui’s historical ecology, a more explicit articulation of performativity is appropriate. Though there is a burgeoning archaeology of performance based in the recognition of the centrality of theatrical performance, singing, dancing, spacing, staging, and enactment, especially in the context of encounter, a fully fledged ‘performative archaeology’ is only just starting to emerge (Balme 2007; Denning 1996; Inomata & Cobden 2006; Montelle 2009; Pearson & Shanks 2001). The key point to grasp in a performative approach is that there is no great divide between interior mental or cognitive states of mind, and an exterior material reality somehow mediated by or represented through symbolic systems. Rather, ways of knowing the world are co-produced with our practices, our ways of being in, moving through and interacting with the world. This link between relational practices and ‘doing’ or performing the world is spelt out in John Law’s exposition of enacting the social:

To study practices is therefore to undertake the analytical and empirical task of exploring possible patterns of relations, and how it is that these get assembled in particular locations. It is to treat the real as whatever it is that is being assembled, materially and semiotically in a scene of analytical interest. Realities, objects, subjects, materials and meanings, whatever form they take these are all explored as an effect of the relations that are assembling and

doing them. Practices then, are assemblages of relations. Those assemblages do realities. Realities, including the incidental collateral realities, are inseparable from the patterning juxtapositions of practices. (Law 2009; Law & Urry 2004)

In what is known as material engagement theory in archaeology, ‘seeing and perceiving are forms of “skillful interactive engagement”, forms of acting in the world rather than forms of representing the world’ (Malafouris 2007: 293). Consequently, just as our minds and the world of objects are not radically separated, but are ‘continuous and inter-definable processes rather than isolated and independent entities’ (Malafouris & Renfrew 2010: 4), our minds do not work in isolation from the minds of others. From this perspective cognition is seen as ‘embodied, embedded, situated, and emergent, and is thus both physically and socially distributed beyond the individual agent ... and material culture can be seen as integral to the ongoing negotiation of social practices’ (Dunbar et al. 2010: 12; Hutchins 1996). This constructivist co-production of space and time through our engaged enactments as we move is, of course, very familiar to science studies, as are its intimate connections to narrative and performance (Green 2009; Haraway 1997; Law 2004; Mol 2002; Turnbull 2002, 2004).

To explain, give an account, narrate, or tell a story, is to organise things in space and time, and vice versa; to reference or factor events and people temporally and spatially is to construct a narrative and it is also to create a map. Narratives, maps, space and time are complexly interwoven, creating and performing what Mikhail Bakhtin calls ‘chronotopes’ – the spatiotemporal orderings implicit in a narrative or representation, giving rise to specific understandings of place and history (Bakhtin 1981; Haraway 1997: 41–42; Turnbull 2004: 166). Ever since the arrival of Europeans and outsiders, Rapa Nui has been shaped by the chronotopes of two dominant themes and their constitutive but conflicting narratives: one of the exotic, Oceanic, mystery of the massive statues on ‘the world’s most isolated island’, the other of ‘ecocidal’ collapse. In opening up the matrix of spatiality and temporality underpinning these and other narratives that shape and perform Rapa Nui, my aim is not to pursue the question of who has the right to do so, but to explain how it is that Rapa Nui continuously evades the analytical grasp; no side seems to be able to sustain their narrative, every simple fact, every claim, every argument is contested. This is in part due to what Ross Gibson has astutely identified as the Pacific’s ‘fantastic indeterminacy’, which allows for the inscription of Rapa Nui in an ideologically preferred narrative (Gibson 1993: 26). But, it is also the result of a Western scientific ontological preference for the representational over the performative, a preference that conceals the movements and practices

through which people engage with the world. Denning describes this preference as a ‘conspiracy of their own illusions’:

History making – transformations of lived experience into narrative is a universal and everyday phenomenon – this narrating in history making is itself lived experience not something apart from lived experience ... The ‘theatricality of history making’ involves the notion of viewing in a space so closed around with convention that the audience and actors enter into the conspiracy of their own illusions. The paradox is that self-awareness, performance, consciousness, does not disturb the realisms of their understanding. (Denning 1993: 73–4)

Contested performances of Tupaia’s Chart

Before turning to the case of Rapa Nui I want to consider the ways in which Denning’s illusory shaping of space and time are exemplified in the misunderstandings surrounding one of the sociotechnical devices that are central to practices of moving and assembling knowledge of the Pacific – Tupaia’s Chart. Captain James Cook was the first to recognise that the people of the Pacific were of one nation, and asked the question that is a key component in the performance of Rapa Nui: ‘How shall we account for this nation spreading itself so far over this vast ocean?’ (Beaglehole 1967: cxviii). Cook himself was of two minds, entertaining the possibility that Polynesians had the technical and cognitive capacity to deliberately settle the islands, while also wondering if some of the islands had been found accidentally. Much of his ambiguity on this issue is reflected in his difficulties in understanding the chart drawn by the Tahitian, Tupaia, whom Cook took with him when he left Tahiti on his first voyage on the *Endeavour* in 1769. Tupaia was the leading Pacific navigator of the day and, in effect, showed Cook around, directing him to islands and ensuring safe passage through the reefs. At Cook’s request he drew a chart of all the islands he knew, a chart that has become emblematic of the difficulties of encounter and translation.

Imagine, if you can, Tupaia’s life aboard the *Endeavour*: he is exposed to Cook’s own charts and navigating techniques, and he is also encouraged to draw, being given pens, brushes and paper by Sydney Parkinson, the principal artist on board, so he is introduced to Enlightenment forms of representation. Indeed he is now acknowledged as being the author of a group of drawings in the collection from the voyage (Smith 2005). Famously, in a moment of nicely judged mocking irony, he portrayed Joseph Banks and a Maori exchanging a bark cloth for a lobster, which may be one of the earliest examples in the world of indigenous ethnography

(Carter 1998). At some point in the voyage Tupaia was encouraged to perform the drawing of a chart of all the islands he knew. The resulting chart, which has remained tantalisingly indecipherable until recently, was a puzzle for Cook because many of the islands seemed to be positioned incorrectly, thus giving Cook severe reservations about Tupaia's actual geographical knowledge (Turnbull 1998). Now two French anthropologists have re-analysed the chart and found that 'while having the appearance of a map, [it] is in fact a mosaic of sailing directions or plotting diagrams drawn on paper' (Di Piazza & Pearthree 2007: 321). They conclude that their unravelling of the chart

highlights the difficulties of understanding or sharing knowledge on both sides. Cook, in his own words, believed Tupaia was drawing a map. Tupaia seems indeed to have tried to include distance in his plotting diagrams, thereby going beyond the traditional system of representation. Cook clearly remained fixed in his Cartesian world, adding cardinal points to Tupaia's Chart. But both could look at the manuscript and see their own system represented: Cook reading islands on a grid and Tupaia reading islands radiating out from different centers. (Di Piazza & Pearthree 2007: 336)

In other words, Cook and Tupaia worked with differing chronotopes, differing epistemological and ontological assumptions about space and time and how they can be represented – assumptions that were incommensurable and mutually unrecognised. They both thought they were drawing a map, but did not realise that they had no common agreement about what maps are, or how such devices record and enable movement. Although they each had an effective system of navigation, they were operating within completely different sociotechnical-religious networks, different embedded and embodied social practices. For Cook and his fellow Enlightenment European navigators and explorers, the system was representational: a process of calculation and long-distance control central to the establishment of empire and the extension of territory. Within the European chronotopic imaginary maps are 'graphic representations that facilitate a spatial understanding of things, concepts, conditions, processes, or events in the human world' (Harley & Woodward 1987: xvi). For Tupaia and his fellow Polynesian navigators, the system was performative – a social and technological practice of exploration involving movement and settlement. It was accomplished through kin-based replication by which people extended themselves in space and time, through developing material and cognitive technologies of sailing and navigating, and through negotiating social identities and boundaries that imbued the land and seascape with meaning and significance (Salmond 2008; Thomas 2010; Turnbull 2010). Within the Polynesian chronotopic imaginary, though maps of a kind – stick charts – were used in

teaching sailing directions, maps in the strict sense were never made. Material maps were not part of the practice of navigating at sea; space and time were enacted as embodied, dynamic, cognitive maps in the social practice of navigating (Hutchins 1996; Thomas 2001; Turnbull 1991, 2003).

The differences in practices and misunderstandings inherent in this encounter may be further compounded by Robert Langdon's claim that Tupaia's inclusion of captions and images of Western ships adjacent to four islands reveals that his map records the misadventures of the Spanish ship *San Lesmes* (Langdon 1980). According to Langdon's account the *San Lesmes* was one of a fleet of seven ships exploring the Pacific when it ran aground on Amanu Atoll in 1526, was refloated and eventually abandoned on Raiatea. Not only was this knowledge passed down for 250 years before Cook reached the area, but it was also unknown in the West, for whom the ship had simply disappeared without trace. If Langdon's account is verified, it is a remarkable counter to the claim that a people with only an oral tradition are without history.

Narratives of and against Rapa Nuian collapse

Now to turn to the 'undisturbed realisms' subtended by the hidden spatialities and temporalities in the narrations and performances of Rapa Nui. The collapse narrative was given one of its earliest formulations by the French explorer La Perouse, sent out by Louis XVI to explore the world, and whose first encounter with a Pacific Island was with Rapa Nui in 1786. La Perouse and his ships never made it home, having foundered on the Santa Cruz island reefs in 1793, but he did have the foresight to send back from Australia his diaries in which he had recorded that he 'had no doubt that this people were indebted to the imprudence of their ancestors for their present unfortunate situation' (La Perouse 1798: 318–319). More recently this narrative has been framed by Bahn and Flenley's rhetorical point, '*The person who felled the last tree could see that it was the last tree. But he (or she) still felled it*' (Bahn & Flenley 1992: 214); and thence has been appropriated by Diamond (2005, 2007). The geographical imaginaries which fuel our understandings of Rapa Nui are fed by a continuous and expanding diet of books, films and *National Geographic* or NOVA specials which reinforce the view that Rapa Nui is both tantalisingly mysterious and a warning to us all about our profligacy, the 'tragedy of the commons' and the 'limits to growth'. We are probably somewhat less familiar with the counter-narratives that suggest the statues may be perfectly understandable, not truly mysterious, and that far from committing ecocide, the islanders briefly succeeded in augmenting their food resources and sustaining a large population before succumbing to environmental impacts and restraints beyond their control, and the collision with global capitalism.

Since it is the ‘narrative of the day’, I want to start by specifying what it is that the geographer and historical ecologist Jared Diamond (who largely follows Flenley and Bahn) is arguing (Diamond 2007). According to Diamond, the island was once covered by endemic palm trees along with other trees, including the Toromiro. The palms provided food in the form of sap, nuts and palm hearts, as well as essential material for baskets, sails, thatching, and mats. The Toromiro provided wood for building canoes and fibre for rope-making. When Jacob Roggeveen arrived on Easter Day in 1762 CE, he reported the island to be without trees, and pollen analysis from the swamp in the crater lake shows the island to have been completely deforested by 1650 CE. This deforestation had forced the adoption of lithic tillage or stone mulching, achieved by deliberately breaking up rocks and covering over half the island with more than a billion stones. Mulching using stones decreases soil water evaporation, protects against wind and rain erosion, and reduces daily temperature fluctuations while also raising soil fertility by slowly releasing nutrients.

Before European arrival, the islanders had started competing in building ever larger statues, but with no materials left for moving and erecting them, intertribal warfare broke out, and the statues were toppled; chaos and cannibalism ensued (Diamond 2005: 109, 111). Diamond claims that European diseases and enslavement came later, that there is no evidence of drought or climate change, and that the rats the islanders brought with them had no significant impact on the palm trees’ capacity for regeneration. He concludes, in his most recent article in the journal *Science*:

All parameters were stacked against Easter: It is relatively cold, dry, low, small, and isolated, with negligible nutrient inputs from atmospheric dust and volcanic ash, relatively old leached soils, and no uplifted-reef terrain. Thus, Easter became deforested not because its inhabitants were uniquely improvident, nor because its European visitors were uniquely evil, but because Easter Islanders had the misfortune to inhabit one of the Pacific’s most fragile environments. (Diamond 2007: 1693)

Earlier, in his book *Collapse*, he had offered a wider-ranging, geographically determinist explanation: ‘Easter’s isolation makes it the clearest example of a society that destroyed itself by overexploiting its own resources’ (Diamond 2005: 118). But, this leaves unanswered his big question: ‘What did the Easter islander who cut down the last palm tree say while he was doing it?’ That is, by implication, ‘how could they have been so stupid?’, and by further implication from all his other examples, ‘are we being so stupid now?’ His explanation for the failure of complex societies to rationally adapt or modify their behaviour in the face of impending collapse is that they fail both to anticipate and to perceive the consequences. But the

most important failure of rationality is the failure ‘to even attempt to solve a problem once it has been perceived’ (2005: 426–427). This he attributes to the problem of the clash of interests exemplified by the ‘tragedy of the commons’. These important issues are largely beyond the scope of this chapter, though I want to briefly return to them at the end.

The chief protagonists of the main counter-narrative to that of Diamond are the anthropologist Terry Hunt and archaeologist Carl Lipo (Hunt & Lipo 2010, 2011). They agree with Diamond, Mieth and Bork, and others that the island was deforested between 1250 and 1650 CE (Diamond 2005; Mann et al. 2008; Mieth & Bork 2009); however the crucial questions are how, when and why the island came to be deforested. A key point for the story is to establish when humans first arrived on Rapa Nui. Currently estimations of the arrival date vary by a very large margin between 400 and 1200 CE. Hunt and Lipo argue for the most recent date, using radiocarbon dating techniques applied at Anakena Beach, thought to be the most likely early landing site (Hunt & Lipo 2010: 28). Flenley, Butler and Bahn now contend that their modified dating of pollen in core samples in the Rano Kau crater lake shows deforestation to have begun around 700 CE and been completed by around 1000 CE (Flenley et al. 2007). For Hunt and Lipo, a major contributor to deforestation was the rats that the original colonisers brought with them. Rats, along with land clearing, led to the deforestation, but this was accompanied by a population increase to around 3000–5 000 by 1350 CE. The population decline occurred only after contact with Europeans and the introduction of disease. So for Hunt and Lipo, ‘The last tree may simply have died and rats may simply have eaten the last seeds. What were the rats thinking?’ (Hunt & Lipo 2010: 39). For them the fate of the island is a story of ingenuity and limited success. In their monograph they, like Diamond, embrace the theory of lithic tillage, but they make the very important and different point that covering 30 square kilometres of the island with two million tons of rocks required a huge communal organisational effort over a period of 500 years. For them this is a story not of tribal rivalry but of cooperative resilience, though they agree with Diamond that, in the end, little could be done to deal with Rapa Nui’s ancient volcanic soil which, unlike the young volcanic soils of many Pacific islands, is severely deficient in phosphorus and nitrogen.

Using the skills, knowledge and materials available, and adapting them to meet the specific conditions they faced, the islanders transformed Rapa Nui from an island covered in palm forest, with few resources for humans, into an island that could reliably, though marginally, sustain them over the long run.

Initially the islanders practiced slash and burn cultivation, and as the forest declined, they created a series of *manavai* gardens, while also laboriously turning the landscape into an engineered series of massive fields fertilised

by broken volcanic rocks placed on the surface and in the ground. Little by little the island was transformed into an endless series of gardens. The story of Rapa Nui is not one of ecological suicide but of persistence and resilience in which the islanders employed innovative approaches and a willingness to invest massive amounts of labour. (Hunt & Lipo 2011: 53)

The ‘most isolated island in the world’

Though these narratives are portrayed as conflicting, they share a chronotopic imaginary of Rapa Nui as an isolated island. Indeed nearly every Western author, like Loti in the opening epigraph, heavily emphasises its isolation, failing to see that from the islanders’ point of view they are intimately connected. As the Tongan scholar Epeli Hau’ofa put it, ‘our ancestors viewed our world as a sea of islands rather than as islands in the sea’ (Hau’ofa 1993: 7). This isolationist framing not only subjugates the indigenous voice, but interpolates the island into one of the most seductive of Western scientific imaginaries – the laboratory. The tantalising lure of an island laboratory lies in the apparent boundedness of its insularity, which seems to promise ultimate knowability through the determinate definition and control of variables. In this imaginary a whole island can be shaped spatiotemporally into an ecological experiment, or an instance of separate cultural development (Burney 1997; Evans 1973; Fitzhugh & Hunt 1997).

FIGURE 15.2 *Rapa Nui farmer with potato*



Source: Photograph by Cesar Galindo/Sebrafilm, in Heyerdahl (1989)

Or, as Rull and his colleagues put it, ‘As an isolated and small piece of land, Easter Island is a natural laboratory whose lakes and bogs are a gift for those interested in paleoecology and paleoclimatology’ (Rull et al. 2010: 58). The conception of a spatially isolated island also conforms to the dendritic chronotope of cultural change, with its emphasis on origins and ends, where ‘human prehistory can be mapped as a “family tree” on which the branchings of limbs, boughs, and twigs can be seen as critical moments ... when separate “branches” of humanity went their separate ways’ (Terrell 1997: 424–425). As Hunt, Lipo and Madsen argue, the phylogenetic tree-like tracing of human language development suffers from the same problem as the conception of spatial isolation, in that it precludes the possibility of interaction (Hunt et al. 1997).

Polynesian colonisation of the Pacific

The conception of Rapa Nui as isolated has also framed the controversial questions of where the islanders came from and how they reached the island. For some commentators the region is so remote that they are tempted to accept Sharp’s old thesis that Polynesians could not have discovered the islands deliberately, or, even if they did so a return voyage would have been tantamount to impossible. By contrast Terrell takes a different view, in which

the South Pacific [is seen], in human terms, not as an aggregate of (more or less) isolated islands but as an interlocking, expanding, sometimes contracting, and ever changing set of social, political, and economic subfields. Instead of the older image of Pacific prehistory as a family tree, perhaps a better way of seeing the complexity and interdependence of Pacific prehistory is to think of the islands – using one of Darwin’s metaphors – as an ‘entangled bank’. (Terrell 1997: 425)

Terrell’s rhizomatic chronotope complements Paul Rainbird’s perspective, in terms of which ‘the geographical study of islands is the study of movement’ and ‘the movement of islands makes them good to think with’ (Rainbird 2007: xvii, 2). Though Rainbird is here talking about the Mediterranean, his remarks are equally applicable to the Pacific:

[Islands] themselves are in movement constantly changing, they are not isolated, rather they are part of chains of connection, opportunities of resource gathering or sites of sacredness ... The Mediterranean in the Neolithic, as in later periods, was a web of seaways fusing maritime communities on islands and continents in fluid and complex interactions ... the most bounded pieces of land on Earth were some of the most connected. (Rainbird 2007: 88, 171)

However, the wider context of movement and original colonisation is also fraught with conflict over theories about these movements of humans into the region, partly as an overreaction to Thor Heyerdahl's contention that they came from South America, partly from a reaction to diffusionism, and partly because of the plethora of trails that humans have left in their wake (Jones & Klar 2005; Storey & Jones 2011). Bacteria, pigs, rats, pots, plants, words, bones, stones, earrings, diseases, and genetic indicators of all varieties are amongst the markers and proxies for the complex of interweaving trails and narratives that are keys to understanding human movement and assemblage in the Pacific and around the world. The problem is that the markers and trails, taken in isolation, do not all tell the same story. Human movements and assemblages are in constant interaction in an adaptive process of performative co-production with genes, terrain, climate, sea level changes, kinship relations, diet, materials and resources, food and transport practices, social and cognitive technologies, and knowledge strategies and transmission (Turnbull 2011).

For me, as for nearly everyone I have talked to, Thor Heyerdahl was a childhood hero. In fact I still admire his approach of building a raft and literally enacting a voyage (Heyerdahl 1950, 1958). Replica voyages are the most performative ways of understanding Pacific exploration and colonisation. The retracing of all the major routes from Hawaii by the *Hokulea* using only traditional Polynesian navigation techniques, including the most difficult routes to New Zealand and Rapa Nui, have gone a long way towards establishing recognition and understanding of the practices and conditions under which they were achieved (Finney 1994). Heyerdahl believed the Pacific had to have been colonised from the Americas, because he thought the voyagers would have had no option but to sail downwind in the prevailing westerlies. He was unaware of the annual reversal of this wind pattern. But, what led most people to disregard his claims was the diffusionist notion that Rapa Nui culture, especially that of the *ahu* (stone platforms) and *moai* (the statues mounted on these platforms), had its origins in Inca stone work. While it is now commonly accepted, following the linguistic and genetic evidence, that the Pacific was colonised by people moving out of island south-east Asia, there is not only no agreed route or dating of this last great movement of humans into the last unoccupied regions of the world, but now accumulating evidence supporting the claim that there is indeed a South American connection (Jones et al. 2011).

It is not my intention to marshal or review this evidence, rather to argue that such a case is plausible and reasonably supported; but for it to be credible a different spatiotemporal narrative framework for understanding the extent of the Austronesian contact sphere needs to be imagined. So first, a taste of the argument. There is now genetic evidence of an Amerindian marker in the Rapa Nui chromosome (Lie et al. 2007). Another thread in the evidence is the sweet potato, a

staple throughout the Pacific, but of South American origin. What makes the sweet potato a persuasive example of a commensal, that is, something that could only have been imported as the result of human action and social practice, is that it is called *cumar* in Peru and *kumara* on Rapa Nui and throughout the Pacific (Green 2000). A still strongly contested claim is that the Polynesians introduced to the Americas, pre-Columbus, a unique breed of chicken that lays blue eggs (Storey et al. 2008). A corollary of these claims is that Rapa Nui may have been a way station in the process of interaction with South America, meaning that it was not as isolated as has been claimed and that two-way voyaging must have occurred at least for a brief period.

No doubt the controversy has a long way to run, but if this claim is accepted it indicates that Austronesians reached as far Madagascar in the west and Peru in the east around about 1000 CE, evidencing a truly massive capacity for social extension without maps, calculation or instrumentation. What is also still far from resolved is the question of why they would have undertaken such extensive and hazardous voyages. Did the island chiefs sponsor these voyages to expand their authority? Were the crews sent into exile? Were the travellers driven by a sense of adventure and a desire to expand individual prowess? All have been suggested, along with causal factors relating to population and resource pressure (Anderson 2006; Thomas 2001; Turnbull 1991).

It is nonetheless clear that this was a colonising and terraforming endeavour, since the voyagers not only took their families with them aboard their massive voyaging canoes, but took also the plants and livestock that they knew they would have to be able to cultivate in order to survive. They transformed the Pacific, just as it transformed them. On Rapa Nui they introduced taro and sweet potato, chickens, rats, and the tradition of statue carving, all of which came to play a part in what the island was to become. However, I would argue that it is important to maintain a performative perspective and to recognise that while the voyages were deliberate, they were not part of a grand plan of colonisation in the manner of the European powers. Rather than being a cause, this was a consequence of voyaging. As the archaeologist Colin Richards puts it:

It is about people engaging with particular materials and substances and the necessary transformation and reconstruction of ‘things’ and social identity incurred within a series of strategic encounters ... a process of social transformation, not simply in terms of the accrual of social prestige, but also because, in replicating ancestral journeys, the participants became fused with their ancestors, absorbing *mana* in the process. Voyaging was not forced upon people as a last resort of escape or adventure; people simply embraced it as a way of life. (Richards 2008: 207, 217)

The statues and their movement

It is to the ‘mystery’ of the stone giants that I want now to return: how and why were they made? How were they moved? How and why were they thrown over? Many of the controversies over Rapa Nui turn crucially on dating – when did the islanders arrive? When were the palms cut down? When were chickens and sweet potatoes introduced? However, the forms of temporal ordering appropriate for simple chains of cause and effect are not appropriate for understanding the forms of processual co-production that we have been considering. Similarly, the questions surrounding the statues have temporal dimensions, but they are also profoundly spatial in ways that elude standard cartographic forms of representing space.

However, even such seemingly straightforward spatial questions as ‘what is the area of Rapa Nui?’ are not as simply determinate as one might imagine.

FIGURE 15.3 *Moai with restored eyes, Rapa Nui / Easter Island*

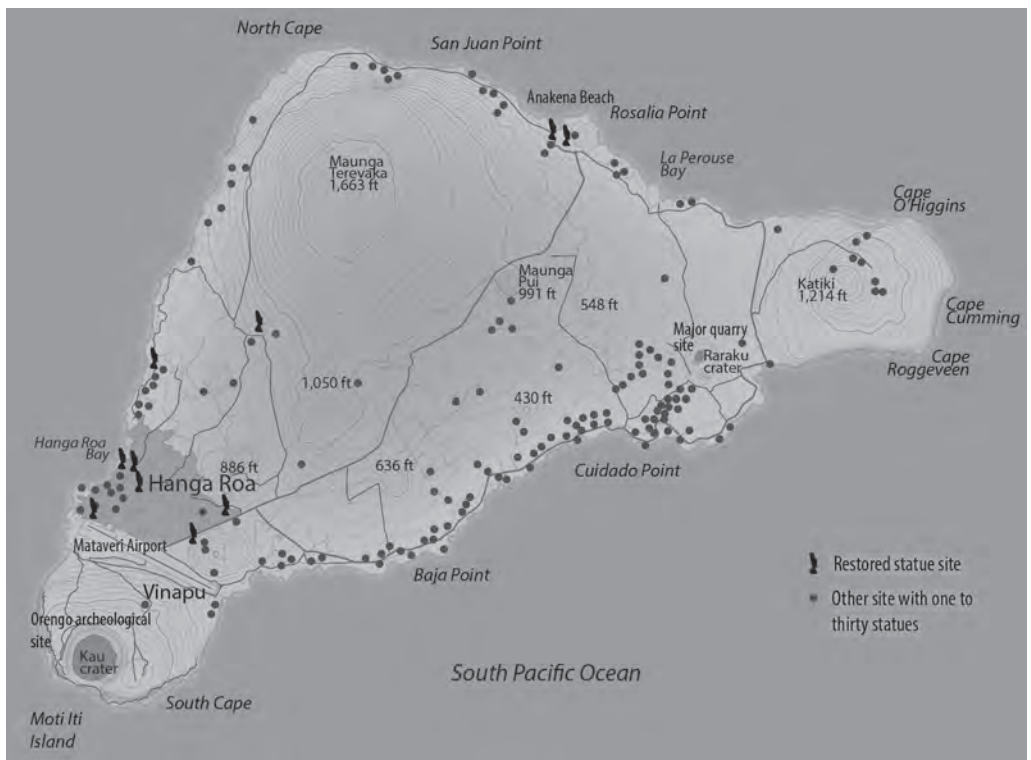


Source: Photograph by Cesar Galindo/Sebrafilm, in Heyerdahl (1989)

In 1994 Lehman reviewed the reported area in 37 different documents produced from 1899 to 1994, and found that the island's area as given in these documents varied from 34 to 69.5 square miles (Lehmann 1994). He advocated accepting the Chilean National Office of Frontiers and State Limits claim of 66 square miles. In 2005 Claudio Cristino and Roberto Izaurieta of the Easter Island Statue project used digital mapping techniques to calculate the area from aerial photographs taken in 1981, and came up with 63.2 square miles (Cristino & Izaurieta 2005). Is this a question that has a definitive answer, or is it 'fantastically indeterminate', scale-dependent and non-rectifiable, as Mandelbrot famously claimed of the coastline of Britain, revealing an inherent difficulty in mimetic notions of representation (Mandelbrot 1983: 33)?

The standard account of the massive, hugely impressive stone statues, *moai*, and *ahu*, the equally impressive finely worked local basalt platforms on which they were mounted, is that they were largely quarried out of tuff, the rock constituting the slopes of Rano Raraku, the largest of the three main volcanoes on Rapa Nui.

FIGURE 15.4 Map showing distribution of statues on Rapa Nui



Source: Redrawn from Heyerdahl (1989) and Lipo & Hunt (2005)

Cartographic surveys show that around 900 statues, which on average weighed about 10 tons, were laboriously moved along roads to be carefully positioned facing inland on the 300 *ahu* located largely along the coast. Once in place they were crowned with large stone topknots – *pukao* – made of red scoria from the crater of Puna Pau, and ‘brought into life’ by being given eyes made of white coral with an obsidian centre. It is supposed that all this activity commenced around 1000 CE and ceased around 1500 CE, and that it can be read as an industrial process. A statue was roughly carved out of bedrock in a supine position, using stone tools to leave just a keel along the spine until it was broken loose, slid down slope, and given its final shaping in an upright position before being dragged or ‘walked’ to its final destination on a meticulously prepared *ahu*. From this cartographic perspective, *moai* found at the quarry are incomplete, abandoned before they were moved or finished; *moai* along the road were also abandoned as a result of damage in transit. Given the discipline of archaeology’s chronotope of classifying, and sequential and spatial ordering, the object of archaeological attention is the completed monument, not the ongoing process of alteration and transformation, or the network of social practices in which it is embedded (Hamilton et al. 2010: 176). Thus Jo Anne van Tilburg, a leading Rapa Nui archaeologist, assuredly claims, ‘Modern archaeology has precisely defined the *moai* – their form, style, placement, distribution and relationships within Rapa Nui built environment and settlement pattern’ (Van Tilburg 2001: 24).

However, the archaeologist Britton Shepardson’s recent survey and spatial analysis enables him to argue that inland examples of Rapa Nui’s famous stone statues were not in transit to the coast, but serve to mark out the ancient territories proposed by ethnologist Katherine Routledge in 1919 (Shepardson 2005: 169). Shepardson claims that focusing on the ‘completed’ *moai* associated with *ahu* has led to a relegation of all other *moai* at the quarry, along the roads or inland to the category of ‘intermediate’, ‘isolated’, or ‘in transit’ (Shepardson 2005: 170). Colin Richards and Sue Hamilton take this alternative spatial conception an interesting step further (Hamilton et al. 2010; Richards et al. 2011). They see the roads not as leading so much *from* the quarry just for the purposes of transportation, but also leading *to* the quarry. In their reading, the *moai* along the roads were not abandoned, but were deliberately placed to mark ceremonial paths. Likewise the *moai* at the quarry were not awaiting completion or transport, since there were no *ahu* awaiting them; they too were deliberately positioned on small stone platforms or in pits to frame the quarry bays on the slopes of Rano Raraku.

The roads all lead towards the great quarry, thereby fixing Rano Raraku at the center of the Rapa Nui world: an *axis mundi*. Passing different landmarks and changing vistas, the route towards the sacred center is a highly

structured journey that becomes monumentalised as the goal is approached. (Hamilton et al. 2010: 183)

For Richards, what is important is movement, journeying along a path, a literal and material performance of Polynesian genealogical cosmology.

To walk the *moai* road was physically to trace lines of ancestral ascent mediated through the convergence of roads and visually punctuated by monumental architecture in the form of standing *moai*. Accordingly, to gain access to the quarry was to participate in a form of ordered regression, to pass before the eyes of the ancestors and to go to the very place of their creation – be it Rano Raraku or Hawaiki. Working to create ancestors out of stone was cosmogonic in all senses of the word: such an act ‘not only commemorates the sacredness of the site, but also re-enacts the event being celebrated; the celebrant feels he [sic] can return to the specific time and be involved in the original event’. In ancient Rapa Nui this was the destination of the *moai* road, the road my body goes (Richards et al. 2011: 207).

This conception of ‘moving along a *moai* road’ is analogous to Richards’s earlier description of Polynesian voyaging: ‘in replicating ancestral journeys, the participants became fused with their ancestors, absorbing *mana* in the process’ (Richards 2008: 217). However, it still leaves unanswered the much debated question: how were the *moai* moved? Did this require vast amounts of labour and timber, as Diamond and others suggest, or was it done by literally ‘walking’ the statues, as Heyerdahl and Hunt and Lipo claim (Heyerdahl 1958; Hunt & Lipo 2011)?

There is, however, an additional twist concerning the question of the ‘intermediate’ *ahu* not on the coast, along with the question of the function of the round towers – *tupa* – that some have equated with similar Incan structures, *chullpa* (Langdon 2009: 251ff). These structures appear to be oriented to solstices and equinoxes, and to the constellations of Orion and the Pleiades. Edwards and Edwards argue that Rapa Nui, being below the Tropic of Capricorn, has a seasonal cycle in reverse to that of other Polynesian islands, and a radically different marine environment. Consequently it was important for the islanders to establish

[their own] cycle of yearly activities, where the heliacal and cosmic rising and setting of specific stars and asterisms determined when to plant and harvest different cultigens, when the deep-sea fishing season started and ended, and when to carry out their many religious and social activities. (Edwards & Belmonte 2004; Edwards & Edwards 2010)

Sonia Haoa, a native Rapa Nuian, has a rather different cartographic imaginary. She sees intricate patterns in the billions of rocks covering the island that to our eyes look like a barren, random, and entirely natural scatter. For Haoa, 'the size and placement of the rocks vary according to elevation, microclimate, and proximity to the sea. The patterns offer clues about her ancestors' incredible and tragic history: where they lived, what they ate, even their socioeconomic status' (O'Brien 2009). Her ambition is to map Rapa Nui down to the finest detail of rock scatters, using lasers, GPS and AutoCAD software to record, locate and spatially order everything and anything. Her survey work with Christopher Stevenson has revealed previously unrecorded, even sometimes unnoticed, surface features including *ahu*, houses, garden enclosures, *hare moa* (so-called 'chicken houses'), earth ovens, all the fine details of making and utilising rock tillage to augment soil moisture and quality (Stevenson & Haoa Cardinali 2008).

But no matter how fine the scale of the map, the question of the statues' role and meaning remains contested. One key issue on which the collapse narrative depends is how and when they came to be toppled. All the various versions of the collapse narrative claim that the statues were deliberately overthrown as a consequence of civil war, or as result of the failure of their supporting ideology. Either way their deliberate destruction is taken as evidence of the severity of the cultural collapse attached to cutting down the last palm tree. There is, of course, a strong counter-narrative. A team of archaeologists and engineers have analysed the ways in which the major stones of 22 *ahu* have been displaced, and conclude that it was the directional forces of earthquakes that caused these stone platforms to collapse and the statues to fall (Edwards et al. 1996). If this account is correct it would completely reverse the causal story to one in which Rapa Nuian culture collapsed because the statues fell down, not the other way round.

After the statues, the birdmen

The Rapa Nuians may, then, have shown a remarkable capacity for resilience and adaptability, not only in their efforts to augment their food supply through lithic tillage, but also in their introduction of a birdman cult in response to the failure of the culture of statue-building (Van Tilburg 1994, 2004). Originating possibly as a sub-tradition of the statue cult, the birdman cult grew to be the dominant sociocultural ideology after the statue-building period ended, until it was displaced by Christian missionising around 1866. It was centred on Orongo, a sacred village on the steep slopes of Rano Kau, the volcano at the eastern end of the island. It was there that the annual birdman competition was held to determine who would be chief for the following year. This involved climbing down the vertical cliff, swimming out to an offshore islet, and being the first to find and bring back a sooty tern egg. Much of

this transition can be read in the inscription of birdman symbolism on the back of the *moai* Hoa Hakananai'a, now in the British Museum. Hoa Hakananai'a may have played the role of go-between in Rapa Nuian cultural transition, and continues to play this role in the museum director's seamless incorporation of the statue into his account:

It is seldom you see ecological change recorded in stone. There is something poignant in the dialogue between the two sides of Hoa Hakananai'a, a sculpted lesson that no way of living or thinking can endure forever. His face speaks of the hope we all have of unchanging certainty; his back of the shifting expediencies that have always been the reality of life. He is Everyman. (MacGregor 2010: 454)

But – another but, another however. In addition to the acknowledged poverty of the soil and fragility of the environment that the Rapa Nuians were unable to overcome, they were also powerless to resist the impact of the rest of the world. Between 1862 and 1863 around 1 500 Rapa Nuians, including the king and his son, were captured by Peruvian slave raiders and taken to work in guano mines off the coast of Peru. All but 100 of them died from smallpox and the harsh conditions they encountered there. Following an international protest the few survivors were dumped back on Rapa Nui, where they infected the remnant population, reducing them to a total of 111. The island was then turned into a giant sheep farm and the islanders were incarcerated behind barbed wire for the next 100 years. The island was annexed by Chile in 1888, but it was not until 1964 that Rapa Nuians were free to move and start to escape from complete immiseration (Peiser 2005). On this account the Rapa Nui culture did not collapse, but was decimated by global capitalism.

This leaves perhaps two more mysteries, enigmas, or products of European imagination and interaction, and of the current performance or re-performance of Rapa Nui. Many authors claim that Rapa Nuians resorted to cannibalism, and it is held to have been commonplace in Polynesia (see Van Tilburg 1994: 109), but like everything else this view is highly contested, and allegations of cannibalism have often provided the church and the colonial powers with an excuse for invasion and intervention. One of the examples of the indeterminacy involved is the famous cave Ana Kai Tangata, which is often translated as 'the cave where men are eaten', but which my guide told me could also be translated as 'the cave where men take on knowledge'. Similarly Flenley, Butler and Bahn argue that the shaped obsidian points found all over the island are 'spearheads' and can be read as evidence of the intense civil war that preceded the descent into cannibalism (Flenley et al. 2007), while Hunt and Lipo see them as scrapers and choppers for preparing plant materials (Hunt & Lipo 2007).

The other apparent product of interaction is the *rongorongo* script, which is often claimed as one of the few examples of a nonliterate culture inventing writing. Very few original examples of these glyphs inscribed on boards have survived, and none have been translated, though Fischer claims them to be procreational chants and genealogies (Fischer 1997). Nick Thomas argues that *rongorongo* boards were a post-contact invention, since there is no mention of them until 1846. He concludes that ‘they are remarkable not as expressions of antiquity, but of Polynesian modernity’ (Thomas 2010: 208) – making them, in my mind, rather like *toas*, the Aboriginal ‘way markers’ collected by German missionaries in South Australia. Philip Jones and Peter Sutton describe *toas* as ‘artefacts of encounter’ deliberately created to meet the desires of both sides for a picture script and for items of cultural complexity worthy of exchange (Jones 2007; Jones & Sutton 1986). Or indeed, another example of intercultural performance like Tupaia’s chart.

Conclusion

Now Rapa Nuians want to regain their heritage and harness it to their future on the island, so there is inevitably more measuring, mapping and reimagining of the past taking place in order to further the struggle for financial and cultural self-determination. But the endeavour to capture the island’s past will continue to evade the grasp of islanders and outsiders alike, and the ‘tragedy of the commons’ will be perpetuated in an inevitable conflict of interests, unless the social practices, the narratives of spatiality and temporality that underpin the conflicting accounts, are recognised and brought to the fore. As Donna Haraway points out, Bakhtin’s concept of the chronotope ‘requires us to enter the contingency, thickness, inequality, incommensurability, and dynamism of cultural systems of reference through which people enrol each other in their realities’ (Haraway 1997: 42).

Rather than aiming for a unified, universal understanding of Rapa Nui, the solution that I would propose – one that allows for ontological multiplicity, and the disunity involved in living and working with incommensurability, differing narratives of spatiality and temporality, and differing interests – is to treat all the actors and their representations performatively. To take a performative approach to knowing is to recognise that it is based in movement and practice; that it is embodied, enacted, multiplicitous and emergent. Knowing is like life itself, a complex adaptive system of making connections without a central authority, a system in which rules and orderings don’t pre-exist but evolve in the seamless and continuous co-productions of the actors and the environment. This corresponds with Elinor Ostrom’s proposal for coping with the tragedies of the commons. She argues that the rules for sharing the commons cannot be fixed or handed down by a central authority, since the conditions of the commons inevitably change with

time and circumstance. Instead, the protocols and chronotopes must evolve and be administered by the inhabitants of the commons. Hence they have to be the diverse, experimental and emergent outcomes of a complex adaptive system (Dietz et al. 2003; Ostrom 1999). Thus a performative perspective makes no prescriptive assertions; rather it proposes that conflicting ecologies of practice be held in tension, allowing both the production of new knowledge in an emergent creative process – a natural experiment in action – while also providing a way forward for Rapa Nuians aiming to manage and enhance the commingling of cultural and biological diversity on their no longer isolated or mysterious island.

Notes

- 1 See http://www.bibliotecapleyades.net/arqueologia/eastern_island/eastero1.htm

References

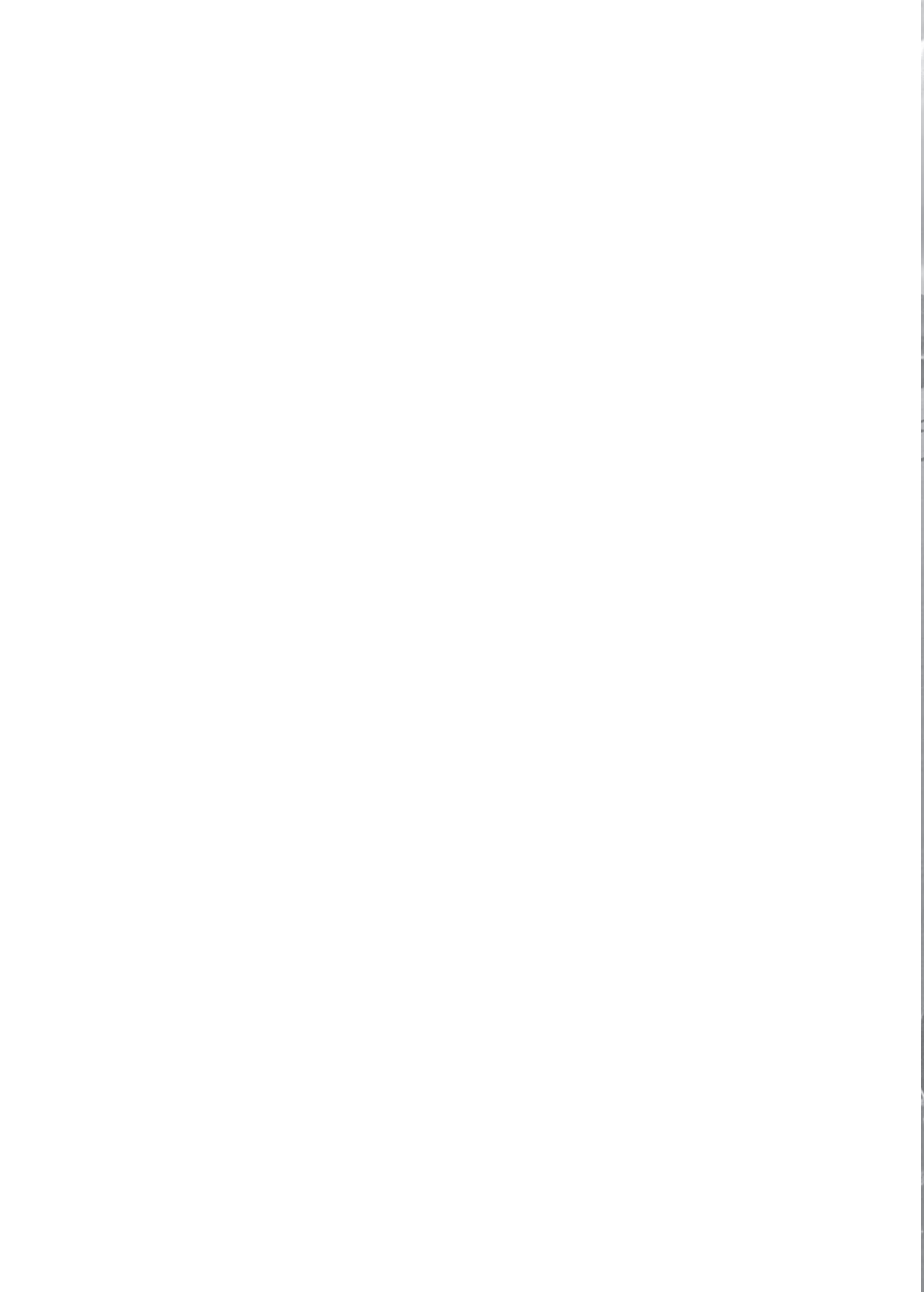
- Anderson A (2006) Islands of exile: Ideological motivation in maritime migration. *Journal of Island & Coastal Archaeology* 1(1): 33–47
- Bahn P & Flenley J (1992) *Easter Island Earth Island*. London: Thames and Hudson
- Bakhtin M (1981) *The dialogic imagination: Four essays*. Austin: University of Texas Press
- Balme C (2007) *Pacific performances: Theatricality and cross-cultural encounter in the South Seas*. Basingstoke: Palgrave MacMillan
- Beaglehole JC (Ed.) (1967) *The voyage of the Resolution and Discovery 1776–1780 Part One*. Cambridge: Cambridge University Press
- Burney DA (1997) Tropical islands as paleoecological laboratories: Gauging the consequences of human arrival. *Human Ecology* 25(3): 437–457
- Carter H (1998) Note on the drawings by an unknown artist from the voyage of HMS *Endeavour*. In M Lincoln (Ed.) *Science and exploration in the Pacific: European voyages to the southern oceans in the eighteenth century*. London: Boydell Press in association with the National Maritime Museum
- Cristino C & Izaurieta R (2005) *Easter Island: Total land area of Rapa Nui*. Accessed September 2011, <http://www.eisp.org/3126/>
- Dening G (1993) The theatricality of history making and the paradoxes of acting. *Cultural Anthropology* 8(1): 73–95
- Dening G (1996) *Performances*. Melbourne: Melbourne University Press
- Diamond J (2005) *Collapse: How societies choose to fail or survive*. London: Allen Lane
- Diamond J (2007) Easter Island revisited. *Science* 317(5845): 1692–1694
- Di Piazza A & Pearthree E (2007) A new reading of Tupaia's Chart. *The Journal of the Polynesian Society* 116(3): 321–340
- Dietz T, Ostrom E & Stern P (2003) The struggle to govern the commons. *Science* 302: 1907–1912

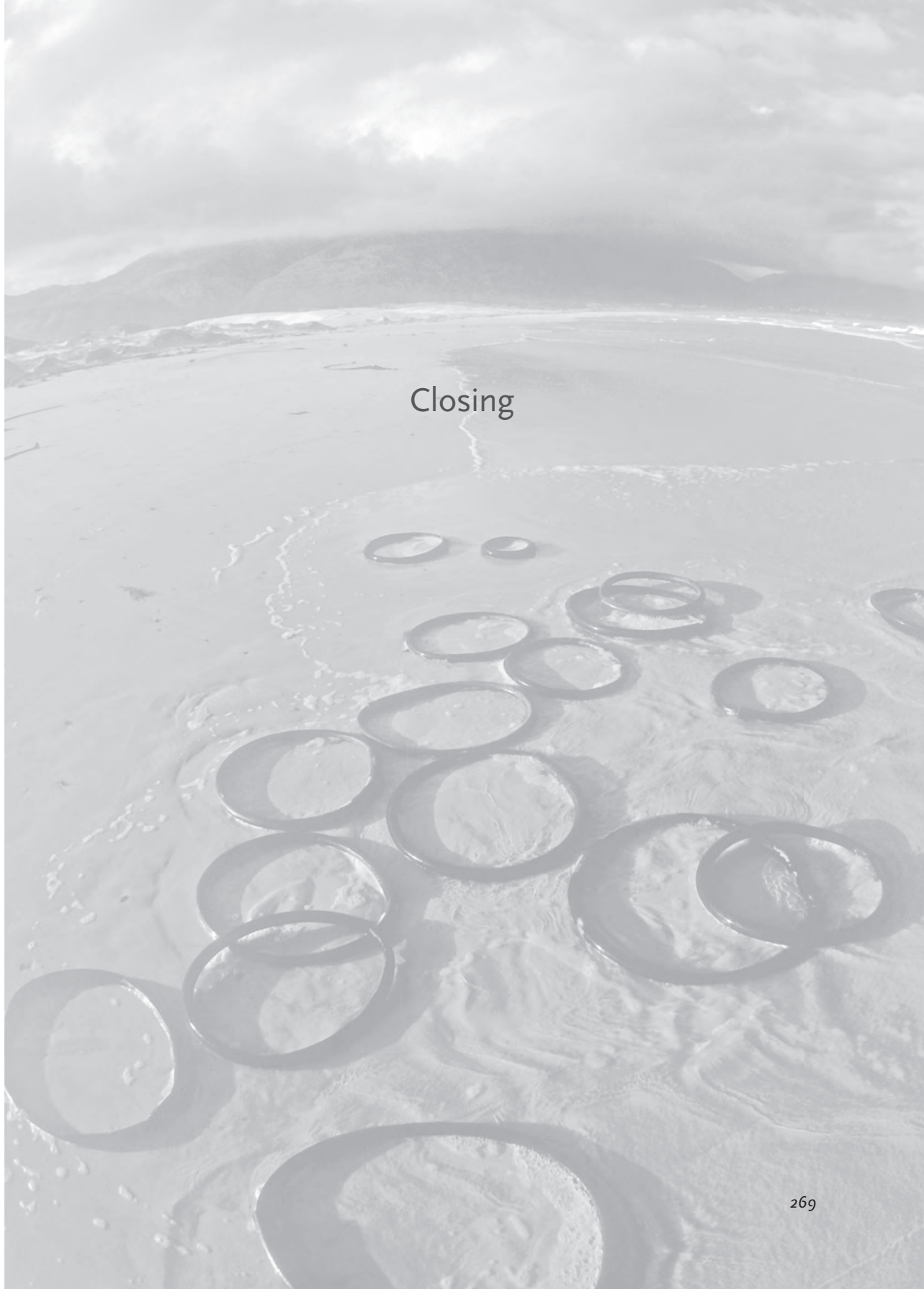
- Dunbar R, Gamble C & Gowlett J (2010) The social brain and the distributed mind. In R Dunbar, C Gamble & J Gowlett (Eds) *Social brain and the distributed mind*. Oxford: Oxford University Press
- Edwards E & Belmonte J (2004) Megalithic astronomy of Easter Island: A reassessment. *Journal of History of Astronomy* 35(4): 421–433
- Edwards E & Edwards A (2010) *Rapa Nui archaeoastronomy and ethnoastronomy*. Accessed September 2011, http://www.pacificislandsresearchinstitute.org/Flag_83_Report.pdf
- Edwards ER, Marchetti R, Dominichetti L & Gonzales-Ferran O (1996) When the earth trembled, the stones fell. *Rapa Nui Journal* 10(1): 1–15
- Evans JD (1973) Islands as laboratories for the study of cultural processes. In C Renfrew (Ed.) *The explanation of cultural change: Models in prehistory*. London: Duckworth
- Finney B (1994) *Voyage of rediscovery: A cultural odyssey through Polynesia*. Berkeley: University of California Press
- Fischer S (1997) *Rongorongo, the Easter Island script: History, traditions, texts*. Oxford: Oxford University Press
- Fitzhugh B & Hunt TL (1997) Introduction: Islands as laboratories: Archaeological research in comparative perspective. *Human Ecology* 25(3): 379–383
- Flenley J & Bahn P (2002) *The enigmas of Easter Island: Island on the edge*. Oxford: Oxford University Press
- Flenley J, Butler K & Bahn P (2007) Respect versus contempt for the evidence: Reply to Hunt and Lipo. *Rapa Nui Journal* 21(2): 98–104
- Gibson R (1993) 'I could not see as much as I desired'. In A Stephen (Ed.) *Pirating the Pacific: Images of travel, trade and tourism*. Sydney: Powerhouse Museum
- Green LJF (2009) Space, time, and story tracks: Contemporary practices of topographic memory in the Palikur Territory of Arukwa, Amapá, Brazil. *Ethnohistory* 56(1): 163–185
- Green R (2000) Origins for the Rapa Nui of Easter Island before European contact: Solutions from holistic anthropology to an issue no longer much of a mystery. *Rapa Nui Journal* 14(3): 71–76
- Hamilton S, Arellano S, Richards C & Torres HF (2010) Quarried away: Thinking about landscapes of megalithic construction on Rapa Nui (Easter Island). In B David & J Thomas (Eds) *Handbook of landscape archaeology*. Walnut Creek, CA: Left Coast Press
- Haraway D (1997) *Modest_witness@ second_millennium. FemaleMan@_meets_oncomouse™*. New York: Routledge
- Harley JB & Woodward D (Eds) (1987) *The history of cartography (Vol. 1): Cartography in prehistoric, ancient and medieval Europe and the Mediterranean*. Chicago: University of Chicago Press
- Hau'ofa E (1993) Our sea of islands. In E Waddell, V Naidu & E Hau'ofa (Eds) *A new Oceania: Rediscovering our Sea of Islands*. Suva, Fiji: University of the South Pacific Press
- Heyerdahl T (1950) *Kon-Tiki*. New York: Rand-McNally
- Heyerdahl T (1958) *Aku-Aku: The secret of Easter Island*. Harmondsworth: Penguin
- Heyerdahl T (1989) *Easter Island: The mystery solved*. New York: Random House
- Hunt T & Lipo C (2007) Chronology, deforestation, and 'collapse': Evidence vs. faith in Rapa Nui prehistory. *Rapa Nui Journal* 21(2): 85–97

- Hunt T & Lipo C (2010) Ecological catastrophe, collapse, and the myth of 'ecocide' on Rapa Nui (Easter Island). In P McAnany & N Yoffee (Eds) *Questioning collapse: Human resilience, ecological vulnerability and the aftermath of empire*. Cambridge: Cambridge University Press
- Hunt T & Lipo C (2011) *The statues that walked: Unravelling the mystery of Easter Island*. New York: Free Press
- Hunt T, Lipo C & Madsen M (1997) *The flaws of phylogeny as history: A Pacific Islands case study*. Accessed September 2011, <http://www.csulb.edu/~clipo/papers/HuntLipoMadsen-The%20Flaws%20of%20Phylogeny%20as%20History.pdf>
- Hutchins E (1996) *Cognition in the wild*. Cambridge, MA: Massachusetts Institute of Technology Press
- Ingold T (2000) *The perception of the environment: Essays in livelihood, dwelling and skill*. London: Routledge
- Inomata T & Cobden L (Eds) (2006) *Archaeology of performance: Theaters of power, community, and politics*. Lanham: Altamira Press
- Jones P (2007) *Ochre and rust: Artefacts and encounters on Australian frontiers*. Kent Town: Wakefield Press
- Jones P & Sutton P (1986) *Art and land: Aboriginal sculptures of the Lake Eyre region*. Adelaide: South Australian Museum
- Jones T & Klar KA (2005) Diffusionism reconsidered: Linguistic and archaeological evidence for prehistoric Polynesian contact with Southern California. *American Antiquity* 70(3): 457–473
- Jones T, Storey A, Matisoo-Smith E & Ramirez-Aliaga JM (Eds) (2011) *Polynesians in America: Pre-Columbus contacts with the New World*. Lanham: Altamira Press
- Langdon R (1980) The European ships of Tupaia's Chart: An essay in identification. *The Journal of Pacific History* 15(4): 225–232
- Langdon R (2009) *Kon-Tiki revisited*. Melbourne: Australian Scholarly Publishing
- La Perouse JFG de (1798) *A voyage around the world performed in the years 1785, 1786, and 1787*. London: J Johnson
- Law J (2004) *After method: Mess in social science research*. London: Routledge
- Law J (2009) *Collateral realities*. Accessed November 2011, <http://www.heterogeneities.net/publications/Law2009CollateralRealities.pdf>
- Law J & Urry J (2004) *Enacting the social*. Accessed August 2010, <http://www.comp.lancs.ac.uk/sociology/papers/Law-Urry-Enacting-the-Social.pdf>
- Lehmann H (1994) The area of Rapa Nui. *Rapa Nui Journal* 8(3): 71–73
- Lie BA, Dupuy BM, Spurkland A, Fernández-Viña MA, Hagelberg E & Thorsby E (2007) Molecular genetic studies of natives on Easter Island: Evidence of an early European and Amerindian contribution to the Polynesian gene pool. *Tissue Antigens* 69(1): 10–18
- Lipo CP & Hunt TL (2005) Mapping prehistoric statue roads on Easter Island. *Antiquity* 79: 158–168
- MacGregor N (2010) *A history of the world in 100 objects*. London: British Museum
- Malafouris L (2007) Before and beyond representation: Towards an enactive conception of the Paleolithic Image. In C Renfrew & I Morley (Eds) *Image and imagination: A global prehistory of figurative representation*. Cambridge: McDonald Institute

- Malafouris L & Renfrew C (2010) The cognitive life of things: Archaeology, material engagement and the extended mind. In L Malafouris & C Renfrew (Eds) *Cognitive life of things: Recasting the boundaries of the mind*. Cambridge: McDonald Institute
- Mandelbrot B (1983) *The fractal geometry of nature*. New York: WH Freeman & Co.
- Mann D, Edwards J, Chase J, Beck R, Reanier R & Mass M (2008) Drought, vegetation change, and human history on Rapa Nui (Isla de Pascua, Easter Island). *Quaternary Research* 69(1): 16–28
- Mieth A & Bork H-R (2009) Humans, climate or introduced rats: Which is to blame for the woodland destruction on prehistoric Rapa Nui (Easter Island)? *Journal of Archaeological Science* 37(2): 417–426
- Mol A (2002) *The body multiple: Ontology in medical practice*. Durham, NC: Duke University Press
- Montelle Y-P (2009) *Palaeoperformance: The emergence of theatricality as social practice*. London: Seagull Books
- O'Brien JM (2009), *Saving Easter Island*. Accessed August 2011, http://money.cnn.com/2009/01/13/magazines/fortune/obrien_easter.fortune/index.htm
- Orliac C & Orliac M (1995) *The silent gods: Mysteries of Easter Island*. London: Thames and Hudson
- Ostrom E (1999) Coping with the tragedies of the commons. *Annual Review of Political Science* 2: 493–535
- Pearson M & Shanks M (2001) *Theatre/archaeology*. London: Routledge
- Peiser B (2005) From genocide to ecocide: The rape of Rapa Nui. *Energy & Environment* 16(3&4): 513–539
- Rainbird P (2007) *The archaeology of islands*. Cambridge: Cambridge University Press
- Renfrew C (2010) Archaeogenetics – towards a ‘new synthesis’? *Current Biology on line* 20: R162–165. Accessed April 2011, [http://www.cell.com/current-biology/issue?pii=S0960-9822\(10\)X0004-5](http://www.cell.com/current-biology/issue?pii=S0960-9822(10)X0004-5)
- Richards C (2008) The substance of Polynesian voyaging. *World Archaeology* 40(2): 206–223
- Richards C, Crouchera K, Paoac T, Parisha T, Tucki E & Welhamd K (2011) Road my body goes: Re-creating ancestors from stone at the Great Moai Quarry of Rano Raraku, Rapa Nui (Easter Island). *World Archaeology* 43(2): 191–210
- Rull V, Cañellas-Boltà N, Sáe A, Giralt S, Pla S & Margalef O (2010) Paleocology of Easter Island: Evidence and uncertainties. *Earth-Science Reviews* 99: 50–60
- Salmond A (2008) Voyaging exchanges: Tahitian pilots and European navigators. In A Di Piazza & E Pearthree (Eds) *Canoes of the grand ocean*. Oxford: Archaeopress
- Shepardson BL (2005) The role of Rapa Nui statuary as territorial boundary markers. *Antiquity* 79(March): 169–178
- Smith K (2005) Tupaia's sketchbook. *eBLJ British Library Journal on line* article 10. Accessed April 2011, <http://www.bl.uk/eblj/2005/articles/article10.html>
- Stevenson C & Haoa Cardinali S (2008) Archaeological evidence for settlement and landscape use on Rapa Nui. In C Stevenson and S Haoa Cardinali (Eds) *Prehistoric Rapa Nui: Landscape and settlement archaeology at Hanga Ho'onu*. Los Osos: Easter Island Foundation
- Storey AA, Quiroz D, Ramírez JM, Beavan-Athfield N, Addison DJ et al. (2008) Pre-Columbian chickens, dates, isotopes, and mtDNA. *PNAS (Proceedings of*

- the *National Academy of Sciences* 105(48): E99. Accessed April 2011, www.pnas.org/cgi/doi/10.1073/pnas.0807625105
- Terrell JE (1997) The postponed agenda: Archaeology and human biogeography in the twenty-first century. *Human Ecology* 25(3): 419–436
- Thomas T (2001) Social practice of colonisation: Rethinking prehistoric Polynesian migration. *People and Culture in Oceania* 17: 27–46
- Thomas N (2010) *Islanders: The Pacific in the Age of Empire*. New Haven: Yale University Press
- Turnbull D (1991) *Mapping the world in the mind: An investigation of the unwritten knowledge of the Micronesian navigators*. Geelong: Deakin University Press
- Turnbull D (1998) Cook and Tupaia, a tale of cartographic *méconnaissance*? In M Lincoln (Ed.) *Science and exploration in the Pacific: European voyages to the southern oceans in the eighteenth century*. London: Boydell Press in association with the National Maritime Museum
- Turnbull D (2002) Performance and narrative, bodies and movement in the construction of places and objects, spaces and knowledges: The case of the Maltese megaliths. *Theory, Culture and Society* 19(5&6): 125–143
- Turnbull D (2003) *Masons, tricksters and cartographers: Comparative studies in the sociology of scientific and indigenous knowledge* (2nd edition). London: Routledge
- Turnbull D (2004) Narrative traditions of space, time and trust in court: *Terra Nullius*, ‘wandering’, the *Yorta Yorta* Native Title Claim, and the Hindmarsh Island Bridge controversy. In G Edmond (Ed.) *Expertise in regulation and law*. Aldershot: Ashgate
- Turnbull D (2010) Trails and tales: Multiple stories of human movement and modernity. In MT Bravo & N Triscott (Eds) *Arctic geopolitics and autonomy*. Arctic Perspective Cahier Series No. 2. Ostfildern: Hatje Cantz
- Turnbull D (2011) On the trails of markers and proxies: The socio-cognitive technologies of human movement, knowledge assemblage, and their relevance to the etiology of nasopharyngeal carcinoma. *Chinese Journal of Cancer* 30(2): 85–95
- Van Tilburg JA (1994) *Easter Island: Archaeology, ecology and culture*. London: British Museum Press
- Van Tilburg JA (2001) Changing faces: Rapa Nui statues in the social landscape. In E Kjellgren (Ed.) *Splendid isolation: Art of Easter Island*. New York: Metropolitan Museum of Art
- Van Tilburg JA (2004) *Hoa Hakananai’a*. London: British Museum Press





Closing

Closing remarks from the conclusion of the Contested Ecologies Writing Workshop, September 2011

Eduardo Viveiros de Castro

I'M AFRAID THAT AFTER what has already been said [in the closing discussions], not much remains for me to summarise. Also, I'm not good at summarising what I have heard or read recently. We all need time to digest things, and I am particularly incapable of making meaningful comments at so close a range, so to speak. I will just utter a few ritual closing formulas, then.

I think one of the conclusions that emerged from this workshop is that the era of social constructionism is over. The generalised feeling of an impending world crisis, the 'revolt of Nature' both as a concept and as a process, the 'intrusion of Gaia' as Isabelle Stengers calls it – these are eloquent signs that anthropocentrism as a metaphysical presupposition (as the fundamental metaphysical presupposition of modernity) is no longer tenable. Now this is somewhat paradoxical, in the sense that we now have discovered that the human species *as such* is an actor in a planetary, cosmological drama. You all know probably that in a recent scientific meeting it was proposed that the current geological era should be 'split' from the Holocene and rechristened Anthropocene, because we have caused so many changes in the planet, from the first industrial revolution onwards, that we now are the major force acting on the general thermodynamic equilibrium of the Earth. We have become finally *universal*, but not exactly in the sense that we used to imagine. There is no longer an ontological gap between geopolitics and geophysics. Human politics is now on the same scale, or wavelength, as planetary processes. The notion of cosmopolitics seems to me to express, at least in one of its possible senses, this feeling that geological time and anthropological time are now in continuity, they have become commensurate. Evolution and the history of capitalism can no longer be put into different ontological drawers. Revolution and evolution reconnect. We will have to 'deal with it'.

I also think that difference as a concept remains a value and a prime problem for anthropology. We are now confronting a new world economy of difference. This is what Bruno Latour once defined as 'the war of the worlds', the asymmetric

confrontation between different ‘historical ontologies’ (to cite Ian Hacking) in the planetary arena. The ‘contested ecologies’ of our workshop are one of the major dimensions of this global confrontation. In this new anthropocenic context where the whole species is implicated, but with very different responsibilities and powers according to its components’ relative environmental ‘footprints’, difference is, or remains, a very major problem. All of us must think through this notion of difference and decide what to do with it, and how to do it. Identity politics is a particular case, perhaps not a very good case, of the new economy of difference. The question for anthropology now is how to engage alterity – how to produce it conceptually and politically – without reproducing the ‘othering’ industry and its necessary complement, ‘saming’. For engage alterity we must, because without alterity there is no anthropology; actually, without alterity there is no thought and no being. So the problem must remain how to *do difference*, and how to *make a difference* as well. How to maintain difference, how to support difference, a ‘sustainable difference’ of course, without degrading it into soft difference – a difference that doesn’t make a real difference.

As a consequence, or sign, of this demise of social constructionism, there is this very remarkable conceptual dislocation of our language, from the language of culture to the language of ontology. Ontology is a word that has become more and more common in anthropological discourse; we can trace its appearance to the mid-90s, I believe. But please note that the word reappeared in philosophy as well, not only in anthropology, marking the change of focus from what were essentially epistemological questions to ontological ones. Metaphysics has become a respectable occupation. Speculative reason(ing) is again legit.

This move from culture to ontology actually reflects a deeper and wider change of heart: from ‘words’ (language) to ‘things’ (world). We have turned away from the linguistic turn towards the ontological turn. From the question of ‘how do we know the world, or represent it, or even experience it?’ to ‘what is the world actually made of?’ What is the world? And how can we regain the right to speak about the world without having to bow humbly to quantum physicists or high energy physicists or what-have-you? There has been thus a movement from questions of knowledge to questions of being.

There is this very interesting debate going on in philosophy nowadays, centring on a book by Quentin Meillassoux (son of Claude Meillassoux, the anthropologist), called *After Finitude*, in which he sees the central problem – in the sense of obstacle – in Western modern philosophy as being what he calls ‘correlationism’. The correlation thesis is the idea that world and thought are mutually implicated. You can’t talk about the world without implying a subject to whom the world is a world, and vice versa. He traces this back to Kant, essentially,

because it was Kant who said that (human) understanding is an epistemic legislator around which the phenomena turn – this is the so-called ‘Copernican revolution’ of Kantian philosophy, which is actually an anti-Copernican revolution, since it places us, the Subject, at the centre of the cosmos. It is not that we are turning around something, we are not the centre; but Kant actually said we are the centre – the subject actually constitutes the object. The subject *constitutes* what there is to be known. According to Meillassoux, this thesis gave us the linguistic turn, gave us Wittgenstein, and phenomenology – and gave us sociocultural anthropology as well, which is in a sense the most Kantian of all human sciences. We must now strive to transcend this correlationist thesis, because it is actually a reactionary thesis, opening up the way to all sorts of obscurantist postures. Relativism, you know ... We need to create a philosophy which actually allows (conceptually) the access to the world as it is *without us*, and not as it is *known to us*. This call to arms has sparked a whole literature that has grown up around it.

There is a secondary question implied in this anti-correlationist movement, to wit, what exactly this world or reality ‘without us’ is made of (and how). No single answer exists within the anti-correlationist community. But one thing is sure, the master-concept of *relation*, the bread and butter of all social anthropology and one of the few insights of structuralism that was wholly taken on board by the anthropology that bloomed after its heyday, begins to be suspect. The critique of correlation is correlated (if you allow me) to a critique of the relation. So there’s a ‘post-relational’ feeling of sorts in some quarters of contemporary philosophy which seems to be finding resonance within (some quarters of) contemporary anthropology.

So we have two problems here: the first is this movement from knowledge (how do we access the world?) to the world itself, which is what the movement from epistemology to ontology amounts to; and then we have the problem of what model of (worldly) being we want to entertain. Now, this ontological turn must also be, I think, a turn towards a *political* ontology, at least for us anthropologists. Why is that? The moment you connect the notion of ontology to the notion of multiplicity, as you’re bound to do if you are an ‘empirical’ and not a ‘philosophical’ anthropologist – the moment, that is, that your problem is the multiplicity of actual human ontologies that testifies to a formal ontology of humanity as multiplicity (‘anthropology is a formal ontology of ourselves as variants’, as Patrice Maniglier put it somewhere) – the moment you do that, you necessarily politicise the notion of ontology. Once you connect a (formal) ontology of multiplicity to the multiplicity of (real) ontologies, you necessarily transform ontology into a political concept.

*

There was something else which I noticed during our debates, which is I think a clear tension, not in the sense of anxiety, but in that of a zone of ambiguity, at play in some of the papers presented here. This is a tension between an approach inspired by Tim Ingold's work, and another one inspired by Bruno Latour. They are definitely not the same philosophical animal. Although both Ingold and Latour speak in terms and in favour of *practice*, practice is a very equivocal word, an umbrella term which is being used in increasingly equivocal senses. Ingold's practice is not Latour's practice or the practice of Actor-Network-Theory. Then you have Marilyn Strathern, whose work is as different from Ingold's as it is from Latour's. She is also a major reference for many of us here. There are significant differences between Ingold's, Latour's and Strathern's forms of reliance on what could be broadly called 'relational thinking'; perhaps Latour's and Strathern's conceptual economies are a bit closer than both are to Ingold's, but I may be wrong here. Anyway, this is something that should be made more explicit in our discussions, given that these three authors are central inspirations for much of our work.

I am not over-fond of the notion(s) of 'practice'. There is a hint of hypocrisy in our valuation of '*le sens pratique*'. We the professionals of theory, people who live and actually get a salary off theory, insist so much on defining practice as something which is the very opposite of theory that I cannot help feeling uncomfortable. Practice cannot really be the absolute opposite of theory because we are the ones who are producing it as a theoretical concept. Of course we are studying practical ontologies, we are not trying to reconstruct scholastic doctrines. But I like here what Marilyn Strathern would call 'duplexes', of which the idea-practice of what she calls 'relations' is the best example: an entity that straddles ontological boundaries between theory, practice, kinship, logics, affects, concepts.

A quick remark before my final point concerns another idea around which we seem to have been turning: the idea of life. Life as value, life as concept, life as mode of being. There are different concepts of life. There is life as in the philosophical expression 'lived world', which is one thing; then there is life as somatic, corporeal, embodied life, which is not exactly the same thing; there is biological life, zoological life, the life of the mind, there is 'bare life', there is 'non-organic life'. And then there is the end and the absence of life: the end of the world, the world without us, nothingness and all (as it were). Besides, experience is not synonymous with life (as we know it). One may hold a panpsychist ontology and refuse a vitalist interpretation of it. We must try to be very clear – if this is possible at all – about what we are trying to express when we cling to life as a sort of absolute horizon of our reflection.

*

The question that I leave for you is a question that never ceases to haunt me. Sometimes I have the impression that we anthropologists feel as if we were required to profess some ontological creed concerning the actual make-up of the world (human nature and culture included). I am not sure this is our business at all. Our business is to connect, period. We are metaphysical brokers. We strive to connect different ontologies, but we are not in the business of ontologising. We are especially not in the business of judging other people's ontologies – either 'our own' people, or other peoples. We are in the business of connecting all possible ontologies that can be imagined or have been imagined by humanity, because this is what anthropologists study. We are more and more studying other species, starting with our closer cousins and extending all the way across the zoological universe and beyond (plants and machines and all). I believe – or rather, wish – that anthropology will soon mix itself up with zoology. Not in the sense that it would just be a branch of today's zoology, but that it would form part of a zoology that would have become a generalised 'anthropology'.

About the contributors

Tarryn-Anne Anderson, Kelsey Draper, Greg Duggan, Jennifer Rogerson, Sven Ragaller, and Marieke Van Zyl are graduate researchers in Anthropology attached to the Fishers Knowledge Project led by Astrid Jarre, Lesley Green and Barbara Paterson. Their work focused on contestations over knowledge in fishing economies in the Benguela ecosystem from Stilbaai to Walvis Bay.

Mario Blaser is an Argentinian anthropologist who holds the Canada Research Chair in Aboriginal Studies at Memorial University, St John's Canada.

Joshua Cohen is a researcher on medicinal plant knowledge, and holds a Sawyer Fellowship at the University of Cape Town where he is completing his PhD.

Marisol de la Cadena is a Peruvian anthropologist and knowledge activist based at the University of California at Davis, and was the co-convenor of the Natures-Cultures conference held by the Society for Cultural Anthropology in Santa Fé in 2010.

Harry Garuba is the former Director of the Centre for African Studies at the University of Cape Town, and a literary scholar.

Diana Gibson is a South African medical anthropologist in the Department of Sociology and Social Anthropology at the University of the Western Cape, South Africa.

Ian Glenn is the Director of Film and Media Studies at the University of Cape Town. His research interests focus on environmental media.

Lesley Green is an anthropologist at the University of Cape Town, and while leading the Sawyer Seminar on Knowledges and Ways of Knowing, was attached to the University of Cape Town's Africa Knowledges Project in the Programme for the Enhancement of Research Capacity.

Astrid Jarre holds the South African Research Chair in Marine Ecology and Fisheries at the University of Cape Town.

Tania Katzschner is a socio-environmentalist and a lecturer in City and Regional Planning at the University of Cape Town.

Sanja Killian holds a doctorate in psychology and is the former Manager of the DST funded Sutherlandia trials at SAHSMI, UWC

Christopher Mabeza is a Sawyer Fellow at UCT where he is completing his PhD. He is a former manager of the Mkuvisi Woodlands Park in Harare, Zimbabwe.

Artwell Nhemachena is a Zimbabwean researcher who holds a Sawyer Fellowship at the University of Cape Town (UCT), where he is completing his PhD.

Crain Soudien is Deputy Vice Chancellor at the University of Cape Town, where he is responsible for institutional transformation

David Turnbull is a senior research fellow at the Victorian Eco-Innovation Lab (VEIL) in the Architecture Faculty at Melbourne University.

Helen Verran is an Australian philosopher of science and technology studies and a research chemist who has worked extensively on data archive strategies with Yolngu academics and communities in Northern Australia, and with mathematics teachers in Nigeria. She is based at the University of Melbourne and Charles Darwin University.

Eduardo Viveiros de Castro is a Brazilian anthropologist based at the Museu Nacional in Rio de Janeiro.

Index

A

- Aboriginal knowledge 148, 149, 150, 151, 152
- Actor-Network-Theory (ANT) xv, 22, 23, 26n8, 94, 215, 274
- Africa
 - African animism 47
 - African cosmology 169
 - African intellectual heritage 6
 - African order of knowledge 42, 45
 - African reverse pharmacology 165, 166
- African Traditional Medicines Committee 179
- allegory 144–159
 - as a balm 145–148, 152, 154, 157
- Amazon 6, 13, 16
 - Awaj'un protest 13
- Amazonia 28, 34, 35
 - indigenous land use techniques 34
 - Uti possidetis* 35
- animal rights 31
 - Bolivia Constitution 31
 - Ecuador Constitution 31
- animism 42–50, 100, 110, 118, 119, 120, 122
 - and ecology 42
 - and the environment 42
 - Zimbabwe 118, 119, 120, 122
- anthropocentrism 271
- anthropology 30, 90, 100, 275
- antiretrovirals (ARVs) xv, 1, 106, 165, 168, 179
- archaeology 246
- archives 57, 67, 68
- Arukwa 81, 84

Australia 1, 141, 142, 152

- Dhimurru Indigenous Protected Area 142
- Wathawuy 142, 152
- Yolngu Ngaymil Aboriginal clan 142

B

- basic locative construction (BLC) xv
- Benguela Coast 187–199
 - fisheries management 187–199
- Benguela ecosystem management 187, 194, 197, 198
 - climatic variability 187
 - decreasing fish stocks 187
 - overfishing 187
 - see also* fisheries
- biodiversity 4, 202, 222
 - Cape Flats Nature 207, 209
 - conservation 222
 - management 4
 - protection 202
- Bolivia 16, 31
 - Constitution 31
 - environmental conflicts 16
- Botanical Society of South Africa 208, 215
- Brazil 6, 7, 33, 34
 - biodiversity 34
 - development policy 6

C

- Cape Action Plan for the People and the Environment 222

- Cape Flats Flora 205
- Cape Flats Nature 202–225
- Actor-Network-Theory (ANT) 215
 - biodiversity management 205, 208
 - Champions' Forum 222, 223, 224
 - community development 202
 - Edith Stephens Wetland Park 205, 206, 214, 216, 217
 - Harmony Flats 205, 220
 - Macassar Dunes Nature Reserve (MDNR) 205, 219, 221, 222
 - South African National Biodiversity Institute (SANBI) 208
 - Wolfgat Nature Reserve 205
- Cape Flats 8, 205, 206, 216
- Cape Floral Region Protected Areas 202, 206
- Cape Leopard Research Centre 232
- Cape Peninsula mountain chain 205, 206
- biodiversity 205
 - nature conservation 205, 206
- Cape Town Biodiversity Network 207, 209, 212, 214
- CapeNature 208, 125
- City of Cape Town 203, 206, 212, 213, 215
- City Biodiversity Management 206, 211
 - Biodiversity Strategy 213
 - Environmental Agenda 2009–2014 215
 - Environmental Management Department 203
- climate adaptation 126–136
- cognitive linguistics 77, 78, 79
- spatial cognition 77, 78
 - basic locative construction (BLC) 78
- colonialism 45, 49
- commercial fishing 187, 190
- Convention on Biological Diversity, 1997 206
- cosmopolitics 19, 21, 29
- Council for Scientific and Industrial Research 177
- D
- Deep Ecology 30
- Department of Agriculture, Forestry and Fisheries (DAFF) xv, 195
- Department of Environmental Affairs and Tourism (DEAT) xv
- Department of Science and Technology (DST) xv
- Descarte, Rene 70, 76, 86
- E
- Easter Island *see* Rapa Nui
- Ecosystems Approach to Fisheries (EAF) xv, 191, 197, 198, 199
- EAF assessment of ecosystem variability and health 197
- Ecuador 1, 16, 31
- Constitution 31
 - National Confederation of Indigenous Peoples of Ecuador 16
- Edith Stephens Wetland Park 205, 206, 214, 216, 217
- invasive alien plant removal 208
- environmental conflict 15, 16, 21
- Bolivia 16
 - cultural distribution conflict 15
 - Ecuador 16
 - Peru 16
- environmentalism 29, 30, 210
- epistemic disconcertment 154, 156, 157
- Yolngu Ngaymil Aboriginal clan 142
 - definition of 144
 - scientific representationalism 149, 149, 150
 - indigenous essentialism 150, 151, 152
- epistemology 273
- F
- Field Guides Association of Southern Africa 235
- fisheries management 187–199
- Benguela Coast 187–199
 - climatic variability 187
 - decreasing fish stocks 187
 - Ecosystems Approach to Fisheries (EAF) 191, 198
 - fishers' participation in 188, 198, 199
 - fishing licences 189, 190, 194
 - Marine and Coastal Management (MCM) 197

- Marine Living Resources Act (No. 18 of 1998) 189
- Marine Living Resources Act (No. 68 of 2000) 189, 190
- overfishing 187
- quota allocation 189, 194
- Small-Scale Fishers Policy 190
- 'traditional' and scientific knowledge 187, 192–199
- fishers 190, 193, 195, 196, 197, 198, 199
- accurate monitoring practices 196, 197
- experiential knowledge 193, 195, 198, 199
- Information and Communication Technologies (ICTs) 197
- intuitive knowledge 193, 195, 198, 199
- noncompliance 188, 189
- food security 134, 135, 136
- Fynbos Forum 222
- G
- geographical information systems (GIS) xv
- Georgescu-Roegen 36
- de-growth 36
- thermodynamic costs of the economy 36
- Global Environment Facility 206
- Global Leopard Project 236
- globalisation 49, 141
- Guarani 35
- H
- Harmony Flats 220
- Holocene 271
- Hottentots Kooigoed* 92
- I
- indigenous essentialism 150–152
- aboriginal knowledge 150–152
- indigenous ethnography 247
- Indigenous Knowledge (IK) xv, 19, 20, 167
- indigenous knowledge / science divide 3
- rethinking the idea of 6
- Sutherlandia* 165
- traditional medicines 167
- ways of knowing 2, 3
- indigenous knowledge systems (IKS) xv, 104
- Information and Communication Technologies (ICTs) xv, 197
- Cell-Life project xv, 197
- data-gathering 197
- industrial fisheries 197
- small-scale fisheries 197
- South African Bird Atlas Project 2 197
- insiswa* see *Sutherlandia frutescens*
- Institute for Poverty, Land and Agrarian Studies 189
- International Centre for Indigenous Phytotherapy Studies (TICIPS) xv, 167
- Isoetes capensis* 205, 206, 216
- K
- kankerbos* see *Sutherlandia frutescens*
- knowledge practices 154–156
- L
- Le Vaillant, Francois 228, 229, 230, 231, 232, 239
- indigenous nomenclature 231
- leopard 231–232
- modern ornithology 229
- leopards
- behaviour 227, 232, 233, 236, 237, 239
- conservation 227
- Global Leopard Project 236
- radio telemetry 233, 235, 236
- tracking 234–235
- lerumo lamadi* 172
- Lessertia frutescens* see *Sutherlandia frutescens*
- M
- Macassar Dunes Nature Reserve (MDNR) 219, 221, 222
- conservation of dune system 221, 222
- iNkanini informal settlement 219
- Mariano's archive: Ecologies of stories 55–68
- Agrarian Reform (1960) 58
- Andean anthropology 61
- ayllu*
- definition 59–63
- and property 63–68
- earth-beings (*pukara*) 62, 64, 65, 67

- indigenous archivists 56, 57, 58
 - indigenous peasants (*runakuna*) 57, 58, 68
 - ayllu 60, 61, 62, 63
 - making the archive 59
 - property 63, 64, 65, 66, 67
 - Workers Federation of Cuzco 66
 - Marine and Coastal Management (MCM) xv, 197
 - marine conservation 187–199
 - Marine Living Resources Act (MLRA) (No. 18 of 1998) xv, 189, 190
 - Marine Living Resources Amendment Act (No. 68 of 2000) xv, 189, 190
 - Marx, Karl 36, 45, 46, 47
 - Maseko, Zephaniah Phiri 126–136
 - ‘water plantation’ 128, 131
 - crop rotation 129
 - food security 134, 135, 136
 - organic farming 134
 - use of metaphor 131–134
 - water-harvesting techniques 126
 - medicinal plants 90, 91, 164
 - bossiesmedisyne* 93, 95, 97, 103
 - Hottentots Kooigoed* 92
 - jankie berend* (*Sutherlandia frutescens*) 96
 - taaibos* 101, 102, 103
 - Medicines Control Council (MCC) xv, 179
 - metaphors 131–134
 - modernity 43, 47, 48, 50, 56, 111
 - economic 45
 - question of temporality 49
 - subject-object episteme 44
 - modernity/colonialism 42
- N
- Namaqualand 7, 90, 91, 92, 94
 - bossiesmedisyne* 93, 95, 97, 103
 - gees* 95, 96, 97, 102, 103
 - Godsiekte* 95
 - Hottentots Kooigoed* 92
 - jankie berend* (*Sutherlandia frutescens*) 96
 - krag* 95, 96, 97, 98, 102, 103
 - kruiedokter* 97, 98, 99, 102
 - medicinal plant use 7, 91
 - poverty 7
 - sorcery 7
 - taaibos* 101, 102, 103
 - toorsiekte* 95, 102, 103
 - National Confederation of Indigenous People of Ecuador 16
 - National Institute of Health (NIH) xv, 167
 - nature/culture divide 2, 20, 23, 245
 - non-governmental organisation (NGO) xv
- O
- ontological multiplicity 23, 24, 245, 262, 26–8
 - ontology 21, 24, 272, 273, 274
 - Actor-Network-Theory (ANT) 22, 23
 - Analogism* 22
 - Animist* see also relational ontologies 22
 - naturalism 22, 23
 - Totemism* 22
 - ornithology 230
- P
- Palikur language 73, 75
 - categorisations of shapes and forms 7
 - gahawkris* (master spirit) 86, 87n8
 - hawkri* (day-world) 72, 80, 83, 84, 85, 86
 - hiyak hawkri* (knowing the day-world) 85
 - kurumsuk* (giants) 85
 - Maywak (sky world) 84
 - Pantanal* (water body) 85
 - parable of the lost sheep 78
 - Palikur 69–86
 - Paraguay 13
 - biosphere 13
 - deforestation 13
 - Yshiro participation in management of natural resources 13
 - national park 13
 - zoning 13
 - Peru 16, 56, 57, 58
 - Agrarian Reform (1960) 58
 - environmental conflict 16
 - indigenous archivists 56, 57, 58
 - phetola* 172
 - phytomedicine 163, 164, 165, 179, 181
 - plant medicine/s 7, 162, 166, 169, 174, 180
 - political ontology 21, 22, 24, 25

- epistemological 25
- reality-making 24
- R
- rainmaking 7, 110, 111, 112, 123
- randomised placebo-controlled clinical trial (RCT) xv, 163, 164
- Rapa Nui *see* Easter Island 1, 8, 243–263
 - ahu* (stone platforms) 254, 257, 258, 259, 260
 - Ana Kai Tangata 261
 - birdman 260–262
 - deforestation 250
 - global capitalism 249
 - hare moa* ('chicken houses') 260
 - moai* (statues mounted on *ahu*) 254, 257, 258, 259, 261
 - Peruvian slave raiders 261
 - Polynesian colonisation 253–255
 - Rapa Nuian collapse 249–252
 - rongorongo* script 262
 - smallpox 261
 - statues 243, 256, 257, 258, 259, 260
 - Tupaia's Chart 247–249, 262
- reasonable politics 16, 17, 20, 21
- relational ontologies 22
- reverse pharmacology 162, 181
- Rio Earth Summit, 1992 206
- S
- scientific representationalism 148–150
 - Yolngu Aboriginal knowledge traditions 148–150
- Small-Scale Fisheries Policy 190
- South Africa 1, 8, 104, 197
 - South Africa's Marine Living Resources 8
 - South African Bird Atlas Project 2 197
 - Indigenous Knowledge Systems (IKS) 104
- South African Herbal Science and Medicines Institute (SAHSMI) xv, 163, 166, 173, 177
- South African National Biodiversity Institute (SANBI) xv, 211, 212, 215, 224
- South African National Parks (SANParks) 208, 215
- space 78, 82, 83
 - concept of 69, 70
 - Euclidean geometry 76
 - philosophy of 76, 77
- Sparman, Anders 228, 230, 232
- Sutherlandia frutescens* 8, 96, 162–182
 - ARVs 170, 179
 - as actant 170–171
 - as botanical entity 174–176
 - as regulatory object 179–180
 - as traditional medicine 162, 166, 171–174
 - as trial product 176–178
 - diabetes 165, 170, 171
 - HIV 167, 168, 179
 - kankerbos* 170–172
 - Khoisan 172, 176
 - phytomedicine 163, 164, 165, 179
 - randomised placebo-controlled clinical trials (RCT) 162, 163, 164, 167
 - reclassification of 174, 175
 - reverse pharmacology 162, 163, 165, 166, 181
- T
- taaibos see* medicinal plants
- Table Mountain National Park 206, 208
- Totemism* 22
- Traditional Environmental Knowledge (TEK) xv, 19
- Traditional Healers' Council 168
- Traditional Medicine Unit of the Medical Research Council of South Africa 167
- traditional medicine 1, 7, 105, 106, 164
 - antiretrovirals (ARVs) 165
 - Indigenous Knowledge Systems (IKS) 104
- U
- ubuntu 3, 245
- Ukama* and animism 118, 119, 120
- United Nations Food and Agriculture Organisation's Commission on Fisheries 191
- urban ecologies 202–225
 - Cape Flats Nature 202–225
 - natural resource management 202

- patterns of biodiversity 213
 urban ecosystems 213
- V
- Venezuela 16
- W
- waterborne disease *see also* Zvishavane Water Project 133
 water-harvesting techniques 127
 Working for Water programme 208, 208n4
- Y
- Yolngu Aboriginal knowledge traditions 148–150
 Yolngu Ngaymil Aboriginal clan 142
- Z
- Zimbabwe
 animism 122
 climate adaptation 126–136
 crop rotation 129
 drought 7, 110, 111, 116, 118, 123
- food security 134, 135, 136
 interparty violence 122, 123
mhondoro (ancestor) 114, 116, 117, 118, 119, 120, 122
muchakata tree 114, 118
mukwerera (rainmaking) 113, 116, 117, 118, 123
Mwari (God) 112, 115
Njuzu (water beings) 111, 114, 118
 organic farming 134
 rainmaking 7, 110, 111, 112, 113
 Shona 115, 119, 121
 soil erosion 131, 132, 133, 134
svikiro mediums 113, 119, 120, 121, 122
 petitioning for rain 114–117
 conducting petitions 117, 118
ukama (relations between humans and ancestors) 111, 118, 119, 120, 121, 122, 123
 ‘water plantation’ 128, 131
 water-harvesting techniques 126
 Zvishavane Water Project (ZWP) xv, 126, 133
- zoology 275
 Zvishavane Water Project (ZWP) xv, 126, 133