

2015

## Tracing Country: Visual Communication Design and Chorography. Towards a critical practice in visual communication design

Jacqueline Gothe  
*University of Wollongong*

Follow this and additional works at: <https://ro.uow.edu.au/theses>

### University of Wollongong

#### Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following: This work is copyright. Apart from any use permitted under the Copyright Act 1968, no part of this work may be reproduced by any process, nor may any other exclusive right be exercised, without the permission of the author. Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material.

Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

Unless otherwise indicated, the views expressed in this thesis are those of the author and do not necessarily represent the views of the University of Wollongong.

### Recommended Citation

Goth, Jacqueline, Tracing Country: Visual Communication Design and Chorography. Towards a critical practice in visual communication design, Doctor of Philosophy thesis, School of Law, Humanities and the Arts, University of Wollongong, 2015. <https://ro.uow.edu.au/theses/4614>

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: [research-pubs@uow.edu.au](mailto:research-pubs@uow.edu.au)

## **UNIVERSITY OF WOLLONGONG**

### **COPYRIGHT WARNING**

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

Tracing Country:  
Visual Communication  
Design and Chorography

*Towards a critical practice in  
visual communication design.*

**JACQUELINE GOTHE**

BA (SYDNEY), DIPLOMA OF GRAPHIC DESIGN ASTC

DOCTOR OF PHILOSOPHY

UNIVERSITY OF WOLLONGONG

2015

Tracing Country:  
Visual Communication  
Design and Chorography

*Towards a critical practice in  
visual communication design.*

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF THE DEGREE

DOCTOR OF PHILOSOPHY  
FROM  
UNIVERSITY OF WOLLONGONG  
BY

**JACQUELINE GOTHE**

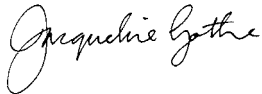
BA (SYDNEY), DIPLOMA OF GRAPHIC DESIGN ASTC

SCHOOL OF THE ARTS, ENGLISH AND MEDIA

2015

## CERTIFICATION

I, Jacqueline Gothe, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy, in the School of the Arts, English and Media, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

A handwritten signature in black ink, reading 'Jacqueline Gothe' in a cursive script.

Jacqueline Gothe

10 November, 2015

## ACKNOWLEDGEMENTS

This thesis has been a long time in the making and I am appreciative of the opportunity to have worked with many wonderful people before and during the study.

Many thanks to my supervisors, Associate Professor Brogan Bunt and Professor Diana Wood Conroy, and the opportunity offered by my participation in the Senior Artist Research Forum (SARF) initiative established by Diana Wood Conroy in 2010 in the School of Creative Arts at the University of Wollongong.

In addition to my supervisors, I have had the benefit of careful and considered comments during the writing of the thesis from Dr Craig Bremner, Dr Teena Clerke and Dr Ross Colliver, who all offered considerable time and thoughtful advice over many drafts with care and openness. For the duration of the study I have been privileged to have regular counsel and conversations with Dr John Boots. The hard work of writing has been supported by generous editing and advice from Dr Heather Jamieson, Dr Brenda Glover and Deborah Jenkin, and thoughtful times with fellow SARF member Nicola Heywood.

In the projects Victor Steffensen, Clement Girault, Peta Standley Lyndal Harris, Mitra Gusheh, Oliver Costello, Marion Lowe, Jason De Santolo, Tally Palmer, Cynthia Mitchell, Sally McLaughlin, Kate Sweetapple Grant Hose Chris Reidy, Jeremy Walker, Roel Plant, Scott Rayburn, Richard Lim, Yin Phyu, Teresa Leung, Ross Colliver and Daniel Ireland.

My colleagues in Design at University of Technology Sydney for their support and encouragement: Dr Jacqueline Lorber-Kasunic, Dr Zoe Sadokierski, Dr Kate Sweetapple, Dr Gerhard Bachfischer, Monica Monin, Aaron Seymour, Dr Alexandra Crosby, Todd Robinson and Professor Lawrence Wallen, Head of Design, who has supported my endeavour.

I thank my partner and life-long friend Michael Snape and my children Agatha and Jackson for participating and enjoying the majority of this process with me.

I dedicate this study to my mother, Beverley, my grandmothers Elsa and Linda, and my great grandmother, Mardi.

## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENTS</b>	<b>04</b>
<b>TABLE OF CONTENTS</b>	<b>05</b>
<b>LIST OF FIGURES</b>	<b>09</b>
<b>ABSTRACT</b>	<b>11</b>

Introduction	12
THESIS AIMS AND CONCERNS	13
THE VISUAL COMMUNICATION DESIGN PRACTITIONER RESEARCHER	14
THEORETICAL FRAMING: CHOROGRAPHY	15
METHODOLOGICAL APPROACH	19
RESEARCH THROUGH DESIGN	19
PRACTITIONER RESEARCHER	21
TRACING THREE STRANDS OF DESIGN-LED PROJECTS	23
THESIS OUTLINE AND OVERVIEW OF CHAPTERS	24
RESEARCH ETHICS	26

## Chapter One. Approaches to visual communication design practice

INTRODUCTION	28
DISCIPLINARY AMBIGUITY	28
HISTORICAL TENSIONS	29
TENSIONS IN PRACTICE	30
COMPLEXITY IN PRACTICE	32
ESTABLISHING AN UNDERSTANDING OF THE DESIGNER IN COLLABORATIVE AND PARTICIPATORY PROJECTS	34
TOWARDS A CRITICAL PRACTICE IN VISUAL COMMUNICATION DESIGN	38
SUSTAINMENT	39
INTERCULTURAL RESPONSIBILITY	40
PRACTITIONER AMBIVALENCE: POSSIBILITY AND DISTURBANCE	41
RELATIONALITY, REFLECTION AND REFLEXIVITY	42
CONCLUSION	43

## Chapter Two. Chorographic tracing: historical and theoretical dimensions

INTRODUCTION	45
TRADITION OF CHOROGRAPHY	45
INTERPRETATION AND TRANSLATION	46
MULTIPLICITY OF PRACTICES	48
OPEN PROCESS AND COLLABORATION	51
EMBODIMENT	51
CONTEMPORARY RETURN	53
THE PRIMACY OF PLACE	56
THE EMPLACED DESIGNER AND THE RECOGNITION OF THE AGENCY OF PLACE	57
COUNTRY SPEAKING	57
CHŌRA IN CHOROGRAPHY	59
CONCLUSION	61

## Chapter Three. Chorographic tracing: material and performative dimensions

INTRODUCTION	63
A MATERIAL PRACTICE	63
A CONCEPTUAL AND CRITICAL GESTURE	66
TRACING AS DRAWING	67
TRACING AS PERFORMATIVE ACT	67
REFLECTIONS ON EXPERIENCES OF CHOROGRAPHIC TRACING	68
CORANGAMITE (2002–2007)	69
ENVIRONMENTAL FLOWS IN THE HAWKESBURY-NEPEAN (2006–2009)	75
COMMUNICATING SHARED TRADITIONAL KNOWLEDGE PROJECT (2002–2010)	82
THE QUALITIES OF A CRITICAL PRACTICE	88
CONCLUSION	89



## Chapter Four.

### Water: pesticides in the Hawkesbury-Nepean River

INTRODUCTION	92
THE HAWKESBURY-NEPEAN RIVER	92
COLLABORATION	93
INTRODUCTION TO THE HAWKESBURY-NEPEAN RIVER	94
TRANSDISCIPLINARITY	95
TRANSREPRESENTATION	96
TRACING THE CONCEPTUAL EMERGENT	97
PRACTITIONER RESEARCHER AMBIVALENCE	99
COMMUNICATION DESIGN	100
PAMPHLET 1: THE PROTOTYPE. ECOLOGICAL RISK ASSESSMENT OF PESTICIDES USED IN MARKET GARDENING IN THE HAWKESBURY-NEPEAN RIVER CATCHMENT	100
PAMPHLET 2: REDUCING PESTICIDE TOXICITY IN NSW RIVERS. CASE STUDY: WAYS FORWARD FOR THE HAWKESBURY-NEPEAN RIVER	103
PAMPHLET 3: THE SOCIAL LIFE OF PESTICIDES: THE FUTURE OF URBAN AGRICULTURE AND BIODIVERSITY ALONG THE HAWKESBURY-NEPEAN RIVER	105
CONFERENCE PRESENTATION: ADVOCATING FOR THE HAWKESBURY-NEPEAN RIVER	107
CONCLUSION	110

## Chapter Five.

### Fire: building relationships and creating change

INTRODUCTION	111
GENESIS OF THE PARTNERSHIP	111
INTERCULTURAL TRANSFORMATION	114
GETTING STARTED	114
COLLABORATION	116
TECHNOLOGY, COMMUNICATION DESIGN AND CULTURE	118
<i>FIRESTICKS</i> (2010 – ONGOING)	121
THE <i>FIRESTICKS</i> POSTER: COMMUNICATING FIRE	122
<i>FIRESTICKS</i> VIDEO: COMMUNICATING FIRE	127
AMBIVALENCE	128
CONCLUSION	130

## Chapter Six.

### Drawing Country: an investigation of the visual language of place

INTRODUCTION	132
<i>DRAWING COUNTRY - AN OVERVIEW</i>	133
TRACING: A VISUAL LANGUAGE OF PLACE	135
DRAWING COMPLEXITY: CONSIDERING THE SCIENTIFIC AND THE SACRED	137
<i>WORLDVIEW - DIAGRAM FOR A PROPOSAL</i>	138
<i>INTERSECTING WORLDS</i>	139
INFLUENCES ON <i>DRAWING COUNTRY</i> : THE SENSIBLE AND THE RATIONAL	140
<i>MOUNT YENGO</i>	142
<i>DRAWING WATER</i>	144
<i>CHÕRA FIRE.WATER.COUNTRY.</i>	146
CONCLUSION	148
Conclusion	150
REFERENCES	152
ADDITIONAL BIBLIOGRAPHY	166

## List of figures.

FIGURE 1.	CHOROGRAPHY.	17
FIGURE 2.	PLACE COUNTRY.	18
FIGURE 3.	<i>RESEARCH THROUGH DESIGN</i> : RESEARCH FOR DESIGN – CHOROGRAPHY AND RESEARCH ABOUT DESIGN – AMBIVALENCE.	20
FIGURE 4.	DETAIL FROM ROOM SHEET FOR ‘COLLABORATION DESIGN AND COUNTRY’ EXHIBITION (2012).	33
FIGURE 5.	PRESENTATION FOR THE INTERDISCIPLINARY TEAM (2010).	37
FIGURE 6.	DETAIL OF <i>TABULA PEUTINGERIANA</i> . SOURCED FROM WIKIPEDIA COMMONS.	47
FIGURE 7.	TITLE PAGE OF SECOND EDITION ENGLISH TRANSLATION OF WILLIAM CAMDEN’S <i>BRITANNIA</i> (1607).	49
FIGURE 8.	PACKE’S CHOROGRAPHY OF KENT (CHARLESWORTH 1999).	52
FIGURE 9.	THE THREE LANDSCAPE PROJECTS WEBSITE (SHANKS 2012).	54
FIGURE 10.	INTERPRETIVE WONDERINGS CULPRA MILLI STATION WEBPAGE	55
FIGURE 11.	COVER. CORANGAMITE REGIONAL CATCHMENT STRATEGY WORKING DRAFT 2002	70
FIGURE 12.	SUB-REGIONS. CORANGAMITE REGIONAL CATCHMENT STRATEGY WORKING DRAFT 2002.	73
FIGURE 13.	J. GOTHE. DRAWING OF THE WATERWAYS OF THE UPPER REACHES OF THE NEPEAN RIVER TRACED FROM TOPOGRAPHIC MAPS 2007.	77
FIGURE 14.	J. GOTHE. <i>UPPER REACHES OF THE NEPEAN</i> 2007. DIGITAL PRINT, HAND-COLOURED WITH GOUACHE ON ARCHES WATER COLOUR PAPER 280 X 330 MM.	78
FIGURE 15.	VISUALISATION OF A TRANSDISCIPLINARY PROCESS BY JACQUELINE GOTHE AND MARIAN LOWE IN ENVIRONMENTAL FLOWS IN HAWKESBURY-NEPEAN (2006–2009).	80
FIGURE 16.	TRACING THE CONCEPTUAL EMERGENT. RESPONSES FROM A GEOMORPHOLOGIST (16A), ECOLOGIST (16B) AND SPECIALIST IN WATER MANAGEMENT AND GOVERNANCE (16C) TO THE QUESTION: <i>WHAT ARE THE RISKS IN THIS REACH TO MAXIMISING THE ENVIRONMENTAL BENEFITS EXPECTED FROM THE INCREASED ENVIRONMENTAL FLOWS? CONSIDER THE SOCIAL BIOPHYSICAL LANDSCAPE OF THE REACH FROM YOUR SPECIALIST KNOWLEDGE PERSPECTIVE.</i>	82
FIGURE 17.	GARY LENNIS DESCRIBES THE IMPACT OF ILLEGAL DUMPING ON LAND COUNCIL LAND. PHOTO TAKEN BY OLIVER COSTELLO DURING GANDANGARA LOCAL ABORIGINAL LAND COUNCIL BIODIVERSITY STRATEGIES MEDIA PROJECT 2009–2011.	84
FIGURE 18.	TRACING MILL CREEK. INSIDE SPREAD PAMPHLET FOR THE EXHIBITION <i>COLLABORATION DESIGN AND COUNTRY</i> 2012.	86
FIGURE 19.	THE COVER AND INSIDE SPREAD OF THE DVD <i>THE PATHWAY: BUILDING THE TRACK</i> .	87
FIGURE 20.	INSTALLATION <i>COLLABORATION DESIGN AND COUNTRY</i> , DAB LAB UTS 2012.	87
FIGURE 21.	DESIGNERLY MOVEMENTS AND QUALITIES OF ACTION FOR A CRITICAL PRACTICE IN VISUAL COMMUNICATION DESIGN.	88
FIGURE 22.	VISUAL DIAGRAM TO SUPPORT PARTICIPATORY PLANNING.	98

## LIST OF FIGURES

FIGURE 23. KEY FINDINGS AS REPRESENTED IN PAMPHLET 1: THE PROTOTYPE. ECOLOGICAL RISK ASSESSMENT OF PESTICIDES USED IN MARKET GARDENING IN THE HAWKESBURY-NEPEAN RIVER CATCHMENT (VERSION 9)	102
FIGURE 24. DETAIL OF PAMPHLET 2: WAYS FORWARD FOR THE HAWKESBURY-NEPEAN RIVER. CASE STUDY: REDUCING PESTICIDE TOXICITY IN NSW RIVERS	104
FIGURE 25. PAMPHLET 3: THE SOCIAL LIFE OF PESTICIDES: THE FUTURE OF URBAN AGRICULTURE AND BIODIVERSITY ALONG THE HAWKESBURY-NEPEAN RIVER	106
FIGURE 26. CONFERENCE PRESENTATION AT INSTITUTE FOR AUSTRALIAN GEOGRAPHERS UNIVERSITY OF WOLLONGONG 2011, 'ADVOCATING FOR THE HAWKESBURY-NEPEAN RIVER'	107
FIGURE 27. KUKU-THAYPAN KNOWLEDGE TRANSFER TRIANGLE. DRAWN BY VICTOR STEFFENSEN IN 2010	115
FIGURE 28. DIAGRAM OF THE KUKU-THAYPAN KNOWLEDGE SYSTEM. DRAWN BY VICTOR STEFFENSEN 2010	123
FIGURE 29. FIRESTICKS POSTER 2011. DIGITAL PRINT, 841 X 1189 MM.	124
FIGURE 30. PETA STANDLEY INTERVIEW IN FRONT OF A PAINTING IN FACULTY OF DESIGN ARCHITECTURE AND BUILDING UTS 2011	129
FIGURE 31. J. GOTHE. <i>WORLDVIEW: A DIAGRAM FOR A PROPOSAL</i> . 2008. PENCIL ON CARTRIDGE PAPER 280 X 330 MM.	137
FIGURE 32. J. GOTHE. <i>INTERSECTING WORLDS</i> . 2008. PENCIL ON CARTRIDGE PAPER 280 X 330 MM	139
FIGURE 33. J. GOTHE. <i>MT YENGO</i> . 2009. DETAIL. WATERCOLOUR ON WATERCOLOUR PAPER 180GSM 65 X 71 CM	142
FIGURE 34. J. GOTHE. <i>DRAWING WATER</i> . 2010. DETAIL. DRAWING ON TRACING PAPER 600 X 3600 MM, SCANNED AND DIGITALLY PRINTED ONTO BOND PAPER AND HAND COLOURED	145

## Abstract.

Visual communication design is traditionally a practice embedded in the professional context of creative service provision within the fabric of post-industrial knowledge economies. The recent emergence of the visual communication designer as researcher and practitioner in collaborative, interdisciplinary and cross-cultural research projects suggests that a reconsideration of the practice of visual communication design is important (Findeli et al 2008; Poggenpohl & Winkler 2010). This new role of researcher and practitioner challenges the service provision model by accentuating social relations and responsible action. In this role a critical attitude (Blauvelt 2002; Fry 2009; Malpass 2012; Maze 2014) is necessary, as participation in research projects requires the negotiation of social and cultural complexities and disciplinary uncertainty (Kagan 2011; Nicolescu 2002a; Smith 1998).

This exegesis encompasses three research strands in environmental communication design. These include Indigenous-led projects that I have participated in since 2002, interdisciplinary research projects in natural resource management and *Drawing Country*, a self-initiated creative drawing project. In this research through design (Jonas 2012), the analysis of these strands is informed by an historical and theoretical investigation of chorography, the practice of tracing or describing a region or place (Casey 2002; Rickert 2007; Ulmer 1994).

Tracing and its connection to drawing provides a way of thinking about the practice of visual communication design as a critical material, conceptual and performative act (Butler 2010; Petherbridge 2012). In this thesis I argue that critical tracing practice not only shapes innovative connections between designer, multi-disciplinary research team and community stakeholders, but also shapes a new relationship between designer and ground.

## KEYWORDS

visual communication design, practitioner-researcher, research through design, chorography, critical design attitude, transdisciplinarity, creative practice

# Introduction

## Introduction

The importance of a critical attitude for the visual communication designer in a world of increasing complexity, social inequity and ecological concerns is urgent and important. My focus of attention in this thesis is a reflexive consideration of my practice in visual communication design directed towards a deepening of the critical dimension for the practitioner through an examination of my practice based research projects in environmental communication design.

These include Indigenous-led projects in which I have participated since 2002, interdisciplinary research projects in natural resource management and *Drawing Country*, a self-initiated creative project. My analysis of these projects is informed by a theoretical and historical investigation of chorography as a critical tracing practice. I argue that a critical tracing practice not only shapes innovative connections between designer, multi-disciplinary research team and participants, but can also shape a new relationship between designer and ground.

This thesis is located firmly in the discipline of visual communication design. The experiences that I describe are openings for me as designer and researcher to the other cultures, disciplinary knowledges and various worldviews of the participants and stakeholders and contribute to my understanding of social responsibility. My challenge in this study is to maintain respect for and hold the complexity of lived experience and the interpersonal, environmental and material connections that constitute the process of designing. Central to the projects described in this thesis is the idea of shared and participatory outcomes from working together with others in the designing of environmental communication. Informing the values that underpin this study are my concerns for the maintenance of multiple and particular disciplinary and cultural perspectives. Particularly important in my consideration of a critical practice are the recognition of physical places as agentive and the power of tracing as a metaphor for practice. These principles and their connection to my experience as a visual communication design practitioner researcher establish the attitude and values that inform my investigation of the practices of the visual communication designer in environmental communication design projects.

## Thesis aims and concerns

The aim of the research is to investigate chorography and tracing as a means of speculating on a critical practice in visual communication design. Working with the knowledge-creating paradigm of *research through design* (Chow 2009), I orient my analysis of my experiences in environmental communication design projects through an investigation of chorographic practice.

Embedded in chorographic thinking is the intention to create a deeper sense of local and regional identity through ‘a multimedia format, using text, cartographic maps, drawings and illustrations relying on historic and contemporary accounts’ (Rohl 2011, p.16). Often these representations are not only the work of individuals but also include the voices of others as contributions by community, stories from documents, conversations and phenomenological experience. As the projects in this thesis are instances of environmental communication design my investigation of chorography orients the study towards the consideration of a critical practice that considers the situatedness of the designer in relation to the social and environmental qualities of specific places.

This thesis suggests that practitioners, educators and researchers in visual communication design have neglected the complexity of social and environmental responsibility. This inattention is intensified by the professionalisation of the discipline and an orientation towards technological change at the expense of the social implications of the practice. I propose that a critical dimension for the designer is given visibility through the conceptual, material and performative actions of tracing that considers the situatedness of the designer in relation to the social and environmental qualities of specific places.

In this enquiry I am concerned with the relation between what is being traced (the ground), and the embodied and performative act of tracing by the designer. My interest is focussed on the relation between the ground, understood as a mediated experience of people and knowledge, and the act of tracing. In this process the designer is translator and facilitator of a co-creation process that is directed towards a designed form. I suggest the choice to *follow* or *not-follow*, evident in the material practice of tracing, provides a powerful metaphor for examining the possibility of a critical practice. The ambivalence experienced by the practitioner and identified in reflective iterations during this research, becomes the critical lens for making sense of the ambiguity of the discipline, the uncertainty this generates within the designer and the ways in which this experience can inform a critical practice.

## The visual communication design practitioner researcher

I describe myself as a visual communication design practitioner researcher. Practitioner research requires the researcher to maintain dual roles as practitioner and researcher. Drawing on the literature in action research and the principles of *research through design* (RtD), my investigation in this study is undertaken through a reflective and systematic investigation of the relations that produce the designing and the designs in environmental communication



design projects. Intrinsic to this critical enquiry is a questioning of the often ‘taken-for-granted’ or naturalised aspects of the practice embedded within the discourse, history and narrative of the practices of the designer. As a practitioner researcher I am concerned with the socially situated experience of the practitioner and the complexity of the social responsibility of the designer researcher for the wellbeing of the participants, the researcher and the research (Smith 1998; Gothe 2006).

Environmental communication design projects form the basis of all of the case studies examined in this research and have been carried out between 2003 and 2015. These projects are concerned with land management practices and the communication of these practices to varied audiences. In the projects my disciplinary orientation and reflexive enquiry underpin the investigation of the role of the visual communication designer in the production of the design artefacts. As I am untrained in the sciences, and as a non-Indigenous person partnering and collaborating in Indigenous-led projects and environmental land management projects, my participation in these projects is informed by my design knowledge, designerly approach and design attitude.

## Theoretical framing: chorography

My investigation of chorography emerged from an unlikely confluence of my self-initiated creative drawing practice – tracing cartographic representations of waterways as a strategy to connect with place or country – and my discovery of the practice of chorography through the writing of Edward S. Casey. This connection is the beginning of my research in this study.

The theoretical and historical investigation of chorography is an opportunity to re-examine visual communication design, and more specifically environmental communication design, through a returning to the historical practices of the chorographer. I draw on the disciplines of archaeology, rhetoric and geography to gain an historical understanding of chorography. This investigation does not contribute to the scholarship or historiography of chorography; rather it is an opportunity to reconsider visual communication design in environmental communication projects. From this investigation, I identify the qualities of translation and interpretation, shared and open processes and subjectivity through embodied connection between the chorographer, the ground, the region or place.

Edward Casey suggests that chorography ‘conveys the inherent shapefulness of things in the perceived and felt landscape’ (Casey 2002, p.169). In my projects and my investigation of chorography, tracing, rather than mapping, emerged as the foundation for a material, conceptual and performative practice. My orientation towards tracing rather than mapping is a specific outcome of the disciplinary conjunction of my practice in visual communication design

and chorography. This conjunction between visual communication design and chorography is informed by a material practice of tracing that is aligned with a creative and material practice rather than with the social sciences. The representation of the 'shapefulness' of place in my projects in visual communication design is created as a consequence of tracing relations between people, place, experience and knowledges.

Chorography is positioned as 'in-between' landscape painting, topography cartography and geography and emphasises the qualitative and the relational process of representing place rather than mensuration and measurement. The practice of chorography is concerned with the representation of place as a qualitative and phenomenological engagement apprehended as an embodied experience. For myself, as a visual communication designer, the lines of connection and relationship between chorography and the experience in cross cultural environmental communication design projects draw out traits reflected in both practices. This apprehension of resonances that connect chorography and visual communication design through my experiences in environmental communication design projects is the foundation for my speculation on an environmentally conscious practice in visual communication design. The practice of chorography is: a collaborative process; a shared enterprise connecting place and the participants in an intersubjective field; and a qualitative practice that is concerned with bodily connection to place. It is an experiential practice of tracing concerned with what already exists.

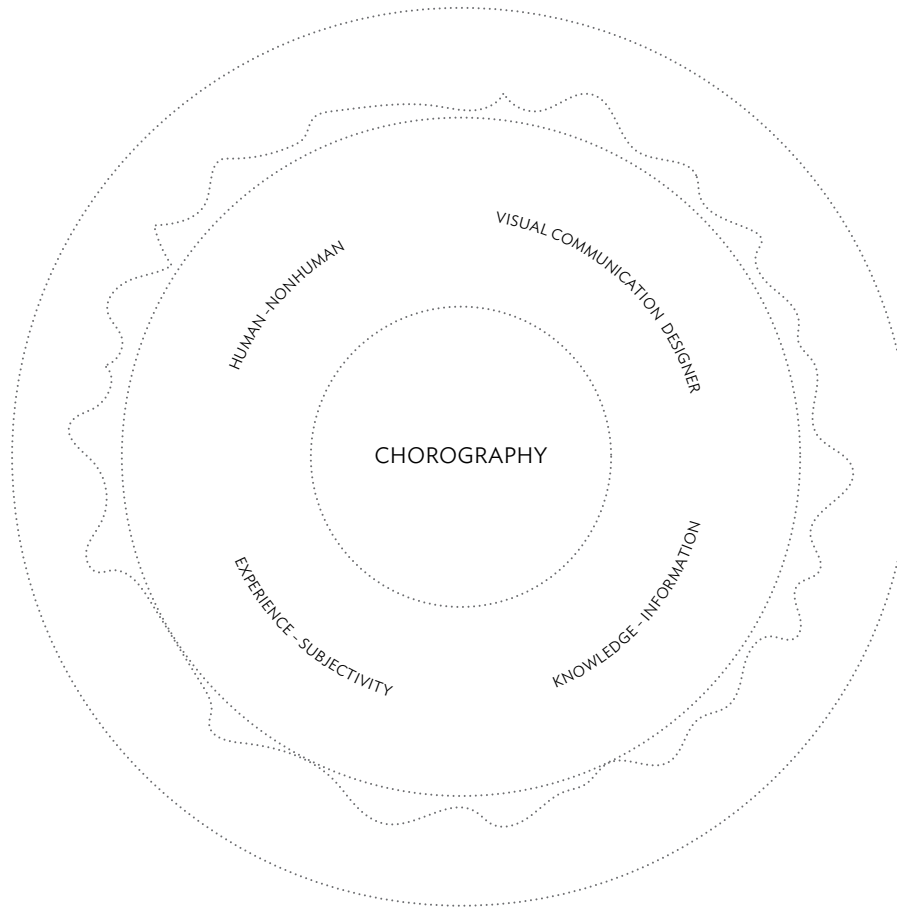


FIGURE 1. CHOROGRAPHY.

The name chorography is derived from the Greek *χωρογραφία* (*chorographia*), as a combination of *χώρα* (*chōra*, ‘country’) or *χῶρος* (*choros*, ‘place’). This translation allows me to bring together two ideas of place in the typographic form place|country. This conjunction of place|country allows the fullness of my appreciation of chorography as a hybrid of world views – personal, scientific, cultural and Indigenous. This typographic form place|country describes not only a sense of the landscape but also the relational connection to the land and humans’ relationships to specific places. The study recognises the use of the term country in order to make visible a recognition of First Nations’ understandings of connection to land, place and country. For this meaning I owe a deep debt to the Indigenous colleagues with whom I have worked, who have shared their understandings in conversation with me.

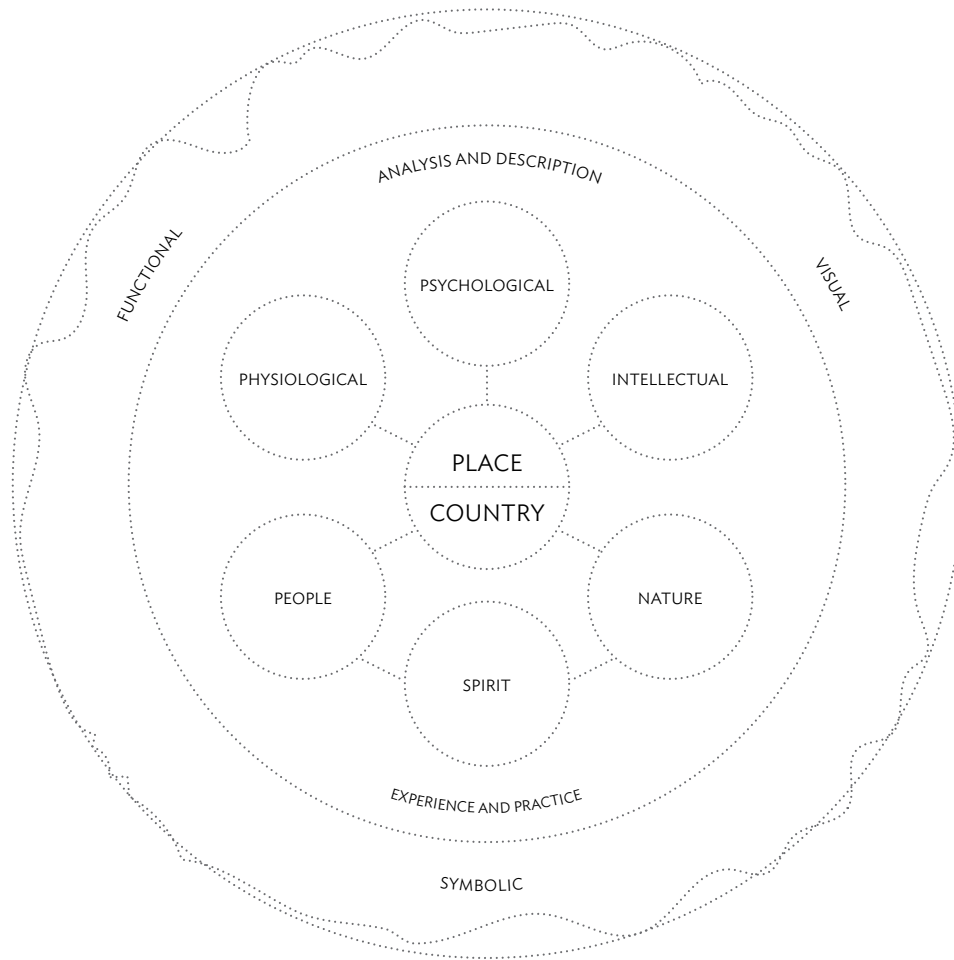


FIGURE 2. PLACE|COUNTRY.

This investigation of chorography, in a visual communication design context, creates an opening to consider the qualities of a critical practice in visual communication design that is concerned with the representation of specific places or regions and also discloses a generative and productive research approach that values ‘vital activity’ over ‘static ideas’ (Rickert 2007, p.252).

## Methodological approach

Recognising the generative and creative possibility of knowledge production identified in my investigation of choreography, I have adopted an experimental interrogation of my experiences in practice. In this research the complexity of context, the recognition of the observer as subject and the requirement of multi-perspectivity orient my research towards a speculation that is ‘guided by the design process, aiming at transferable knowledge and innovation’ (Jonas 2012, pp.34-36). Committed to a practitioner approach to knowledge production as experience, trial and error, and intuition (Schön, 1991 p.43), my methodological approach is constructed as waves of iterative analysis. These waves or movements across the experiences shake order into the complexity of the designer experience and are directed towards a speculation on a critical practice for a visual communication designer. In this research approach I am resisting the idea of design and design research as instrumental practices concerned with object and effect, turning instead to a multivalent capacity of practitioner experience to understand the ways in which the discipline of visual communication design can be drawn out by a subjective apprehension through practice.

Embedded in my research enquiry is a concern for the voice of the creative practitioner interested in ‘vital activity’ rather than ‘static ideas’ (Rickert 2007, p.252). This was expressed early in the study as: *How can I bring my subjective experiences in the field of visual communication into the study? What transformation through a methodological engagement is required to allow the experiences to become objects of study that prioritise and value the experiential, the sensorial and the phenomenological in order to maintain the voice and presence of the practitioner researcher in the research?*

## RESEARCH THROUGH DESIGN

Design research has focussed predominantly on methods and the instrumental dimension of the possibilities of practice (often framed as ‘tools’), deserting the investigation of *the complexity of the designer in practice* (Dorst 2008). In response to this identified neglect, I have turned to *research through design* (RtD). *Research through design* refers to scholarly inquiry that systemically engages the professional practice of designing as a methodological approach to research. It is value-based and is concerned with ways to negotiate the improvement of real-world situations (Jonas 2012, pp.30-31). Jonas articulates *research through design* as designing design research that recognises the ‘ongoing attempt at scientizing design research’ alongside the more recent development of designerly approaches to design research which emphasise a shift to the generative – ‘the teleological transfer of an existing state into a preferred one’ (2012, p. 13). The generative dimension in my research approach draws on action research

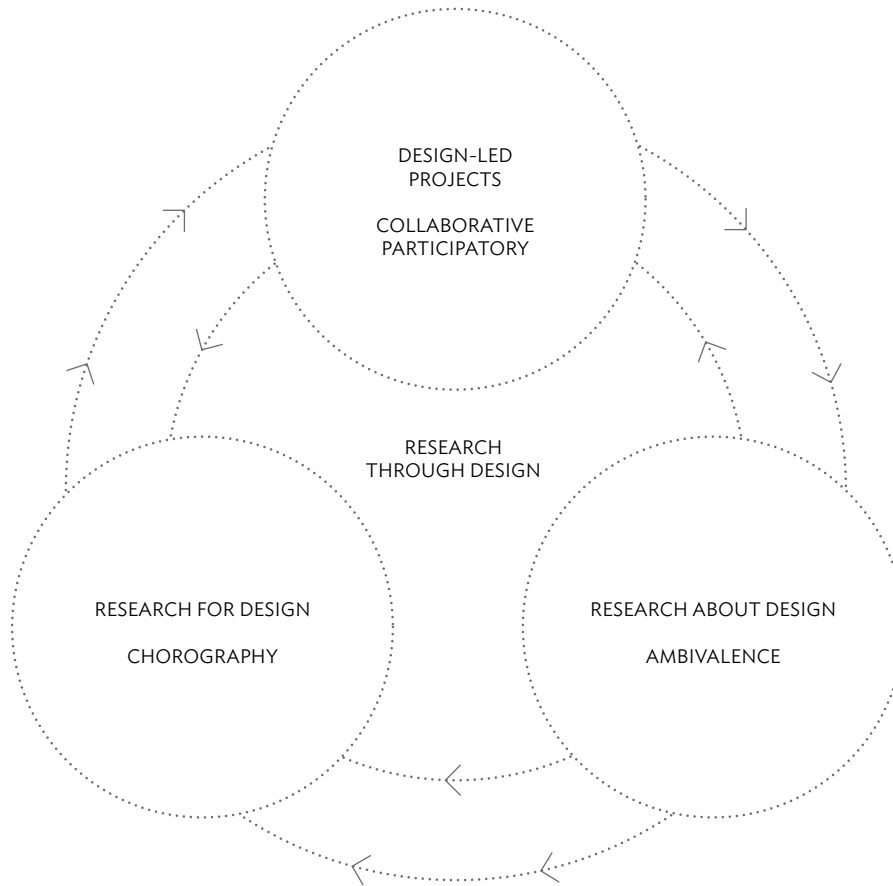


FIGURE 3. RESEARCH THROUGH DESIGN: RESEARCH FOR DESIGN – CHOROGRAPHY AND RESEARCH ABOUT DESIGN – AMBIVALENCE.

and learning, critical design practices and practice-led research in visual communication design.

In generative research the activity of making is not only regarded as material production, but also can include speculation, reflection and conceptual proposition (Malpass 2009, p.113; Chow & Jonas 2008). In *research through design*, unlike scientific research, material and conceptual results need not necessarily be replicated or reproduced (Downton 2003; Jonas 2012).

In my research I consider a process of knowledge generation in which the researcher is conscious of ‘the reflected, purposive and playful use of observer positions during the design research process’ (Jonas 2012, p.35, citing Glanville 1997). I adopt a variety of ‘observer positions’, namely *research for design* and *research about design*. These positions are drawn from Downton (2003) and align with Glanville’s observer positions (Jonas 2012). My investigation of choreography can be considered as *research for design* and my return to the literature of visual communication design, considering the ambiguity of the field and the ambivalence experienced by the designer in practice, is *research about design*.

In *research through design*, the researcher's capacity for separateness in the observation of the connectedness between the self and experience is imperative. According to Glanville the researcher in 'reflecting observation mode' is aware of a differentiation of orientation as outwards or inwards. The researcher understands that, although as observer they are inside the system or experience and looking outwards, they are simultaneously 'fulfilling the same role as the observer outside, looking inwards' (Jonas 2012, p.35). This requires an explication of the dynamic of the internal and the external experiences and requires a high degree of reflexive capacity. The maintenance of these elements of *research for design* and *research about design* ensures the irreducibility of complexity – a requirement of designerly research (Jonas 2012, p.31; Downton 2003, p.99) and transdisciplinarity (Nicolescu 2002a).

## PRACTITIONER RESEARCHER

The challenge of describing and understanding the 'messy but crucially important problems' within and beyond design practice that recognise the history of service provision and the professional roots of the discipline brings into question appropriate methods of inquiry. The challenge for a practitioner researcher interested in such complexity in practice is to unpack, understand and bring some order primarily through 'experience, trial and error, intuition and muddling through' (Schön 1991, p.43).

**Experience.** My experience as a visual communication designer, researcher and educator extends across many years of professional practice, teaching and research. In this doctoral study I have interrogated my experiences in specific environmental communication design projects through the notions of uncertainty, ambiguity and ambivalence. Ambivalence emerges from reflection on the projects and is constituted under conditions of uncertainty and ambiguity. What accompanies ambivalence, for me, is a feeling of unease in visual communication design practice. In response to this I have returned to the visual communication design literature to examine the expressions of ambiguity in the history and discourse of the discipline. I have also turned to the sociologist Zygmunt Bauman's (1991) perspectives on ambivalence and Matthias Junge's (2008) suggestion that ambivalence is an opening to multiperspectivity.

**Trial and error.** During this research, I have often felt I was muddling through as I attempted to bring some order to the complexity of my experience. As I am committed to embracing the messiness of experience and the complexity of the relations between the human and the nonhuman, I found myself engaging in an exercise of trial and error. Through multiple iterations of structured reflections on environmental communication design projects, I generated various versions of structures which I trialled, rejected and reworked, ultimately adopting the conceptual framework SCAR, which is an acronym for Situation, Collaboration, Ambivalence and Reflection. SCAR is a playful heuritic informed by Gregory Ulmer's acronym CATTt (Ulmer 1994). This generative method CATTt (cat tail - contrast, analogy, theory, target and tale) allowed Ulmer to deconstruct through ludic interventions particular texts, such as the manifestoes of the historical avant-garde, through surprising juxtapositions and reframing.

In my research, the categories of situation, collaboration, ambivalence and reflection emerged from a number of reflexive iterations across my experience in the environmental communication design projects with the aim of bringing order to the complexity of experience. The first iteration was *situation, context, attitude, reflection* and *reflexivity* (SCARR), which I applied to each of the projects as a way to structure my experiences in preparation for an analysis to make connections between the experiences. Feedback suggested it was too complex and its categories were insufficiently differentiated to be helpful. For example, *attitude* and *reflection* both contained the practitioner voice. I next tested a simplified version with a smaller number of categories: *situation, context* and *reflection* (SCR). These successive iterations generated a structure for my reflection and brought to light a recurring theme of *ambivalence* and *collaboration* in the projects. The final iteration - refined as SCAR: *situation, collaboration, ambivalence and reflection* - alludes simultaneously to the metaphoric scar which is acquired as practitioners negotiate experience and to the unavoidable mark on the world made by practice and the heat of the hearth. Of particular interest is the emergence of *ambivalence* from the category of *attitude*. A documented aspect of a design attitude is a tolerance of ambiguity (Cross 2007; Amatullo 2015). This enquiry considers the experience of ambivalence as a generative and productive force for a critical practitioner.



**Intuition.** Schön suggests that ‘intuition’ is an important element of the reflective practitioner’s investigative approach, describing it as ‘a feeling for phenomena and action’ (Schön 1991, p. 241) and ‘a reflective conversation with the situation’ (1991, p.242) that requires ‘non-rational, intuitive artistry’ (1991, p. 239). Faced with the uniqueness of my experience in the socially situated contexts of the projects, my investigation of my experience across different contexts required a reflexive structuring to make sense of the lived experience. Most important was the intuitive recognition of the generative metaphor of tracing, stimulated by the concept of choreography and the embodied and material experience of tracing in my projects. This metaphor generated a hybrid construction that brings into relationship the act of tracing and environmental communication design and constructs a speculation on the actions of the designer in critical practice.

## Tracing three strands of design-led projects

This research is initiated as a reflection on design-led projects. The experience of the designer in these projects, examined as tracing, has provided the core of the research findings. In the thesis I make reference to the importance of the project precursors. In doing this I am recognising the continuum of experiences that inform the study. The theoretical speculation in this thesis on the practice of tracing is demonstrated through the connections between the three strands of research. In these strands the emergence of tracing as a material, conceptual and performative act serves to support the argument for tracing as a critical practice. These three strands encompass my experiences in interdisciplinary research teams, my participation in Indigenous-led projects and a self-initiated drawing project that were carried out concurrently to writing this thesis and form the case studies in Chapters Four, Five and Six. These are:

**Water: Pesticides in the Hawkesbury Nepean River (2008-2011)** – a cross-disciplinary research project considering the problem of pesticide toxicity in the Hawkesbury Nepean River.

**Fire: Firesticks (2011-ongoing)** – a reflection on an Indigenous-led project that supports Indigenous cultural burning within contemporary natural resource management and bushfire mitigation strategies.

**Country: Drawing Country (2008-ongoing)** – a self-initiated creative project.

In addition to these central projects, I refer to three precursors. The reason I have included these is to demonstrate the chronological trajectory of the connections between experiences that provide a foundation for the argument for the importance of the material, conceptual and performative dimensions of tracing. In addition they serve as initial iterative reflections that contribute to the analytic framework that I use to investigate the three projects in Chapters Four, Five and Six.

These precursors, which are considered in Chapter Three, are:

**Communicating the Corangamite Regional Catchment Strategy (2002-2005)**

- the communication of the Corangamite Regional Catchment Strategy in Victoria (2002-2008).

**Environmental flows in the Hawkesbury Nepean** - the transdisciplinary research project in the Hawkesbury Nepean River in New South Wales that considers environmental flows and is the precursor to the Water project mentioned above.

**Communicating Shared Traditional Knowledge** - working with Kuku Thaypan Elders and community in the Traditional Knowledge Revival Pathways (TKRP) through the Communicating Shared Traditional Knowledge Recording Project, a partnership between TKRP and University of Technology Sydney (2008-2012). This project culminated in an exhibition at UTS DAB Lab Research gallery *Collaboration Design and Country* that showcased the media project *Building The Pathway*, a DVD.

## Thesis outline and overview of chapters

This thesis is the written component of a creative arts doctorate and supports the exhibition *chōra fire | water | country* held in UTS Gallery in November 2015. The structure of the thesis is a mixed form comprising *research through design* (RtD) and a practice-led exegesis. In the introduction to the study I have described the general aims of the study, the research approach of *research through design*, my position as practitioner researcher and my practice-led projects.

**Chapter One.** This chapter examines the complexities of visual communication design in two ways: initially to provide a context to examine my own practice; and secondly, to situate my speculation on a critical practice in visual communication design. Important in this context is an investigation of the disciplinary ambiguity evident in the histories and language of visual communication design and the corresponding practitioner experience of ambivalence as a generative resource. The disciplinary and practitioner experiences of ambiguity and ambivalence resonate in my experiences in

complex socially situated projects in which collaboration and participatory approaches are central to the design-led projects described in this study. The second half of the chapter sets up the context for a critical practice in visual communication design including the project of sustainment, the complexities of intercultural responsibility and the role of reflection and reflexivity as central to a critical practice.

**Chapter Two.** This chapter is a theoretical and historical investigation of chorography. My historical investigation of chorography identifies a literal and metaphorical tracing practice that is a creative, open, embodied and shared enterprise. My theoretical investigation draws attention to the agency of place and the dialogic relationship between landscape and persons, and provides the foundation for an understanding of the emplaced designer and the ecological self. Important in my investigation of chorography is the discovery of the resonating presence of *chōra* embedded in the meaning of chorography. Initially described by Plato (2005) as an ever-changing nurturing and creative opening to becoming and the space between the idea and the form, *chōra* is significant in this thesis as a theoretical resource.

**Chapter Three.** The first part of this chapter establishes the dimensions of the material, the conceptual and the performative dimensions of tracing as a critical practice. I then describe a chronology of three experiences in environmental communication design projects. This has a twofold purpose: firstly, to demonstrate the ways in which tracing emerges in my projects as a critical practice constructed through the material, the conceptual and the performative; and secondly to initiate an analysis of the experiences through the critical lens of collaboration and ambivalence. This analysis reveals a practitioner movement between resistance and openness that is constituted by the actions of refusal and openness, non-adherence and listening, mimesis and erasure. This analytic model of the dynamics of a critical practice and my practitioner experience provide the structure for my analysis of the projects in the following chapters.

**Chapter Four: Water.** In this chapter I examine an interdisciplinary research project concerned with the problem of pesticides in the Hawkesbury-Nepean River. Using the analytic framework described in previous chapters, I draw out the role of the visual communication designer in tracing the emergence of conceptual understandings across and between disciplinary knowledges in a research team focussed on the problem of pesticides in the Hawkesbury-Nepean River. I consider three pamphlets produced during this project and a conference paper that I delivered at the Institute for Australian Geographers (IAG) in 2011.

**Chapter Five: Fire.** This chapter reflects on my participation in Indigenous-led projects. Through a reflection on the movements of openness and acceptance as actions of listening and yielding, I identify a collaborative and performative tracing described as mimesis. I discuss the collaborative creation of a poster and a video for Firesticks, an Indigenous-led network concerned with the strengthening of the practices of Indigenous cultural burning in contemporary land management.

**Chapter Six: Drawing Country.** In this final chapter I focus on my creative practice and the emergence the generative connection between the agency of place and the creative practitioner through the act of tracing. In conclusion I describe the exhibition *chōra fire / water / country* that is the partner to this thesis.

## Research ethics

The projects described in this thesis are available in the public sphere. As funded research projects, they have been subject to ethics scrutiny and approval by the UTS University Ethics Research Committee. In my reflection and analysis of the collaborative projects in this study I speak in the first person and refer to my co-creators by name.

Chapter One  
*Approaches to visual  
communication design practice*

## Introduction

In this chapter I explore the complexities of visual communication design to provide a context in which to examine my own design practice. Graphic design, visual communication design and communication design are all terms that refer to the set of practices concerned with the production of meaning, in social situations, through the formal, the graphic and the material qualities of visual media. In this thesis I am using the word designer to denote the visual communication designer. I am maintaining the use of the words visual communication design to differentiate between the design field and the discipline visual communication design.

## Disciplinary ambiguity

Sitting at the intersection of capital and culture, information and communication, visual communication design has a history embedded in modernity and linked to an historically constructed tension between creative individual expression, corporate communication and technological imperative. Recent research findings emphasise the need for more research engagement in understanding the process, the social complexity and the ethics involved in the practice of the designer (Poggenpohl & Winkler, 2010). The recognition of the need for this research can be interpreted as a movement away from a disciplinary interest in the creative individual and the aesthetic of the artefact to a deeper consideration of social and ethical responsibility, reconfigured interpersonal relations, participation and collaboration. This shift demonstrates that the developing discipline of visual communication design is orienting its scholarly and research focus from an articulation of a disciplinary identity manifest in the design object and the individual design hero to an acknowledgement of the complexity of the role of the designer in a contemporary social research context.

## HISTORICAL TENSIONS

Continually present in this research are the shadows of the historical tensions that inform the development and language of the discipline. These shadows manifest as the multivalent characteristics of designing and are narrated in the histories of visual communication design – for example the tension between functionalism and the expressionism that characterises the conflicts in the Bauhaus in the twenties (Eskilón 2007), or the historical perception of early Modernists who saw themselves as ‘integrated creators of communications balancing the identities of artist, designer, businessman and craftsman’ (McCoy 2001, p. 5). These historical tensions reveal the process of designing as simultaneously rational and expressive (McCoy 2001, p.4), and point to the conflicting possibilities for action for designers represented as promotion and concealment, homogenising and co-optation, commodification and authentic extension in the challenge of ‘representing true diversity as an issue of incommensurable differences that cannot be unified, only recognised and respected’ (Drucker 2013, p. 341).

The complexity of choice contributes to an excitement alongside the recurring sense of disciplinary uncertainty and provides generative opportunities while at the same time concealing possibilities and often hindering the development of the responsible designer. Nowhere is this more clear than in the tension between a technological remit, with its attendant aesthetic choices in the service of consumerism, and the political project of aesthetics directed towards social good. Kate Bukoski (2006), in her doctoral study of *The First Things First Manifesto*, observes that the context, practices and stories of visual communication design are repeatedly linked to technological innovation, rather than to social relations, meaning and ethics. This focus on technology, technological change and an instrumental approach continually displaces a considered contemplation of visual communication design practices with a socially responsible emphasis. Recently, projects of social design including transformation design, design for social change, design for social good and participatory design have addressed social issues through and by design. These areas of innovation are exemplified in social innovation and service design and have provided contexts to examine issues of social situatedness and responsibility. However, the investigation of the role of and opportunities for the visual communication designer in these contexts is an emergent field (Barnes 2015).

In these contexts of social design, the visual communication designer is described as a ‘cross cultural intermediary’ (Julier 2008) or as ‘the glue – source of cohesion’ in situations of design complexity (Kimbell 2011, citing Kelley and Van Patter 2005), or else positioned as connector and facilitator (Manzini 2008, p.11). Robert Harland states that visual communication design inhabits ‘an in-between realm’, and goes so far as to claim that visual communication design

is the central discipline that brings the sciences and the arts into visual form within a research team or a participatory process, providing external audiences with an understanding of the research (Harland 2011, p.27).

In these descriptions the visual communication designer can be described as a medial figure and visual communication design as a medium constituted by material or media that are used to exchange, share or transmit an idea (Aynsley 1987, p.22). In this task of meaning-making the intermediary role is less concerned with a critical approach and more concerned with fluidity between message and audience, making the role of the visual communication designer difficult to locate.

Not only are the designer's participation and role hard to discern, but the visual communication designer has conventionally adopted the ideas of neutrality and clarity as values in their professional relations with corporate culture through information and communication design:

graphic design as a discipline and educational system for far too long has hidden behind the modernist principle of transparency in order to sublimate its own agency... as a mainstream professional practice remains irreparably fused to the conception of the designer as a transparent vehicle for the transmission of 'corporate' communication. (Earls 2011, pp.174-175)

## TENSIONS IN PRACTICE

The professional practice of visual communication design has a history linked to the visual and graphic arts. This allegiance to the creative, intuitive, artistic and expressive qualities of the creative individual is placed alongside the rational, logical, instrumental and functional dimensions of design. Frascara's definition of visual communication design exemplifies the rational and professional:

... the three words put together, visual communication design, overflow the sum of their individual meanings to become the name of a profession ... Visual communication design, seen as an activity, is the action of conceiving, programming, projecting and realizing visual communications that are usually produced through industrial means and are aimed at broadcasting specific messages to specific sectors of the public. This is done with a view toward having an impact on the public's knowledge, attitudes, or behaviour in an intended direction. (Frascara 2004, p.2)



This description of the field is contrasted with the definition of the visual communication designer in the introduction to the exhibition *Graphic Design Worlds/Graphic Design Words* (2012), in which the designer is recognised as:

poised between art and industry, between free expression and problem solving, between creativity and the standard ... the acknowledgement as well as the assertion of having a non-neutral position; the attention to process and construction of experience, rather than the finished product; the stress placed on collaboration and participation beyond dyads such as question-answer, problem-solution, designer-client; the overcoming of disciplinary boundaries in favour of cross pollination with other sectors and practices.

(Camuffo & Dalla Mura 2012, p.15)

Camuffo and Dalla Mura position the designer as central in this description. The designer is described as non-neutral, collaborative and participatory, concerned with process, experience and the capacity to open to other disciplines.

These two perspectives reveal significant differences. One promises and emphasises a determined or directional outcome, while the other draws attention to an internal experience that requires openness to uncertainty and possibility through a dynamic process. These descriptions highlight two views: the rationalist, logical and instrumental approach of efficiency towards an outcome oriented practice; and a more subjective orientation marked by a reflective turn. These fluctuating perspectives are familiar in the histories of the discipline but neither refers to the responsibility of the designer.

The *ICOGRADA Manifesto* explicitly calls for a 'more substantial practice' (ICOGRADA IDA 2011, p.10) in the context of globalisation, technology and post-colonialism defining the visual communication designer as a professional and global citizen with an awareness of cultural difference, social and environmental responsibility and ethics. ICOGRADA The International Council of Communication Design *Model Code of Professional Conduct for Communication Designers* positions the individual designer as responsible to the community, the client and other designers. In this code of conduct it is the designer's professional responsibility to act in the 'best interest of the ecology and of the natural environment' (ICOGRADA 2011, p.4).

Alongside this disciplinary recognition of social responsibility is the continuing rethinking of practice due to more complex relationships among stakeholders or participants with conflicting needs and priorities, and the shift of the power from designer as artist and creator to a participant in systems made up of 'delicate and politically charged relationships' that can directly alter the design result. This shift, alongside the development of ethics and theory, is designated for more research (Poggenpohl & Winkler 2010).

## COMPLEXITY IN PRACTICE

To elaborate in the area of social responsibility and the social complexity of the role of the designer, I reflect on a detail of my experience as designer participating in an Indigenous-led collaborative media project which produced a DVD called ‘The Pathway – Building the Track’ in 2012. The project was a partnership between Traditional Knowledge Revival Pathways (TKRP) and the University of Technology Sydney (specifically, UTS Design and Jumbunna Indigenous House of Learning Research Unit), Gandangara Local Aboriginal Land Council and Land Alive NSW Office of Environment and Heritage.

‘The Pathway – Building the Track’ DVD was showcased in the exhibition ‘Collaboration Design and Country: Communicating Shared Traditional Knowledge’ at UTS in 2012. Using a design-led approach, I worked with project participants to co-create the content, structure and visual approach to the video narrative, the information architecture of the DVD and its packaging, and the exhibition collateral, which included publicity material and room sheets, a detail of which appears in Figure 4.

## The Pathway – Building the Track

The Gandangara Local Aboriginal Land Council (LALC) Biodiversity Strategies Media Project 2009–2011 is a collaborative media and design project that considers the process of BioBanking as experienced by Gandangara Local Aboriginal Land Council. This media project, led by Jason De Santolo from Jumbunna Research Unit at the University of Technology Sydney (UTS), working with Gandangara LALC and Land Alive, offers expert opinion, insights and perspective on the challenges of looking after traditional lands in a modern city. Funded by the NSW Government through the NSW Environmental Trust and Land Alive, *The Pathway: Building the Track*, is an interactive digital media outcome that documents Gandangara Local Aboriginal Land Council as it considered BioBanking on a Mill Creek site in Menai, South West Sydney. Mill Creek runs through rare bushland while sitting alongside one of the busiest roads in Sydney.

This project is part of the Land Alive initiative, aimed at supporting Aboriginal landowners as they considered BioBanking on traditional lands. The interactive DVD has been designed to be shared with other Aboriginal land councils, Aboriginal landowners and the broader public.

## Collaboration

This project is a collaboration between UTS Jumbunna, Communicating Shared Traditional Knowledge Project – a partnership between UTS Design and Traditional Knowledge Revival Pathways (TKRP), Gandangara Local Aboriginal Land Council and Land Alive.

**Gandangara Local Aboriginal Land Council (LALC) Biodiversity Strategies Media Project - participants**

**Land Alive** – Marcia Ella Duncan, Naomi Hogan

**Gandangara Local Aboriginal Land Council**  
Jack Johnson, Ian Edwards

**UTS Jumbunna** – Jason De Santolo (Project Leader, Video, & iBook), Oliver Costello (Liaison)

**Traditional Knowledge Revival Pathways (TKRP)**  
– Victor Steffensen TKRP Mentorship Program

**UTS Design** – Jacqueline Gothe (Design Facilitation), Clément Girault (Video DVD & iBook)

**Universal Favourite** – Dari Israelstam,  
Teresa Leung (Design)



FIGURE 4. DETAIL FROM ROOM SHEET FOR 'COLLABORATION DESIGN AND COUNTRY' EXHIBITION (2012).

In the exhibition collateral, I described my contribution to the project as ‘design facilitation’. I was not prepared to claim the role of project facilitator as the following reflection describes:

*I am uncomfortable with the idea of facilitator as ‘enabling’ or ‘organising’ in the context of an Indigenous collaborative project. Instead I turned towards the word ‘facilitation’, which implies an ‘easing’. My observation and sensitivity to these nuances of language problematise the role of the designer and the relationship between ‘action’ and ‘being’. Similarly to my previous experiences working in collaboration on Indigenous projects, I am never comfortable describing or naming my role. I often choose silence, muteness or distancing to avoid taking ownership of what I understand as collaborative, Indigenous-led enterprises. My decision to choose the noun ‘facilitation’, rather than the more active ‘facilitator’ or ‘design facilitator’, represents a refusal of the centrality of the designer as active, determining expert in the enterprise. The sense of ambivalence I experience highlights the challenge of how to describe the designer and their role when they turn away from the convention of professional expert to the more inclusive and open role as participant and collaborator.*

#### ESTABLISHING AN UNDERSTANDING OF THE DESIGNER IN COLLABORATIVE AND PARTICIPATORY PROJECTS

In the three research strands described in this thesis I focus on the relational aspect of the projects. These relationships are experienced predominantly as collaborations; however, in certain instances participatory approaches within the collaborative teams have been included.

**Collaboration.** Collaborative relationships are central to the projects.

While there has been much attention in design practice to experience and tacit knowledge of collaboration, my review of the literature suggests that the interpersonal and relational dimensions of collaboration in visual communication design are under-researched. This raises a number of questions: how these dimensions might be described, documented and analysed; and how insights emerging from critical reflection on the complexity of the designer in practice might change the field. These questions guide the analysis of the practitioner researcher experience described in this research.

Recent research in the visual communication design field that considers collaboration, contextualised in the spaces of social practices with a direct lineage to professional practice, includes community projects emanating from education institutions and involves students in participatory design and collaboration (Alexander 2010; Lawson 2010; Blair-Early 2010). Lawson and Blair-Early discuss the design school and classroom partnerships as sites of inquiry into the role of collaboration with external organisations including community and non-government organisations. These projects describe

working with local communities in developing countries and the role of design in this process. Other visual communication design projects identified in recent publications include a doctoral study, ‘Collaboratively developing a web site with artists in Cajamarca, Peru: A participatory action research study’ (Alexander 2010), and collaborations in socially situated design research (Haslem 2009, 2011; Akama 2014).

Ostergaard and Summers observe that ‘the research literature in collaborative design is at present dispersed across many domains and disciplines’ (2009, p.57). My investigation of collaboration has turned to sources outside the discipline of visual communication design. These sources include: the work of Gabrielle Bammer (2005) whose area is integration and implementation science; Chris Huxham and Siv Vangen (2000); research by a psychologist on an interdisciplinary collaboration in media arts (Steinheider and Legrady 2004); and the interdisciplinary literature review by Karen J. Ostergaard and Joshua Summers in the *Journal of Engineering Design* (2009). These inform the frameworks for the consideration of collaborations in my projects.

Huxham and Vangen have been working together for more than fifteen years in a business management context using practice-oriented research initiated through action research examining long term memberships of collaborative teams. They identify the key contributor to successful collaborations as the capacity to negotiate *ambiguity, complexity* and *dynamics* in the relationships between members of the team (2000). Steinheider and Legrady (2004), drawing on studies of interdisciplinary collaborations in organisational and scientific research and development teams, use the categories of *communication, co-ordination* and *knowledge sharing* as the framing for their research.

Ostergaard and Summers define collaborative design as ‘a collection of agents (human or artificial) that are working towards a common shared goal using shared resources or knowledge’ (2009, p.58). In their taxonomy of collaboration they identify six higher order attributes through a literature review in the fields of psychology, sociology, political science, and engineering design. These are *team composition, communication, distribution, design approach, information* and *nature of problem*. In my discussion of the projects in this study, these attributes form the guide or instructions for describing the collaborative relationships.

Like Bammer (2005, 2008) and Ostergaard and Summers (2009) suggest that a shared objective and values is the defining factor in collaborations. Gabrielle Bammer (2005) provides evidence of the need for shared values in the midst of the complexity of relations within projects. Bammer uses three case studies – the building of the atom bomb (1941-1945), the Human Genome Project (1986-2001) and the World Commissions on Dams (1998-2000). The case study on the World Commission on Dams is especially useful as it is a research partnership that brings researchers together with practitioners ‘from opposite ends of the

power spectrum' (2005, p.876) as a demonstration of how an integration was achieved. The World Commission on Dams demonstrated that in dealing with power imbalances, consideration of values becomes essential. The values that were agreed on were 'a globally accepted framework of norms about human rights, social development and environment as well as economic co-operation, based on the United Nations declarations and principles' (2005, p.879). This framework also favored negotiation and consensus based on pre-determined priorities and principles. Interestingly, Bammer observes that when power among the collaborators is more equal, 'values are more easily ignored, marginalized or taken for granted' (2005, p.879).

The experiences in my study highlight the relational complexity of power differences. In all of the collaborations discussed in this thesis, the dynamic and often problematic nexus between power, ownership and attribution of authorship in the visual and written outcomes required negotiation. In all projects the collective well-being of the team and the articulated shared values directed towards the outcomes of the project sustained the collaborations for the project's duration.

**Participatory approach.** Participatory design 'refers to the activity of designers and people not trained in design working together in the design and development process' (Sanders 2013, p.61). Sanders (2013, 2006, 2002; Sanders & Kwok 2007, Sanders & Stappers 2008; Sanders & Stappers 2014) tracks the progress of participatory design through user studies and co-design or co-creation. Initiated in Northern Europe, the focus on participation with workers and future users in systems development was initially actualised through the relationships between designers, social scientists and participants. In time, there was a shift from the positioning of designers and social scientists as experts to the recognition of the importance of the situated expertise of participants. In this approach, 'the role of the designer and design researcher are becoming mutually interdependent' through the use of generative methods that require and produce a visual language that 'relies on visual literacy and begins to bring it into balance with verbal literacy' (Sanders 2002, p.6). Generative methods developed as human-centred processes have more recently been applied in corporate and business contexts for the analysis and better understanding of the experiences, needs and desires of users, or to work with users to develop projective possibilities for economic and social goals.

In the practices described in this study my participatory approach is in cross-cultural projects and interdisciplinary team settings.

**Participatory practice.** *In my initial experience as design researcher in a cross-disciplinary research project, the role of design was never addressed explicitly in the team setting. As a collaboration we established a participatory approach as we were working with different disciplines. I was determined to present my position as*

*a designer and researcher in the Challenge Grant 2010-2012 (described in detail in Chapter Four Water) in order to bring some clarity and foundation to the disciplinary expertise of the designer and researcher. This was a defensive strategy in order to position the potential contribution of design research as different to professional service delivery. Time was allocated in the first part of the project for each team member to describe his or her disciplinary position and knowledge interests in the project. In our presentation, Teresa, the designer, and I addressed design and designerly ways of knowing. We described our approach in this collaborative research context as a tolerance of indeterminacy, an openness to apprehend the constant movement between problem formulation and solution generation, a refusal of instrumental solutions, and a state of constant questioning.*

---

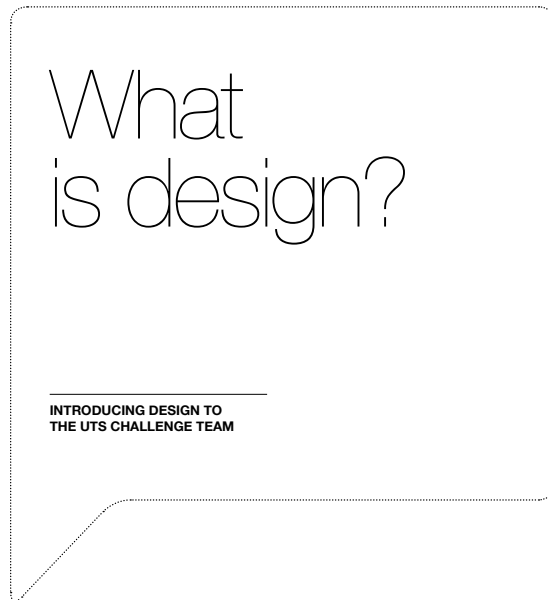


FIGURE 5. PRESENTATION FOR THE INTERDISCIPLINARY TEAM (2010).

## Towards a critical practice in visual communication design

As a designer researcher negotiating the complexity of the role of the designer in dynamic social situations, making critical choices in response to issues that require continuous negotiation produces conditions of uncertainty and instability. This context of ambiguity and fluidity demands a critical approach that is responsive and equally dynamic.

The promise of critical theory to provide a systemic revelation and disclosure of societal issues to support responsible choices has been rethought in light of a more recent understanding of authority and power, and the interpretive and reflexive turn in the social sciences. Teurlings and Stauff (2014) suggest that the practice of critical theory has moved from a cultural practice focussed on critique to a strategy of matters of concern and a creative ethics of discovery. In my research in this thesis I turn to creative practice, the knowledge of the practitioner and a concern for the restitution of the agency of place – the voice of country – as foundational to rethinking a critical approach for the designer in visual communication design. Visual communication designer and curator Andrew Blauvelt (2002) positions critical practice in visual communication design as different to professional design practice through a strategy of non-adherence to the commercial imperative of service provision. Maze and Redstrom describe critical practice as a process of ‘performativity, procedures and pragmatics’ rather than application and functionality directed towards an outcome predominantly concerned with ‘utility and efficiency, profit and taste’ (2007, pp.4-8). These approaches indicate a turning away from a techno-rational emphasis that obscures and avoids the subjectivity, messiness and situation-specific nature of experience. Critical practice is a critical qualitative interpretive approach concerned with making and the implications of the process in practice. This concern for process and making requires a consideration of ‘the texture of practitioner experience’, ‘the choices practitioners make in the shaping of their artefacts and discourses’ and ‘the ways practitioners improvise and creatively respond to uncertainties and gaps in the smooth unfolding of their intended actions’ (Selvin and Shum 2014, p.13).

Recent work by Malpass (2012) on critical practice, following a trajectory from sociology and cultural studies and associated with critical design (Raby 2007), provides an overview of the characteristics of critical practice in design. In Malpass’s formulation, critical practice is: a process that values reflective practice as a means of articulating a position and developing understanding through making and designing; oppositional to causal problem-driven processes; positioned more as a relational form of design than a professional practice; a democratic practice that is participatory and human focussed; and a form of practice that emphasises subjectivity as a way to develop personal



understanding. Although separated from the history of professional service provision by the removal of the commercial imperative design processes, methods and principles remain important (Malpass 2012, pp.159-171).

My consideration of a critical practice in visual communication design is a response to the relational complexity of the responsibility of the designer in intercultural and interdisciplinary practices that are situated in the research context of an educational and research institution. This reconfigured relationship between the designer and the participants is a contemporary site of enquiry that, while different to the commercial context of visual communication design, provides an opportunity to reflexively examine visual communication design practices.

## SUSTAINMENT

Tony Fry (Fry 2009, 2011) claims there is a crisis in design practice due to the inability of the designer to reconfigure their relationship to the biophysical and the social. This crisis requires a critical reassessment and deep change to the actions of the designer in the face of environmental, social and political challenges. The tradition of the professionalisation of the practice and the understanding of service provision within the practice of design require 'redirection' towards a critical practice in order to negotiate this complexity of responsibility in the action of the designer. According to Fry, design practices oriented towards the dominant commercial imperative require not only 're-languaging' but also an 'act of erasure' in order to move towards a changed practice that emphasises sustainability and political and social emancipation (Fry 2011, p.83). Fry calls this *the project of sustainment*.

My thinking about sustainment is focussed through connections and relations (Nicolescu 2002a; Nelson & Stolterman 2012; Kagan 2011; Fry, 2009). Important in this research is the reflexive consideration of the relations that constitute the design process. My understanding of 're-direction' in these situations requires a refusal to assert professional expertise, choosing instead an attitude of openness to difference and attention to the emergent possibilities. In this awareness a 're-languaging' occurs due to the re-orientation to connection, the commitment to listening to self and other.

As a designer with a disciplinary focus on visual communication design, the search for a visual language in environmental communication design projects that is appropriate, acceptable and respectful to the Indigenous and scientific communities I work alongside poses a complicated challenge. My understanding of the visual language of design, in these contexts, draws attention to the hegemonic power of the 'taken-for-granted' quality of visual communication design. As a graphic, organisational system and a technology-based language that has its history in Western cultural and technological

traditions, the limitations of the language to translate cultural identity in cross-cultural and cross-disciplinary contexts is a continual source of uncertainty.

#### INTERCULTURAL RESPONSIBILITY

*My understanding of the complex relation between cultural interpretations of representing and my responsibility in the act of representing cultural interpretations surfaced working with visual communication design students and the Keewong Mob from Western New South Wales on the publication Yamakarra (2014). This publication documents the survival of the Keewong Mob post-colonisation. During the process, I received a request from the Indigenous design adviser that there be no white paper in the publication. This simple request resonated significantly with the design students as the stories of survival and colonisation came to be represented symbolically in the use of white paper. This request demonstrated the potential signification of colonisation embedded in the power of the white paper. This incident brings into high relief the importance of choices and discussion in the process of designing visual communication design.*

The hegemonic power of design and designing is not easily addressed by designers. A critical reflexive understanding of the complexity of the neo-colonial attitude implicitly embedded within the design process requires experience supported by theoretical grounding. The lessons learnt by anthropologists and other social scientists have still to be incorporated into the sensitive cultural contexts of socially situated design (Janzer & Weinstein 2014). An emphasis on situation-centred and relational design as opposed to object-centred design reflects a shift in thinking in which the implications of the actions of the designer are foregrounded. This research addresses ways in which a designer can go some way to addressing the complexity of this situation.

This complexity is even more heightened working in the interstitial space between the university with students and academics, and with professional designers, technologists and Indigenous communities. In this medial space I have experienced a doubling of my translation role. The conventional role of the visual communication designer is to hear critically the project outline or brief and respond to a particular set of circumstances in a visual form in a dialogue with the client. In my role as designer, in these interstitial spaces, I am responsible for the visual representation of the message for the Indigenous-led project and the technical and conceptual quality of the representation of the message in conversation with partners, funders and creative collaborators.

*When Lyndal Harris and I came to represent cultural burning in the Firesticks project we encountered each other through our understanding of fire, combining Lyndal's experience as a creative director and professional whose expertise is in the discipline of the visual language of design, and my understanding of visual communication design and the cultural interface between the Indigenous and scientific communities.*

*Fire presents a highly complex communication challenge in contemporary Australia. It is perceived as a life-threatening devastating force of nature and fire-fighting is analogous to warfare. To fight a fire requires fire fighters – professional and voluntary – specialised equipment, protective clothes, vehicles, water-trucks and helicopters, organised with a military-like protocol to mitigate the threat to life and property. On the other hand, my experience of the Indigenous approach to fire emphasises cool burns, gentle movement of trickling flames through the landscape bringing health to the plants animals and the participants. I have walked with children, men and women holding babies with birds flying overhead as the fire crackled along the ground. Never going higher than hip height so the canopy is not damaged.*

*The differences in perceptions are the starting point for the creation of the Firesticks poster described in Chapter Five. Lyndal and I found a way to explore each other's knowledge and understanding in the creative response to the task. My responsibility to the KukuThaypan Fire Management Project and Firesticks network, and my responsibility to the practice of visual communication design, produced an interstitial space of responsibility and interpretation. This set of responsibilities was shared as we worked together and began to develop our interpretation through tracing: tracing the knowledge triangle of the KukuThaypan Elders, tracing the knowledge system drawn by Victor Steffensen and tracing the experience on country of Indigenous fire with the help of Peta Standley researcher for the Kuku Thaypan Fire Management Research Project.*

#### PRACTITIONER AMBIVALENCE: POSSIBILITY AND DISTURBANCE

As the example of the Firesticks project indicates, the ambiguity of the role of the designer evidenced in the discourse of the discipline is heightened in my experience of cross-cultural and collaborative projects. I identify a feeling of tension and uncertainty in my reflection on environmental communication projects as a condition of ambivalence. Ambivalence is the experience or awareness of unease when the designer in practice is faced with choices or questions of value in complex social situations. My consideration of the implications of this experience of discomfort in this thesis becomes a productive source for the understanding of a critical practice for a visual communication designer in cross-cultural and interdisciplinary projects. This approach is informed by the work of sociologist Zygmunt Bauman (1991). As a visual communication designer, the disciplinary or cultural perspective of the visual communication designer is 'other' to the disciplinary contexts in which it operates. I have found my experience as a visual communication designer researcher to be, as Bauman suggests, the existential situation of *the stranger* – 'the incongruent existential constitution of the stranger as being neither "inside" nor "outside", neither "friend" nor "enemy", neither "included" nor "excluded"' (Bauman 1991, p.76). This situation is that of *permanent unassimilability*. Working with interdisciplinary and intercultural teams, the

visual communication designer researcher is thrown into a situation where nothing is ever *natural* (Bauman 1991, p.75). This unnaturalness is described as a state of ambivalence. It is not neutral or clear, but is the condition for self-constitution and performance for the designer in practice.

The state of ambivalence for the designer is exemplified in participatory practices in which the designer confronts continuous responsibility for decision making in the aesthetic, the ethical, the political and the social realms. This position is not a neutral or objective provision of service by an expert; rather, the practitioner is simultaneously service provider and participant. Critical reflection, listening and relationship building are identified as core skills for the facilitatory role in participatory design contexts (Dearden and Rivzi 2008, quoted in Selvin & Shum 2014, p. 8). The development of the practitioner's critical consciousness through these skills enables a reflexive understanding and actively contributes to the awareness of the implications of the actions of the designer.

#### RELATIONALITY, REFLECTION AND REFLEXIVITY

Central to a critical practice for design research is a critical reflexivity simultaneously turned inwards, towards self as the recognition of the construction of identity, and outwards, as a keen critical interrogation of the process and outcome.

Reflexivity is finding strategies to question our own attitudes, thought processes, values, assumptions, prejudices and habitual actions, to strive to understand our complex roles in relation to others.

(Bolton 2010, p.13)

Reflection and reflexivity are qualitative research approaches. The specificity and uniqueness of experience is examined with 'an openness on the part of the researcher in sharing this experience of practice and a recognition of plurality, openness, complexity and uncertainty as a necessity' (Hannula 2009, pp.4-6). Furthermore, Margaret Ledwith and Jane Spriggett, in their book *Participatory Practice: Community-based action for transformative change*, suggest that critical reflexivity:

combines the ability to reflect inwards towards oneself as inquirer and towards the understanding that is the result of that ... and then outward to the cultural, social, linguistic, political and other forces that shape the context of inquiry in the domain of the world. It refers to the challenging of the taken-for-grantedness of everyday life; digging beneath the surface of what appears as 'real' or 'truth' to arrive at a deeper understanding of an issue or a problem and one's part in it.

(Ledwith & Springett 2010, p.157)

In this study, my turning inward through the affective is guided by the sense of discomfort referred to by Robinson (2008), Jonas (2012) and Findeli et al (2008) when faced with disciplinary and cultural uncertainty in interdisciplinary projects. As a visual communication designer, I recognise this sense of discomfort or ambivalence as a condition of practice. The emergence of ambivalence as a central theme is the result of multiple reflective iterations across the projects.

Following a number of iterations across my experiences in the precursors in Chapter Three, the material, the conceptual and the performative dimensions of tracing are identified. These are foundational to the analytic framework for a critical practice in visual communication design informed by tracing and identified as a movement between resistance and openness. Working with the memory of the experience of ambivalence across each project, I examine experiences of ambivalence in light of critical choice as the movements of acceptance and refusal. As Fry (2009) suggests, redirection requires *erasure*. In my model a consequence of the non-adherence to professional expectations, necessary in a critical practice, is associated with *loss*. In the interdisciplinary projects, disciplinary dominance is challenged in the effort to find an inclusive perspective. In the Indigenous-led experiences the movement between acceptance and refusal is highlighted. The designer's authority is brought into question through a non-directive approach that brings into focus the quality of listening, yielding and the power of *mimesis* as essential to trace the emergence of the 'conceptual emergent' in socially situated projects. Raymond Williams suggests that emergence is *a process of coming into being or prominence* 'where new meanings, values, practices and new relationships and kinds of relationships are continually being created' (Williams 1977, p.123).

## Conclusion

This chapter establishes the context for my investigation of a critical practice in visual communication design. Informing this speculation are discussions of critical practice in design and visual communication design. These accounts describe an attitude committed to the importance of a creative and generative practice in which reflection and reflexivity are central. My examination of the literature of visual communication design discloses a disciplinary ambiguity in the histories and language of the discipline. This is significant as it aligns with my identification of the practitioner experience of ambivalence which has emerged in my reflexive analysis of my experiences and my consideration of the visual communication designer in collaborative and participatory intercultural practices. Having established the disciplinary context, the next chapter provides an important contribution to my speculation on a critical practice. Positioned as *research for design*, my investigation of chorography is an historical and theoretical opening to an historical and contemporary practice concerned with the representation of place.

## Chapter Two

### *Chorographic tracing: historical and theoretical dimensions*

## Introduction

In this chapter I introduce chorography as a practice that is concerned with the primacy of place. Chorography as an historical and contemporary discipline is a collaborative and open practice of interpretation and translation. The resurgence of interest in contemporary chorography as a phenomenological approach to investigations of landscape, history and place is evident in the fields of archaeology, geography, architecture, visual arts, new media and rhetoric, providing a productive orientation towards my conceptualisation of a critical practice. Important in this conceptualisation are the notion of the emplaced designer, the apprehension of the agency of place and a commitment to responsible creative action.

## Tradition of Chorography

The term ‘chorography’ is first used in Ptolemy’s *Geographia*, a treatise on world geography (160AD). This codex is the only work on this subject to have survived from classical antiquity. In the opening pages Ptolemy characterises chorography as the description of particular regions of the earth without concern for their precise location in relation to larger geographic patterns. Ptolemy makes a clear distinction between ‘world cartography’ and ‘chorography’. Ptolemy sees chorography as an independent discipline focused on achieving ‘an impression of the part’ whereas ‘world cartography’ or ‘*geographia*’ is tasked with showing the known world:

as a singular and continuous entity, its nature and how it is situated, [taking account] only of the things that are associated with it in its broader, general outlines (such as gulfs, great cities, the more notable peoples and rivers and the more noteworthy things of each kind).  
(Berggren & Jones 2000, p.57)

The independent discipline of chorography:

sets out the individual localities, each independently and by itself, registering practically everything down to the least thing therein (for example, harbours, towns, districts, branches of principal rivers, and so on).  
(Berggren & Jones 2000, p.57)

According to Berggren and Jones, in their translation of this classical text, chorography deals with the qualities rather than the quantities of the things that it sets down, and:

it attends to likeness and not so much to proportional placement ...  
Consequently chorography requires landscape drawing and no-one but  
a man skilled in drawing would do chorography.  
(Berggren & Jones 2000, p.58)

Ptolemy's emphasis on drawing, tracing and painting skills for this discipline, rather than mathematics and measurement as required by geographers, is the foundation for my investigation. In this thesis I suggest that the visual communication designer working in environmental communication design contexts as cultural meaning maker is a contemporary chorographer

The limit of chorography, according to Ptolemy, is the attention to specific place or region: 'an impression of a part, as when one makes an image of just an ear or an eye rather than the whole head' (Berggren & Jones, 2000 p.59). In a chorographic representation the detail focus and orientation provides connection to the specificity of place, unlike the goal of geography, which is to describe the whole body, and in the case of Ptolemy's '*Geographia*', the world pictured as a sphere. In my conceptualisation of a critical practice, attention to the specificity and uniqueness of particular places, situations and practices is essential.

## INTERPRETATION AND TRANSLATION

The *Tabula Peutingeriana* is considered an early example of chorography. This work is a copy of a representation of the roads of the Roman Empire around 300AD and is 6.5 metre long and 34 cm high. The original work, of which this is a copy, was last revised in the fourth or early fifth century. The common story is that the *Tabula Peutingeriana* was redrawn from fragments by a monk from Colmar in the twelfth century. The *Tabula Peutingeriana* visually describes the roads and distances between major towns of Europe, parts of Asia (Persia and India) and North Africa. This version was found in a library in Worms, Germany by Conrad Celtes, and bequeathed to Konrad Peutinger, a German humanist and Antiquarian, in 1508.



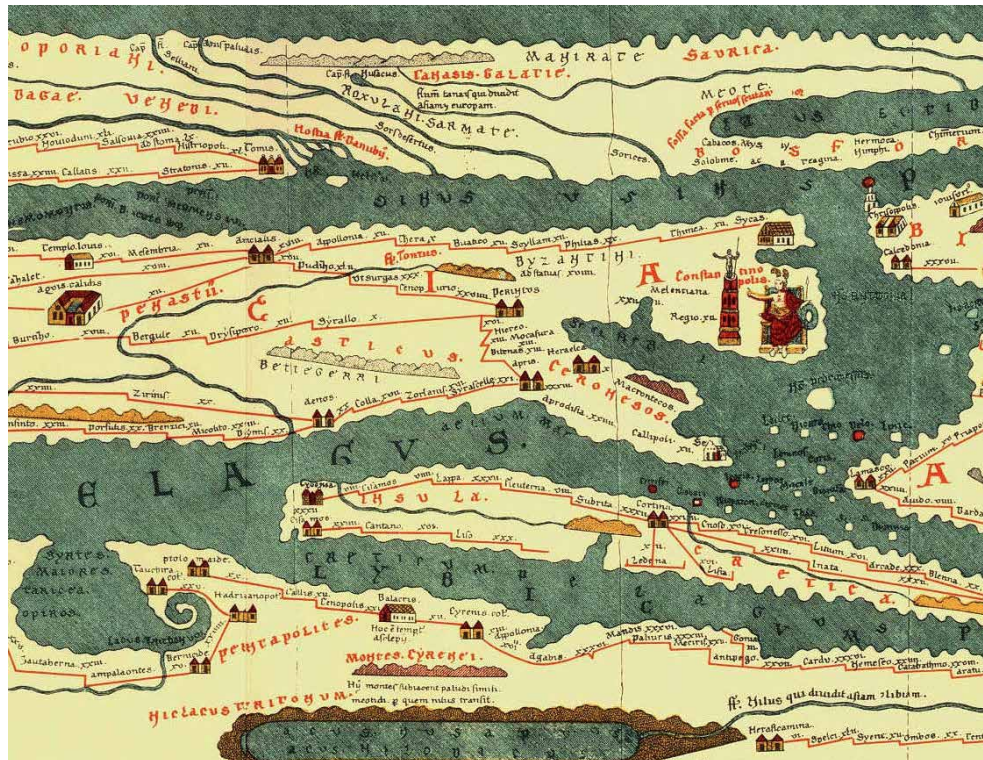


FIGURE 6. DETAIL OF TABULA PEUTINGERIANA. SOURCED FROM WIKIPEDIA COMMONS.

This itinerarium is a description of the distances between major landmarks including towns and bodies of water. It is speculated that this tabula was drawn from information travellers brought back to the chorographer and was a shared enterprise. The *Tabula Peutingeriana* is not an accurate representation of geographic relationships, but within the work there are accurate details. The roads of the Roman Empire are represented in red. Above the place names are roman numerals, which reveal the distances in leagues between places.

From the perspective of a visual communication designer, the sharing of information and description between the travellers and the chorographer forms a key platform for the consideration of a contemporary chorography. The process employed in the telling and describing of distances and places and the recording through drawing of these understandings is not documented. However, the veracity and value of the representation is not established by how much it looks like the geographic reality; rather, the value of the interpretation is in the specificity of particular aspects – in this case, the focus on distances between major towns.

The other element that is revealed in the archaeology of the *Tabula Peutingeriana* is the creation of the copy through what can be surmised as a tracing process. There is much debate about the transmission and dissemination of the *Tabula Peutingeriana* during the Middle Ages and the Renaissance (Gautier-Dalché 2003). Questions regarding the processes of reproduction, the numbers of copies and the changes that have evidently been made by different hands are asked in archaeological studies. The *Tabula Peutingeriana*, conserved at the Österreichische Nationalbibliothek, Hofburg, Vienna, is understood to have been created by a monk, tracing the fragments of the artefact, five to six centuries after the original scrolls were made. This act of tracing as a mimetic gesture is constituted by erasure and mimesis. The desire for exactitude, and the ways in which the body and knowledge of the chorographic translator affected the artefact, provide a confluence of the affective and the effective.

In the case of *Tabula Peuteringia* the first order of tracing occurs when the chorographer is required to listen to others through face to face contact or written texts. The ground is not the landform; rather it is the voices of the travellers, interpreted and traced by the chorographer. Then, centuries later, the second order is a reconstruction and retracing from the material fragments into a restored copy. The third order is the digital enhancement of the images that are now in the public arena. These conceptual, material and performative processes form the ground from which the chorographic trace emerges in the *Tabula Peuteringia* – an interpretive and mimetic action that recognises connection to people as primary, and knowledge as a connection between what has been recorded and what is now required.

My experience as a visual communication designer mirrors the three orders of tracing revealed in the *Tabula Peuteringia* as an example of chorographic representation. At no stage is the chorographer in these three processes in the landscape as the explorer mapping the terrain. Rather she is listening to hear how the landscape fits together. In the examples of my experiences in environmental communication design projects, the representations are produced through the action of tracing. The ground for the material, conceptual and performative action of tracing include maps, reports and published information; the perspectives of scientists, researchers, Indigenous land managers and community participants through my apprehension of the connections and relations in the socially situated contexts. My experience on ground and in place comes alive through others. As a visual communication designer the interpretation and translation of perspectives and the intersubjective experience is the source for the representations in my environmental communication projects.

## MULTIPLICITY OF PRACTICES

As part of the revival of interest in the Antiquities in Britain there was a resurgence in chorography from the 1500s until the early nineteenth century (Casey 2004, p.261). The term, chorography, came to be used not only for visual representations but also for written descriptions of regions. The most influential example in Britain was probably William Camden's *Britannia*. Written in Latin with illustrations and published in 1586, this text described itself on its title page as a *Chorographica description*. An English edition was published in 1607, which included a full set of county maps by Christopher Saxton (1542-1606) and John Norden (c. 1547-1625).

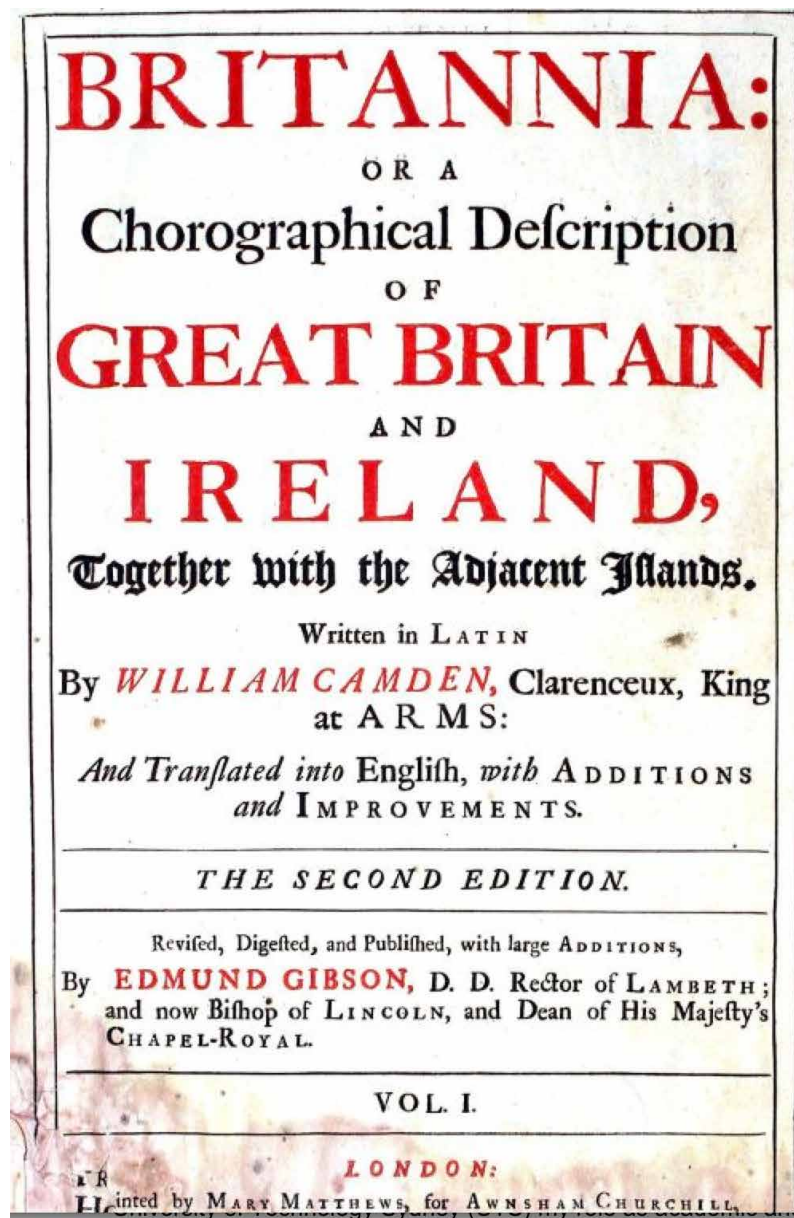


FIGURE 7. TITLE PAGE OF SECOND EDITION ENGLISH TRANSLATION OF WILLIAM CAMDEN'S *BRITANNIA* (1607).

William Harrison, in 1587, similarly described his *Description of Britaine* as an exercise in chorography. However, from the middle 1500s the term began to include maps and mapmaking, particularly of sub-national or county areas. While demarcation between chorography and map-making became blurred, it was clear that chorography represented regions or places with a concern for the histories, people, buildings and specific landscapes rather than larger geographic entities such as countries or the world.

The archaeologist Darrell J. Rohl (2011), in his discussion of the Scottish Antiquarians Sir Robert Sibbald (1641-1722) and Alexander Gordon (c.1692-1754?), brings to light two different approaches to chorographic practice. One of these emphasised all dimensions of place and relied on shared knowledge, while the second approach specialised in a specific orientation and a physical connection to place. Both approaches were collaborative.

In Sibbald's incomplete project *Description of the Scotia Antiqua, & Scotia Moderna, and the Natural History of the Products of Scotland* (1683), the strategy for gathering material for his ambitious project was to place an advertisement to ask for contributions to an atlas based on local parishes. In this request there is a selection of twelve questions that cover 'government and laws, natural resources, transportation and infrastructure, antiquities, visible ruins, local historical knowledge, place names, peculiar customs and dispositions of local inhabitants, and more' (Rohl 2011).

Rather than a wide-ranging approach like Sibbald's, Gordon's interests were focussed on the history and antiquities of Roman and mediaeval times. Through a three year personal journey, walking across the country (sometimes alone and at other times with various companions), his descriptions of Roman sites through observation, critical comparison of his experience and previous records create 'some of the best and most complete early visual interpretations of sites along the Antonine Wall and Hadrian's Wall' (Rohl 2011, p.13).

Gordon's and Sibbald's approaches are collaborative and demonstrate two registers of possibility for chorographic practice. Both projects or pursuits are relational and socially situated. Sibbald turned to gathering information through direct engagement with individuals, community knowledge and histories while Gordon turned to immersion in place and existing records in order to make sense of the landscape and its history.

## OPEN PROCESS AND COLLABORATION

In the doctoral study 'Manuscript Technologies: Correspondence, Collaboration and the Construction of Natural Knowledge in Early Modern Britain' (2008), Elizabeth Yale examines the ways in which the processes of knowledge-making of place, particularly in scientific communication, in seventeenth century Britain, were a collaborative and a shared enterprise. She analyses and describes the ways in which scribal texts were produced and exchanged between individuals active in the fields of natural history, chorography, local history and antiquarian studies in order to develop 'encyclopedic natural histories of every English, Scottish and Welsh county, global surveys of plants and animals and accurate and detailed maps of all the regions of the known world' (Yale 2008, p.3). According to Yale, these documents can be considered as shared spaces, or open texts. For example, in Aubrey's *Natural Historie of Wiltshire* (1685), blank spaces were left throughout for names, dates and facts that he expected to fill in later. Reciprocal relationships between naturalists in Britain occurred in a context of service rather than profit and the exchange 'had many permutations - scribal texts, natural specimens and printed books' (Yale 2008, p.7). The form of the document was hand-written, contained inserts, annotations, corrections, pressed botanical specimens, pamphlets and slips of paper pasted down with hand written notes and, as Yale observes, was 'a product of accretion and collection over time' (Yale 2008, p.124).

This shared space of temporal commitment as an open project, resulted in a messiness and openness to revision that reflected the fact that 'it was an ever-growing, living collection of natural knowledge' (Yale 2008, p.125) and was actually a productive force for Aubrey and his readers. Yale observes that this openness and refusal to commit to print standards actually allowed for the collaborative nature of the shared enterprise. Issues of open processes, capacity for change, inclusion and exclusion as part of a practice are highlighted, as opposed to closed systems of individual ownership and an adherence to the finality of the printing and production processes.

## EMBODIMENT

Michael Charlesworth (1999), writing about Christopher Packe's chorographic text, observes Packe's practice of representing place and its relationship to the body. The representation of East Kent by Christopher Packe 'A New Philosophico Chorographical Chart of East Kent' (1743) comprised a chart, five feet square, in which Packe's aim was to plot the valleys and waterways of the region. In this representation there are no roads, although towns and settlements are named. Packe vigorously argued in the written text accompanying the charts that this work had scientific and aesthetic value and was not a map. He used the lack of emphasis on roads and the particular system



of naming towns as a key differentiating point. Rather, the emphasis was on the forms of the land and the work is regarded as the first geomorphological map that shows topographical relief with a degree of accuracy. According to Charlesworth, Packe used a combination of instruments, including compasses, theodolite, surveying methods, sliding scales and a microscope in his chorographic enterprise. He constructed a viewing platform and the charts were a mixture of panoramic observation and field studies (Charlesworth 1999, p.113). Charlesworth points out that the idiosyncratic text that runs alongside the pictorial representation brings to the attention of the reader the apprehension of place through a bodily connection.

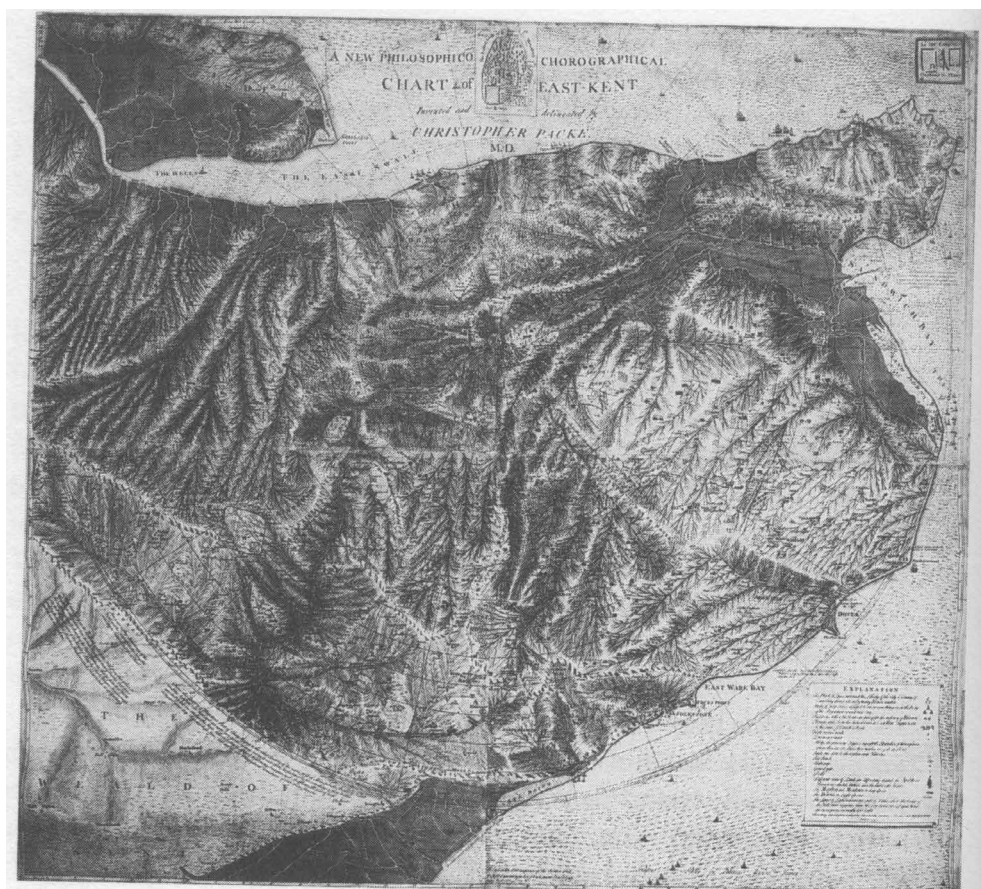


FIGURE 8. PACKE'S CHOROGRAPHY OF KENT (CHARLESWORTH 1999).

The metaphor of the body, and in particular the face, the sinuses, the tongue, the ducts, the mouths, capillaries and circulation, re-presents the land in relation to the bodily experience of the chorographer, alongside a scientific determination not only to show the landforms but also to reveal the cause of their formation. The connection between the embodied sense of the chorographer and the representation, interpreted in the writing and the illustration, begins to blur as the distance or proximity between the influence of the perception and the representation begins to reveal itself interconnected in Charlesworth's reading of Packe's chorographic practice.

### CONTEMPORARY RETURN

Mark Gillings (2011), an experiential landscape archaeologist, argues that empiricism and phenomenology have a lineage that derives from the chorographic practices of the Antiquarians. The qualitative dimension of the chorographic investigation is understood by modern archaeologists as intrinsic to the embodied and connected experience of the researcher in the investigation of the histories of specific places. For the archaeologist experiential engagement is directed towards speculation on past ways of living in place. For the visual communication designer the sensual and subjective engagement with mediated experience is the starting point for the generative action of representing place in environmental communications.

The chorographic tradition has contemporary echoes in William Least Heat-Moon's book *Prairyerth: a deep map* (1991). This is a written description of the people, landforms and natural characteristics of Kansas in the USA. Michael Shanks and Michael Pearson acknowledge Heat-Moon's use of the term 'deep map' in a contemporary chorographic project 'Theatre Archaeology' (2001). Pearson and Shanks apply chorographic principles as a way of revitalising a chorographic practice in archaeology.

Reflecting eighteenth century antiquarian approaches to place, which included history, folklore, natural history and hearsay, the deep map attempts to record and represent the grain and patina of place through juxtapositions and interpenetrations of the historical and the contemporary, the political and the poetic, the discursive and the sensual; the conflation of oral testimony, anthology, memoir, biography, natural history and everything you might ever want to say about a place.

(Pearson & Shanks 2001, pp.64-65)

Shanks, as an archeographer based in the Stanford University Department of Classics, continues the project 'deep mapping' in 'The Three Landscape Projects', a collaboration with an artist, Clifford McLucas, and a theologian, Dorian Llywelyn. The three sites for the project are The Line - The San Andreas Fault in California, The Volume - Monte Polizzo - an archaeological site in Sicily, and The Surface - Hafod in Wales - an eighteenth century estate in Wales (Shanks 2012).

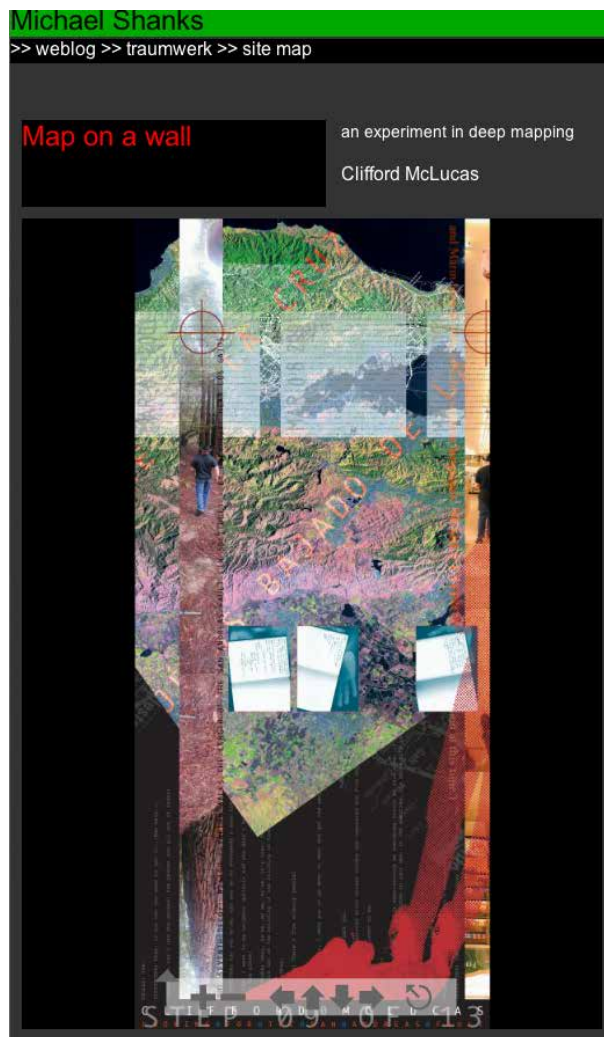


FIGURE 9. THE THREE LANDSCAPE PROJECTS WEBSITE (SHANKS 2012).



Recent projects in Australia include the Stony Rises Project (<http://thestonyrisesproject.com/the-project/>). Supported by RMIT, RMIT Gallery and the Design Research Institute a team of artists, designers, historians, curators, theorists and scientists have investigated, through their individual perspectives and practices, a particular region within the Western District of Victoria, Australia. Recently I have been invited to participate in Interpretive Wonderings 2015, a collaboration between Culpra Mili Station on the Murray River near Mildura and Royal Melbourne Institute of Technology, University of Technology Sydney and Monash University. These two projects are examples of collaborative projects that could be described as contemporary chorographic projects.

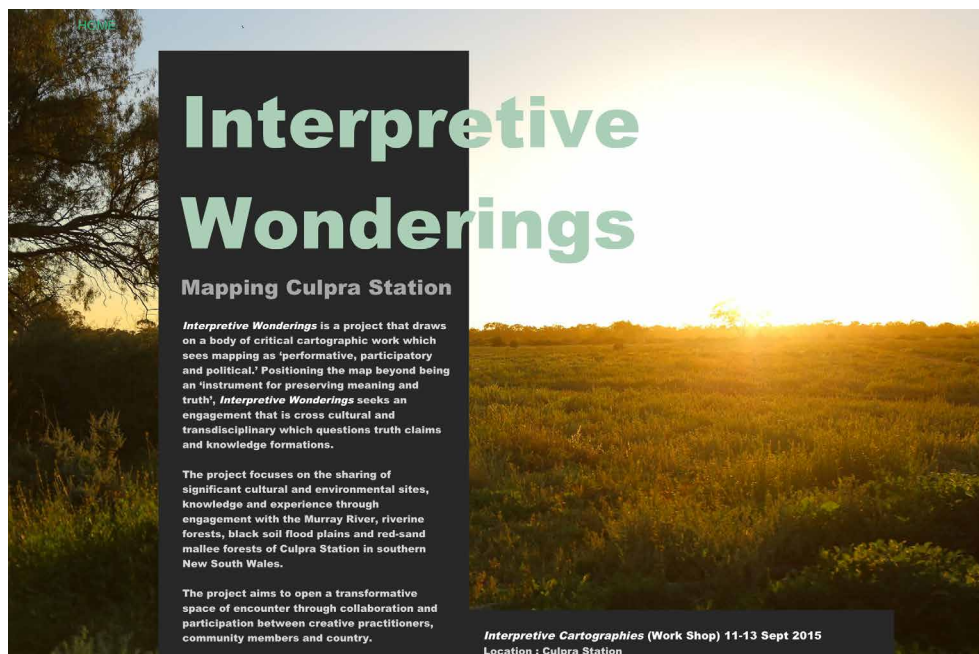


FIGURE 10. INTERPRETIVE WONDERINGS CULPRA MILLI STATION WEBPAGE.

The *Tabula Peuteringeria*, the practices of Sibbald and Gordon, Yale's work on the shared processes of scientific communication in the seventeenth century, Packe's *Chorographie of Kent* interpreted by Michael Charlesworth, and the phenomenological interrogation of chorography in contemporary disciplines of archaeology (Shanks 2012; Gillings 2011), art (O'Sullivan 2009) and architecture (Tawa 2002) demonstrate chorography as: a collaborative process; a shared enterprise connecting place and participants in an intersubjective field; and a qualitative practice that is concerned with bodily connection to place. Chorography is not constituted as mapping; rather, it is a tracing that is concerned with interpreting and translating what already exists.

## The primacy of place

The writing of philosopher Edward S. Casey (1997, 2002, 2004, 2008) provides my entry point into the literature of the resurgence of interest in place in Western philosophy in the late twentieth century. Not only is Casey the source of the distinction between the practice of chorography and that of cartography, but his work has provided a bridge between my understandings of Indigenous and non-Indigenous perspectives on place and chorography. He claims that place is much more than locator; rather, 'place belongs to the very concept of existence' (Casey 1993, p.15). This recognition of emplacement is a key platform for the consideration of the emplaced designer.

Place, according to Casey, is somewhere. It is a particular part of space that also holds what Casey refers to as the return to place, a philosophic conception of the primacy of place. Place is brought into being through a physical and perceptive apprehension and contains the functional, the visual and the symbolic (Scazzozzi 2011). The European Landscape Convention (Florence 2000) refers to the physical and material value of landscape and highlights the importance of perceptual engagement, the visual and perceptive quality, cultural significance and the role of landscape in the formation of local cultures and identity. Place quality is considered essential to individual and social wellbeing (including in the physiological, the psychological and the intellectual senses). Place quality is the expression of the specificity of places and a factor in the identity of populations. A cultural dimension is attributed to the entire territory, which includes the social perception that people have of their living places and historical and cultural perceptions. A connection is made in this understanding of place between the necessity for the maintenance of these characteristics and individual and social enrichment.

*Choro*, in chorography as place|country, points to a respect for the connectivity between the human and the non-human dimensions of place. The intrinsic valuing of biodiversity and the importance of difference in the development of a sustainable system are key to the health and sustainment of place|country. The expanded perspective of intersubjectivity which includes the non-human as well as the human presence creates a space for the presence of place|country as a participant in the practice of representation. In my paper to the Australian Geographers Conference in 2011 (Gothe 2011b) recognised my role in the advocacy of place|country as a motivating factor in the practice of representing place. This sat alongside a paper titled 'Nature, the land, can understand: Yolngu country, more-than-human agency and situated engagement in natural resource management' that acknowledged Hon. Bawaka Country as a co-author. Working in Yolngu tradition, the authors recognise:

the active agency of country, we call for a more-than-human approach to situated engagement that goes beyond the anthropocentrism of contemporary natural resource management (NRM).

(Suchet-Pearson, Lloyd Wright, Laklak Burarrwanga and Hon. Bawaka Country 2011, p.1)

The primacy of place and the recognition of the agency of place, alongside the importance of the specificity of the regional, are integral to the proposition of a critical practice in visual communication design. As Rohl (2011) suggests, chorographic practice decentres and re-centres. In this study, my experience of regional specificity and respect for difference generate a turning from the global to the local, from anthropocentrism to biocentrism, from separate to connected.

## The emplaced designer and the recognition of the agency of place

### COUNTRY SPEAKING

*I am standing in the Boree Valley in 1980 in Yengo National Park, New South Wales, with a child on my hip. I am watching a bull dozer dig a large hole in the floor of the valley for a dam. I can hear a scream. Is it my scream? I cannot hear it out loud but it is in my mind. I am confused. This silent scream heard in my head as my own is confused with the noise of the machine and the need of the child. I turn to the men around me over the noise of the bulldozer and the screaming in my mind and ask whether it is really necessary to dig up the floor of the valley? They reply with certainty. It is a good thing. We will have water.*

*Is this experience a first sign of awakening to country speaking?*

Since that moment, my recognition of the environment, and more specifically of place or *country* as participant, with agency, has become strong. From an Indigenous perspective the connection between place and people is very clear and I am learning about the power of place through sharing in Indigenous-led projects. My learning is supported by an emerging recognition of this perspective in Australia (Rose & et al 2002; Laudine, 2009; Suchet Smith et al 2011, Suchet Smith 2002; Gammage 2011) and described clearly below by Christopher Tilley, a phenomenological archaeologist working in Britain:

Experiencing the landscape allows insights to be gained through the subject's immersion in that landscape. This is to claim that landscapes have *agency* in relation to persons. They have a profound effect on our thoughts and interpretations because of the manner in which they are perceived and sensed through our carnal bodies ... This is to accept that there is a dialogic relationship between person and landscape.  
(Tilley 2008, p.271)

This understanding is significant for me as a designer in the co-creation of a transformed perspective on the representation of the environment. This sense of connection between place and self has been heightened through experiences *on country* with Traditional Owners.

One is water. One is the tree. A group of people is a people mob. A group of trees is a tree mob. There is real kinship here and deep identification. Here Bob is talking about a primary conception of unity that is not familiar in non-Indigenous Australia. It might be said that it indicates that all things are primarily conceived of in terms of their unity (whilst difference is fully acknowledged it is not emphasised) and that this unitary association is understood to be very deep so that when it is successfully internalised then the persons self-image incorporates a view of country as intimately linked with self.  
(Laudine 2009, p.158, interpreting Bob Randall)

My perspective on the relationships between place and people is also informed by a Western understanding of landscape as a complex dynamic artefact (Janz 2011; Scazzozi 2011, p.10). Landscape is understood to hold cultural meaning that is produced by the intersection of experience of people and knowledge of place, in place. However, the Indigenous view describes connectedness that does not position the landscape outside self as artefact, but resonates with the emergence of an understanding of connected self that I have come to call the 'emplaced designer' informed by the notion of the 'ecological self' that has emerged from the deep ecology movement and eco psychology:

... the ecological ego matures towards a sense of ethical responsibility toward the planet that is vividly experienced as our ethical responsibility to other people.

(Spretnak 1997 p.76, quoting Roszak 1992, p.321)

The emplacement of the designer initiates an orientation towards place. This orientation requires two things. Firstly, it requires an understanding of the relational qualities of place as the intersecting ecologies of the social, the biophysical and the artificial, understood in my reflection on the designed projects as people, knowledge and experience. Secondly, it requires the recognition of place as an active participant with agency. These perceptions for the designer allow a turning away from the design and the designed object as central to the designer's appreciation of their role. Instead, the focus becomes an expanded framing of responsibility for the designer, where place, as an entity, requires attention, listening, advocacy and representation. This relational understanding of emplacement or ecological embeddedness produces a:

profound reorientation of self in relation to the environment and ecological identity emerges from a process of learning to perceive connections and relations with natural processes.

(Boehnert 2012, p.124)

## *chōra* in chorography

During my investigation of chorography, *chōra* emerged as an intrinsic element of chorography that I was unable to refuse. My research for design revealed this notion of *chōra* embedded in chorography as a third term. Chorography is not only the simple representation of place through graphic means – *choro* and *graphia*. There is another element – *chōra*. As a consequence, a triangulation emerges – *choro|choros* as place|country, tracing as *graphia* and the ineffable *chōra*.

*chōra* according to Plato, in *Timaeus* (2005), is a place that has no form. Rather it is a receptacle; it can take on any form. It is a speculative place that can only be apprehended in a 'dream-like state' (Timaeus, 42b). Derrida, Ulmer and Kristeva position *chōra* as *other* to method because it is not accessible through reason (Ulmer 1994, p.66). *chōra* is only approachable through hybrid discourses (Ulmer 1994, p.66). For Ulmer, chorography is designed as a process to allow the bringing together of what he refers to as Lyotard's *differend* – 'the lack of translatability between incommensurable genres of discourse' (Ulmer 1994, p.25). Chorography becomes a method, non-method or approach in which 'minds are both embodied and hence grounded in emotion and sensation, and dispersed into the environment, and hence no longer autonomous' (Rickert 2007, p.251).

For the rhetorician, Rickert (2007), and the new media theorist, Gregory Ulmer (1994), *chōra* is the space of invention, becoming and beginning. It is an idea that allows no demarcation between ‘in here’ or ‘out there’. The space is a radical one where:

the notion of a system is not one of directly following a method in some linear fashion, but being immersed in, negotiating and harnessing complex ecologies of systems and information  
(Rickert 2007, p.253)

For Rickert and Ulmer *chōra* is not only a matter of theoretical inquiry but is also of practical use. Rickert draws on Plato’s *Timaeus*, Kristeva, Derrida and particularly Ulmer to suggest that *chōra* provides a link between Idea and Form, and creates a focus on ‘vital activity’ rather than ‘static ideas’ (Rickert 2007, p.252). *chōra* provides a theoretical resource ‘able to generate new light on the emplaced (and displaced), distributed and bodily character of rhetorical activity’ (Rickert 2007, p.253).

The fixing of the meaning of chorography is only partially possible as the evanescent quality of *chōra*, contained within chorography, is a reminder of and a mark of commitment to the entanglement of facts and values in the responsible representation of place. In this study, the scientific, the Indigenous and the creative are the ground that provides qualitative complexity. The presence of *chōra*, in a conceptualisation of chorography is ‘a condition of constant motility – a rhythmic pulsation between the forces of the pre-verbal (semiotique) and the symbolic’ (Kristeva 1984, p.26). This movement serves the iterative nature of this study as a vibration between the intrinsic and extrinsic as practice and research, the effective and the affective, the observed and the observer. Importantly, for me, in this study, *chōra* holds the conviction of practice and the recognition of the importance of the creative movement in a critical practice as a state of change and a commitment to re-thinking responsibility to place in visual communication design practice.

Ulmer and Kristeva provide the two significant methodological influences for this study. My debt to Kristeva is a mimetic ‘tracing’ of the model of the semiotique and the symbolic (the components of the signifying process) as the forces of meaning-making. Kristeva frames the notion of the semiotique as the pre-verbal, the vocal and kinetic rhythms and the symbolic as the social and the cultural, an inspiring image of the tensions between the affective, expressed as the intuitive – the feeling of the practitioner, and the effective – the opening to social responsibility that the designer negotiates in the creation of the representation. Kristeva’s idea creates for me an image of *chōra* as a rhythmically moving space that shakes the elements in particular order. It is not a movement of control but allows a level of indeterminacy, difference

and change. The image Kristeva conjures is a space of energy and movement between and across the individual and the social, the creative and the cultural.

My other influence is Ulmer's perspective on *chōra*, as 'the other of method' (Ulmer 1994, p. 66). This approach represents an alternative to what Rickert terms rationalistic methods and emerges from a thinking that is less concerned with the:

linear and indexical to that which is networked and associational, concerned less with logic than with memory (experience both personal and externalised/stored) and intuition, less with verification than with learning.

(Rickert 2007, p.268)

## Conclusion

In this chapter I have outlined the theoretical and historical contribution of chorography to the formulation of a critical practice in visual communication. The historical and contemporary interest in chorography provides the defining qualities of a practice that is concerned with the primacy of place in generative and creative representations of place. This practice of translation and interpretation reorients the designer from the artefact to the relational connections in an open, collaborative and experiential practice. My recognition of the agency of place, constituted by the connections and relations between human and non-human entities, is the foundation for the conceptualisation of the emplaced designer oriented towards place|country and social and ecological responsibility. Having described the elements of chorography – namely *choro* as place|country and *chōra* as a resonating theoretical resource – I now turn to *graphia* in the following chapter and so completing the triangle of chorography – *choro*, *chōra* and *graphia*.

Chapter Three  
*Chorographic tracing:  
material and performative  
dimensions*



## Introduction

Chorography, derived from, *χῶρος* (*choros*, ‘place’) and *γραφία* (*graphia*), signifies a practice of representing place. The historical investigation of chorography in the previous chapter identifies a visually rich, open, embodied and shared practice of interpretation and translation. Also described is the movement of meaning between *χῶρος* (*choros*, ‘place’), *χώρα* (*chōra* ‘country’) and Plato’s *chōra* in the *Timaeus* (Plato, 2005, para 52B), signifying a resonating creative place. I will now turn in detail to the final element of the etymology of chorography – *γραφία* (*graphia*). Translated from the Greek, *graphia* means to *scratch, write, record, draw, trace, describe* (OED Online 2000) and signifies in this thesis the process of the representation of place or region through a critical practice of tracing.

My consideration of tracing as a conceptual, performative and material practice in environmental communication design projects in Australia between 2002 and 2015, provides the basis for my speculation on the qualities and makings of a critical practice in visual communication design. Drawing on my physical experience of tracing as following and responding to the shape of the ground I identify a movement in my experiences between *openness* and *resistance*, between *acceptance* and *refusal* – a choice to *follow* or *not-follow*. This choice is characteristic of the practitioner ambivalence identified in Chapter One and is central to my literal and metaphoric speculation on tracing as a critical practice.

The projects examined in this chapter include the material representation of the sub-regions of Corangamite, the conceptual tracings of the environmental risks to the upper reaches of the Hawkesbury Nepean posed by the release of environmental flows, and the performative process of knowledge recording in the Indigenous-led methodology used in Traditional Knowledge Revival Pathways (TKRP) projects. These three collaborative research projects are situated in a university setting and demonstrate various roles for the visual communication designer in projects. These include research consultant, lead investigator in a transdisciplinary research team and participant and collaborator in the Indigenous-led project Communicating Shared Traditional Knowledge. In my description of the projects I focus on the construction of the representation of place and the literal and metaphoric dimensions of tracing.

## A material practice

Tracing is an intrinsic component of my material creative practice and is evident in my visual communication projects in two ways. Firstly as mark-making or drawing and secondly as a way of following and revealing underlying structures, arguments and assumptions of an issue. The relation between my physical experience of tracing and chorography is the subject of the thesis. My understanding of the material nature of tracing as an embodied drawing

practice of deletion, subtraction, addition and transformation is the foundation for the consideration of tracing as a critical practice.

Carlo DiSalvo (2009) considers *tracing* as a designerly tactic in complex social projects. According to DiSalvo, unlike *projection*, *tracing* begins in the past and then enables that past to be experientially known in the present. Tracing returns to ‘the origin of an issue’ (DiSalvo 2009, p.9, quoting Dewey 1927) through revealing underlying structures of the present. Tracing is concerned with ‘the crafted transcription of complex information into comprehensible forms that appeal to our senses’ (DiSalvo 2009, p.58) and is particularly suited to the fields of communication design.

[T]racing both connects with and extends contemporary design, particularly the areas of participatory and service-oriented practices that embrace forms of engagement and exchange beyond the traditional object.

(Di Salvo 2009, p.56)

My training in the 1970s as a pre-digital graphic designer required a practice of tracing. Tracing by hand allows for a complex engagement with the construction of an image. Multiple compositional structures, refinements, re-use and re-adjustments of the image were possible. The technologies that mediated this tracing were analogue – light-boxes, epidiascopes, photocopiers and photographic processes such as bromides. While these analogue methods provide ample means of tracing, the transition from analogue to digital production technologies has created further opportunities. These include the scaling of images through scanning and printing and the reproduction of digital files in many media, including animations, three-dimensional models and online and print applications.

In my tracing practice the drawing takes the form of lines on a semi-transparent sheet of paper. This tracing process relies on the illumination of the ground from below, as in a light box, or holding an image up to the light on a surface such as a window and then tracing the image onto another sheet of paper. If there is no light from below, a transparent support is required so the ground can be seen through it. Paper is traditionally the support used in this type of tracing, especially in the field of typography, illustration, architectural drawings and botanical illustration. The paper that is used as the support in these fields includes architectural tracing paper, butter paper, bank paper and layout paper.

A tracing, can be created simply by following the edge of the shadow cast by natural or artificial light. Another way to trace is to follow the line of the edge of shapes made by a projection from a light projector or an epidiascope. These mechanical means allow control over the size of the projection and the possibility of scale change.

Tracing has a history that is connected to the practices of painting and the graphic arts. Cennini in *'Il Libro dell' Arte' The Craftsman's Handbook* (Cennini 1497, trans. Thompson 1933) offers instruction for the artist in the craft of painting. Cennini's description of the tracing process highlights the complexity of the relation between the subject of the tracing, the practitioner and the tracing.

You should be aware that there is also a paper known as tracing paper which may be very useful to you. To copy a head, or a figure, or a half figure, as you find it attractive, by the hand of the great masters, and to get the outlines right, from paper, panel or wall, which you want to take right off, put this tracing paper over the figure or drawing, fastening it nicely at the four corners with a little red or green wax. Because of the transparency of the tracing paper, the figure or drawing underneath immediately shows through, in such shape and manner that you see it clearly. Then take either a pen cut quite fine or a fine brush of minnever; and you may proceed to pick out with ink the outlines and accents of the drawing underneath; and in general to touch in shadows as far as you can see to do it. And then lifting off the paper you may touch it up with any high lights and reliefs as you please.

(Cennini 1497 trans Daniel V. Thompson, Jr 1960, p.13)

I see an analogy between the artist's position as described here and that of the chorographer. Cennini describes a relation between the representations by the master, the artist and the tracing. The practice of chorography brings into relationship the existing representations of place, the chorographer or designer and the tracing process to create other representations of place. Three key points emerge in my analogy between the chorographic trace and Cennini's description. Firstly, in both cases, the subjects of the tracings (the master's paintings and the representations of place) are mediated representations. One is the human form interpreted by the master and the other is place understood through a variety of mediated sources. Secondly, the tracing is motivated by the values Cennini refers to as 'useful' and 'attractive'. The recognition of these qualities acknowledges the value of constructing a representation by tracing. The process described by Cennini is 'useful' because the representation provides an interpretation in the medium of painting, and 'attractive' because of the authority of the master. In this process tracing does not draw from direct observation of life, but from the respectful recognition of the quality of line and shape of the form in the painting made by 'the hand of the great master'. Finally, Cennini's identification of the responsibility of the artist to 'pick out' the line through the action of tracing affirms the agency of the artist and confirms the relation between the master's interpretation, the artist's choices and tracing as a process of co-creation. In this description of the process of tracing, the quality of 'usefulness' is aligned with the recognition of the 'attractive' quality

of the master's interpretation of the figure. This alignment materialises in the tracing, which is an embodied response by the artist to the mediated representation informed by their understanding and experience.

Similarly, in chorography, there is a complex relationship between the mediated representations of place, the designer and the chorographic trace. For the designer, the practice of chorographic tracing is dependent on an apprehension of the morphology of place. The shape of place in a chorographic process is created not only by an experience of place shared with people, but also by its material form as knowledge or information expressed through representations such as maps, photographs, reports, stories, videos. The chorographic trace is a translation and interpretation created by the conscious and unconscious choices of the designer in the context of multiple representations. As the practitioner traces the morphology of place, the choice 'to pick out' or not, as Cennini suggests, is an act of judgement. The subject or *the ground* of the tracing is inevitably subject to erasure and appearance. It is the embodied conceptual and critical gesture of drawing the lines and shapes of place that engenders a tracing that is connected yet separate, similar and different.

## A conceptual and critical gesture

My thinking about *the ground* was affirmed by my fortunate meeting in 2011 with Deanna Petherbridge, an artist and Research Professor of Drawing at the University of Lincoln in the UK. We sat together for two hours and discussed the role of tracing and its connection to drawing in the context of my practice in visual communication design. What emerged from this discussion was the conceptual and philosophical nature of tracing. We agreed that tracing has a phenomenological dimension that requires a respect for and acknowledgement of what is already there - namely, *the ground* that is traced. This acceptance of the primacy of the ground creates a condition of possibility for the ground to speak through the tracing if listening is attuned through a capacity for mimesis (O'Neill & Hubbard 2010, p.48). We agreed that the act of tracing need not necessarily be dismissed as a mechanical or mindless copy; rather, the process requires a critical act of judgment. This act of judgment precedes the use of line and requires both an intellectual and a sensory sensitivity to the ground. We surmised that these choices, once made, had the potential to transform the experience of the practitioner and possibly the viewer. This exchange consolidated my view that tracing is as much a critical and conceptual gesture as a performative and material one.

## Tracing as drawing

Tracing, like drawing, cannot be reduced simply to a material act or a mechanical process (Petherbridge 2012, p.27). As a constituent of drawing, tracing requires a gesture. It contains an element of performance as an embodied action in relationship to the ground, registering the conceptual, the material and the performative. Petherbridge is not alone in locating the heterogeneous nature of drawing. Cornelia Butler (2010, p.139) notes the way in which the material aspect of drawing connects to the performative, hence expanding the traditional definition of drawing. De Zegher (2010, p.23) describes this expanded field as not only the materiality of line on paper but also performance, video and installation.

## Tracing as performative act

In my experience of tracing, the performative act involves the movement of the body and the experience of the designer in relation to *the ground*. The creative gesture of following the lines of *the ground* is determined by a heightened relationship between the designer and the fluctuating allegiances experienced in the act of tracing between the power of *the ground*, the capacity in the designer to recognise particular qualities and the quality of the line drawn in response.

The action of tracing is associated with a loosening of the emphasis on the identity of the designer as professional individual. It requires a less directive focus and a less outcome-oriented approach relying on the morphology of place as guide. Rather than positioning design as instrumental, professional and expert, a less authorial and more relational and affective connection to *the ground* is emphasised.

This performativity of the practitioner in relation to the ground in the act of tracing is what Butler calls a self-constituting act (Butler 2010). In terms of my practice as I interact with others in the participatory process of representing place I am designing myself and being designed. As a critical practitioner, in this act of self-constitution, I recognise that ‘breakdown is constitutive of performativity’ (Butler 2010, p.153):

[P]erformativity never fully achieves its effect, and so in this sense ‘fails’ all the time; its failure is what necessitates its reiterative temporality, and we cannot think iterability without failure .  
(Butler, 2010, p.153)

This humbling recognition of inevitable and continual failure produces the need for a modest approach. In my participation in the interdisciplinary and intercultural social process of environmental communication design projects, I trace (literally and metaphorically) the various disciplinary knowledges and worldviews of the participants in a performative act. This tracing is translated into visual communication designs and shared with the participants for comment. In this action my identity as a designer and the identity of place are continually co-constructed.

## Reflections on experiences of chorographic tracing

My reflection on the materialisation of the practice of chorographic tracing in three projects is the centre of this thesis. It is a point of connection between my research inquiry into the chorographic trace and my experience as a visual communication designer and researcher in complex socially situated projects. Each example contributes to a contemporary articulation of the chorographic trace. My examination of the precursor projects leads to the explication of the characteristics of a critical practice. Identified as an opening to *emergence*, the movements between *refusal* and *acceptance* are constituted as actions of *non-adherence* and *listening*, *mimesis* and *erasure*.

Central to my discussion of these projects is a desire to hold the reflective voice of the practitioner and the inquiring voice of the researcher together. This section, informed by the preceding speculation on tracing, will demonstrate the development of a critical practice in visual communication design. This chorographic tracing practice, foregrounds the primacy of place experienced through the collaboration with and participation of people and knowledge in the co-creation of representations of place, and the experience of ambivalence as a generative resource for the critical practitioner.

## CORANGAMITE (2002-2007)

In this section I examine a representation of the subregions of Corangamite taken from the *Corangamite Regional Catchment Strategy 2002-2007 Working Draft August 2002* (Figure 11). This image of the sub-regions is one of a suite of eight images included in the *Working Draft August 2002* (Figure 12). My consideration of this example in the context of this document draws on the material form of the representation and also considers the collaboration and practice that underlie the production of this traced representation. The making of this image is an influential precursor to the conceptual consideration of chorographic tracing.

**Collaboration.** In late 2002, I commenced a three-year engagement with the Corangamite Catchment Management Authority (CCMA) to support the communication of the Corangamite Regional Catchment Strategy 2003-2008 (CRCS 2003-2008). This project was funded by the Commonwealth of Australia, through the National Action Plan for Salinity (NAP), with matching funds from the Victorian State Government.

The primary goal of the catchment management authority is ‘to ensure the protection and restoration of land and water resources, the sustainable development of natural resources-based industries and the conservation of our natural and cultural heritage’ (CRCS 2003-2008, p.111). An important responsibility for the CCMA is to produce the regional catchment strategy that sets the long term direction for natural resource management in the region. A key objective, stated by the project team, was to emphasise ‘the grass roots community developing its own aspirations, plans and actions’ (RCS Summary CRCS 2002-2007, pg.6) within the context of Federal and state funding for regional agencies and local government actions in partnership with the communities.

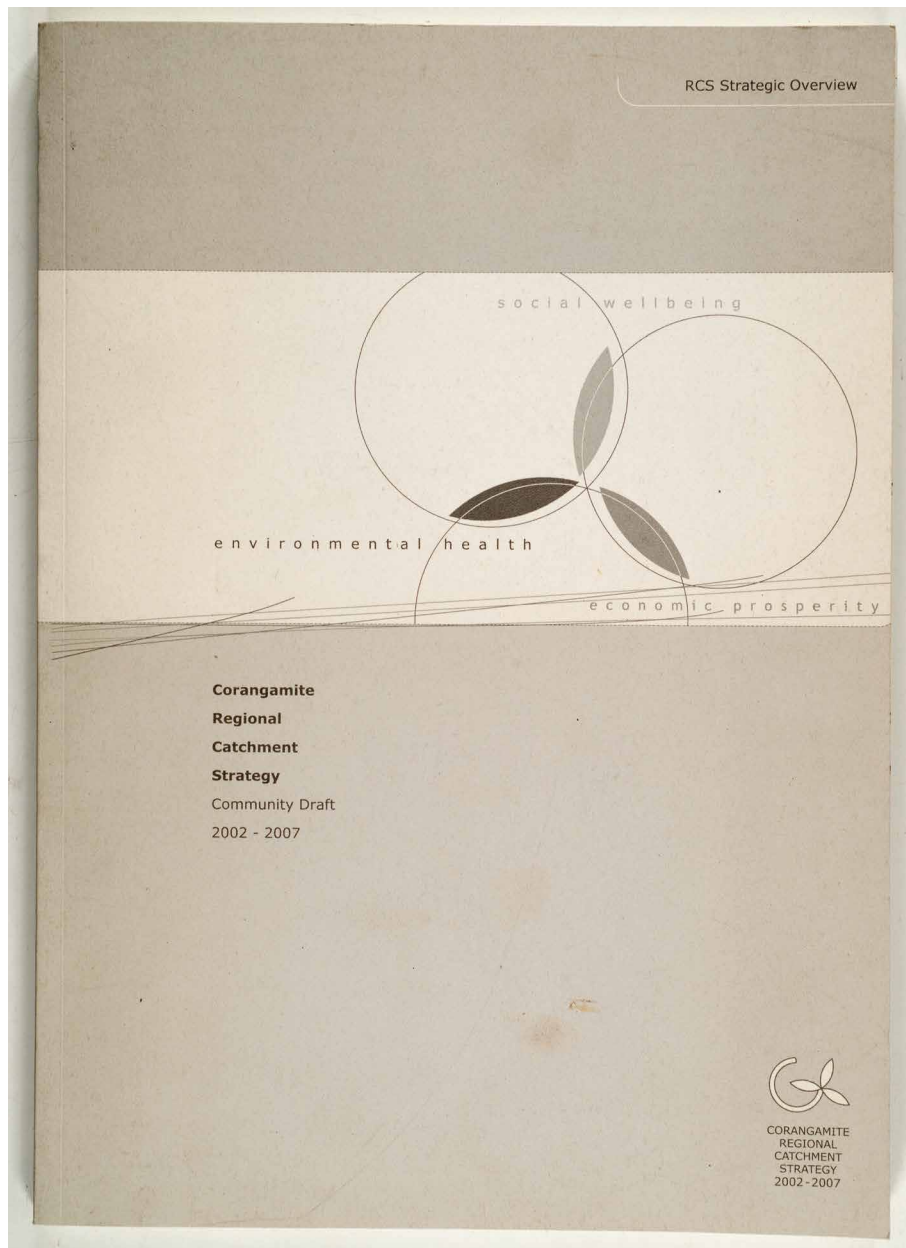


FIGURE 11. COVER. CORANGAMITE REGIONAL CATCHMENT STRATEGY WORKING DRAFT 2002.



To produce the regional catchment strategy, the CCMA employed an economist and a social scientist as consultants for the strategy development. These consultants were based in Perth and travelled to Colac, 120 kilometres from Melbourne Airport in Western Victoria, every few weeks for the duration of the project. My connection and participation as designer and researcher in this project was through Ross Colliver, the social scientist who facilitated the community engagement and communication of the strategy development. He and I were long term friends and associates and recognized an opportunity for an innovative approach to the communication of the strategy. I established a small design team with a graduate student, a web design consultant and a graphic designer in the School of Design at University of Technology, Sydney (UTS). UTS provided facilities for us to work in, and the team spent up to three days a week over two years on the project. In addition, students participated in the project through the UTS Design Studio, working on visual identity proposals and biodiversity projects as part of their curriculum. Further to this, the CCMA had an ongoing relationship with a graphic design business in Ballarat which managed their design and production for communications and they also retained a mapping consultant. Team communication involved a combination of face-to-face, email and telephone engagement.

The interdisciplinary project team and the program managers, in consultation with the CCMA Board, was to deliver a government-approved strategy. The agreed intention for myself and the design team was to communicate the strategy through web and print forms. The strategy was to be accessible to communities of the region and emphasise community voice and knowledge. Conventionally, communication of decisions in the natural resource sector is delivered with a sense of authority derived from a mixture of science and institutional voice. The design brief, developed in collaboration with the CRCS team, highlighted the development of an aesthetic and visual language that reflected an openness of process oriented towards the community.

It was an unrelenting task to synthesise the information in the context of the developing regulatory framework, as the requirements and accreditation were being formulated at the State and Federal level alongside policy documents, planning and implementation strategies for community engagement, partnership development, investment planning, and the monitoring and evaluation strategies for these plans. These documents were part of the everyday exchange between the design team, the project team and the program managers at the CCMA. This posed a challenge for the design team. In order to design the communications for the strategy, we needed to understand the required framework for the strategy.

I found myself in a different role from a professional design consultant. I became a sense-maker through my participation in the formulation of the

strategic direction and project requirements to develop appropriate designs. This represented a shift from the professional client-designer model as I contributed to the formation of strategic approaches to the communication of the regional strategy. Rather than receiving a design brief in response to the thinking of the strategy team, I was a participant supporting the formulation of the requirements in response to a dynamic process of Federal and State Government requirements. In this role I negotiated a complex communication challenge that crossed disciplinary areas, including geology, botany, hydrogeology, economics, agriculture, geography and biodiversity, alongside the participants, the stakeholders, the program managers and the strategy team.

**Establishing the sub-regional boundaries.** The first regional strategy was completed in 1997 in response to the Victorian State Government *Catchment and Land Protection Act 1994*. A report was produced that described the regional features of Corangamite. This report was a single colour print document with a colour cover. In this report a map of nine sub-regions was reproduced in black and white. The sub-regions – Central Highlands, Basalt Plains, Otway Ranges, Stony Rises, Eastern Coastal Plain, Western Coastal Plain, Bellarine Plain, Coastal Fringe, and Cropped Volcanics – were determined by a mixture of statewide resource management units (RMUs) and the *Corangamite Landcare Plan 1993*.

Following initial community consultation in 2002 that established the vision for the region, the project team decided to reduce the sub-regions from nine to six. These are Leigh-Moorabool, Otway Foothills, Lake Plains and Northern Foothills, Curdies-Gellibrand, Geelong and Environs, and Otway Coast. Rather than using landscape qualities drawn from the RMUs, the team, in consultation with stakeholders and community members, decided to rethink the boundaries of the sub-regions with a greater social community and catchment focus (CRCS Community Draft 2002-2007, p.7). The boundaries were a combination of social and topographic aspects of the regions.

The visual language developed for the representation of the boundaries of the sub-regions reflected the discussion about the boundaries and the determination of the project team to provide a community-based strategy. The representation of the sub-regions designed for the CRCS Community Draft 2002-2007 (2002) was single colour, line, printed on tracing paper (Figure 12). In this representation, black, looping lines differentiate the sub-regions and describe the fluidity of the boundaries. The openness of the boundary is signified by the dotted line, which was a recurring graphic device used in the report. This visual device is designed to signify the participatory process and the perspectives that created the boundaries. It also is a visual sign that communicates the indeterminacy of the boundary rather than the precise boundaries of a cartographic line.

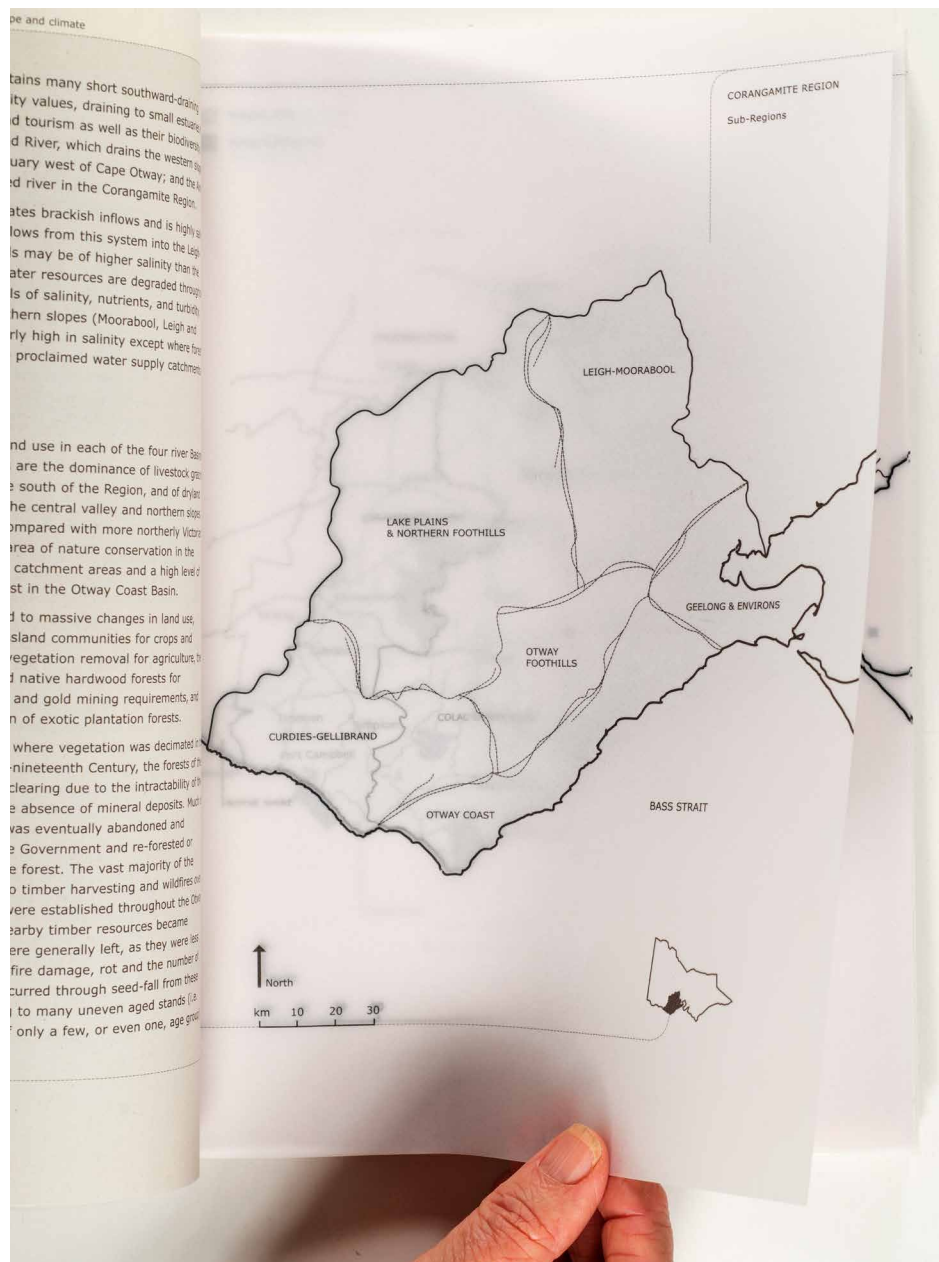


FIGURE 12. SUB-REGIONS. CORANGAMITE REGIONAL CATCHMENT STRATEGY WORKING DRAFT 2002.

The representation of the sub-regions is one of a suite of eight images printed on overlaid sheets of architectural tracing paper. These represent the sub-regions, local government regions, major roads and towns, Ramsar sites, parks and reserves, hydro-river basins, bioregions, native vegetation cover, topography, population and land use. Each image is single colour with minimal graphics in order to build up a full description of aspects of the region separately and together. The aesthetic strategy to separate the layers in the GIS (geographic information system) mapping systems as a material separation created the suite of images printed in single colour and reduced

printing costs. The minimal aesthetic created a graphic interpretation different to the conventional density of government information. This playful, simple intervention created a tactile experience through physical engagement with the document, and a graphic depth through the number of simple overlaid line images (seven on tracing paper layers and the final topographic map on paper which used some tonal elements).

**Acceptance and refusal.** A tension between *acceptance* and *refusal* emerged as important features in my experience of chorographic tracing. Over the course of the four iterations of the *Corangamite Regional Catchment Strategy* (*Vision*, the *Working Draft August 2002*, the *Community Draft 2002-2007* and the *Regional Catchment Strategy 2003-2008*), I came to accept an open and dynamic process in the production of a complex representation of place. This representation is shaped through the experience and connection to the community process and the mediated representations of the knowledge of the region from the various policy documents, strategies, consultation processes and cartographic representations.

*Acceptance.* The dynamic iterative process between the team members, the CCMA Board and the expert panels challenged my previous experience of the professional practice of communication design. The four iterations of the strategy with the changes, including additions and deletions in response to community and expert feedback, required an open and accepting position of the social complexity of the process. The overwhelming amount of information demanded an openness to *listening* to understand not only the content but also the social relations. My attention to *listening* also enabled me to identify the *emergent* connections between the project team, the consultation processes in the workshops and the regional catchment authority.

*Refusal.* At the same time, I questioned the conventions of scientific visual language. The tension between the way that maps ‘should look’ according to cartographic convention and my desire to represent an innovative process through tracing, layering and dotted, open lines provides an experimental and critical indicator of *refusal*. My refusal of the conventional visual language of the cartographic and report form, was a tactic to prioritise the community participation, shared decision making and local knowledge emerging from the workshops.

Working with the project team, who valued an innovative, interdisciplinary approach, my focus as a designer was to find the visual language that allowed multiple perspectives to be evident in the documents. Making visible the flexibility and the fluidity of boundaries within social and natural systems was one example. The delineation of the subregions as ‘fuzzy’ emphasises the community perception of the boundaries and is a *refusal* of cartographic conventions entailing a *loss* of scientific and cartographic authority.

## ENVIRONMENTAL FLOWS IN THE HAWKESBURY-NEPEAN (2006-2009)

Following the project in Victoria, Australia, I worked on a transdisciplinary university-funded project concerned with environmental flows in the Hawkesbury-Nepean River in New South Wales, Australia. The Hawkesbury-Nepean is a river system in the Sydney Basin that provides the water needs of four and a half million people in the city of Sydney and its environs. The river flows from south to north and is fed by tributaries from the Blue Mountains and the catchments in the south. Dams have been built in the Nepean catchment at the Avon and further north at Warragamba. In 2006, when I commenced working on this project, the drought in South Eastern Australia was at its height and the dams in Sydney were at their lowest.

**Collaboration.** The University of Technology, Sydney announced an internal research grant scheme to develop transdisciplinary approaches in research across the university in 2006 and my experience with Corangamite Catchment Management Authority in Victoria was recognized as I became a chief investigator on the research project. The interdisciplinary research team comprised members drawn from the Institute for Sustainable Futures (ISF), the Institute for Water and Resources Management (IWERM), Faculty of Engineering and later the Faculty of Arts and Social Sciences in partnership with the Hawkesbury Catchment Management Authority (HNCMA). The ‘wicked’ problem (Rittel 1972; Buchanan, 1992) that the team of specialists faced was a consideration of the risks of the release of environmental flows in the Upper Reaches of the Nepean River.

**Designer as researcher.** For me, the role of design and the designer in an inter-disciplinary team became the primary contextual issue. Having worked with the CCMA in Victoria and refused the role of service provider – instead experimenting with a hybrid of practice-led research and consultancy – I recognised and understood the potential of the approach of *designer as researcher* to the research team. I was certain that practice-led research, particularly *research through design*, in this context could contribute to research into the role of the visual communication designer in an interdisciplinary team. In *research through design*, the design researcher is required to apprehend the self in experience while examining the experience through an observer perspective. In this project, I maintained my disciplinary expertise as a researcher in the team focused, on effectiveness, but also turned inwards to the affective dimension (Nicolescu 2002a, pg.84) to experiment with my perceptions and perspectives on the experiences.

**The affective experience.** From a personal perspective the Hawkesbury-Nepean River was an enigma. I had never understood its flow and physical characteristics. My previous experience in Indigenous-led projects had taught

me about the connection between people and country and the reciprocal relation between the health of the country and the health of the people. This relationship between people and their country manifests *on country* through *walking, talking, noticing* and *sharing observations*. Walking on country is often directed at sourcing food and also relates to *caring for country*. For example traditional fire practices are used to bring fresh grass for animals to feed on, create pathways for ease of walking, maintain the openness of grassy camping places and provide access to water sources.

During the project we went on field trips to various places along the Upper Nepean River including Pheasants Nest, Maldon Bridge and Douglas Park. Walking proved quite difficult along the edge of the river. At each site we went to the river's edge or as close to it as we could get and then drove to the next site. My experience was of exclusion. Getting close to the river was difficult. At Pheasants Nest, we photographed the weir from the top of the ridge. At Maldon Bridge, we struggled through weeds beside a narrow path and at Douglas Park, sat on the beach at the edge of the river designated a public picnic area. My understanding of the river was deepened but my connection to the river, the waterflow and the topography was fragmented.

On my return I examined the digital maps on Google Maps and the Hawkesbury-Nepean GIS maps provided by HNCMA. My sense of disconnection to the river, its movement and its flow remained strong. I then turned to the topographic maps from the NSW Department of Lands. Although I am a visual designer, the scale of the visualisations in the published maps hindered a clear picture of the complexity and extent of the system as it snaked from south to north around Sydney. I decided to trace the course of the river using tracing paper and felt tip pens by drawing (with the commercially available maps) the course of the waterways, in order to understand the place. I decided that rather than *walking country*, I would begin to *trace country* so that I understood it better. These drawings traced from maps allowed me to understand the physical characteristics of the waterways – the dams, the flows, the tributaries and the landforms around the river.

I constructed a large image from eight topographic maps produced by the Land and Property Information NSW Department of Lands. The ground for this large image is made up of 8 maps that are 550mm x 520mm each. These are: Avon River 9029-3S; Wollongong 9029-2S; Bargo 9029-3N; Bulli 9029-2N; Appin 9029-1S; Picton 9029-4S; Camden 9029-4N; and Campbelltown 9029-1N. The scale of these maps is 1:25000. I traced various reaches of the river so the original tracings ranged from 500mm x 520mm up to 800mm and 1200mm. The original tracing was digitally scanned.

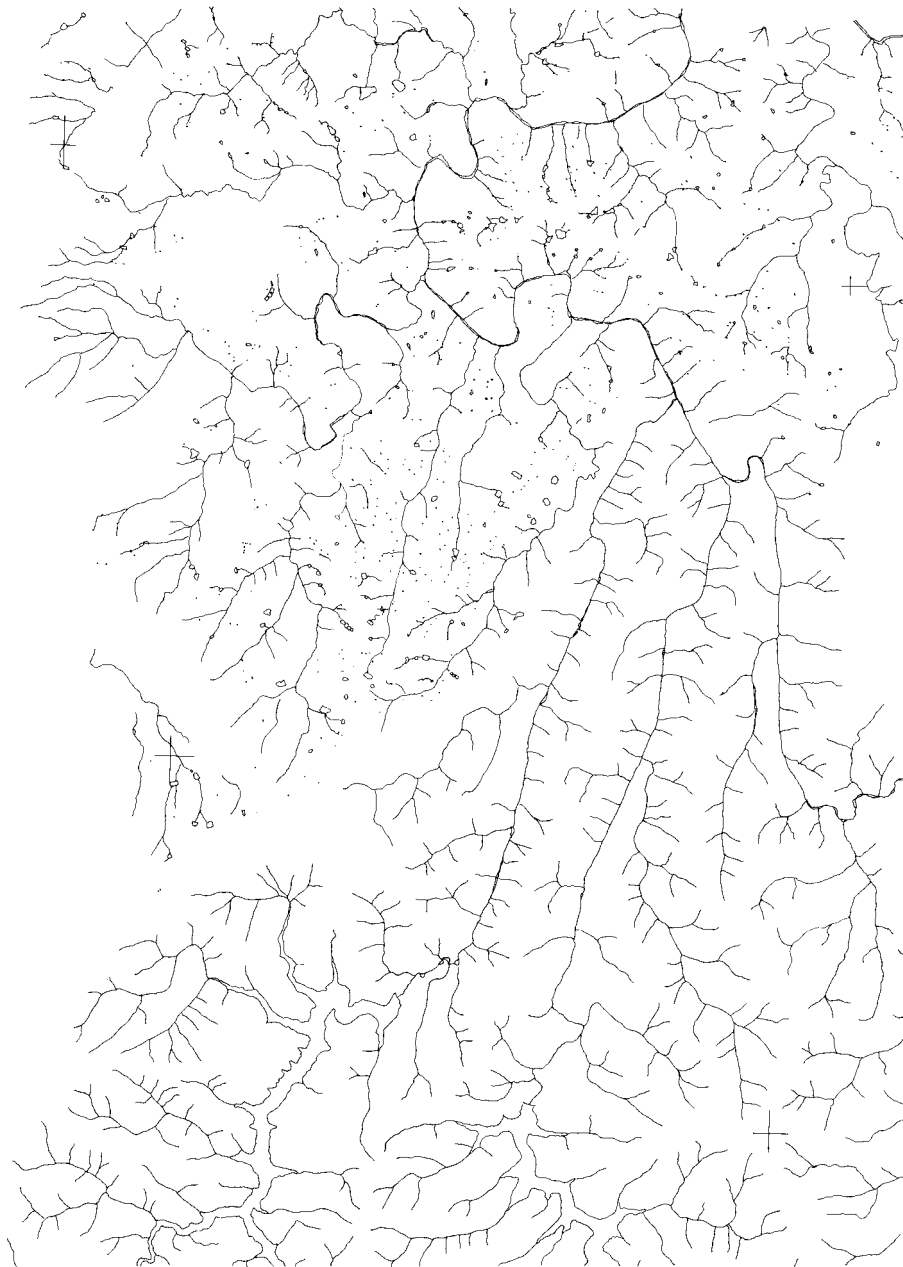


FIGURE 13. J. GÖTHE, DRAWING OF THE WATERWAYS OF THE UPPER REACHES OF THE NEPEAN RIVER TRACED FROM TOPOGRAPHIC MAPS 2007.

This material process was to prove significant in two ways: firstly, as outlining the trajectory of my creative practice (which I will further develop in more detail in Chapter Six, Country); and secondly (and more importantly) as a recognition of the connection between chorography and tracing as the foundation for an embodied critical practice.



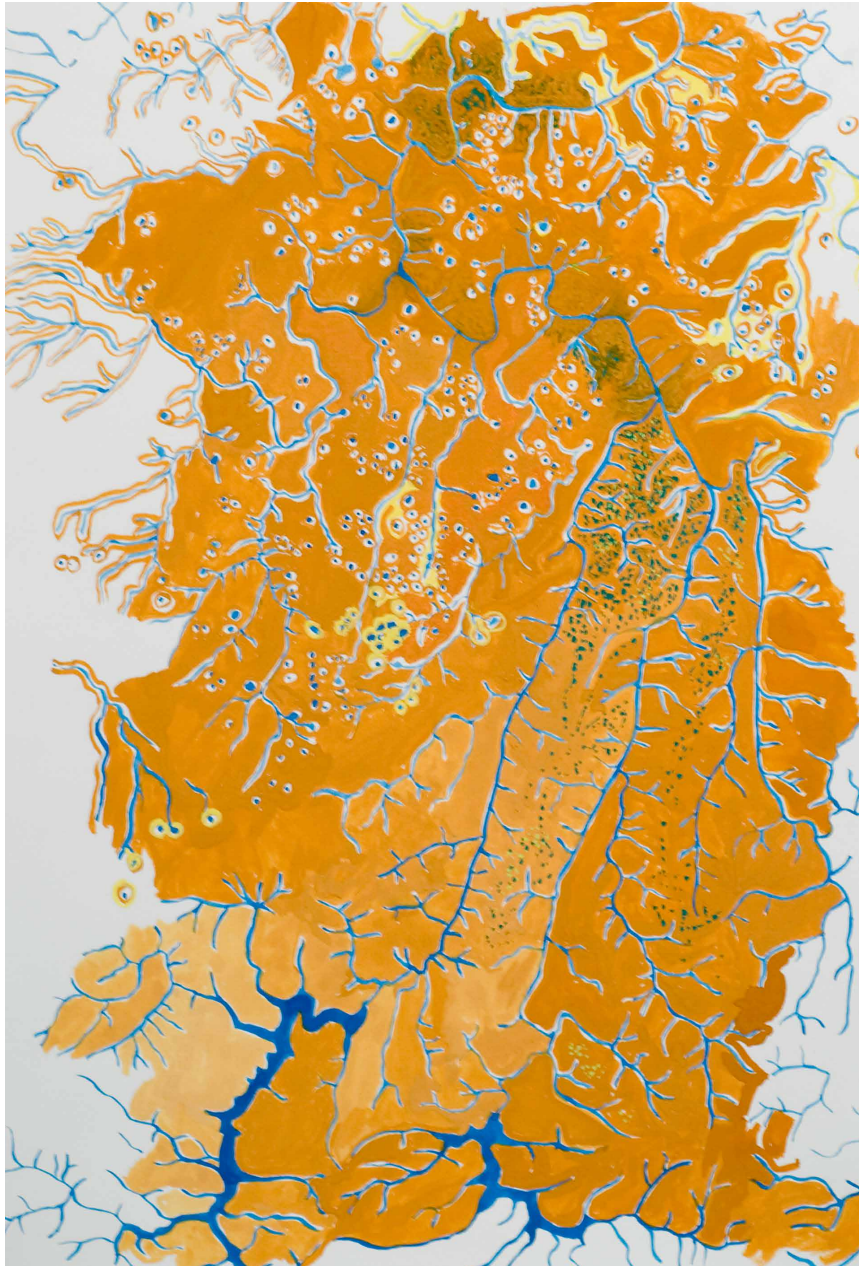


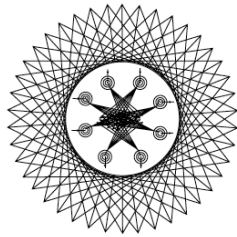
FIGURE 14. J. GÖTHE. UPPER REACHES OF THE NEPEAN 2007. DIGITAL PRINT, HAND-COLOURED WITH GOUACHE ON ARCHES WATER COLOUR PAPER 280 X 330 MM.

The act of tracing, for me, was an act of making sense of place in the embodied relationship with the upper reaches of the Nepean River through the mediated image of the map. Not only did I experience a physical expression through the performative act of tracing but a story also emerged. The patterns and shapes of the waterways, the size of the dams and the dots that represented water reserves revealed disrupted flows of the creeks, streams and run-offs between the protected catchment and the suburbs and peri-urban areas of the Upper Nepean. The change in the quality of water flow outside the restrictions of a



protected catchment was visible in the line quality of the traced hydrography and revealed the fragility and insubstantiality of the flows of water as the creeks and waterways were diverted, stored and blocked by the pressures of urban development.

**Tracing the conceptual emergent.** During this project the interdisciplinary team met every second week. Our intention was to investigate processes to bring into material and experiential form a transdisciplinary approach that could be applied in various circumstances. A workshop was organised with the staff of Hawkesbury-Nepean Catchment Management Authority for the research team to present the transdisciplinary approach. In order to consolidate and come to a general understanding of transdisciplinarity within the team, we initiated a reading group on transdisciplinary theory (Nicolescu 2002a; Max-Neef 2004; Russell, Wickson et al 2008). We discovered that two important considerations in a transdisciplinary approach are the recognition of the plurality of subjectivity and an acknowledgement of 'levels of reality' (Max-Neef 2004, p.10). Max-Neef describes these levels of reality as a conjunction between discipline and intention. These include: what exists (the physical sciences); the pragmatic and the purposive (disciplines such as architecture, engineering, commerce); the political (design, law, planning); and, finally, the ethical (philosophy, ethics) (Max Neef 2004, p.9). According to Max-Neef, transdisciplinarity gives focus to the co-ordination or organisation of all levels to create 'a deep ecology' (Max-Neef 2004, p.4).



### First draft visualisation of a transdisciplinary process: contribution from visual communication design

Jacqueline Gothe [jacqueline.gothe@uts.edu.au](mailto:jacqueline.gothe@uts.edu.au)  
Marian Lowe [maz@maz.com.au](mailto:maz@maz.com.au)

With thanks to Chris Riedy, Val Brown, UQ Boilerhouse (adapted from Kolb 1974; Brown 1997; Grootjans et al. 2005), Cynthia Mitchell, Tally Palmer

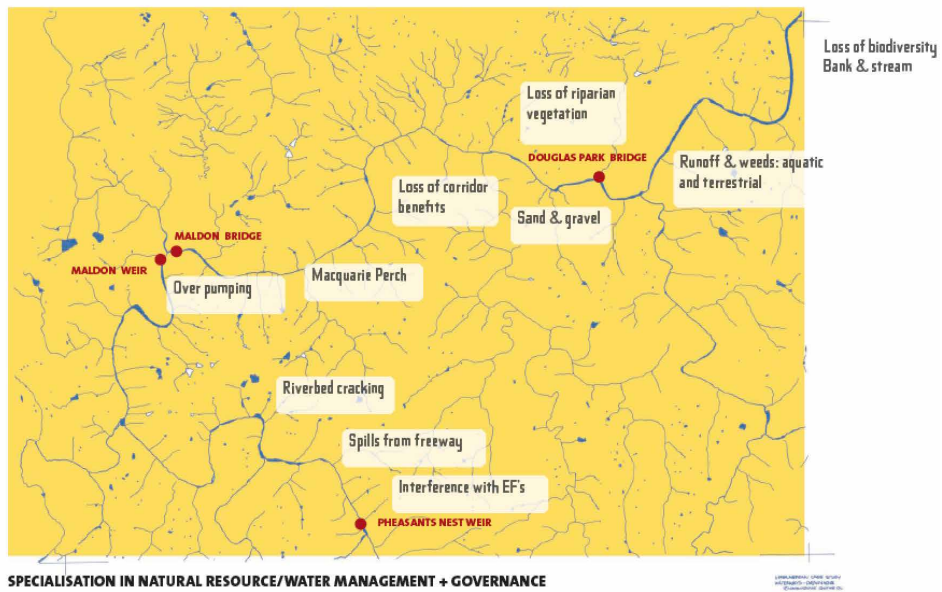
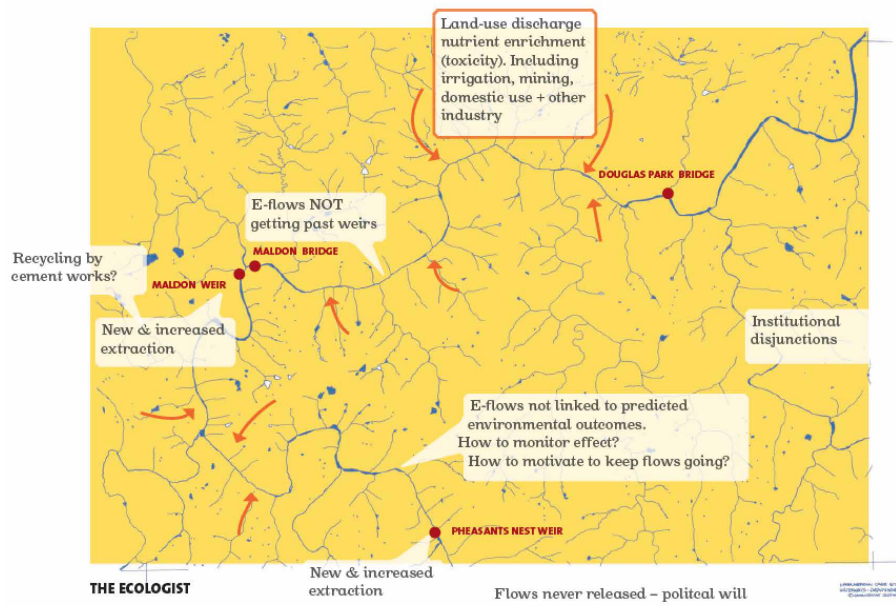
Visualisation of a transdisciplinary process UTS Transdisciplinary Research Team

1

FIGURE 15. VISUALISATION OF A TRANSDISCIPLINARY PROCESS BY JACQUELINE GOTHE & MARIAN LOWE IN ENVIRONMENTAL FLOWS IN HAWKESBURY-NEPEAN (2006-2009).

**Listening and tracing.** My self-determined project within this investigation became the tracing of the understandings of transdisciplinarity for the team. I worked with Marian Lowe to develop various resources to support the team's learning about transdisciplinarity. These included visually documenting the transdisciplinary process within the team (Figure 15) and re-purposing my experimental tracings of the river as visual materials for the participatory process in the workshop with the Hawkesbury-Nepean Catchment Management Authority.

My tracing of the Upper Nepean River became the ground for the participants to record their perspectives on the question: *What are the risks to maximizing the benefits expected from the increased environmental flows?* Participants recorded their responses on black and white prints of the hand-drawn map. The plural subjectivities of the participants at the workshop required an articulation. This was gathered through a discussion of: the subjectivity we all brought to the problem; our role in the context; our disciplinary and educational background and our connection to the river. This information was then collated and provided a visual representation of the perspectives of the participants (Figure 16 a,b,c).



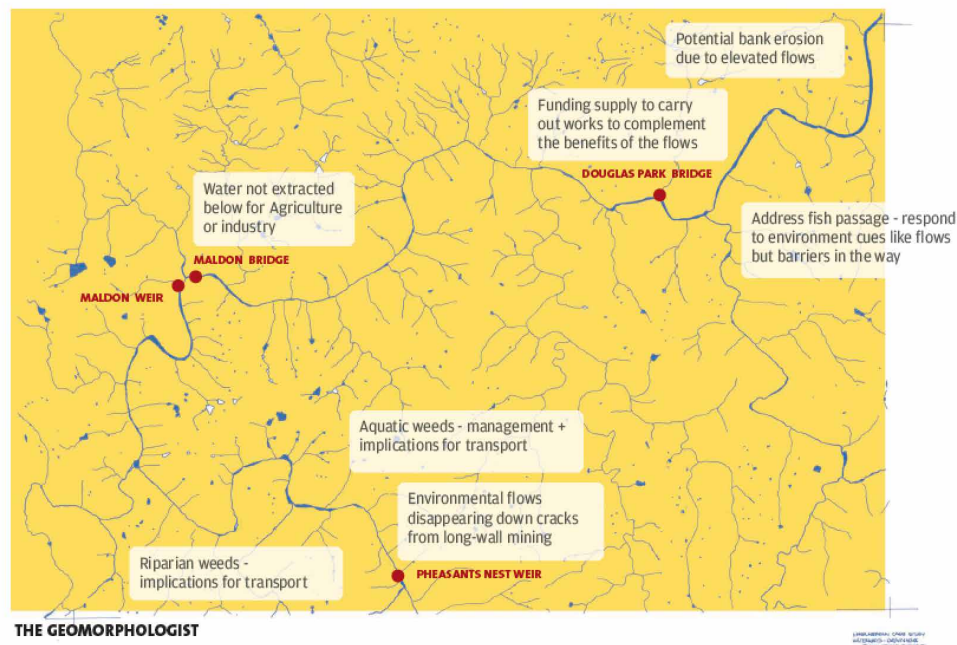


FIGURE 16. TRACING THE CONCEPTUAL EMERGENT. RESPONSES FROM A GEOMORPHOLOGIST (16A), ECOLOGIST (16B) AND SPECIALIST IN WATER MANAGEMENT AND GOVERNANCE (16C) TO THE QUESTION: *WHAT ARE THE RISKS IN THIS REACH TO MAXIMISING THE ENVIRONMENTAL BENEFITS EXPECTED FROM THE INCREASED ENVIRONMENTAL FLOWS? CONSIDER THE SOCIAL BIOPHYSICAL LANDSCAPE OF THE REACH FROM YOUR SPECIALIST KNOWLEDGE PERSPECTIVE.*

#### COMMUNICATING SHARED TRADITIONAL KNOWLEDGE PROJECT (2002-2010)

My understanding of the social dimension of the performative element in chorographic tracing emerged in my cross-cultural experience in Indigenous-led projects. The first occurrence was my introduction to the Traditional Knowledge Recording Project in 2002 where the power of mimesis was highlighted. The second was during the Gandangara Media Project where I came to a critical understanding of the importance of listening.

**Tracing and mimesis.** In my introduction to the Indigenous-led Traditional Knowledge Recording Project (TKRP) in a motel room in Glebe in 2002, I was struck by the video of Elders speaking to the camera and encouraging younger members of the community (either in camera or off screen) to repeat the understandings about plants, animals and place: to the camera, word for word, action for action. The younger members were able to see the Elders speaking to camera, describing country, animals, trees, the uses and the connections in local language and in English. The younger members would then repeat what the Old Man had just said to the camera. Later this would be replayed in a community setting and the participants would share the embarrassment, the pleasure and the knowledge with others. In this moment my understanding of tracing, copying and repetition was transformed. In the presence of the video

recording of two Kuku Thaypan Elders from Cape York, Tommy George and George Musgrave (now deceased), my ideas of value, originality and innovation were deeply challenged. The process of a culturally appropriate knowledge recording, in a context of cultural survival, was confronting. In this moment of insight my cultural conception of the mimetic as a mindless copy was transformed into a recognition of mimesis as a performative and generative act of identity construction, empowerment and knowledge creation. On further reading, I discovered the writings of anthropologists and literary theorists who describe mimesis as a process in which the copy acquires the power of the represented (Taussig 1993, p.2), as an opening to difference (Schwab, 2011) and an embodied connection through practice (Jackson 1983, 1994).

**Listening and hearing.** The other moment of insight came in 2011 when I accompanied Victor Steffensen, Jason de Santolo, Oliver Costello and Clement Girault to Mill Creek at Menai, the potential Biobanking site owned by Gandangara Land Council. Situated twenty-five kilometres from the centre of Sydney, this place represents a conjunction of differing land values including ecological, cultural, and financial opportunities. During the visit we were gathering material for the Indigenous-led media project The Gandangara Local Aboriginal Land Council Biodiversity Strategies Media Project 2009-2011. I found myself participating in the recording of the experiences of the land management officers and trainees and asking questions for the recording. What struck me was my use of the question as an interrogative probe. Although the questioning was in a generous spirit, I recognised the relationship between the act of questioning and the creation of a place for listening. This place for listening is what underpins the Indigenous-led video methodology established initially in the Traditional Knowledge Recording Project (2002-2006 approx) and continued in Traditional Knowledge Revival Pathways (2006-ongoing). This recording process creates a respectful listening that allows the speaker a space of empowerment and cultural voice.

My critical consideration of *the question* revealed the cultural power of the Indigenous video recording process. The experience of participation through observation and action enabled an embodied recognition of the difference between asking questions with an instrumental focus and the question as an opening to hearing another. The nuances of the Indigenous recording process of participation and my experience, not only of the knowledge recording process but also the experience on country, opened my receptivity to the way of listening exemplified in the Indigenous recording process. My mimetic engagement and participation were essential to comprehend the process. In this recognition I identified a reiterated performative practice of tracing as a political and social act of revitalisation.





FIGURE 17. GARY LENNIS DESCRIBES THE IMPACT OF ILLEGAL DUMPING ON LAND COUNCIL LAND. PHOTO TAKEN BY OLIVER COSTELLO DURING GANDANGARA LOCAL ABORIGINAL LAND COUNCIL BIODIVERSITY STRATEGIES MEDIA PROJECT 2009-2011.

**Listening and recording.** At the heart of the Indigenous-led project of cultural revival is the use of digital media to support an understanding of Indigenous ecological knowledge (IEK) in contemporary environmental management practices. My role as visual communication designer in this project is to enhance, support and participate to distil the impact of the project. This practice of recording ‘on-country’ has been identified (Standley et al 2009; Bidwell et al 2008) as an Indigenous-based response to contemporary media. The video camera becomes a central mediating technology between Country, Elders and community members as participants in the recording and cultural experience. The methodology developed by the Kuku Thaypan Elders provides a platform for a performative engagement where the speaking of understandings of country by Elders is shared with community members.

The relationship that the TKRP project methodology requires between the camera, the Elders and the younger community members has become a foundational process that has been applied in many contexts, including Yunguburra, the fire workshops at Bizant, Laura and the media project *The Pathway: Building the Track* (2009-2011). In all of these situations, learning is central to the process. Skills exchanges are emphasised with opportunities to practise the different technical roles in videography, editing and database understanding. However, it is not only technical understanding that is shared, because embedded in the process is a performative knowledge-exchange

originating from the initial on-ground video recording by Victor, of the Elders, accompanied by the younger members of the community.

This recording process, as a tracing practice, is a participatory cultural practice of self-constitution. This process requires attention to the speaker. Participants are often inexperienced in public speaking and are in front of a camera for the first time: this methodology allows them to find voice in a single shot. The social relations surrounding the recording take on a ceremonial and cultural perspective rather than an instrumental and technical orientation. The camera changes from a weapon of capture to a tool of embracement that opens up the opportunity for the empowerment and identity-strengthening of the participants, whether they are speaking to the camera, listening or recording (Figure 17).

**Collaboration Design and Country.** This exhibition, held at DAB Lab Research Gallery UTS in March 2012, was an opportunity to show the outcomes of Gandangara Local Aboriginal Land Council (GLALC) Biodiversity Strategies Media Project 2009-2011 and to recognise *Communicating Shared Traditional Knowledge*, the long-term partnership between the University of Technology, Sydney and the Traditional Knowledge Revival Project. The central visual outcome from the media project was a DVD for Aboriginal landowners as they considered the Biobanking Scheme offered by the New South Wales Government Office of Environment and Health (OEH). Created using the principles of TKRP, it included interviews with representatives of the Local Aboriginal Land Council, rangers, stakeholders and project partners on country, and recorded the flora and fauna of the Gandangara lands along Mill Creek at Menai, twenty-five kilometres from the centre of Sydney. The structure of the DVD, the narrative interface and the title, *The Pathway: Building the Track*, were co-created in a series of workshops that I facilitated at UTS with Jason De Santolo, the project leader, Oliver Costello, Victor Steffensen and Teresa Leung. The video by Jason De Santolo and Clement Girault was recorded at the Mill Creek site. The DVD and the iPad application for the exhibition were edited and designed by Jason De Santolo and Clement Girault. Teresa Leung, a Visual Communication graduate working with the design company Universal Favourite, designed the interface and packaging of the DVD. The content for the exhibition handout was designed in a collaborative relationship between myself and Ashley Morris of Universal Favourite (Figures 18 and 19).

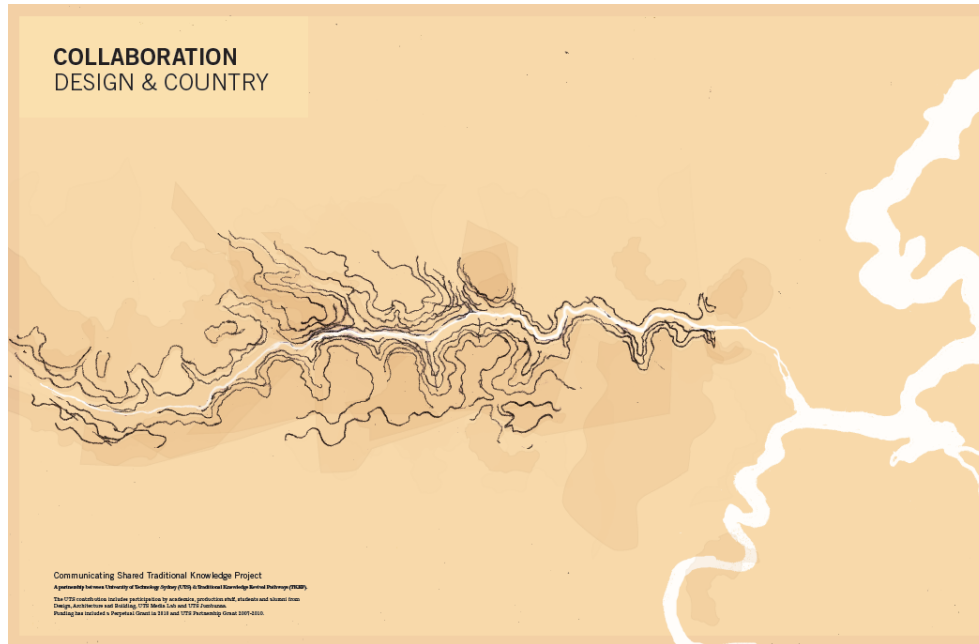


FIGURE 18. TRACING MILL CREEK. INSIDE SPREAD PAMPHLET FOR THE EXHIBITION *COLLABORATION DESIGN AND COUNTRY* 2012.

I designed the installation for the exhibition in the DAB Lab Gallery with support from Aanya Roenfeldt, the gallery curator and manager. The gallery is a small rectangular room with one glass wall facing onto a courtyard in the Faculty of Design Architecture and Building at UTS. I wanted to create a contemplative space to engage with the iPad version of the DVD. I painted the room in an ochre colour and placed a plywood table in the centre with four small plywood stools on each side of the table and one in the corner to slow the space down. Visitors could engage with the iPads using the headphones and also converse at the table. During the exhibition I hosted two events with small groups of undergraduate and postgraduate students. Around the walls I painted a dark brown line that traced the flow of Mill Creek as it moved into the Georges River. This tracing of the river was used as the line on the cover of the exhibition handout and was the key image in the foldout. On the back wall of the gallery I installed a large flat screen playing a loop of the video of plants, animals and geographic features at the Mill Creek site with a soundscape recorded at the site. On the other wall was a display of the DVD packaging. This consisted of the front cover, the open sleeve, the DVD and the back cover mounted on a perspex sheet leaving a two centimetre gap from the wall. In the corner I placed another plywood stool with the room sheets (Figure 20).



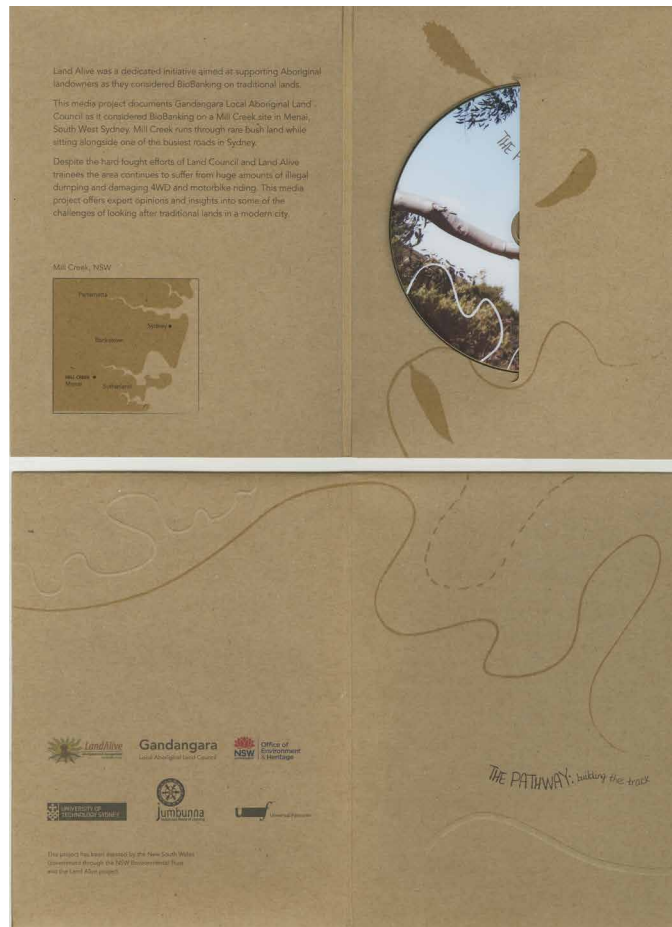


FIGURE 19. THE COVER AND INSIDE SPREAD OF THE DVD *THE PATHWAY: BUILDING THE TRACK*.



FIGURE 20. *INSTALLATION COLLABORATION DESIGN AND COUNTRY*, DAB LAB UTS 2012.

## The qualities of a critical practice

In this chapter I have demonstrated a connection between the material, conceptual and performative dimensions of tracing. These qualities are drawn out in the descriptions of the projects – Corangamite, Hawkesbury-Nepean Environmental Flows and Communicating Shared Traditional Knowledge Project. This chronology also demonstrates the interpretive potential of tracing as material conceptual and performative actions. The emergence of the interpretive potential of tracing place|country in the projects establishes the creative possibilities that are foundational to my self-initiated creative project and described in Chapter Six Country. In these projects my identification of *non-adherence* to professional service provision in the interdisciplinary teams, mimesis and listening in the Indigenous-led project, and the associated recognition of inevitable loss or erasure are central to my conceptualisation.

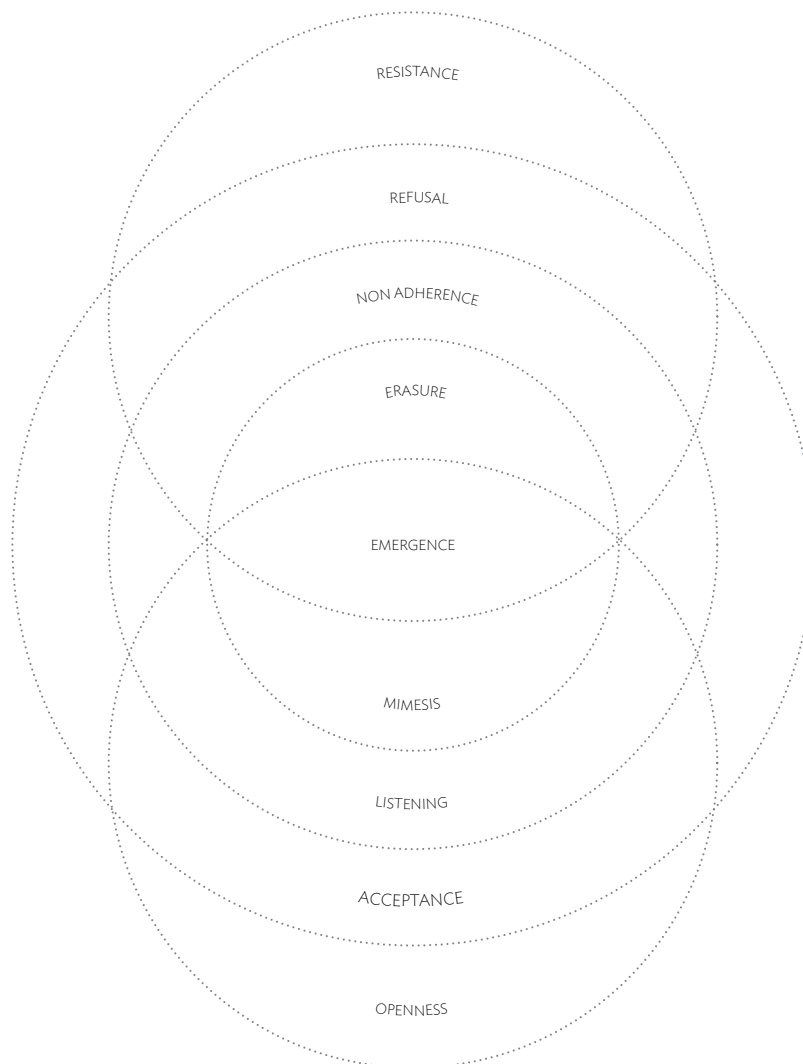


FIGURE 21. DESIGNERLY MOVEMENTS AND QUALITIES OF ACTION FOR A CRITICAL PRACTICE IN VISUAL COMMUNICATION DESIGN.

My reflection in this chapter on the materialisation of the critical practice of tracing is the centre of the thesis. This analysis of my experiences of tracing as a critical conceptual gesture and my literal experience of material tracing offers an approach to the designer in complex socially situated projects. The experience of tracing as drawing is foundational for my speculation on a critical practice. In this chapter the relational connection between the material, the conceptual and the performative dimensions of tracing are described as the movements of the designer. My recognition of *acceptance* and *refusal* in the material tracing of the sub-regions in the Corangamite Regional Catchment Strategy is followed by the identification of the conceptual and performative qualities of chorographic tracing in the project on the Upper Nepean. In this project the perspectives of participants in the interdisciplinary and intercultural environmental projects come into visibility through tracing the *conceptual emergent*. In Communicating Shared Traditional Knowledge, the understanding of Indigenous protocols and the agency of place|country emerges through a performative tracing of cross-cultural experiences that focusses on the movements of *listening* and *yielding* as an opening to *mimesis*.

Lastly, my recognition of the inevitable loss and *erasure* within the movement of *resistance* has consequences for the designer. In a critical practice of tracing, the designer brings creative, expert and professional understandings alongside a *refusal*, constituted as *non-adherence* and *erasure* of the possibility of the conventional construction of identity as visual communication designer and professional expert as service provider. At times I have found this awareness uncomfortable as it heightens the uncertainty and ambivalence experienced in practice. However, this reframing and consequent loss of the conventional construction of my identity as visual communication designer and professional expert has emerged as a replenishment in which the process of representation becomes participatory, fluid, open and critically engages with dominant conventions, bringing multiple perspectives and the affective experience of the designer into the frame.

## Conclusion

In the following chapters I will consider projects from three strands of work in which I participated and engaged during the doctoral thesis: my involvement in an interdisciplinary research team that considered the risks of pesticide toxicity in the Hawkesbury-Nepean River; the Indigenous-led project *Firesticks* in which I have participated since 2010; and a self-initiated creative project *Drawing Country*. My experience in these projects and the work produced will be examined through the analytic framework established in Chapters Two and Three. This framework emphasises the potential of the practitioner experience of collaboration and the effect of ambivalence as a generative resource for understanding a critical practice in visual communication design.

In this framework the movements of *non-adherence* and the consequent *erasure*, alongside the opening to emergent understandings produced through the action of *listening*, establish a dynamic framework to reflexively analyse and describe the projects, their impact and the practitioner logic that connects them.

The classical chorographer takes as their task the describing of regions and place. Evidence from historical examples, in particular the *Peutingeria* and the collaborative practices of the Antiquarians in Britain and Scotland, demonstrates the chorographer working with others and interpreting information, either brought back by travellers or shared by colleagues in the landscape, to build the knowledge of a particular place. Recognising these historical precedents, the works analysed in the following chapters can all be categorised as a contemporary chorography.

This experience shows that, in a context of complex knowledge negotiation in landscape management, the expanded definition of the chorographer as visual communication designer requires not only ‘skills of drawing’, but also the capacity to contribute to the co-construction of knowledge in a cross-disciplinary team. My role as designer and researcher in this team is as a participant in decision-making and idea generation (Sanders & Stappers 2008) at two levels – one as researcher and the other as designer. More specifically, my responsibility is to contribute to the processes of co-construction of the research findings, to facilitate the ways in which these processes of co-construction can be supported by visual communication design and to disseminate the findings.

As the American geographer Don Mitchell points out, ‘landscape is produced ... it is actively made ... as an act of will’, and in order to understand it the place of the construction of the representation needs to be understood. Attention must be given not only to the broad, but also to the narrow relations of production (Mitchell 2008, p.34). Mitchell claims it is the relations of production are the key issue. These are not only the ‘broad’ or societal issues, understood as societal conventions and practices, but also the ‘narrow’ relations of production. Mitchell describes the ‘narrow relations of production’ through the example of an office in a design studio, in a particular firm in a particular location. My focus in the next three chapters is concerned with the ‘narrow’ relations of production. This is exemplified through a reflexive consideration of the situation, collaborative relationships and the ambivalence that I experience as a visual communication designer and researcher.

Chapter Four  
*Water: Pesticides in the  
Hawkesbury-Nepean River*

## Introduction

Considering the visual communication designer as practitioner researcher in a cross-disciplinary research context reframes their practice as distinct from the service provision model. My experience of this difference in this research project is an opportunity to consider the actions of the practitioner researcher as a critical tracing practice. This participatory, collaborative practice necessitates an articulation and differentiation of the relationship between the expert voice of the designer, and the enquiring voice of the researcher. My recognition of a process of tracing the *conceptual emergent*, and my understanding of *nonadherence* and *refusal* as demonstrated in this experience, are important for the argument of tracing as a critical practice.

## The Hawkesbury-Nepean River

This important river system in NSW is the largest river and estuary system in the Sydney Region. Its complex ecosystems provide habitat for a multitude of native plant and animal species. Since European settlement it has been increasingly relied upon to meet the requirements of a burgeoning population and it now provides 97% of the fresh drinking water for more than 4.8 million people living in and around Sydney (Greening Australia 2007). The river is also a major site of agricultural activity in the Sydney Basin.

The Hawkesbury-Nepean River flows for a length of 470 kilometres, and drains approximately 21,400 square kilometres, or 2.14 million hectares, of land. The institutional arrangements for the rural, urban and peri-urban communities along the rivers include: councils, water authorities, catchment management authorities, local Aboriginal land councils and various State and Federal Government departments that manage various aspects of governance and funding. The Hawkesbury-Nepean River is an important recreation and tourism destination.

As a result of cumulative development and population growth over time, the Hawkesbury-Nepean River system has been placed under increasing pressure and the environmental health of the river system has suffered. River regulation has resulted in large volumes of water being extracted for drinking water, irrigation and industrial uses. The decreasing number of market gardeners and turf growers are understood by local authorities as key users of pesticides and fertilisers. The river also supports numerous other extractive, manufacturing and processing industries. There are a number of sewage treatment plants (STPs) located in the catchment, and stormwater runoff from agricultural and urban areas can carry pollutants into the river system. Algal and introduced macrophyte blooms have commonly occurred in the past and are likely to continue to occur in the future. (Department of Environment Climate Change and Water [DECCW] and Sydney Catchment Authority [SCA] 2009, p.1).

According to the Australian Government the Hawkesbury-Nepean River is 'suffering significant stress'. In 2012 the Department of Sustainability, Environment, Water, Population and Communities committed an investment of \$77.4 million for a Hawkesbury-Nepean River Recovery Package (<http://www.environment.gov.au/water/policy-programs/water-smart/projects/nsw27.html>, accessed 4/04/12).

## Collaboration

In 2010, the research team, comprising two ecotoxicologists (Richard Lim and Yin Phyu), a geographer (Roel Plant), a geomorphologist (Scott Rayburg), a socio-political scientist (Jeremy Walker), and the design team (Teresa Leung and myself), commenced work on the project described in the grant application as:

A social-ecological resilience project to reduce the risk of pesticide toxicity in NSW rivers using the Hawkesbury-Nepean (H-N) River as a case study. This project aims to reduce the environmental risk of pesticides in rivers and dams with a focus on the H-N River.

(Extract from UTS Challenge Grant Application 2010)

This project was funded by an internal university grant and aimed to build cross- disciplinary research capacity within the university and contribute to a regional context through a scheme titled *Impact on NSW: Addressing Innovation & Planning Priorities*. The foundation for the project was the ecotoxicology research results from an ARC funded project that had been underway under the leadership of Richard Lim, a senior researcher, and Yin Phyu, a post-doctoral researcher.

In the grant application, visual communication design was central to the project proposal. The project budget contained an allocation for a designer to work with me to create visual material and tools for the participatory processes. My inclusion as a lead investigator on the team created the opportunity for participation 'at the moments of decision-making' and 'at the moment of idea generating' (Sanders & Stapper 2008, p.5).

Our social-resilience project sat alongside the ARC Linkage Grant with partners in the Office of Environment and Heritage (OEH) and connections with the Department of Primary Industry (DPI).

The research focused on water quality guidelines and examined three pesticides, their levels in specific sites on the Hawkesbury-Nepean River, and the toxicity levels and effects of the pesticides on five organisms determined in laboratory tests using river water. Although the results were incomplete,

there seemed to be sufficient data to begin a cross-disciplinary discussion on communication of the risks identified in the ecotoxicology science and incomplete results.

## Introduction to the Hawkesbury-Nepean River

At the beginning of the project the team members were led on a field trip, with a representative of the regulating organisation the Department of Primary Industries (DPI). On this field trip we visited the Flemington Markets where much of the produce from the Hawkesbury-Nepean River is sold, were introduced to three farmers, and were guided by a social science researcher, Frances Parker, who had been researching the ethno-linguistic diversity and social issues for agriculture along the Hawkesbury-Nepean since the late 1990s.

Following the field trip and some desk research, the complexity of the problem began to surface. The team was mindful of resources allocated to the research project and what outcomes could be achieved. Current strategies and programs emanating from State departments focused on the market gardeners along the Hawkesbury-Nepean River. Systems for monitoring pesticide use were in place with legislation for accountability ensuring compliance. This accountability included recording pesticide use in a logbook that was inspected regularly by the representatives of the regulating authority. These inspections involved visits to the gardeners' homes and scrutiny of the paperwork. The diversity of ethno-linguistic communities along the river required a program of bi-lingual officers to support this reporting. Recently funding had been reduced and commitment from the regulating agency was wavering.

The team had expectations concerning the potential of communication design to create change in the use of pesticides by the market gardeners. These expectations raised questions about the social change possible in a research project of this scale. The desk research and interviews revealed that maintaining a focus on the market gardeners was repeating the actions that the government institutions were pursuing. This included education and extension programs for the market gardeners, including mandatory training programs, face-to-face engagement, online and educational packages through posters, websites and information packages.

The team met consistently at least once a month over a two-year period. The first meetings were used to familiarise the team with the methodology of the ecotoxicology. This included the development of laboratory testing processes with water and organisms gathered from various sites along the Hawkesbury-Nepean River, the structure of the laboratory testing and the significance of the results of the study for the river. Communication of science and the sharing of the processes and results required the team to understand the science and the language of risk assessment and the implications of the results.



After two years of working on the project, and at the time of writing this doctoral study, there are still no confirmed risk assessments of the pesticide mixtures, although indications of high levels of individual chemicals, peremethrin, chlorothanolil and atrazine have been evident. This lack of finality has made any statement about the science and assertions about the results very difficult. Until the results had been peer-reviewed we could not publicly make claims that seemed, in private conversations, self-evident in the results. This conundrum created a degree of tension within the team as we reworked the language to describe the findings. The responsibility of making claims in relation to environmental risk factors requires a commitment to detail and scientific verification. However, this was not possible and the institutional pressure on researchers to avoid controversy created tension in the team. In response to this situation the maintenance of trust and confidence in relationships within the team and with research partners, funders and collaborators was placed at the centre of the process.

During the project, smaller groups within the team were formed for particular tasks. Richard and Yin maintained focus on the completion of the ARC Linkage project and provided expert advice to the team as we attempted to make sense of the project processes and results. Roel Plant and Jeremy Walker took the lead on the writing of the journal article. Jeremy and I worked with Teresa to develop the interview processes. I worked with Teresa on the role and contribution of the design process and the development of the visual communication design outcomes including the prototype and the pamphlets. This involved extensive contact with the team for feedback and clarification on the development of the prototype and the pamphlets, as well as external engagement.

#### TRANSDISCIPLINARITY

Alongside this cross-disciplinary involvement, I maintained an interest in the theoretical and practical potential of transdisciplinarity. This interest was initiated in the forerunner to this project, the UTS Challenge Grant (2006-2009) on environmental flows in the Upper Nepean River that I discussed in Chapter Three. In this project, led by Tally Palmer, Cynthia Mitchell and myself, a transdisciplinary team and approach to integrated catchment management were developed using visual communication design. When funding for the ecotoxicology proposal was confirmed in early 2009, Professor Tally Palmer, an expert in aquatic ecosystem and pollution research, was offered a position at another University. The leadership of the team passed to the social geographer, Roel Plant, senior researcher with the Institute for Sustainable Futures (ISF) UTS. He was committed to sustainability and the potential of interdisciplinary and cross-disciplinary work.

The departure of Tally Palmer meant that the transdisciplinary learnings of the previous project (Palmer, Gothe et al 2008) were unable to be built upon. I found it was sufficiently demanding to focus on a cross-disciplinary collaboration, with the values of sustainability providing an overarching connection. Although the research team often took an interdisciplinary approach, a decision was made early on to call the team a cross-disciplinary group. This is reflected in the pamphlets produced that describe the knowledge building processes. My previous experience in the transdisciplinary project (2006-2009) established an intellectual and conceptual foundation (Max-Neef 2004; Nicolescu et al, 1994; Nowotny 2004; Kagan 2011) that allowed for my reflection on the role of the designer in a cross-disciplinary research team through the lens of transdisciplinarity. The reflexive engagement of this inquiry supported the framing of the visual communication designer as a transdisciplinary individual and the idea of *transrepresentation*.

## Transrepresentation

My practitioner research focus in this project is the representation of the voices and perspectives of the cross-disciplinary research team within an integrated communication design. I consider these as transrepresentations (Nicolescu 2002a, p.99). They represent a record of the consideration by the cross-disciplinary team to arrive at an agreed position of findings. The understanding of the team and the irreducibility of the complexity of the situation are embedded in these representations. Each artefact represents aspects of the knowledge of the Hawkesbury-Nepean River at the intersection of disciplinary knowledges. The tracing process to develop the pamphlets is a participatory process of co-creation that is central to negotiation and meaning-making for the team.

In this project I seek to identify and express the different disciplinary knowledges and values inherent in all of the projects. This becomes the ground or source for the tracing. Transrepresentations represent a crossing between disciplines and values and bring to visibility the connections not dominated by a singular discipline, value or worldview. The performative and participatory gesture of tracing enables the apprehension of the *conceptual emergent* and for the designer is an opening to the various disciplinary perspectives knowledges, values and worldviews within the team.

## Tracing the conceptual emergent

Participatory practices in design acknowledge the creativity of all participants and represent an ‘egalitarian’ and empowering process. According to Sanders and Stappers (2008), in a participatory practice the designer moves beyond the role of translator to that of facilitator, ‘leading, guiding, providing scaffolds and offering a clean slate’ (Sanders & Stappers 2008, p.11). However, in my experience as practitioner researcher, the interconnectedness between the role of translator and facilitator is maintained and contributes to an embodied understanding of the *conceptual emergent*.

The process of translation and facilitation is served by an attunement, by the designer through designerly means, to the tracing of the *conceptual emergent* in the interaction between and within members of the team. This attunement is an openness that allows the disciplinary perspectives of the research team members to be apprehended. This conceptual attunement traces the emergent shapes of the understandings. The designer senses, traces and materialises the understandings within the team to capture ‘the emergent in formation’ (Mazé and Redström 2007, p.7). The tracing practice of the designer as facilitator in a participatory process and translator of the *conceptual emergent* into a transrepresentation is at the core of the reframing of the role of the visual communication designer as a participant in the creation of knowledge. Within this practice of performative, conceptual and material tracing the movements of *refusal* and *acceptance* provide the dynamic.

This participatory and iterative approach produces a connective process that represents different disciplinary languages and understandings in a visual form. The relationship between translation and facilitation is not a set of separate actions. In this project the translation of and between knowledge perspectives in the visualisations requires continuous negotiation between and with participants for the development of content. There were at least seven iterations for *Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment* and four rounds of changes for the pamphlet *Pamphlet 2: Reducing Pesticide Toxicity in NSW Rivers. Case Study: Ways Forward for the Hawkesbury-Nepean River*, including consultation with all team members in each round. *Pamphlet 3: The Social Life of Pesticides* was easier and involved only production changes, as we had content approval. For the IAG conference presentation there were eight rounds of correction and approval.

The other facilitating component of my role was the design and communication of the participatory processes to support the team, including the design of the processes of participation and engagement for the team. This entailed establishing protocols and processes to facilitate the interactions amongst participants for the content development as well as for the team interviews and the stakeholder interviews. This was communicated through the creation of the design process plan (Figure 22) which outlined three strands of attention during the project: the design of the prototype; the interviews; and the investigation of the role of design in the research team through interviews.

**Draft Process Plan  
for Challenge Grant Phase 2**  
1 SEP 2010

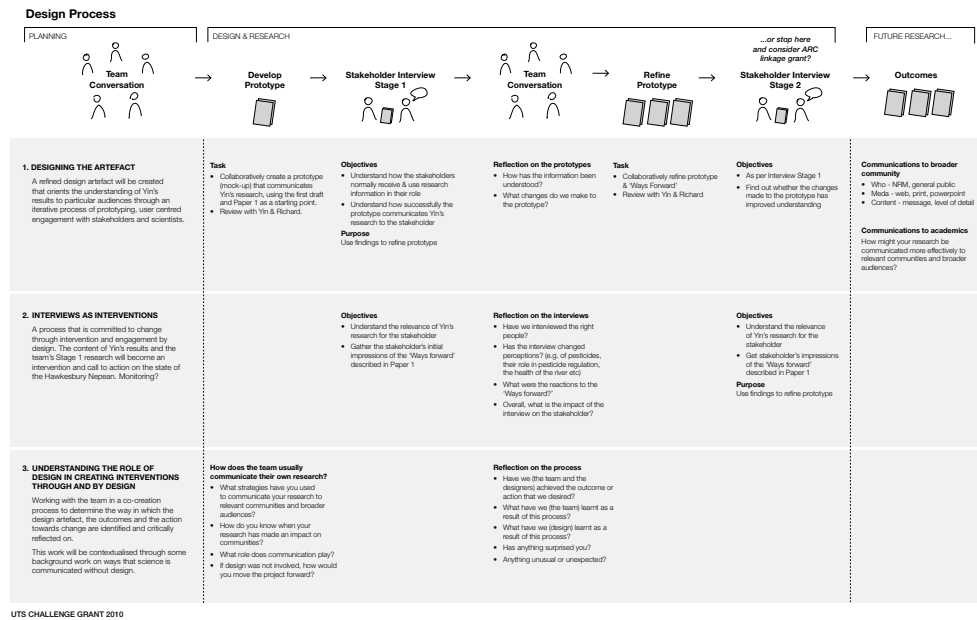


FIGURE 22. VISUAL DIAGRAM TO SUPPORT PARTICIPATORY PLANNING.

## Practitioner researcher ambivalence

The two experiences of ambivalence that I have chosen to consider in detail influence the project direction. Firstly, I acknowledge the team experience of uncertainty and discomfort in connection with our inability to have certainty in the risk assessments for the ecotoxicology results and discuss the strategies that were adopted to negotiate the tension. The ecotoxicologists were wary of having any unsubstantiated conclusions published until the final risk assessment processes were completed. This was understandable as the research partners and the researchers did not want to invite unnecessary responses to incomplete research. This uncertainty and concern within the team required attention consistently throughout the experience. My response to this uncertainty was to recognise not only the role of design in the knowledge creation process, but also the values that inhere in the processes of the production of knowledge. The pamphlets represented the science of ecotoxicology in the methods and results, and also the cross-disciplinary response to the ecotoxicology results. The representations were the articulation of the perspectives of the disciplines within the team, the stakeholders and funders from the perspective of the cross-disciplinary team.

Secondly, I experienced a personal sense of ambivalence towards the instrumental approach in the grant application. This was highlighted on the field trip regarding the positioning of the market gardeners as the focus for the problem of pesticides in the river.

*On our field trip to the Hawkesbury-Nepean River I experienced a degree of anxiety and ambivalence as I observed a tension during the visit to the home of a market gardener. We were accompanying a representative from the regulating authority on a scheduled visit to two market gardeners. At the first appointment, although we were greeted in a most welcoming manner, the power relations between the representative of the regulating body and the farmer highlighted the issue of regulatory scrutiny that the market gardeners experience. This awareness was confirmed in the desktop research. The farmer needed to demonstrate his accountability to the regulating authority through record keeping in logbooks to ensure compliance of pesticide use to the regulating authority. The representative of the regulator, with the best intentions, still found himself in the role of assessor. My sensitivity to this situation brought into question the assumptions embedded in the grant document and I posed questions for the group as to ways in which this ambivalence could be addressed. My sense of individual responsibility allowed me to bring into question the team's relationship to the complex relations of production along the Hawkesbury-Nepean River. This understanding was enabled by my experience in Aboriginal communities. My recognition of the potential intrusion of the researchers (myself and the cross-disciplinary team) without proper protocol demanded a reconsideration of the research team's engagement with market gardeners and their connection to the river.*

## Communication design

The Hawkesbury-Nepean River is materially represented in this project in four communication designs, all of which are digitally printed in an A4 format.

*Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment* is a visual representation of the ecotoxicological method and findings from research into the levels of pesticide in the Hawkesbury-Nepean River. The process of developing this illustration served as an experimental space to investigate and familiarise the research team with the ecotoxicological research process and analysis of the results. The intention of *Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment* is to communicate the ecotoxicology methods, results and risk assessments to stakeholders and the Hawkesbury-Nepean community, including market gardeners and local authorities. In addition, the process of representation supported a discussion and the shared understanding of the ecotoxicology methodology within the team. *Pamphlet 2: Reducing Pesticide Toxicity in NSW Rivers. Case Study: Ways Forward for the Hawkesbury-Nepean River* and *Pamphlet 3: The Social Life of Pesticides* focus on the cross-disciplinary research outcomes. I consider *Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment* and *Pamphlet 2: Reducing Pesticide Toxicity in NSW Rivers. Case Study: Ways Forward for the Hawkesbury-Nepean River* as ‘boundary objects’ with an ‘ability to be a holding ground and negotiation space for both explicit and yet-to-be-made-explicit knowledge’ (Henderson 1999, p.199). The co-creation of these artefacts allows the research team and the stakeholders to respond to the findings of the ecotoxicology results and the cross-disciplinary discussion. *Pamphlet 3: The Social Life of Pesticides* provides the information to support a public seminar discussing the research process and findings. The fourth outcome is the conference paper ‘Advocating for the Hawkesbury-Nepean’ that I delivered at the IAG Conference in 2011. This presentation provides the perspective of a visual communication designer and researcher considering transdisciplinarity through a critical design approach in a cross- disciplinary research team.

### PAMPHLET 1: THE PROTOTYPE. ECOLOGICAL RISK ASSESSMENT OF PESTICIDES USED IN MARKET GARDENING IN THE HAWKESBURY-NEPEAN RIVER CATCHMENT

The intention for the design of the initial pamphlet was to communicate the pesticide levels in the Hawkesbury-Nepean River system. It was to be one element of a communication strategy to reduce pesticide use by farmers along the Hawkesbury-Nepean. It was positioned as a ‘factsheet’ summarising the ecotoxicology research titled ‘*Ecological risk assessment of pesticides used in the market gardening and turf industry in the Hawkesbury-Nepean River Catchment*’.

The pamphlet contained an introduction with a map and facts about the Hawkesbury Nepean River, the background to the research, aims of the cross-disciplinary project, ecotoxicology results for in-stream pesticide concentrations findings and a final section on risk assessment for individual pesticides.

**Emergence.** Through critical engagement with the research results and the engagement by the cross-disciplinary team, I became conscious of the implications of the research findings for the Hawkesbury-Nepean River and also the role of ecotoxicology. Rather than *Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment* becoming the communication of the science directed towards the farmers along the river, *Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment* became a ‘boundary object’ for the team. Individual feedback from team members to the designer, and then re-evaluation of the changes as a group, were intrinsic to the production of *Pamphlet 1*. This dynamic process resulted in content changes and development for the synthesis through a growing and shared understanding of the processes of the ecotoxicology research in this project. Each discipline responded to the findings through the question of how to socially situate the ecotoxicological results.

The ecotoxicological research tested three chemicals (permethrin, atrazine and chlorothalonil) in-stream, and compared the results with Australian and Canadian water quality guidelines. Water was collected from the river upstream and downstream from sites of pesticide use and brought into the laboratory. Living organisms collected from the river were monitored for the effects of different levels of the three chemicals. For *Pamphlet 1* various visual elements were created, including a visual representation of the method, a diagram in table form of the relationship between the national and international guidelines and the levels of individual chemicals found in the water samples, and finally a visualisation of the risks. It was anticipated that the visual representations could be used as elements for an information design strategy to communicate the findings to communities and stakeholders along the river. Most importantly, the objective was to make the scientific processes, methods and results accessible to a general audience. As the finalisation of the risk assessments did not align with our project time frame it was difficult to bring a strong and certain voice to communication of the findings.

## Key findings

- There are pesticides occurring concurrently in the Hawkesbury-Nepean River
- All pesticides are hazardous in high concentrations
- In-stream permethrin and chlorothalonil concentrations in the river are hazardous
- Mixtures of pesticides can be more hazardous than individual pesticides alone
- Biodiversity of the Hawkesbury-Nepean River is at risk

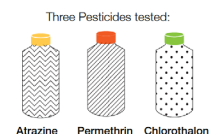


FIGURE 23. KEY FINDINGS AS REPRESENTED IN PAMPHLET 1: THE PROTOTYPE. ECOLOGICAL RISK ASSESSMENT OF PESTICIDES USED IN MARKET GARDENING IN THE HAWKESBURY-NEPEAN RIVER CATCHMENT (VERSION 9).

The section on Key Findings states that there are pesticides occurring concurrently in the Hawkesbury-Nepean River; all pesticides are hazardous in high concentrations; in-stream permethrin and chlorothalonil concentrations in the river are hazardous; mixtures of pesticides can be more hazardous than individual pesticides alone; and the biodiversity of the Hawkesbury-Nepean River is at risk.

The participatory engagement within the team to arrive at agreement on the Key Findings was an iterative process, including consultations within the team and with individual members that were facilitated by the Teresa and myself. In these discussions *Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment* was central and required continual text and image adjustment based on feedback from the discussions. The perspectives of the team members were nuanced with disciplinary practices. The forcefulness of the final wording ‘the biodiversity of the Hawkesbury-Nepean River is at risk’ was a consequence of the team’s commitment to cross-disciplinary collaboration. This shared perspective reflected a desire for change and maintenance of biodiversity in the river, balanced with a commitment to considering an appropriate response in the context.



## PAMPHLET 2: REDUCING PESTICIDE TOXICITY IN NSW RIVERS. CASE STUDY: WAYS FORWARD FOR THE HAWKESBURY-NEPEAN RIVER

Having reached agreement on the representation of the ecotoxicology method, findings and communication of the determination of risk, my design focus turned to the visualisations of the findings of the cross-disciplinary research. These visualisations were foundational to the building of the team understandings. Designed as knowledge artefacts to contain the summary and findings of the cross-disciplinary research, the iterative visualisations were an opportunity to refine the findings of the cross-disciplinary investigation rather than the ecotoxicology.

This pamphlet was co-created through participatory interviews with the team and with research partners. This process was imperative to ensure that we had agreement for the content before we engaged in wider dissemination of the research. In this process we refined the research team's initial eleven proposals for strategies in response to the ecotoxicology results to seven that were included in the paper for *Australian Geographer* (Plant, Walker, Rayburg, Gothe & Leung 2012).

Participatory engagement through co-creation of the pamphlets was again central to the process of knowledge building. Iterations of the pamphlet were used during team meetings as a tool for sharing, clarification and agreement. Alongside the discussions within the team, three interviews were organised with partners and stakeholders in the Department of Primary Industries NSW. For the interviews with partners we employed a participatory strategy of information-sharing. In this session we informed them of the findings of the research and asked them to suggest changes and improvements. The interview was constructed as an hour-long exchange in which *Pamphlet 2* was central to the discussion. The focus in this process was not only to get approval for the pamphlet describing the research and the findings but also to support a change in attitude (and consequently influence policy).

The pamphlet was in two sections. The first section contained the ecotoxicology science methods and results to this stage as designed for *Pamphlet 1: The prototype. Ecological Risk Assessment of Pesticides used in Market Gardening in the Hawkesbury-Nepean River Catchment*. The second section provided an opportunity to communicate the outcomes of the research from the cross-disciplinary team. In it we proposed three areas of recommendation for reducing the risk of pesticides in NSW Rivers. We specifically addressed knowledge that emerged from what we learned during the research project about the socio-economic system, the regulatory system and the lack of scientific knowledge of the health of the Hawkesbury Nepean River (Figure 24).

## Initial Ways Forward

- A** Incorporate pesticide awareness and reduction measures into current programs targeting nutrient runoff, on-farm storage and recycling, and riparian vegetation restoration.
- » Forms part of the precautionary principle to managing pesticide levels in rivers across NSW
  - » Allows us to take action now, using what we've learnt so far
  - » We can integrate into existing runoff programs, rather than create new ones
  - » Although pesticides are prevented from entering the river, it does not reduce the need for continual monitoring
- B** Extend support for the measurement and recording of high-volume and high-risk chemical residues in river water, including basic research into the development of cost-effective testing, benchmarking and methodologies for the assembly of time series data.
- » Builds on initial findings from a recent toxicological study to enable us to form a clearer picture of river health
  - » Enables us to measure effects of any future changes in regulation and any programs implemented
  - » Development of cost-effective testing methods can be applied to other rivers around NSW
- C** Regulatory reforms at the national and international level
- » Harmonise our regulatory system upwards with best practise (ie EU REACH)
  - » Advocate for more comprehensively precautionary approaches to chemical registration, which would ensure harmful chemicals are unavailable for purchase and prevented from entering the ecosystem
  - » Changes the way we regulate practices across areas much broader than on-ground farming (e.g. exports, urban planning, chemical manufacturing and licensing, public health etc)

### Why did we choose these recommendations?

The results of these recommendations have an impact beyond the local Hawkesbury-Nepean region and enables effective management of our riverine ecosystems at both an on-ground and regulatory perspective.

FIGURE 24. DETAIL OF PAMPHLET 2: WAYS FORWARD FOR THE HAWKESBURY-NEPEAN RIVER. CASE STUDY: REDUCING PESTICIDE TOXICITY IN NSW RIVERS.

### PAMPHLET 3: THE SOCIAL LIFE OF PESTICIDES: THE FUTURE OF URBAN AGRICULTURE AND BIODIVERSITY ALONG THE HAWKESBURY-NEPEAN RIVER

In June 2011 the research team was invited to present our research in a seminar entitled ‘The Social Life of Pesticides: The Future of Urban Agriculture and Biodiversity along the Hawkesbury-Nepean River’. This event was organized by UTS Centre for Civil Societies at University of Technology Sydney. This was an opportunity at the conclusion of the project to invite interviewees, stakeholder groups and representatives of concerned communities to discuss the project. At this event, a presentation by ecotoxicologist Richard Lim explained the methods and results, and one by the political scientist, Jeremy Walker, and the geographer, Roel Plant, provided a cross disciplinary snapshot of the current situation in the Hawkesbury-Nepean River, with a cultural perspective provided by Frances Parker.

Accompanying this event was *Pamphlet 3: The Social Life of Pesticides: The Future of Urban Agriculture and Biodiversity along the Hawkesbury-Nepean River* which summarised the research. The visual language and the elements developed for *Pamphlet 1* and *Pamphlet 2* were repurposed in a communication pamphlet to support the seminar. In this iteration of the pamphlet, the research methods and outcomes were articulated in a structure that had emerged from the two-year participatory process. The repurposed document highlighted possible ways forward through an Introduction and sections concerning The Process, What We Learnt about the socio-economic system, the science and the regulatory system. This pamphlet provided an overview of the project with a contact in case any follow up was required.

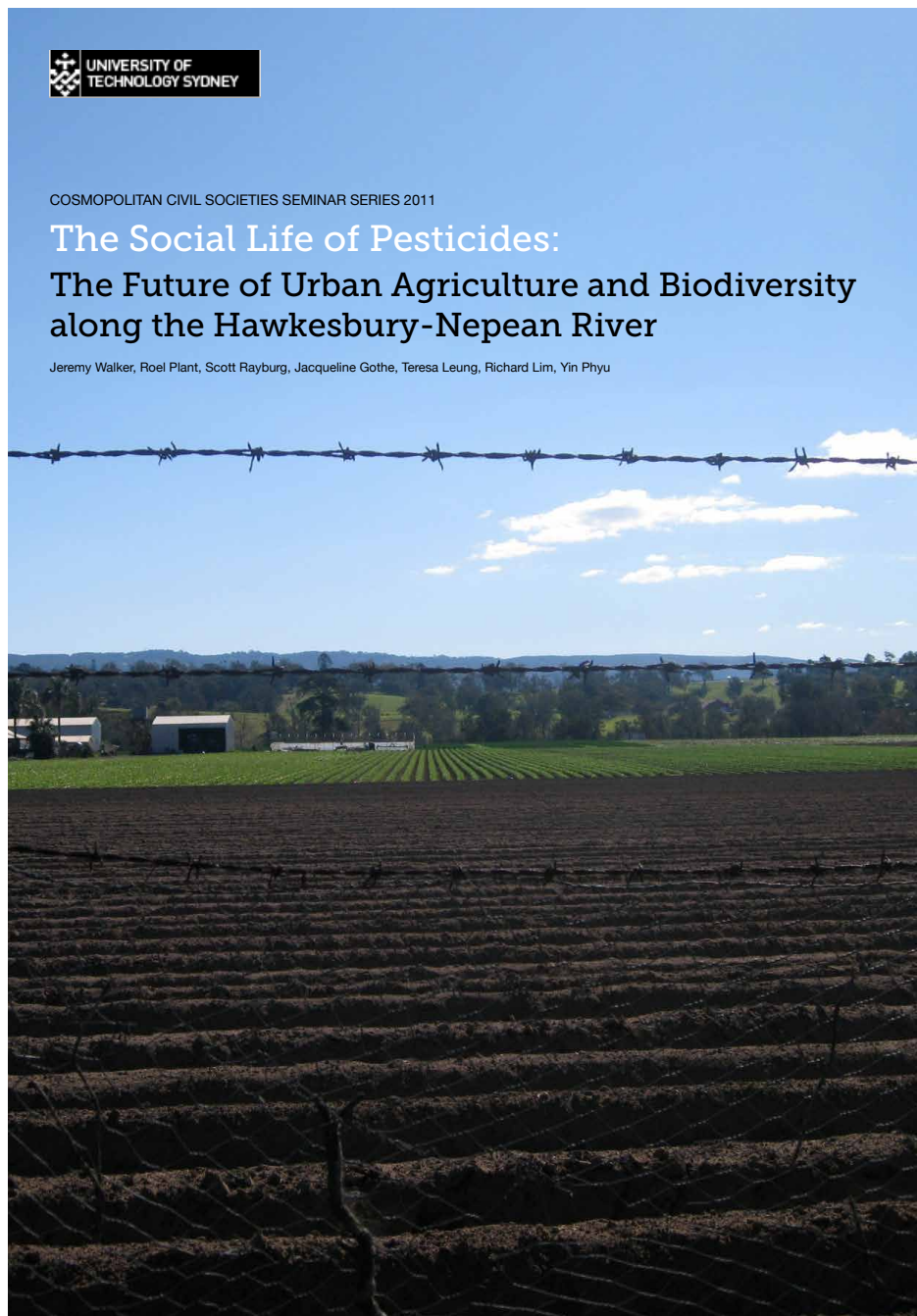


FIGURE 25. PAMPHLET 3: THE SOCIAL LIFE OF PESTICIDES: THE FUTURE OF URBAN AGRICULTURE AND BIODIVERSITY ALONG THE HAWKESBURY-NEPEAN RIVER.

## CONFERENCE PRESENTATION: ADVOCATING FOR THE HAWKESBURY-NEPEAN RIVER

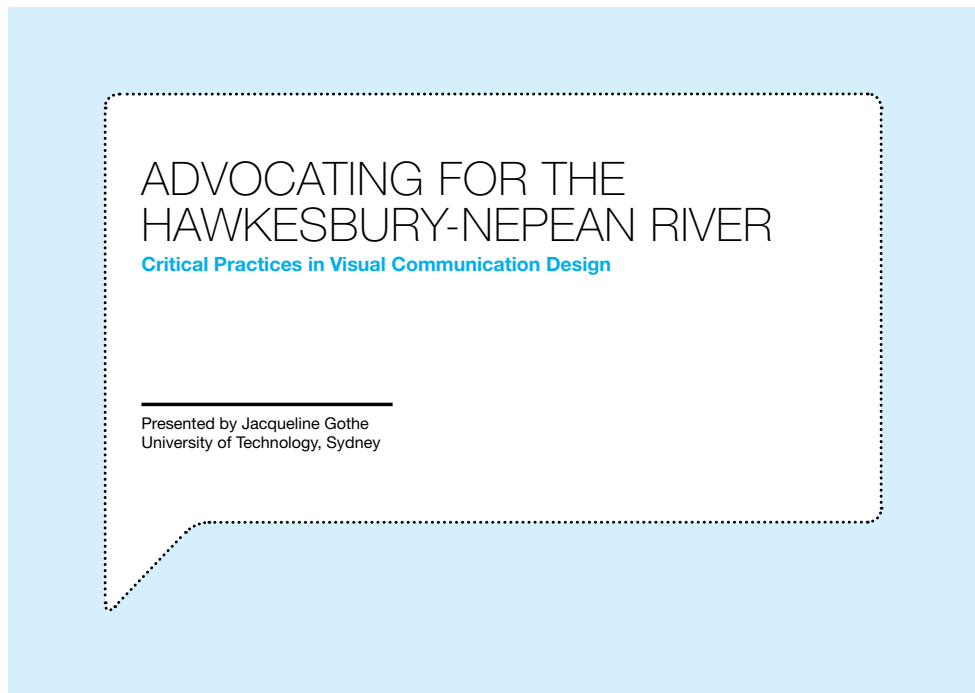


FIGURE 26. CONFERENCE PRESENTATION AT INSTITUTE FOR AUSTRALIAN GEOGRAPHERS UNIVERSITY OF WOLLONGONG 2011, 'ADVOCATING FOR THE HAWKESBURY-NEPEAN RIVER'.

The paper I delivered to the Institute for Australian Geographers (IAG) at University of Wollongong in 2011 titled 'Advocating for the Hawkesbury-Nepean River' is the fulcrum of this thesis. This presentation described a complex layered research approach and argued for the role of the critical practitioner in visual communication design within the research team. As an individual design researcher and practitioner in a cross-disciplinary context, I recognised my agency within the research team, my commitment to the primacy of place and consolidated my voice as a critical practitioner researcher who defined a critical practitioner as one who: refuses conventional role of design as a service provider; works critically across processes, platforms and outcomes; asks questions and poses problems; considers social agency and the significance of non-adherence; and recognises the power of the agency of place.

**Resistance.** In the grant application the farmers and market gardeners along the Hawkesbury-Nepean River were identified as the community that needed to be informed of the ecotoxicology results. It was assumed that the communication of this information would motivate the market gardeners and farmers along the river to minimise the use of pesticides. The assumption here was that the market gardeners and farmers were the key offenders and should be targeted with some form of communication in order to change the situation. There also was an embedded assumption within the team that the communication of the research process would generate change in the behavior of the market gardeners. These assumptions were brought into question over the two year period of the research. Working with a commitment to collaboration and participatory processes, our assumptions and understandings of the problem, each other and our disciplines were reshaped during this time.

**Refusal and redirection.** The continuing reference by departmental representatives to the market gardeners' practices, and the funding cuts for bilingual officers programs to support appropriate use of pesticides on the Hawkesbury-Nepean, created an opportunity to rethink the problem. It was evident that attention over the previous fifteen years had focused on changing the behavior of the market gardeners and yet the level of pesticides and the toxicity of mixtures of pesticides in the river were still of concern. Our first suggestion was to undertake detailed user studies on the labeling of the chemicals. This would be an information design research proposal in partnership with the Federal pesticide regulator. Secondly, a landscape management strategy was proposed to establish riparian buffers along the river in order to filter pesticide runoff and support the river's health.

Turning away from the emphasis on the market gardeners on the river edge and the further institutionalisation of their accountability processes, we turned towards institutional responsibility. The team began to visualise the institutional structures and accountability for river health. As we were drawing the networks around the market gardeners, we decided to place the river in the centre of our diagrams, rather than the market gardeners. It was a simple move that happened at a regular team meeting. This move was to change the focus of the project from behaviour change in the community to institutional responsibility. This movement reframed the conceptual understanding of the problem. This change of focus had a twofold outcome. Firstly, it shifted the attention and the attribution of blame evident in the instrumental focus of the grant application and replaced it with a more empathic recognition of the complexity of economic and social pressures experienced by the market gardeners. Secondly, and most importantly, by placing the river at the center of our concerns, our attention to the health of the river became the guiding principle.

The suggestion to turn away from the farmers and reframe was met with some resistance from the team. The major reason for this resistance was that the grant specifically stipulated that the market gardeners were the key target of the cross-disciplinary team. The assumption in the grant documentation was that material would be created for the farmers in order to change their behavior in regard to pesticide use. This move to refocus our strategy required a commitment to change by the team and a rewriting of the objectives of the grant, now emphasising a deepening of the connection between the river and the team.

**Designerly non-adherence.** My practice of non-adherence occurred at two levels: initially, a resistance to the expectations of the team that the designers would create design objects and campaigns to change the behavior of the market gardeners; and secondly, the participatory act of erasure by the team in the agreement to change the direction of the grant. The connection between *erasure* as an action of sustainment (Fry 2011), the *non-adherence* of critical design (Blauvelt 2002; Malpass 2012) and my formulation of a critical practice includes movements of *refusal*. However, this resistance is not oppositional; it is formed through the shape of connection and the quality of listening. These movements produce a hybrid form that brings the project of sustainment and critical practice together within a contemporary chorography. The recognition that the assumption in the grant application (to target the market gardening communities of the river) was a potential social justice issue resulted in the rewriting of the proposal. Fortunately there was a general agreement and acceptance of this expression of resistance within the team in relation to values of social justice and sustainability.

My paper delivered at the IAG Conference demonstrated the perspective of the designer researcher asking the question - how does a designerly approach support knowledge creation in a cross-disciplinary team and also build new knowledge for designers and design researchers in order to understand better the role that design can take in a participatory design-led process?

In the pamphlets, elements such as Key Findings, What We Learnt and Ways Forward served to divert attention from the instrumental desire to have the final risk assessments as the key platform for the pamphlet design. In response to the level of indeterminacy in the results, I explored a strategy of redirecting towards the research team experience through the visual languages of design. This allowed for the communication of the incomplete results and findings to this stage. As in the chorography of the Antiquarians, an openness and acceptance of the collaborative contributions towards the project of representation of place (and in this case the understanding of the Hawkesbury-Nepean River from an ecotoxicological perspective on the toxicity of mixtures of chemicals from pesticides) in this cross-disciplinary interrogation is an open and incomplete project.

## Conclusion

The ways in which a designer is participant in the act of understanding place as facilitator and translator of science communication are key concerns of this thesis. Re-imagining the role of the visual communication designer through the lens of choreography as a critical tracing practice, in the context of a cross-disciplinary team, reveals an expanded practice. In this practice the action of tracing by the practitioner-researcher is ‘between’ the material or physical form and the conceptual disciplinary perspectives of the team. The performative act of tracing these disciplinary perspectives requires openness to the *conceptual emergent*. In this critical tracing practice I found myself at a complex nexus of responsibility, obligation, and ‘duty of care’ to both the Hawkesbury-Nepean River and the cross-disciplinary research project team.



Chapter Five  
*Fire: building relationships  
and creating change*

## Introduction

In this chapter I will discuss my experience in Indigenous-led projects with particular emphasis on the *Firesticks* initiative that was established during this study. In the previous chapter I described my experiences as a participant in an interdisciplinary research team. I outlined the designerly practice of tracing the *conceptual emergent* across disciplinary knowledges and the importance of *refusal*. I will now build on this in my investigation of chorographic tracing and a critical practice by turning to the actions of *listening* and *yielding*. As described in Chapter Three, *listening* within the movement of *mimesis* represent a performative component of chorographic tracing. In my experience the action of *listening* and the associated *yielding* in participatory and collaborative experiences provide an opening to the apprehension of an intercultural perception. Listening and yielding requires a performative surrender or *erasure* of the identity of designer. I describe the design of transcultural visual translations generated through collaborative and co-generative process. These translations are determined through respectful and responsible processes that respond to a dynamic social reality rather than being drawn from a conventional design approach. In the chronology outlined in this chapter I introduce the genesis of the partnership *Communicating Shared Traditional Knowledge*, and describe the design process of the poster and video for the Indigenous-led network *Firesticks* which was funded by Perpetual between 2010 and 2012 and is currently supported by a grant from the Federal Government.

## Genesis of the partnership

In early 2004 I was introduced to Victor Steffensen, an Indigenous man who was working with Elders on Kuku Thaypan country in Cape York under the auspices of the Indigenous-led Traditional Knowledge Recording Project (TKRP). Victor was motivated by a sense of responsibility for the value of the knowledge held by Elders and the importance of maintaining these understandings for the following generations. Under the guidance of the Elders, Victor was using a video camera to record knowledge. We spoke on the phone a couple of times and discussed the opportunities that a partnership with University of Technology (UTS) could present. We arranged to meet when he was next in Sydney so he could visit the UTS campus on Broadway near Central Station. He called on a Friday afternoon in early December 2004, said he was at the Australian Museum in College Street, Sydney and asked if I could I come and meet him. I arrived at the Museum and proceeded to a room on the first floor where Victor greeted me. Sitting at a large table with boxes of photographs taken on Kuku Thaypan country was an old man describing in a mixture of Kuku Thaypan language and English the associated memories and knowledge of people and country that was revealed in the photographs. Victor was recording with video. Bruce Rigsby, a linguist and anthropologist, was seated

nearby. This was my introduction to Kuku Thaypan Elder Tommy George. I sat quietly and then was asked to wait as Tommy George, Bruce and Victor were ushered into a private room where they were to examine material that was classified as men's business. I sat outside.

An hour later I was walking with Victor and Tommy George's grandson down Elizabeth Street towards the University of Technology (UTS) in Central Sydney. Walking down Elizabeth Street with two Aboriginal men who drew my attention to the presence of plain clothes police officers and the threat of violence that Victor felt as an outsider in the streets of Sydney. As we entered Belmore Park, Victor and Danny were overcome by a sensation of choking that made them cover their faces as breathing became difficult.

Situated next to Central Station, Belmore Park is historically a site of transience, displacement, trauma and resistance to the dispossession and unspoken acts of violence that have been perpetrated on the First Australians and bedevil all non-Indigenous Australians. We walked rapidly, almost running, through the park with my guests covering their faces with their sleeves and shirts to protect their faces. It felt as though we were under attack by an unseen force. The intensity of the reaction subsided as we moved away from the park. Breathing became easier as we walked past the ABC building and into UTS.

Looking back it may have been a simple allergic reaction to the pollen from the introduced species of plane trees planted for their resilience in a harsh urban space. However my many attempts to rationalise the complexity of my experiences on this walk could not remove the intensity of experience and led to a reconsideration of my understanding of the taken-for-granted relations that enabled me to feel at ease. The city of Sydney, a place that I understood as my home, where I felt as if I belonged, revealed itself as a place where my sense of safety, authority and rights was challenged; where now I mistrusted my capacity to host a visitor in safety on a Friday afternoon. This transformative insight is a demonstration of the way in which my participation and growing awareness in this Indigenous-led project suggested a need to reframe visual communication practice. At that moment in the apprehension of another perspective, my appreciation of the context that I took for granted was transformed.

## Intercultural transformation

In the following few years I learnt that the relational certainty of conventional design practice was open to question. The embedded taken-for-granted processes that I understand as professional design practice, and which Fry (2009) describes as ‘teleological’, ‘instrumental’ and ‘decision based’ practices, are complexified through my connection with Indigenous perspectives. My transformation through the apprehension of this perspective is central to my experimental investigation of a speculative design practice. My experience in Indigenous-led projects has shown me that the material outcome, such as a design artifact, is not the primary goal. Instead, alongside the consideration of visual communication design outcomes, my focus has turned to the development of design practices that recognise a complex of responsibility and reciprocity. For this recognition I extend a deep sense of gratitude to the generosity of participants and collaborators in my long-term engagement.

[T]ransformative action has to focus on changing us, especially  
by transforming the worlds we make for ourselves as they  
design our modes of being.

(Fry 2009, p.112)

## Getting started

On our arrival at University of Technology Sydney I showed Victor the Design campus at University of Technology Sydney. Victor was excited by the technology visible in the computer labs, the video and sound editing suites and the generous welcome afforded by my colleagues. I introduced him to Clement Girault, the production co-ordinator of video in the Visual Communication Design program.

Victor then invited Clement and myself to accompany him to a small hotel room in Glebe. We found ourselves in a darkened room with Tommy George and Victor’s daughter Rachel where we watched video recordings on a laptop computer. These video recordings were made by Victor on country of Tommy George and George Musgrave (now deceased 2006) speaking Kuku Thaypan language and English sharing understandings of country. These short videos were stored in a File-maker Pro database according to the following categories established by the Elders for Awu Laya Traditional Knowledge: country, plants, people, skills and techniques, animals, spirituality and history. For example, the category of plants is further categorised as trees, grasses, small plants and water plants. Under trees, the fields for information include: uses for craft, spiritual, food and medical; stories; relationships; management; and naming in language and the botanical name. The principle for this organisation is the knowledge

transfer triangle: knowing what it is, knowing what it does and knowing how to do it (Figure 27). In one of the videos, Tommy George is seated on the ground demonstrating skinning a kangaroo and then drawing the sinews from the tail of a kangaroo to make string.

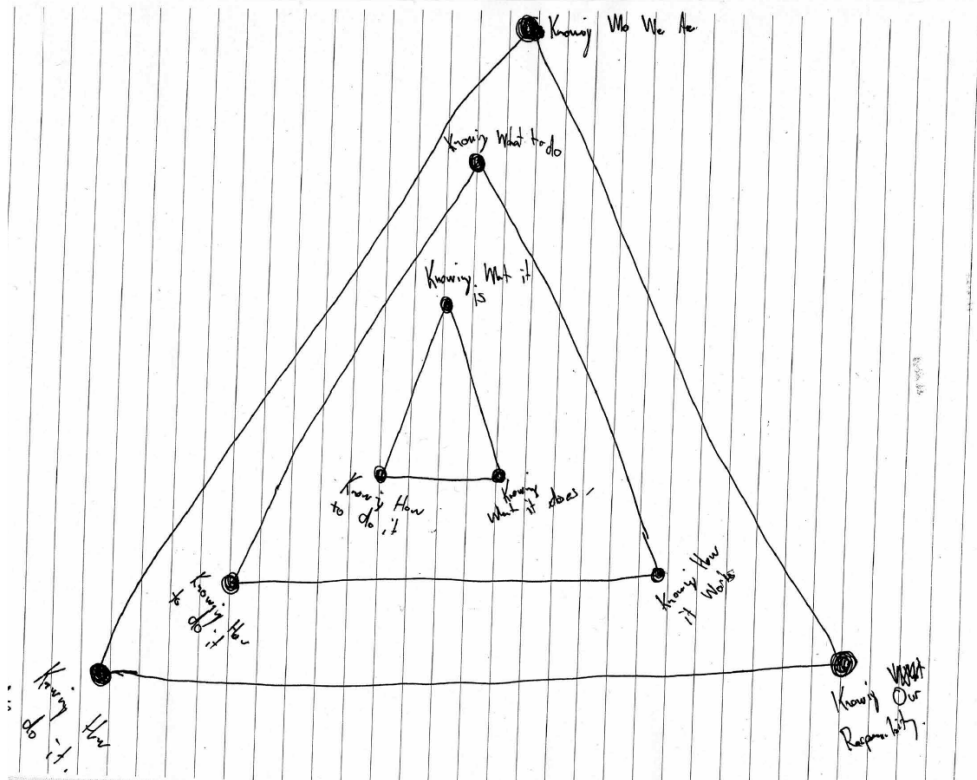


FIGURE 27. KUKU-THAYPAN KNOWLEDGE TRANSFER TRIANGLE. DRAWN BY VICTOR STEFFENSEN IN 2010.

I was overwhelmed by my experience at the Australian Museum, the walk and then what Clem and I saw in the darkened hotel room. The importance of the material and the urgency of the project were palpable. The knowledge documented by the Kuku Thapan Elders brings to light the interconnection between plants, animals and humans as a relational system with a history of sixty thousand years. This material, determined through an Indigenous-led process, is irreplaceable (Langton & Rhea, 2005).

Traditional Knowledge Recording Project is an urgent project that is based on recording the knowledge closest to the traditional transfer using technology like video cameras so that you are showing the visual of what the elders are trying to explain through different forms of language - through body language and through verbal and through what you see and what they show on country.

(Victor Steffensen 2006 - extract from voice over from an animated video made to describe TKRP by Luke Sanford a UTS Visual Communication design supervised by Jacqueline Gothe and Victor Steffensen. <https://vimeo.com/52730508>)

This meeting on that Friday afternoon in 2004 was the beginning of a long term commitment that began and has continued throughout my doctoral project. The social and collaborative nature of the experience with Victor, Clement, Tommy George and their family members set the tone for the project. The Indigenous-led participatory partnership between the *Traditional Knowledge Revival Pathways* (TKRP) and University of Technology Sydney (UTS) is titled *Communicating Shared Traditional Knowledge* (CSTK). This partnership was celebrated in the exhibition *Collaboration Design and Country 2012*. Following on from these projects is the Indigenous-led community network *Firesticks*, an ongoing project supporting the recognition of cultural burning practice in mainstream land management practices. These three projects focus on shared and sharing Indigenous knowledge in the area of environmental management, particularly fire and water. As a designer in Indigenous-led projects I take my guidance from the people I am working with. Authority to develop material in visual communication design artefacts is negotiated through a participatory process of co-design and collaboration. This process is dependent on trust and has been built up over the long term engagement.

## Collaboration

At the first meeting, Victor suggested and emphasised the need in the project for IT (information technology) and my response was 'my area is not IT; I am design.' This became an ongoing joke: 'I am not IT; I am design'. However, regardless of my protestations, the project did require a degree of information and technology support and this dominated any immediate need for the service of a visual communication designer. At that moment it would have been very easy for me to walk away as I recognised the slippage of disciplinary specificity. However, the assuredness of my introduction through Indigenous Enterprise Partnerships (IEP), who had facilitated work between the students and remote communities on Cape York, gave me a confidence that there could be a benefit in the project. In the initial stages there was a dominance of technology-oriented thinking as database design, storage and skills development were necessary for the progress of the project across communities on Cape York. I found myself coming to know and understand ideas of respect and advocacy

through my contact, connection, facilitation and co-ordination. Clem and I prepared equipment requirements for communities wanting to engage with recording Indigenous knowledge and production staff from UTS Design and the UTS Media Lab travelled to Cape York to work with communities on skills development. The resources that a University environment provided, the possibility of the inter-cultural connection and exchange between institutions and community, promised results to all parties. On reflection, Victor intuited an opportunity in the relationship with the University and I saw the value of an engagement by the University in an Indigenous-led project. The cross-cultural engagement for myself, other academic staff, production staff and students at the University to participate and support the visual communication of Indigenous environmental knowledge in contemporary environmental management contexts, is a powerful opportunity. The design aim for the partnership, is to work with students, academics, production staff, designers and creative practitioners in Indigenous-led projects, to produce exemplars of communication design that are determined by an Indigenous perspective. This was an aim that required the building of shared knowledge and experience, evidenced by the long term commitment since 2004.

As a non-Indigenous participant, my understanding of and inclusion in the collaborations is dependent on trust. As a designer and researcher in a University context, my response to the complexity of communicating across distance and the cross-cultural issues was to develop a conceptual and procedural flexibility (Smith et al 2010) with respect to project outcomes, timelines and relations. This flexibility allowed an emergent process to determine the direction and outcomes of the project as we moved from the technical issues to the design issues in a social process. Timelines and expectations of outcomes had an inbuilt degree of uncertainty evident in all my planning and negotiations. In order to avoid the disappointment and shame of failure in a context of project management and reporting procedures within the University and to partner organisations, I embedded openness and flexible expectations within the organisational approach.

As a non-Indigenous designer and researcher, I have identified several theoretical perspectives that support my experimental and respectful engagement within collaborative and co-generative Indigenous-led projects. In this engagement my recognition of the negative experiences of Indigenous participants due to practices of researchers and creative practitioners working cross-culturally, and the cultural sensitivity for Indigenous peoples of Indigenous knowledge, led me to develop a particular approach. In this approach my concern is to understand the ways in which an engagement through design is respectful and creates no harm to or intrusion on Indigenous communities and participants. This intention has led me to an awareness of the relational constructs within academic research practices and the values

of self-determination and empowerment ascribed to reflexive approaches (Freire 1970; Ward 1997). My interrogation of intersubjectivity (Levinas 1998; Butler 2001; Stewart 2005; Mitchell 2003), and the acceptance of the intended and unintended consequences of the actions of the designer and the design (Willis 2006), require a refined relational sensitivity that is heightened in an Indigenous-led context.

Linked to these concerns is the challenge of negotiating a relationship between Indigenous and Western epistemologies. In response to this challenge, I have found important the consideration of emancipatory methodologies (Rigney 1997; Brady 1992, p.105) and the complexity of the position and responsibilities of an insider researcher (Smith 1999; Gothe 2006) alongside the guidance of Indigenous collaborators. The relational dimension found in the Indigenous-led strand of my investigation contributes to the field of communication design and is informed by research in design for social good (Tan 2011), social innovation (Amatullo 2015) and recent work in Australia defined as socially situated design research (Haslem 2007; Akama 2014).

## Technology, communication design and culture

Richard Heeks (2002), a founding academic in the field of information and communication technologies for development in developing countries (ICT4D), recognises the inability of technical rationalism and the rational systems thinking that technology design brings to the introduction, implementation and adoption of information communication technologies in developing communities to address complex social and political contexts. The Design-Reality Gap model (Heeks 2002) identifies a need for a social-political approach rather than a rational systems technology design one. Heeks's socio-political approach requires a human-centred understanding with an emphasis on contingent, informal, qualitative information and informal, subjective processes and structures, and recognises technology as 'a complex, value-laden entity: status symbol for some, tool of oppression for others' (Heeks 2002, p.9).

In the Indigenous-led projects discussed in this chapter, the aim is to develop communication design that includes digital information creation, production and delivery via technology. Working with Indigenous communities heightens the complexity of technology integration for recording Indigenous knowledge on country by the communities. As demonstrated in Chapter Three the purpose of the video recording is firstly to maintain the connection within the communities to cultural practices and Indigenous Ecological Knowledge (IEK), and secondly to provide a platform for land management projects to be understood in mainstream science and land management practices.



In *Communicating Shared Traditional Knowledge* (CSTK) my focus was to build a model of Indigenous-led participation for designers informed by Indigenous approaches for Indigenous and non-Indigenous participants. This model aimed to mirror the processes developed by the Elders and translated through the Kuku Thaypan Fire Management Research Project (KTFMRP) as *reciprocity*, *respect* and *responsibility*. The fundamental element in this shared knowledge approach was a focus on skills exchange in a context of reciprocity. This emphasis encouraged a commitment to ‘on-ground change’ at the expense of conventional technology design processes and institutional expectations. My social and political approach manifests as the slowing down of project expectations. The conventional role of the designer, as instrumental and active, is replaced by the designer’s immersion through listening and yielding to the needs and requests of the participants. This process reflects the ‘soft reality’ end of the Heeks model. Although some echoes of the hard design qualities were required due to institutional responsibility and design project management, I worked hard to keep the rational design imperative at a distance and separate from the everyday interactions. This separation supported the focus of the participants on reciprocity and empowerment through training, skills development and shared values of self-determination.

The incremental developments that emerged in *Communicating Shared Traditional Knowledge* (CSTK) defy a systems approach and highlight the need for individual development and support for participants. In 2004 UTS formalised the partnership with Traditional Knowledge Revival Pathways (TKRP). Collaborative relations were established across the University with Jumbunna, the Indigenous Research Unit at UTS, the Faculty of Engineering, through Information Technology, and the Faculty of Arts and Social Sciences through the staff of UTS Media Lab. As a consequence of this partnership, staff and students travelled to various locations across Australia to support learning of the skills required for the TKRP methodology. During the teaching breaks of the academic year, staff and students worked in communities and attended events in various locations. These include Cairns (2005, 2007), Aurukun (2002, 2004, 2009 2007), Torres Strait (2004), Yungaburra Queensland (2007), Laura, Cape York (2007, 2009) and the fire workshops Bizant (May 2010) and Chuullugan (June 2010) on Cape York. Following the success of the networking between New South Wales communities including Land Councils, NPWS and Rural Fire Services at the fire workshops, a Firesticks meeting was organised at UTS in 2011 that focussed on the revitalisation of cultural burning. This was the first use of the project title Firesticks. Following this gathering, meetings were held at Biamaga National Park, Albury, Walgett and Northern Rivers in New South Wales during 2011 and 2012. These meetings with Traditional Owners, Elders and rangers were directed towards ensuring implementation of cultural burning practices, networking and mentoring knowledge exchange between Cape York and New South Wales.

The engagement between academic staff, undergraduate and masters students, production staff across the University (including from the programs and faculties of Design Architecture [Visual Communication], Engineering [Information Technology] and Arts and Social Sciences), and remote communities on Cape York (including Laura, Aurukun, Hopevale, Coen and Lockhart) supported the independent recording of stories, the management of websites and the documenting of landscape for environmental monitoring by individuals in communities. This required focused attention on skills development and this in turn required the development of training processes and materials, including videos and printed guides, in consultation with community representatives. This was accomplished working from a distance and utilising available technology including video conference, telephone and email with individuals in communities, as well as spending time with participants in communities.

According to Heeks (2002), an engagement project in information and communication in developing communities is a total failure if it never gets off the ground, and a partial failure if major goals are not met or there are undesirable outcomes. A successful project meets the expectations of stakeholders and continues on. The initial objectives of *Communicating Shared Traditional Knowledge Project* (CSTK), established by the team in Cairns at the Balkanu office in 2004, aligned with the aims and outcomes of the UTS Partnership grant that supported the project between 2006-2010. This was followed by a Perpetual Trust grant between 2010 and 2011 and Firesticks is currently funded by an Australian Government Grant (2013-2017). The longevity of the partnership and the sustainability of the approach in the partnership is evident as the network continues to grow.

Eight years after Heeks (2002) published his paper on the failures and successes in information technology and communication system development in developing countries, Brian Gleeson, Co-ordinator General of Remote Indigenous Services (2010), in his six monthly report on the delivery of services to twenty-nine Indigenous communities identified that too many officers had a rigid mindset that threatened gains made from increased investment by the federal Government, and that some officers made decisions without adequate time and treated community concerns as a wish list rather than the basis of further discussion. He suggested that this disconnection is a symptom of the general lack of attention paid to ensuring that the officers involved in negotiation in Indigenous communities had the necessary preparation conducive to a ground up approach.

*Communicating Shared Traditional Knowledge* (CSTK) demonstrates working differently through an approach that is guided by my involvement with Indigenous values of respect, responsibility and reciprocity learnt in the engagement process. The Indigenous-led values of CSTK prioritise the place

based networks of individual and community based commitments and interest in the maintenance of Indigenous environmental knowledge. Although this approach created a degree of uncertainty, for me, the project orientation towards the personal and subjective commitment by Indigenous and non-Indigenous participants, alongside recognition of the complex contexts of practice and delivery, ensured the sustainability of the project. As Indigenous communities reclaim their connection to country through land management, land ownership and their traditional role of custodianship, the history and culture of Indigenous Australians is revitalised and empowered. Conversely, the designer in these cross-cultural experiences is confronted with uncertainty. Rather than professional certainty in these intercultural contexts the designer experiences the existential situation of *the stranger* in a context of instability, uniqueness and value conflict where an instrumental and operational strategy does not ensure effectivity. In this circumstance the performative strategy of mimesis and the actions of listening and yielding become integral to the self-constitution of a non-directive designer.

### *Firesticks* (2010 – ongoing)

Victor Steffensen and Kuku Thaypan Elders Tommy George and George Musgrave from Cape York have been practising cultural burning as a land management practice consistently for many years. Between 2004 and 2010 there has been a concerted effort to share these practices with other interested Indigenous and non-Indigenous communities across Australia. Alongside Victor and the Elders in Cape York, Peta Standley, a non-Indigenous researcher, has been working with the Kuku Thaypan Elders and Victor as a bridge between Western land management practices and IEK. Through a process of co-generation, Victor, Peta and the Elders have experienced and documented the knowledge systems and approaches to cultural burning through the *Kuku-Thaypan Fire Management Research Project: The Importance of Campfires* (KTFMRP). *Firesticks* is a partnership between this team and *Communicating Shared Traditional Knowledge Project* (CSTK). This collaboration involves Victor Steffensen, director of Mulong and Traditional Knowledge Revival Pathways (TKRP), Peta Standley KTFMRP, UTS Design through myself and Clement Girault and the Jumbunna Indigenous Research Unit with Jason de Santolo and Oliver Costello, who also had a role as the Indigenous Officer at NSW National Parks and Wildlife Service (NSWNPWS). *Firesticks* aims to support the use of Aboriginal knowledge in natural resource management, with a particular focus on cultural burning practices. This ambition was further supported by the granting of monies by Perpetual Philanthropic Trust to UTS to support travel and mentoring between NSW and Cape York by Traditional Owners. This funding provided the opportunity to organise a meeting in early 2010 at UTS. This meeting, attended by 40 people including Traditional Owners, community representatives and rangers from N.S.W. was hosted at UTS Design

and documented with video by UTS Media Lab. This recording became the central material for the video 'Communicating Fire: Building Relationships and Creating Change'. The script was co-created by Victor Steffensen, Oliver Costello, Daniel Bracegirdle, Peta Standley and Miguel Valenzuela.

In July 2011, the *Firesticks* team was invited to present at the Nature Conservation Council of NSW *Bushfires in the Landscape Conference: Different Values, a Shared Vision Conference 2011* in Sydney. This was the first opportunity for the work of the partnership between UTS Design, UTS Media Lab, Mulong, Traditional Knowledge Revival Project and Kuku Thaypan Fire Management Research Project to be presented by the Indigenous and non-Indigenous collaborators in a natural resource context under the identity of *Firesticks*. This invitation to present came at the end of the grant cycle from Perpetual Philanthropic Trust. At this conference Victor Steffensen presented the keynote speech with the support of the short pilot video, *Communicating Fire: Building relationships and creating change (2011)*. Peta Standley and I submitted the abstract *Carrying and Communicating fire: building relationships and creating change* which described our experience working in the liminal spaces between science, design and Indigenous cultural burning practices, and highlighted our responsibility through collaboration and the principles of co-generation. The *Firesticks* team was invited to present a poster for the conference poster session.

#### THE FIRESTICKS POSTER: COMMUNICATING FIRE

The poster, *Firesticks Communicating Fire Building Relationships and Creating Change* was co-created by myself, Victor Steffensen and Lyndal Harris (UTS alumni and freelance designer), with Peta Standley supplying and advising on photographs and text. The making of this poster demonstrates the complexity of cross-cultural translation and brings into visibility the ambivalence I experienced as failure and misrepresentations seemed inevitable when faced with time limitations and communication distance. I consider this as a *transrepresentation*, a chorographic representation, initiated by Kuku Thaypan Elders with the role of the non-Indigenous designers to trace the understandings that emerge through participatory collaboration.

There were two key images that Victor had drawn that the poster relied on for its structure. These were the diagram of the knowledge system (Figure 28) and the Awu-Laya knowledge transfer triangle (Figure 27) that came to provide a continuing source for the visual language of *Firesticks*.

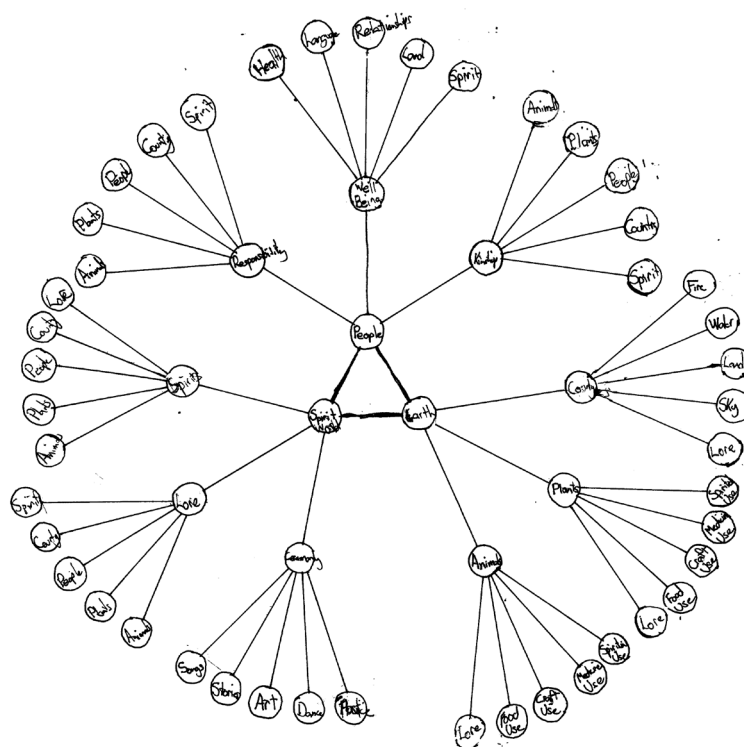


FIGURE 28. DIAGRAM OF THE AWU-LAYA KNOWLEDGE SYSTEM DRAWN BY VICTOR STEFFENSEN 2010.

In late 2010 Victor had drawn the representation of the knowledge system and presented the drawing to me. Jason de Santolo, Oliver Costello, Victor and Peta discussed the potential of the diagram and the triangle as the foundation for a visual language for the *Firesticks* poster. During my visits to Cape York I had experienced cultural burning and had been told that it was unlike the burns of the National Parks and Wildlife and Rural Fire Service bush fire mitigation strategies which used hot fire that moved very fast and burned too high, often damaging the canopy and animal habitats. Cultural burning involved cool fires trickling through the undergrowth and never reaching higher than hip height in tree trunks. Often the fire moved so lightly that there was unburnt leaf litter left behind, ensuring that insects had protection either under the surface or by climbing the trees.

That Indigenous ecological knowledge (IEK) and contemporary environmental management working together can provide holistic solutions to help manage and protect biodiversity is recognised by the participants in the *Firesticks* collaboration. IEK helps to ensure fire management is applied in the right place, at the right time, for the right reasons, to support resilient functioning ecosystems. This opportunity to present information from the Kuku-Thaypan Fire Management Project to a mainstream audience as a conference poster was a challenge in terms of visual language. The process of integrating a diagrammatic representation of the Indigenous knowledge system with an

information design approach that used photographs and descriptions of the relational connections between people, country and spirit provided a rich starting point.



FIGURE 29. FIRESTICKS POSTER 2011. DIGITAL PRINT, 841 X 1189 MM.

The poster (Figure 29) is a tracing of the Kuku-Thaypan knowledge transfer principles. It has a central triangle with three requirements for appropriate action: knowing what it is; knowing what it does; knowing how to do it. Around these central elements are the understandings of Kuku Thaypan Elders, documented with Peta Standley through the co-generative action research project - *KTFMRP The Importance of Campfires*.

Coming to know and understand fire requires guidance by Elders and fire knowledge holders through various stages of cultural learning on country. Learning the knowledge through a written or even a visual medium without that learning process on country means that components of the embedded nature of that knowledge in place and people can be misunderstood.

(Text from poster co-generated by Peta Standley and Jacqueline Gothe to ensure the recognition that this knowledge can only be understood through experience on country.)

This statement brings into question the role of the poster as a knowledge artefact; it becomes instead a communication about the process rather than instructions for cultural burning and reinforcing the message that the 'on-country' experience is the key to the traditional knowledge transfer. The poster is not a knowledge guide for cultural burning. The image and text represent elements of knowledge but this knowledge system and practice can never be understood through written or visual media. An experience alongside knowledge holders is recognised as the only way to come to know.

In my role as designer, what can be made known to the viewer is a representation of traditional burning practices as complex, social and participatory; the importance of fire to the landscape as a caring practice; and the commitment a resilient, sustainable and sustaining network. This is demonstrated in the overall design that respectfully details examples of ecological indicators such as the dew, the way fire is needed for particular grasses, the use of fire to support animal life, contemporary monitoring processes, and respect for Elders. All the images have been gathered during the project and were sourced and shared from KTFMRP image resources held by Peta Standley. Selection of images and content were discussed via email as text was developed.

The list of people, language groups and organisations participating in the project of cultural fire is a recognition of the development of networks in this project between 2004 and 2011, including the attendees at the fire workshops on country. This poster is an historical record of the mentorship by Elders from Cape York of Aboriginal communities in NSW through the Traditional Knowledge Revival Pathways and the *Firesticks* Project. In 2014, at the fire workshop held in Cape York, the poster was pinned up and all the attendees signed their names on it as another layer of documentation of participation.

Lyndal Harris and I worked on the poster in Sydney and communicated with Victor Steffensen and Peta Standley by telephone and email. At our first evening meeting in a café in Paddington I provided Lyndal with Victor's diagram, the triangle and two rough sketches that I had prepared for a suggested structure. The timing was tight. Lyndal was working in a full time position so we met in the evenings and communicated through email and telephone. The poster was designed by 25 May 2011 with the artwork completed with permissions for the printer by 16 June 2011. After some adjustments to the proofs with the printer the poster was printed for the conference on 23 June 2011.

Working with Lyndal was in itself a complex translation process. I shared with Lyndal the perspectives from my experiences on country and listening to the discussions by fire knowledge holders about cultural burning practices. Lyndal and I engaged in tracing these understandings in light of the design knowledge of visual language development and poster design. My understanding of the qualities of fire in cultural burning practices is of a cool fire that burned in circles with people gathered around, birds wheeling overhead as light smoke drifted softly into the sky and the fire slowly trickling across the landscape. These visual triggers were in contrast to the conventional images of fire and fire management which were of threatening walls of heat and rapid movement through the landscape, fire-fighters dressed in combat uniform with trucks, and helicopters in the face of the threat of wildfire to life and property. During this translation process, Lyndal and I moved from conventional visual languages related to fire as intense, hot and active, expressed through dynamic movement and high contrast images, to a softer and more gentle visual language. These shifts over a two week period in the poster development are demonstrated in the publication exhibited in UTS Art Gallery in November 2015.



## FIRESTICKS VIDEO: COMMUNICATING FIRE

Today fire is seen as a destructive force, which most Australians fear. This fear disconnects society from the land and its people. Fire is a powerful natural element. Fire illuminates life and provides culture with ceremony, medicine, food, warmth and above all a lore that the land taught the people. We must respect this as an inherited responsibility to be passed on in our changing world. The challenge today is to keep this respect alive, not only in terms of looking after the land but to heal the differences between people and their relationship to country.

(Text written in the workshop funded by Perpetual Trust held at UTS, February 2010)

Another outcome supported by the funding from the Perpetual Trust was the seven-minute pilot video, *Communicating Fire: Building relationships and creating change* ([www.firesticks.org.au](http://www.firesticks.org.au)). This pilot video is produced through a collaboration between *Firesticks*, DECCW, TKRP, KTFRMP, UTS Design and UTS Media Lab. The video includes recordings documenting fire workshops on Cape York, the inaugural meeting at UTS of interested parties for the *Firesticks* initiative, and interviews on country and at the UTS meeting in January 2011. The development of the narrative and script was a co-generative process that took place in a workshop following the meeting at UTS in January 2011.

The objectives of this video are to support communities to introduce traditional fire practices using TKRP as a model, and to encourage a wider interest in cultural burning. The film demonstrates the stages of the process leading up to a pilot burn. The outcomes, benefits and obstacles are highlighted through the voice and experiences of participants in Cape York and NSW. The film identifies the three stages in initiating traditional fire practices through the Traditional Knowledge Revival Pathways methodology: Stage 1, Negotiations and Planning with all stakeholders; Stage 2, Getting to Know Country and Recording the process and knowledge to establish first steps for monitoring; and Stage 3, First Burn - implement, observe, record, monitor, assess, plan.

## Ambivalence

The ambivalence that I negotiate in my role as interpreter and translator in an Indigenous-led project is heightened by the complexities of cross-cultural responsibility. This responsibility to hear, to repeat with understanding and then pass on the meaning in an appropriate way is the challenge that a non-Indigenous designer faces when tasked with communicating Indigenous perspectives. I understand my attempt to locate the connection and relationship in this process as a movement of mimesis initiated through listening.

As Taussig observes:

the wonder of mimesis lies in the copy drawing on the character and power of the original, to the point whereby the representation may even assume that character and that power  
(Taussig 1993, p.xiii)

Taussig refers to this as *sympathetic magic*, ‘granting the copy the character and power of the original, the representation the power of the represented’ (Taussig 1993, p.xviii). For example, my recognition of the need for a specific visual approach to ensure the maintenance of the relation of people and country is exemplified in the video *Communicating Fire: Building Relationships and Creating Change*. My first experience in an Indigenous-led project in 1999 was working with the Keewong Mob in Western NSW and students in a community project in which we were tasked with representing an oral history. Alongside the request to have no white paper (referred to in Chapter One), we also received a request from the Indigenous design advisor that any images of the Keewong Mob would always be placed ‘on country’ to demonstrate the power and importance of the connection between people and place. This meant either photographing people in the landscape or using collage to place them ‘on country’. Victor too emphasised the connection between people and country. In the video describing the traditional knowledge recording process, made by Luke Sandford in 2006, Victor describes the importance of the relation between people and country and says: ‘the country needs the people and the people need the country’ (Steffensen 2006). My awareness of this understanding (initially learned in 1999 and evident in the videography of Traditional Knowledge Revival Pathways) has become a central consideration in all the work that I undertake. My awareness of the importance and power of the specificity and uniqueness of the country and the people resonates in my approach to representation.

However the inevitable failure and loss that haunts the performative action of tracing was demonstrated at the UTS *Firesticks* meeting in 2011. There was an opportunity to interview participants and to record the feelings about cultural burning and the revitalisation of this practice. However, UTS is in central Sydney and is an urban environment. We could not find a tree or

grass area within close vicinity and any recording became a representation of displacement. To come some way to address this inevitable failure we set up the recording space in front of a painting in one of the lounges at UTS (Figure 30). The painting of trees and roots provided a background that acknowledged a link between the interviewees and (a representation of) nature. This painting represents a signifier of the natural world.

---



---

FIGURE 30. PETA STANDLEY INTERVIEW IN FRONT OF PAINTING IN FACULTY OF DESIGN ARCHITECTURE AND BUILDING UTS 2011.

## Conclusion

Listening and visual communication design practice are inescapably linked. Graphic designer Sheila de Bretteville (1998) describes a consciousness and a commitment to listening that she understands as an openness through listening, rather than antagonism and argument. Fiumara (1990) describes listening as nascent or an emerging skill and points to listening as the antithesis of the Western culture of saying and expression.

In tracing, the movement of mimesis requires an action of listening. For a visual communication designer this is a very specific listening that I describe as *visual hearing*. This action demands a visual interpretation of the information or knowledge that is shared. This act of *visual hearing* is a performative process of tracing. This material is then translated into a transcultural image that constitutes a mediation and discloses the qualities of *emergence* and *erasure*.

This chapter demonstrates the pathway to recognising the importance of the mimetic function and a quality of listening that is essential in order to think and act differently as a designer representing place|country. In this case, repetition in *mimesis* and *openness* are activated in a listening mode that initiates a shift from a focus on the instrumental outcome, as a sign of efficiency, to the recognition of the presence of sentience everywhere. Within this move, for the designer researcher, is a realisation that learning comes in its own time and is a transforming experience. This chapter outlines some of the learnings that I have experienced during my participation in Indigenous-led projects. A capacity to sustain an openness to the emergent trajectory of the project has been particularly important. My opening to the complexity of *mimesis* includes the *erasure* of my past designing self and my reconsideration, as a design researcher, of ways to address difference and complexity.

## Chapter Six

### *Drawing Country: an investigation of the visual language of place*

'All our words for country,' Chatwin's interlocutor told him  
'are the same as the words for line'.  
(Tim Ingold, *Lines: A Brief History* 2007, p.80)

## Introduction

This chapter is the final piece in the intersecting practices on which I have reflected in this study. To this stage I have focussed on the practices of the visual communication designer situated in an Indigenous-led context and in interdisciplinary research teams. These experiences of practice described in the previous chapters recognise the history of visual communication design, the expectation of service provision and the conundrum of responsibility experienced by the visual communication designer. In this final chapter I turn to a more subjective practice in visual communication design. The experimental creative project *Drawing Country* is a drawing practice with outcomes that are disseminated within the spaces of exhibition and installation. Although placed as the final chapter in this study, my creative project *Drawing Country* is not a conclusion or an end. *Drawing Country* is simultaneously the impetus that generated my investigation and the opening to further exploration.

The qualities of a contemporary choreography, to this point, have been drawn out through the reflexive analysis of the experiences in the previous chapters. These have emerged, through iterations and refinements over the course of the study, as the performative actions that constitute ambivalence – *acceptance* and *refusal*. The identification of the material trace and the emergence of the conceptual and the performative dimensions of tracing are described in the chronological narrative that courses the development of the connection between choreography, tracing and the environmental communication design projects. The analysis and description of my experimental project and individual works, in this chapter, bring to light the restorative, personal and transformative qualities of the material tracing practice. Concerned with the morphology of place|country, the investigation is an attempt to understand more deeply a connection to particular places in the Australian landscape.

As a critical practice, *Drawing Country* is a sensible process where the poetic and the informative are in dynamic relation through the performativity of drawing. In this chapter, the experimental project *Drawing Country* is represented by a selection of works produced between 2006 and 2015. These are:

- *Worldview: a diagram for a proposal*. 2008. Pencil on cartridge paper 28 x 33 cm.
- *Intersecting Worlds*. 2008. Pencil on cartridge paper 28 x 33 cm.
- *Mt Yengo*. 2009. Watercolour on watercolour paper 180gsm 65 x 71cm.
- *Drawing Water*. 2010. Drawing on tracing paper 600mmx 3600mm, scanned and digitally printed onto bond paper and hand coloured.

Finally in this chapter I describe the exhibition *chōraFire.Water.Country* associated with this thesis and exhibited in November 2015 at the UTS Art Gallery.

## Drawing Country – an overview

*Drawing Country* is an unfinished and ongoing project that has persisted alongside the experiences described in this thesis. *Drawing Country* is an investigation of subjectivity, rationality and the representation of place through a process informed through a transdisciplinary consideration of multiple perspectives or worldviews. My investigation of tracing as a practice was prompted as a response to my lack of knowledge about the way the Hawkesbury-Nepean River snaked around Sydney. My ignorance of the shape of the flow of the river was brought into visibility as I went on field trips to various sites along the river including Pheasants Nest, Maldon Bridge and Douglas Park. At the same time I was struck by the lack of care and maintenance of the edges of the river. Situated in a peri-urban environment, the weed infestations and lack of access to the riverside were surprising. The map, as an authoritative guide for the scientists and the field officers, is a major source of information about the river. This is contrasted with a lack of on-ground connection to understand the condition of the river and the river bank.

My experience with Indigenous-led projects brought into sharp relief the difference between looking at a map and walking on country. Within the tradition of walking on country is an embedded responsibility to care for country. The role of custodian is one of responsibility for and attention to the health of the land. This is a relational responsibility and recognises the connection between the health of the country and the health and well-being of the people.

[T]his is a way of getting people back into the environment which they have detached themselves from. And by detaching themselves they have detached a lot of human practice that is vital for the survival of country and survival of a lot of its resources. The country needs its people and the people need their country.

(Steffensen 2003)

As it was impossible for me to walk the Hawkesbury-Nepean River, I began to trace the rivers and waterways from the maps. As I traced the flow of the waterways I experienced a sense of connection to the landforms, the river and the shape of country. This recognition is one of two starting points for my self-initiated creative project *Drawing Country*. The other is an investigation of interconnection and relationship, emerging from my interest in transdisciplinarity. This interest manifests in an exhibition *Worldviews* 2008. This exhibition brought together the work on the Hawkesbury-Nepean Upper reaches and the creative work in the studio. In this chapter I discuss three key works: *Worldview – Diagram for a proposal*, *Intersecting Worlds* and *Mt Yengo*. This exhibition led to two invitations to participate in the curated exhibitions *Memory Flows* and *888*. Of these outcomes I describe *Drawing Water*, which

was exhibited at Carriageworks and The Armory at Homebush Bay NSW. A reworking of *Drawing Water* is central in the exhibition *chōra Fire.Water.Country* at UTS Art Gallery in 2015.

Ruth Watson in her investigation of mapping and contemporary art, suggests that one of the contemporary examples of how mapping is finding its way into art is 'a shift away from the image of a map towards the map as evidence of other investigations ... all embody a new emphasis on the author as user, similar to his/her/their audiences' (Watson 2009, p.303). In her conclusion, Watson calls for a 'new history of the map that recognizes the connection between people, place and spirit'. This call is a challenge to understand transdisciplinary acts and methods described as 'a welding together' of European philosophical trajectory and post-colonial theory in order to examine subjectivity and place (Watson 2009, p.303).

The project *Drawing Country* is an exploration of subjectivity in a postcolonial context. For me as a practitioner in Australia, the history and the future are dependent upon a reconstitution of the relationship between the Indigenous history and the colonial interpretation of this place. The project *Drawing Country* recognises the agency of place and seeks to find languages of place|country that foreground relationality, subjectivity and connectedness. Informed by my participation in Indigenous-led projects, I turn to the scientific topographic representations of place|country to establish an embodied connection through tracing.

Casey, in the prologue to *Representing Place: Landscape Painting and Maps*, states that 'representation is not a contingent matter, something merely secondary; it is integral to the perception of landscape itself - indeed part of its being and essential to its manifestation' (Casey 2002, p.xv). Representations of landscape influence and change the personal relationship to particular places, but also the political and ecological relationships. An example of this is the photograph by Peter Dombrovskis of the Rock Island Bend of the Franklin River. As the central image on a poster, this photograph brought about a change in public perception of the value of this river and galvanised the need to preserve the river and not dam the valley. The 2008 documentary *An Inconvenient Truth* provided a way of looking at climate change through an argument presented through information visualisation. What these examples have in common is an idea of the natural world represented visually. Dombrovskis's commitment to representing the beauty of the Tasmanian natural environment and the use of scientific data in *An Inconvenient Truth* in a persuasive and human tone are openings to ways of thinking that provide a different perspective. The idea that underpins *Drawing Country* is the possibility of retrieving a visual representation of the agency of country through the co-creation process of my tracing and the rational cartographic image.



*Drawing Country* is an investigation of my relationship to place through tracing the topographic map. The performative and self-constituting act of tracing the lines of the map creates openings to the emergence of visual languages that have direct connection to the topographies of place. The map as mediation becomes the ground for the tracing. The act of tracing, with line, creates an embodied connection to the topographic formations and recognises a respect for the ground as the emanation of meaning and connection. This recognition is foundational for my understanding of responsibility as a contemporary chorographer.

This practice does not primarily describe systems or ecologies of energy as Newton Harrison describes 'ecological art' (Gleiniger, Hilbeck & Scott 2011, p.52). Rather the act of making is connection as an embodied respect for place through the performative act of tracing. My tracing relies on the rational and mathematical visualisation of place, namely the contour lines. Regarded as the most common of all techniques for representing the shape of the landscape in a map, contour lines were developed in Holland in the early eighteenth century and are the basis for official topographic maps. My engagement with the map is an act of opening to what I did not know before. This can be the contours of the coastline, the shapes of the valleys, the ridges and mountains, the rivers. In addition to the cartographic system of contours the visualisation of the ocean currents, the wind patterns, the geological strata and the atmosphere also offer sources that can be traced.

## Tracing: a visual language of place

*Drawing Country* refuses the conventions of landscape painting and is not cartography (Casey 2002). Rather it calls on the languages of both in order to explore and invent a visual language of place. As we have seen, in the previous experiences *Fire* and *Water*, the practice of chorography creates re-presentations of place constituted through the designer's experience and knowledge and the intersecting perspectives and relationships present in the collaborations. The ground that is traced is the relation and connection between knowledges, experiences and people. Traditional chorography brings the visual languages of cartography, topography, and landscape painting into one practice. In a contemporary context (as demonstrated in the previous experiences), this language is complemented by photography, text, sound and video. These connected languages are applied through a multimedia platform in the representation of place or region. The emphasis for the visual communication designer in these social situations is directed towards the conceptual and performative actions of tracing. In *Drawing Country*, the focus is on an investigation of experimental visual languages through a performative material practice. This tracing practice is an embodied physical material engagement through the act of tracing. The ground is not the experience of

landscape; rather, it is the rational authoritative representation of place through cartography. In my movement across this ground *erasure*, *emergence* and *mimesis* produce the creative dance of tracing for place|country using non-digital media including various papers, pencils, pens, drawing instruments, watercolours and gouache. Although many of the projects discussed have a social and collaborative dimension, my visual investigation in the studio is a collaboration with place|country through a cartographic mediation.

The abiding presence of *chōra*, as a constituent of chorography, holds the vision of responsibility and ‘vital activity’ rather than ‘static ideas’ (Rickert 2007, p.252). This conjunction of ‘vital activity’ and an understanding of responsibility in *Drawing Country* involves an awakening of a phenomenological engagement through a process of representation. My recognition of a relationship with place|country mediated by the cartographic image and the line of the tracing brings an embodied and performative dimension to the authority of the map. Rather than an attempt to authoritatively define place|country and to provide assurance of certainty in the convention of cartography, the process of tracing in *Drawing Country* is a subjective and personal opening to place|country.

In my creative practice *Drawing Country*, the emphasis on the viewer and participants changes from a social situatedness to a personal perspective. This entails a deeper consideration of the relations between the maker/self, the making process and place|country. Despite this shift, from the social to the personal, from a concern for effectivity to an emphasis on affectivity, my connection to place|country and the qualities required of a critical tracing practice are still present.

The collaboration with place|country in *Drawing Country* occurs in a different place to the collaborative experiences discussed in previous chapters. In the case of this practice, my studio is the place of creation, a place where my relation to place|country is central, in contrast to the other projects where I am a participant in a complex socially situated setting. My studio is a relatively isolated and intimate place. However, my experience in the studio holds the reverberations from the experiences, the knowledge, the relationships, the thinking, the tracing and the drawing in my experience of the projects. These qualities become the material to bring into form the experimentation with visual systems. The studio is the hearth for *Drawing Country*. The hearth represents the potential of the unconscious, through language and visual experimentation, to bring the vibrancy and warmth of the imagination to the materialisation of the morphology or place|country (Mitchell 2003 p.11).

## Drawing complexity: considering the scientific and the sacred

---

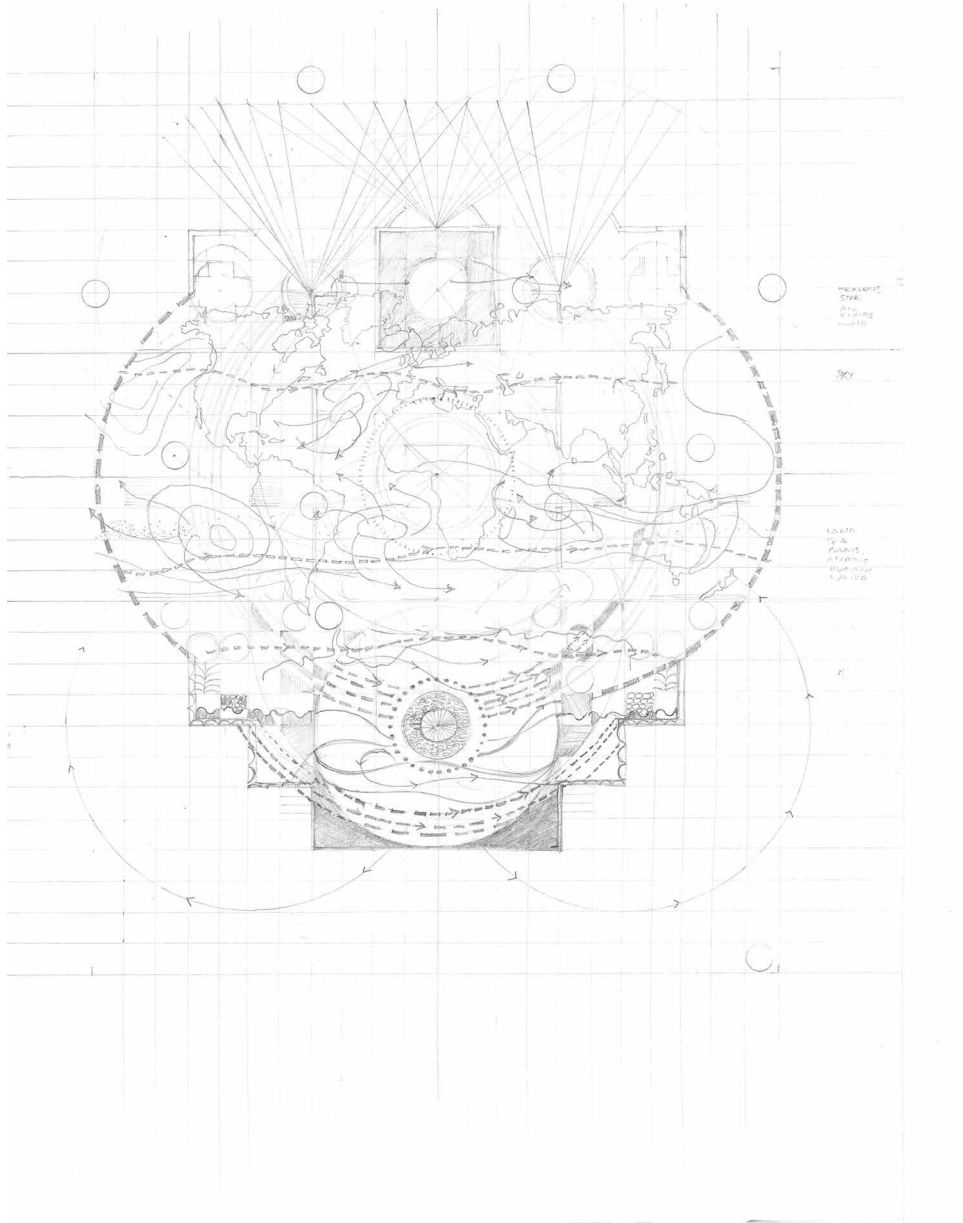


FIGURE 31. J. GÖTHE. *WORLDVIEW: A DIAGRAM FOR A PROPOSAL*. 2008. PENCIL ON CARTRIDGE PAPER 280 X 330 MM.

## WORLDVIEW – DIAGRAM FOR A PROPOSAL

In May 2008 I exhibited a body of work that had been produced over a six-month period. This exhibition, titled *Worldviews* (2008), comprised drawings, prints and paintings and was exhibited in the DAB Lab Research Gallery at University of Technology Sydney. The description of the exhibition posed the question – *Is it possible to construct a visual language that positions itself between scientific and spiritual systems of representation?*

In these works the act of tracing was central. The material act of tracing maps, scientific diagrams and religious structures such as the mandala established the parameters of the investigation. This exhibition was concerned with the visualisation of a transdisciplinary perspective. The central image was a small drawing titled *Worldview – diagram for a proposal*. This was a representation of a synthesis directed towards creating a visual language of connection and relations between the visual systems of the scientific and the sacred (Figure 31).

According to social scientist Sacha Kagan in his book *Art and Sustainability: Connecting Patterns for a Culture of Complexity* (2011), an aesthetic of sustainability ‘actually deals with intersubjective experience of complexity’ (Kagan 2011, p.369). The process of nature is described as the starting point and a representation of nature is charged with the capacity to present a constantly evolving system of systems marked by phenomena of emergence, complex interrelations and multiple spatial and temporal scales as well as contextuality. My practice of tracing offers a strategy of moving from a representation of nature to a presentation of nature. In this context, the visual systems of the scientific lexicon, including elements such as diagrams, ocean currents, wind systems, maps and grids, become the ground for the movement of mimesis through a visual listening.

Mimesis, as Michael Taussig points out, is ‘sympathetic magic’ – ‘the nature that culture uses to create a second nature, the faculty to copy, imitate, make models, explore difference, yield into and become Other’ (Taussig 1993, p.xiii). These visual systems of representation from the sciences are an entry point and graphically provide, through the movement of mimesis, a pathway to a sensibility to patterns which connect. This connection is not an observed phenomenon, but rather a collaboration with the ground (in this case a representation) and embodied through the act of tracing:

[T]he sacred is that which connects. The sacred links, as indicated by the etymological root of the word *religion* (*religare* – ‘to bind together again’) ... The sacred is first of all an experience; it is transmitted by a feeling – of that which links beings and things and, in consequence, induces in the very depths of the human being an absolute respect for the others, to whom she/he is linked by their all sharing a common life on one and the same Earth.

(Kagan 2011, p.245, citing Nicolescu 2002a, pp.125 -126)

The valuable aspect of Basarab Nicolescu and Gregory Bateson's description of complexity, according to Kagan, is that there is no reductive tendency to provide a holism that negates the complexity. According to Nicolescu, a transdisciplinary vision of nature has a ternary structure: objective nature apprehended through scientific objectivity; the subjective apprehension of nature; and trans-nature, which Nicolescu describes as a 'communion between' objective and subjective nature (Kagan 2011, p.208, citing Nicolescu 2002a, p.64).

The relational quality of the connection through the tracing is a collaborative process between place|country, the cartographic image and the practitioner. In this relationship the mimetic movements of acceptance and refusal, or attachment and resistance, in the performative act of drawing bring to light a visual shape of a perception in response to transdisciplinary thinking. This relationship represents an embodied practice in which 'Nature seems more like a book in the process of being written [and] not so much read as experienced, as if we are participating in the writing of it' (Nicolescu 2002a, p.65).

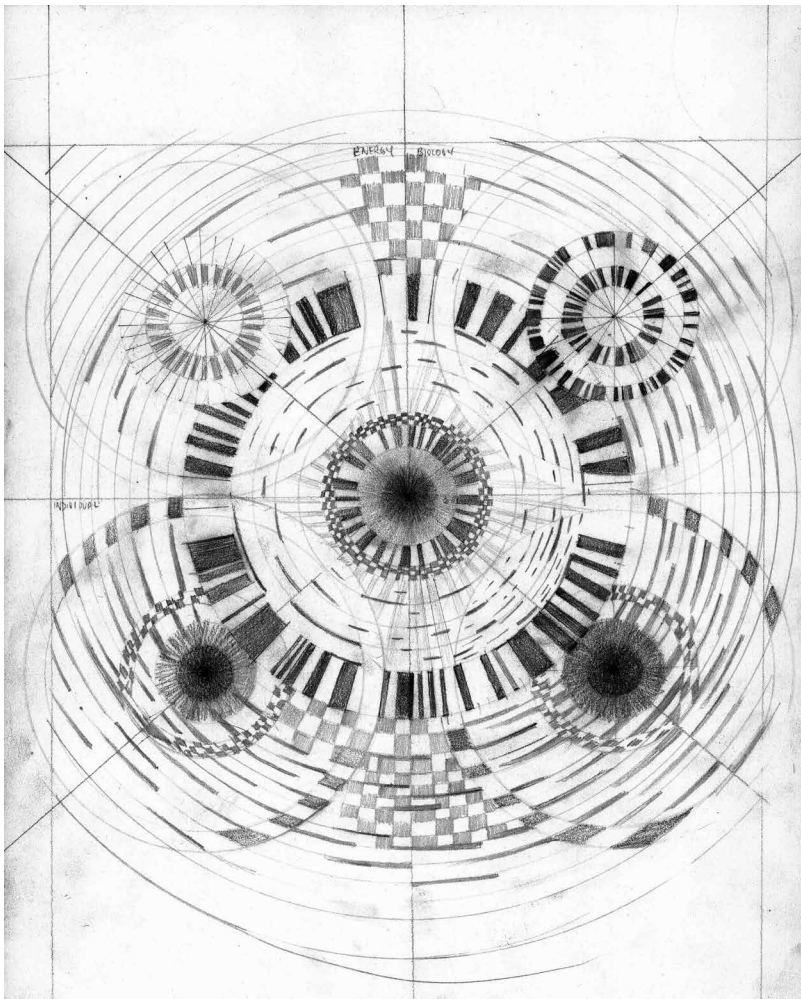


FIGURE 32. J. GOTHE. *INTERSECTING WORLDS*. 2008. PENCIL ON CARTRIDGE PAPER 280 X 330 MM.

## INTERSECTING WORLDS

The visualisation of responses to complexity as systems of knowledge, levels of reality and intersecting perspectives is the subject of the work, *Intersecting Worlds* (Gothé 2008a). This work is informed by anthropologist Edwina Taborsky's examination of the architecture of social organisation and reality as an organic entity made up of the individual, the social, the biological and the generative or basic energy (Taborsky 1997, p.xii) and influenced by a sensed response to my experience of Taoist energy. This drawing is a visualisation of the interconnectedness between the individual, the group, the biological and the energetic. Although not a tracing in a material sense, it is a tracing of ideas and a precursor to the project *Drawing Country*. What is important in this work is the interest in a visualisation of the intersecting perspectives foundational to this thesis.

### Influences on *Drawing Country*: the sensible and the rational

The work of Julie Mehretu, and Emma Kunz provides a model of process. Emma Kunz (1892-1964), according to Hendel Teicher in his essay 'Kaleidoscopic Visions' in the catalogue *3 x Abstraction New Methods of Drawing* (2005):

drew in order to gather, guide, and identify forces – fields of energy rendered visible as abstract geometric structures. Her process was always the same: Swinging a pendulum – a silver chain with a silver and jade ball attached at either end – over a square sheet of graph paper, she would determine the main directional lines of her drawing.

(Teicher 2005, p.127)

Emma Kunz, who lived in Switzerland, would often use her drawings as healing tools. For Kunz, the process of drawing was as important as the finished work. Her process focussed on the principles of nature and energetic flows as a series of grid-based works created 'in an act of abstracting and drawing from things both transparent and external to consciousness' (de Zegher 2005, p.29). The process can be understood as a systematic and enigmatic activity of investigation into scientific phenomena and spiritual enquiry. According to Susan T. Klein, writing on Kunz's work, 'energy is relationship in action. Relationships produce an energetic flow between two elements, producing a connection between everything' (Klein 2005, p.69). The expression of energy that is created through the Kunz's process is much like the starting point of the contours of a map that are traced in order to find a connection to the shape of the land in the project *Drawing Country*. In this act there is an openness to possibility that is provided by the ground in the case of *Drawing Country*,

and the direction of the swing of the pendulum in the practice of Kunz. These two practices demonstrate ways of accessing a ground that is not wholly self-constituted or visible: in the mediation of the accumulated knowledge of the land through the maps in the case of *Drawing Country*; and in the movements of energy traced through the path of the pendulum by Emma Kunz. According to Anton C. Meier, 'in Kunz's perception, the abstract was realised as the most profound interiorization of the outward and the purest exteriorization of the inward' (Teicher 2005, p.29, citing Harald Szeeman in Meier 1998, p.61).

As in Kunz's work, there is a systematic and procedural process in the wall works and paintings of Julie Mehretu. Mehretu works on a much larger scale than Kunz, often working with assistants. She uses the visual language of the urban, architectural and diagrammatic representation juxtaposed with drawn marks within what Christina Ljunberg (2006, p.314) calls 'excentric and unbounded cartographies'. Mehretu herself suggests an interest in 'the in-between' and the emergent. These works are not immediately concerned with a specific place, but rather with a mixture of modern geometric abstraction and reintroduced narrative and figurative elements creating an imagined space of movement. The marks act as agents in dynamic relation within a fragmented, layered and continuous space using different abstract visual languages. This has been described as a 'movement-space' incorporating 'many kinds of spaces, many kinds of dynamics, many kinds of existences, many kinds of imagination, holding each of these spaces in tension and never trying to resolve them: collisions, concordances, cataclysms, they are all here' (Ljunberg 2006, p.311, citing Thrift 2004, p.141).

The reason for using the language of mapmaking or any language of Rationalism, is that in our modern civilization we try to understand everything in the world, whether it is geography, whether it is something intimate or a galactic phenomenon, whatever it is through the modes of science in terms of a rational approach. Even in politics we say democracy works because most people benefit. We do that with everything. It's an absurd play in the work, because art is in many ways the opposite of that, but my effort in trying to do a drawing and trying to understand myself is an intuitive process that very much mimics this other phenomenon. The way that I play with a painting from the beginning, even with the marks, is to try to gain a rational understanding, even though you could never do that. That's why the charts are unreadable. I try to structure them and make sense of them from a very Cartesian rational approach.

(Ljunberg 2009, p.313, citing Mehretu interview in Perez Rubio 2007, p. 31)



Mehretu and Kunz are committed to the semblance of the rational and the sensible in order to access an openness and connection to a dynamism and dialogue with energy. This is evident in the procedural quality of their processes. Kunz's focus is the invisible energies described through tracing the movement of the silver pendulum and Mehretu's the exploding potential created through representation of the movement of strata created by layering and transparency.

### MOUNT YENGO

In *Drawing Country*, unlike the negotiated perspectives on place that are the ground in the Indigenous-led and interdisciplinary research team, my attention is the cartographic and topographic representations of place and my connection to place is through an act of tracing and following the lines of place|country. My dependence on the map as the ground rather than the direct experience of the landscape creates an already mediated perspective on place that brings the subjective and the objective into relation.



FIGURE 33. J. GÖTHE. MT YENGO. 2009. DETAIL. WATERCOLOUR ON WATERCOLOUR PAPER 180GSM 65 X 71CM.

The drawing *Mount Yengo* (Gothe 2009) is an investigation through drawing for the project *Drawing Country*. The paradox in *Drawing Country* is that the direct experience of place is removed in the act of representation. Instead the morphology of place|country emerges through tracing the topographic map and



in particular the water-courses. My engagement with place|country through a map signifies a disconnection from place as an acknowledgement of the inevitable failure of a performative gesture. As a symbolic representation the tracing becomes a sign of place. Working with this disconnection, the map becomes the ground for a critical practice, an imaginative play and performative dance. The act of tracing the map is an opportunity to focus on the forms and the shape of country from a topographic and hydrographic perspective. It is not an attempt to reproduce the lines on the map perfectly, but rather an attempt to mediate the authority through the embodied and self constituting act of drawing opening the authority of the representation to subjective response. In this act subjectivity brings a resistance to the authoritative representation through a degree of erasure.

Since 1975 I have had a connection to what is now Yengo National Park. Having visited and then owned a small block of land deep in the Park in Boree Valley I have had a lived experience of this place. A house we built in 1986 was burnt down in the 1994 bushfires. Situated 200kms northwest of Sydney, this is a rugged area that has been State Forest and National Park. It is a significant Indigenous cultural place with evidence of rock carvings, caves and significant sites. Aboriginal people have lived in the area for at least 20,000 years. In 2000 Yengo National Park became part of the Greater Blue Mountains World Heritage Area. It is sandstone country with steep gorges, pockets of rainforest, rocky ridges and harsh climate. It is inaccessible and not suited to agriculture other than in small areas. The major plant community is dry eucalypt forest growing on the ridges and north facing slopes, with wet eucalypt forests on the southern slopes and in the gorges. Between August and November beautiful bursts of colour from the flannel flowers, boronia and wattle appear along the sandstone ridges. Activities associated with settlement, including logging and clearing, were concentrated in the valleys and as a consequence there are few undisturbed areas. Seven species of ironbark and forty-seven eucalypt species have been confirmed, giving reason for its inclusion in the World Heritage Area list. Nearby the Wollemi Pine (*Wollemia nobilis* Araucariaceae), one of the world's oldest and rarest trees, was discovered in 1994. Fossil evidence indicates that ancestors of the Wollemi Pine go back some 110 million years. The Macdonald River runs along the edge of the park and joins the Hawkesbury River at Wiseman's Ferry. Over fifty species of mammals, including wombats, kangaroos, wallabies and possums, and endangered species such as the brush tailed wallaby, the spotted tailed quoll and the New Holland mouse, live in the Park. More than two hundred bird species and thirty-one species of amphibians and forty-three reptile species have been identified in the Park and demonstrate the diversity and value of the park.

Situated in the Park is Mount Yengo rising 668 metres high. I have heard it described as the Uluru of South Eastern Australia. It is a major site for Aboriginal people and considered significant not only by the local Darkinyung people but also by their neighbours the Kamiloroi for ceremony. Local Aboriginal lore states that Mount Yengo is the place where Biamie departed to the skies after finishing his creative tasks during the Dreamtime. The mountaintop was flattened when he stepped on it. There are two places that I have heard he walked as he departed – Mount Yengo and Burragurra.

This drawing *Mount Yengo* takes as its starting point my connection to the place through experience: driving through the bush on dirt tracks, moving through valleys and across ridges uncertain which direction we are travelling. Looking across the landscape to see Mount Yengo standing sentinel as we enter and leave. My visual investigation is instigated through a desire to understand more of the place. The tracing process is a search for meaning through the visual language derived from the topography of place. The investigation of the topography of the region and the shape that emerges from a tracing of this important and powerful mountain reveals a particular form. The contour lines indicate the comparative height and depth of a particular landscape. The breadth or comparative closeness between the lines becomes a representation of the ‘precise configuration of the land’ (Casey 2002, p.347). The tracing is a two dimensional representation of the undulations of the landscape. These include the peaks and valleys, the flatness of the plains and the gradient of the slopes. It shows the topographic formation of place as a flat two dimensional image. Perspective and elevation are erased.

Each landscape provides a different visual shape. The visual form of Mount Yengo, as vulva, flower or heart in my drawing *Mount Yengo*, can be understood as a re-implacement (Casey 2002, p.352). In this case ‘place is not replicated but transmuted in the work’ (Casey 2002, p.19). The topographic tracing of the contours of place as visual representation of place provides a visual language that is specifically derived for this place – Mount Yengo. This visual investigation in *Drawing Country* produces a visual language specific to each place through the act of tracing.

Tracing allows me to walk the beaten path through a wild or unenclosed region, made by the passage of water and earth; the track or trail made clear by a line that gives sense to the landscape. Rather than walking country I am drawing country in order to understand country.

(Jacqueline Gothe tracing the OED Online dictionary definition, 2011)

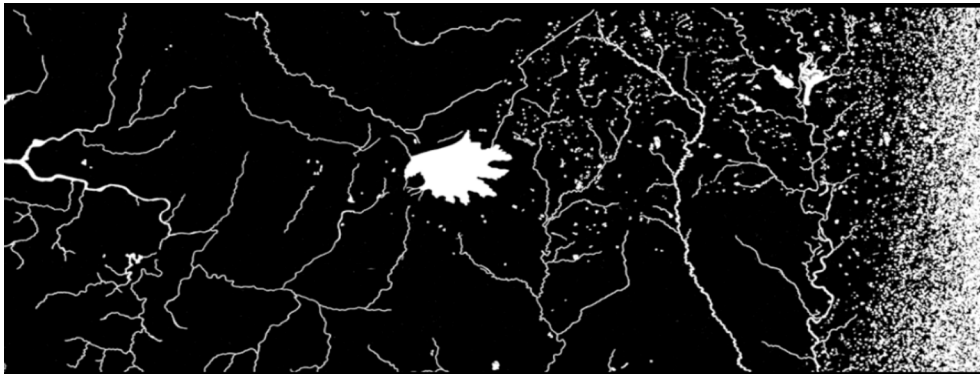


FIGURE 34. J. GOTHE. *DRAWING WATER*. 2009. DETAIL. DRAWING ON TRACING PAPER 600 X 3600 MM, SCANNED AND DIGITALLY PRINTED ONTO BOND PAPER AND HAND COLOURED.

## DRAWING WATER

The invitation from Professor Norie Neumark to participate in *Memory flows: rivers, creeks, and the Great Artesian Basin* 2009-2010 inspired the drawing *Drawing Water*. *Memory Flows* was a media arts project of exhibitions, group shows and events at various venues and locations in 2009 and 2010. This project, funded by the Inter-arts Board of the Australia Council and the Centre for Media Arts Innovation (CMAI) at the University of Technology, brought together a collection of new media artists working in a range of media including video and audio installations, interactive media works, mobile devices, projections on surfaces and through water, and an array of river related artworks and artifacts. The curatorial premise was focussed on water flows in Australia.

*Drawing Water* is a tracing of the Sydney Harbour waterways from the Pacific Ocean to the Blue Mountains. The map that is the ground for the tracing was made up of three topographic maps produced by Department of Lands Geocentric Datum of Australia 1994 (GDA94). This compilation was constructed with the maps titled Sydney Heads 9130-2N, Parramatta River 9130-3N and Prospect 9030-2N. The tracing from these three maps was 600mm wide and 3.6 metres long and was created on a specially designed table. This drawing with the help of Ian Gwilt was then digitally scanned and animated, to create a projection. I invited a friend of mine to sing the note G. This was recorded at UTS Media Lab in a spontaneous recording session and I worked with the recordist to bring the sound into a single tone that still held the human breath. I chose the note G as it signifies the sound of the Earth turning (Cousto 1978). This animated tracing of the waterways of Sydney Harbour with sound has had various iterations. The first iteration was exhibited at Liquid Architecture at Carriageworks, Redfern, Sydney, in 2009. The floor projection was 1.5 metre wide and almost 8 metres long. The viewer was encouraged to walk across or

with the projection producing the sense of walking across country from a very high perspective with the earth turning below through the movement and sound. This was replicated at The Armory, Sydney Olympic Park in July 2010. The following quote is from a review by Gail Priest published in *Realtime Arts* in July 2010:

*Drawing Water* (2009) by Jacqueline Gothe and Ian Gwilt is also evocative, comprising a large floor projection of gently undulating shapes—an abstract interpretation of the twists and turns of rivers from a topographical perspective. The image itself is not animated, yet it scrolls from left to right creating a disorienting sense of flow. The top down view and the interplay between stasis and movement create a sensation of the elusiveness of the shape of water.  
(Priest 2010)

## chōra Fire.Water.Country.

This exhibition, held at the UTS Art Gallery in November 2015, brings together the three strands of research in order to reveal the interconnection and relations between the socially situated process of visual communication design and the personal practice that makes sense of these social experiences. The Indigenous-led projects, the interdisciplinary research projects and my creative practice are not separate in this exhibition. The relationship between the works is drawn from the generative metaphor of tracing considered through the framework of choreography and transdisciplinarity, disrupting the hierarchies of creative and pragmatic categories.

Placing these hybrid practices in a creative arts context redresses what Victor Margolin describes as the prevailing division between art and design practice which ‘is one of the biggest obstacles to wholistically envisioning a new sustainable culture’ (Margolin 2005, p.27). My exhibition materialises the relation between the effective and the affective and describes the connections between the subjective world of the creative practitioner and the socially situated considerations of the practitioner researcher. My investigation of a critical practice in this thesis, initiated in the material practice of tracing and then considered as a conceptual, performative critical action through choreography, reveals itself as a powerful generative opening to further experimentation and theoretical enquiry.

Alongside this thesis is an exhibition in the UTS Gallery of drawings, posters, pamphlets, videos, reports, sound and projection. There are three spaces in the gallery. The first space has three vitrines installed. Within the first vitrine is displayed the print versions of the work that was undertaken for the communication of the Corangamite Regional Catchment Strategy. The second and third vitrines display the interdisciplinary research projects

concerning environmental flows and the ecotoxicology in the Hawkesbury-Nepean River. Along the back wall are three iPads with the presentations that were delivered to support the Hawkesbury-Nepean projects. These are the introduction to the discipline practice and process of design for the research team on the ecotoxicology project, the transdisciplinary model developed in the environmental flows project, and the conference presentation at the IAG Conference. On the wall above the vitrines and facing into the public space is a watercolour drawing 1200x 1500 that is a re-purposing of *Worldview: a diagram for a proposal*. This large reproduction of the drawing is silk-screen printed on 300 gsm watercolour paper and then painted and drawn with watercolour, ink and pencil. This reworking includes a handwritten version of the Charter of Transdisciplinarity in pen and ink.

The framed poster *Communicating Fire: Building Relationships and Creating Change*, which was awarded the Editors Choice in the International Institute for Information Design Awards in 2011, is displayed in the small space. Alongside this is a newsprint publication. This documents the email communication between myself, Peta Standley, Lyndal Harris, Victor Steffensen and Oliver Costello during the creation of the poster and also discloses the stages of design development. In this room the gentle sound of fire moving across the landscape is audible. This audio piece is a re-purposed sound work designed by myself and Clement Girault for *Slow Fire*, an exhibition curated by Catherine Benz at Delmar Gallery in June 2015. In addition, playing on a video screen with headphones is the video that was produced for the Bushfire in the Landscape Conference in 2011.

The re-installation of *Drawing Water*, as a new iteration, forms a central work of the exhibition. Reconfigured as a circular wall projection 2700 cm in diameter, the moving drawing takes on the quality of a celestial being and the viewer experiences the sound and movement as an observer, unlike the participatory experience in the floor projection.

Around the edges of these three major spaces are the diagrams that have been part of the writing of this thesis. They include the description of the actions of a critical designer between resistance and openness, the relationship between place|country as intersecting perspectives and chorography.

Continually resonating throughout this investigation is the presence of *chōra* as a continual state of becoming. As a dynamic, generative and creative force, *chōra* has provided the sustaining impetus throughout the thesis and is included in the title of the exhibition *chōra Fire.Water.Country*.

## Conclusion

This chapter provides a chronology of creative works in my experimental project *Drawing Country*. My work is produced by the relations between the cartographic image, the tracing paper and a mark-making process or dance with the emanation of place|country through the tracing paper. This movement is determined by a sense of *resistance* and *openness* to the morphology of place|country in the moment of drawing a line. It is a representation of an embodied opening to the cartographic image as I decide to *follow* or *not-follow* the lines of the official representation of place. This experimental investigation of the shape of place|country is the starting point for my *research through design* and remains the opening to a continuing investigation of my relationship as a practitioner researcher to place|country.

## Conclusion

## Conclusion

Visual communication design is often described as a field in crisis beset with signs of disciplinary inertia, disassociation and denial of social and environmental conditions (Earls 2011; Blauvelt 2002; Poynor 2008). The response within the discipline to this experienced crisis is manifest in the calls to substantiate the practice through theoretical, practice-based and ethical frameworks (Poggenpohl & Winkler 2010; Fitzgerald 2002; Woodward 2009).

My investigation responds to these concerns and aims to contribute to the ongoing enquiry exemplified by recent studies in visual communication design. These include Haslem's (2011) investigation of intersubjectivity, Akama's (2008a; 2008b) work on values and human centred design and Boehnert's (2012) work on ecological literacy. These studies in visual communication design contribute to the efforts to substantiate the diffuse field of visual communication design as a socially and ecologically responsible disciplinary practice.

My investigation contributes to the understanding of the capacities required for a visual communication designer as a critical practitioner in environmental communication design projects in cross-cultural and interdisciplinary contexts. This research provides project teams, designers, design educators and design researchers with insights into the attributes of the critical practitioner in complex research projects. My experience in Indigenous-led projects provides a deepening sense of responsibility and an awareness of the sensitivity and protocols required to work in cross-cultural projects. In addition my focus on critical practice from a practitioner researcher perspective provides a deepening understanding the generative potential of the experience of ambivalence understood as an important quality of a design attitude (Amatullo 2015) within a designerly approach (Cross 2007) to complex problems.

My methodological approach of *research through design* (Jonas 2012; Findeli 2008; Chow 2009) to understand designer experience in environmental communication design is directed towards a speculation on a critical practice. This approach focuses on process through reflection and does not unduly compromise or reduce the complexity of the uniqueness, situatedness and context dependency of design practice.



## CONCLUSION

This speculation on a critical practice in visual communication design is constituted by values of respect, reciprocity and *becoming responsible* in participatory and collaborative contexts. This critical practice draws on tracing as a literal and metaphorical practice. My conceptual proposition is informed by my investigation of choreography and my experience of Indigenous perspectives and multi-disciplinary research teams articulated as a collaborative disposition that is creative and critical, performative and procedural.

During the study I have been involved in The Firesticks Project: applying contemporary and Aboriginal fire practices to enhance biodiversity, connectivity and landscape resilience (2013-2017) as design researcher. This project is a collaboration between partners on Aboriginal lands – Ngulingah, Ngunyah-Jargoan, Minyumai, Casino-Boolangle, Gugin Guddaba, Tarriwa-Kurrukun, Wattleridge, Willows-Boorabee in Northern New South Wales Australia, UTS and Nature Conservation Council of New South Wales ([www.firesticks.org.au](http://www.firesticks.org.au)). The design work to this stage has been awarded Silver in Sustainability and Social Affairs in the International Institute for Information Design (IIID) 2014 and is currently touring internationally as part of a travelling exhibition and publication.

In 2015 I have been invited to participate in *Interpretive Wonderings* and the associated curated exhibition at Mildura Regional Gallery in February 2016. I have participated in *Slow Burn*, an exhibition at Delmar Gallery in Sydney curated by Catherine Benz and submitted abstracts for the Cumulus Conference in South Africa in 2014 and Land Dialogue at Charles Sturt University NSW in 2016.

These opportunities are indications of my future research direction. For me, this doctoral study has created a transformation – a transition from a practitioner researcher to a researcher practitioner. My doctoral study has provided the opportunity to reflexively examine significant experiences in environmental communication design and to investigate the creative connections between practice, theory and research. My commitment to the continuing investigation of the theoretical dimensions of a critical practice in visual communication design, transdisciplinarity and the maintenance of my creative investigation of place|country suggest a continuing constructive contribution to the community of researchers and educators in the discipline of visual communication design.

## References

- Akama, Y. 2008a, 'Politics make strange bedfellows: addressing the messy power dynamics in design practice', *Undisciplined Design Research Society Conference*, Sheffield Hallam University Research Archive, Sheffield Hallam University, Sheffield. UK.
- Akama, Y. 2008b, 'The tao of communication design practice: manifesting implicit values through human centred design', Thesis, RMIT, Melbourne.
- Akama, Y. 2014, 'Passing on, handing over, letting go - the passage of embodied design methods for disaster preparedness', paper presented to the *Fourth Conference of Service Design and Service Innovation*, Lancaster, UK, 9-11 April 2014.
- Alexander, A.S. 2010, 'Collaboratively developing a Web site with artists in Cajamarca, Peru: A participatory action research study', Thesis, University of Ohio, Columbus, OH.
- Amatullo, M.V. 2015, 'Design Attitude and Social Innovation: Empirical Studies of the Return on Design', Thesis, Case Western Reserve University, Cleveland, OH.
- Aynsley, J. 1987, 'Graphic Design', in S.D. Bondt & C.D. Smet (eds), *Graphic Design History in the Writing 1983-2011*, Occasional Papers, London.
- Bammer, G. 2005, 'Integration and Implementation Sciences: Building a new specialization', *Ecology and Society*, vol. 10(2), no. 6 [online].
- Bammer, G. 2008, 'Enhancing research collaborations: three key management challenges', *Research Policy*, vol. 37, pp. 875-87.
- Barnes, C. 2015, 'Social Design: Somewhere graphic design should be', *Desktop*, October/November, pp. 78-9.
- Bauman, Z. 1991, *Modernity and Ambivalence*, Polity, Cambridge, UK.
- Berggren, J.L. & Jones, A. 2000, *Ptolemy's Geography: An annotated translation of the theoretical chapters*, Princeton University Press, Princeton.
- Bidwell, N., Standley, P.-M., George, T. & Steffensen, V. 2008, 'The Landscape's Apprentice: Lessons for Place Centred Design from Grounding Documentary', paper presented to *Designing Interactive Systems 2008*, Capetown, South Africa, 25-27 February, 2008.

- Blair-Early, A. 2010, 'Beyond borders: Participatory design research and the changing role of design', *Visible Language*, vol. 44, no. 2 (May 1), pp. 207-18.
- Blauvelt, A. 2002, 'Towards critical autonomy or Can graphic design save itself?', *Emigre* 64, vol. 64.
- Boehnert, J. 2012, 'The Visual Communication of Ecological Literacy: Designing Learning and the Emergent Ecological Perception', Thesis, University of Brighton, Brighton, UK.
- Bolton, G. 2010, *Writing and Professional Development*, Sage, London.
- Brady, W. 1992, 'Beam Me Up Scotty! Communicating across world views on knowledge principles and procedures for the conduct of Aboriginal and Torres Strait Islander Research', *National Aboriginal and Torres Strait Islander Higher Education Conference Proceedings*, ed. C. White, University of Southern Queensland Toowoomba Australia, University of Southern Queensland Toowoomba Australia, pp. 104-15.
- Buchanan, R. 1992, 'Wicked Problems in Design Thinking', *Design Issues*, vol. VIII, no. 2, pp. 5-21.
- Bukoski, K.A. 2006, 'Exploring Networks of Relations in the Graphic Design Profession', Thesis, University of Minnesota, Minneapolis, Minnesota.
- Butler, C.H. 2010, 'Walkaround Time: Dance and Drawing in the Twentieth Century', in C. de Zegher & C. Butler (ed.), *On Line Drawing through the Twentieth Century*, Museum of Modern Art, New York.
- Butler, J. 2001, 'Giving An Account of Oneself', *Diacritics*, vol. 31, no. 4 (Winter), pp. 22-40.
- Butler, J. 2010, 'Performative Agency', *Journal of Cultural Economy Special Issue: Performativity, Economics and Politics*, vol. 3, no. 2, pp. 147-61.
- Camuffo, G & Dalla Mura, M. (ed.) 2011, *Graphic Design worlds/words*, Electa, Milano.
- Casey, E.S. 1993, *Getting back into place: Towards a Renewed Understanding of the Place-World*, Indiana University Press, Bloomington & Indianapolis.
- Casey, E.S. 1997, *The Fate of Place: A Philosophical History*, University of California Press, Berkeley.

- Casey, E.S. 2002, *Representing Place: Landscape Painting and Maps*, University of Minnesota Press, Minneapolis.
- Casey, E.S. 2004, 'Mapping the Earth in Works of Art', in B.V. Foltz & R. Frodeman (ed.), *Rethinking Nature: Essays in Environmental Philosophy*. Indiana University Press, Indianapolis, pp. 260-269.
- Casey, E.S. 2008, 'Place in Landscape Archaeology: A Western Philosophical Prelude', in B. David & J. Thomas (ed.), *Handbook of Landscape Archaeology*, Left Coast Press Inc, Walnut Creek, CA, pp. 44-50.
- Cennini, C.d.A. 1497, *The Craftsman's Handbook 'Il Libro dell'Arte'*, trans. J. Daniel V. Thompson, 1960 edn.
- Charlesworth, M. 1999, 'Mapping, the Body and Desire: Christopher Packe's Chorography of Kent', in D. Cosgrove (ed.), *Mappings*, Reaktion Books, London, pp. 109-24.
- Chow, R. 2009, 'What Should Be Done with the Different Version of Research Through Design', in C. Mareis, G. Joost & K. Kimple (ed.), *Entwerfen. Wissen. Produzieren. Designforschung im Anwendungskontext*, DGTf Transcript Verlag, Berlin, pp. 1-12.
- Chow, R. & Jonas, W. 2008, 'Beyond Dualisms in Methodology: An Integrative Design Research Medium "MAPS" and some Reflections' Undisciplined! Design Research Society Conference 2008, Sheffield Hallam University, Sheffield, UK, 16-19 July 2008.
- Colmar 4th century, 'Tabula Peutingeriana',  
<[http://en.wikipedia.org/wiki/Tabula\\_Peutingeriana%3E](http://en.wikipedia.org/wiki/Tabula_Peutingeriana%3E).
- Corangamite Catchment Management Authority 2009, *Corangamite CMA, Glenelg Hopkins CMA and Western Coastal Board to Amalgamate*, Colac, Victoria.
- Corangamite Catchment Management Authority 2003, *Working Draft*, CCMA, Colac, Victoria.
- Cousto, H., 1978 *The Cosmic Octave: An overview of the theory of The Cosmic Octave* viewed 29/08/13 2013, <<http://www.planetware.de/octave/cosmic-octave.html>>.
- Cross, N. 2007, *Designerly Ways of Knowing*, Birkhauser Verlag AG, Basel, Switzerland.

- De Bretteville, S.L. 1998, *Design Beyond Design: Critical Reflection and the Practice of Visual Communication*, ed. J. van Toorn, Jan van Eyck Akademie Editions, Maastricht, pp. 115-127.
- Department of Environment, Climate Change and Water & Sydney Catchment Authority 2009, *Hawkesbury Nepean River Environmental Monitoring Program: Final Technical Report*, New South Wales State Government, Sydney.
- Department of the Environment, *The Hawkesbury Nepean Recovery Package*, Australian Government, viewed 4 April 2012, <<http://www.environment.gov.au/water/policy-programs/water-smart/projects/nsw27.html%3E>.
- De Zegher, C. 2010, *On Line: Drawing Through the Twentieth Century*, The Museum of Modern Art New York, New York.
- De Zegher, C. 2005, 'Abstract', in C. de Zegher & H. Teicher (ed.), *3 x Abstraction New Methods of Drawing Hilma AF Klint Emma Kunz Agnes Martin*, Yale University Press and The Drawing Centre, New York, New Haven and New Haven, pp. 23-41.
- DiSalvo, C. 2009, 'Design and the Construction of Publics', *Design Issues*, vol. 25, no. 1 (Winter), pp. 48-63.
- Dorst, K. 2008, 'Design Research: A Revolution Waiting To Happen', *Design Studies*, vol. 29, no. 1.
- Downton, P. 2003, *Design Research*, RMIT Publishing, Melbourne.
- Drucker, J. 2013, *Graphic Design History: A Critical Guide*, Pearson, Boston.
- Earls, E. 2011, 'Elliott Earls', in G. Camuffo & M.D. Mura (ed.), *Graphic Design Worlds/Words*, Triennale de Milano Triennale Design Museum, Milan, pp. 172-185.
- Eskilon, S. 2007, *A New History of Graphic Design*, Laurence King, London.
- Findeli, A., Brouillet, D., Martin, S., Moieau, C. & Tarrago, R. 2008, 'Research Through Design and Transdisciplinarity: A Tentative Contribution to the Methodology of Design Research', paper presented to the conference *Focused Current Design Research Projects and Methods*, Berne Switzerland.
- Fitzgerald, K. 2002, 'Quietude', *Emigre* 64, pp. 15-32.

- Fiumara, G.C. 1995, *The Other Side of Language A Philosophy of Listening*, Routledge, London.
- Frascara, J. 2004, *Communication Design: Principles, Methods and Practice*, Allworth Press, New York.
- Freire, P. 1970, *Cutural Action for Freedom*, Harvard University Press, Harvard.
- Fry, T. 2009, *Design Futuring: Sustainability, Ethics and New Practice*, UNSW, Sydney.
- Fry, T. 2011, *Design as Politics*, Berg, Oxford, UK.
- Gammage, B. 2011, *The Biggest Estate on Earth: How Aborigines made Australia*, Allen and Unwin, Sydney.
- Gautier-Dalché, P. 2003, 'The Medieval and Renaissance Transmission of the Tabula Peutingeriana', in F. Prontera (ed.), *Tabula Peutingeriana. Le Antiche Vie Del Mondo*, Leo S. Olschki, Florence, pp. 43-52.
- Gillings, M. 2011, 'Chorography, Phenomenology and the Antiquarian Tradition', *Cambridge Archaeological Journal*, vol. 21, no. 1, pp. 53-63.
- Gleeson, B. 2010, *Coordinator General for Remote Indigenous Services Six Monthly Report December 2009 - August 2010*, Canberra.
- Gleiniger, A., Hilbeck, A. & Scott, J. (ed.) 2011, *Transdiscourse 1 Mediated Environments*, Springer, Wien & New York.
- Gothe, J. 2008a, *Intersecting Worlds*, exhibited at DAB Lab Research Gallery, University of Technology Sydney, Sydney.
- Gothe, J. 2008b, *Mount Yengo*, watercolour on paper, exhibited at DAB Lab Research Gallery, University of Technology Sydney, Sydney.
- Gothe, J. 2008c, 'Understanding the project of relational design from the perspective of a design research practitioner', *relational design*, weblog, 25 November 2008, wordpress.
- Gothe, J. 2008d, *Worldview*, exhibited at DAB Lab Research Gallery, University of Technology Sydney, Sydney.
- Gothe, J. 2009a, *Drawing Water 1*, exhibited at Carriageworks, Sydney.
- Gothe, J. 2009b, 'Fire water country visual communication and relational design', paper presented to the Australian Graphic Design Association conference *Can Graphic Design save the Planet?*, Powerhouse Museum, Sydney, 3 August 2009.

- Gothe, J. 2011a, 'Advocating for the Hawkesbury-Nepean River: Critical Practices in Visual Communication Design', paper presented to the *Geography on the Edge Australian Geographers Annual Conference 2011*, University of Wollongong, 3-6 July 2011.
- Gothe, J. 2011b, 'Firesticks: Designing Understanding and Creating Change', paper presented to the *OZCHI 2011*, Australian National University Canberra, 29 November 2011, viewed 12 January 2013, <<http://www.educ.dab.uts.edu.au/interactivation/RuralHCI/%3E>.
- Gothe, J. & Standley, P. 2011, 'Communicating Fire: Building relationships and creating change', paper presented to the *Bushfire in the Landscape: different values and shared visions*, Sydney, 1 November 2011.
- Gothe, J. & Steffensen, V. 2010, 'Cruising to-gether: Traditional knowledge and academic practice', Keynote address to International Participatory Design Conference 2010 at University of Technology Sydney, Sydney.
- Hannula, M. 2009, 'Catch Me if You Can: Chances and Challenges of Artistic Research', *Art and Research: A Journal of Ideas, Contexts and Methods*, vol. 2, no. 2, pp. 1-12.
- Harland, R. 2011, 'The Dimensions of Graphic Design and its Spheres of Influence', *Design Issues*, vol. 27, no. 1 (Winter), pp. 21-35.
- Haslem, N. 2009, 'Communication Design: Towards a "socially-situated" practice', *visual: design: scholarship Research Journal of the Australian Graphic Design Association*, vol. 4, no. 1, pp. 20-28.
- Haslem, N. 2011, 'Communication Design and the Other: Investigating the Intersubjective in Practice', Thesis, RMIT, Melbourne.
- Hawkesbury-Nepean River Environmental Monitoring Program Final Technical Report 2009*, Sydney Catchment Authority & Department of Environment & Climate Change NSW, Sydney.
- Hawkesbury-Nepean River Management Forum 2004, *Water and Sydney's Future: Balancing the values of our rivers and economy*, published by the Hawkesbury-Nepean River Management Forum, Department of Infrastructure, Planning and Natural Resources, Sydney.
- Heat-Moon, W.L. 1991, *PrairyErth: A deep map*, Houghton Mifflin, Boston.

- Heeks, R. 2002, 'Failure, Success and Improvisation of Information Systems Projects in Developing Countries', *The Development Informatics Working paper Series*, no. Paper 11, p. 23,  
<[http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/di\\_wp11.htm%3E](http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/di_wp11.htm%3E).
- Henderson, K. 1999, *On Line and On Paper: Visual representations, visual culture, and computer graphics in design engineering*, MIT Press, Cambridge, MA.
- Huxham, C. & Vangen, S. 2000, 'Ambiguity, Complexity and Dynamics in the Membership of Collaboration', *Human Relations*, vol. 53, no. 6, pp. 771-806.
- Ingold, T. 2007, *Lines: A Brief History*, Routledge, London.
- International Council of Graphic Design Associations 2011, *Best Practice paper: model code of professional conduct for communication designers*, pamphlet, ICOGRADA, Montreal.
- International Council of Design ICOGRADA *Design Education Manifesto* 2011, viewed 9 March 2014,  
<[http://toolkit.icograda.org/database/rte/files/PR\\_IEN\\_Manifesto2011\\_webres.pdf%3E](http://toolkit.icograda.org/database/rte/files/PR_IEN_Manifesto2011_webres.pdf%3E).
- Jackson, M. 1983, 'Knowledge of the Body', *Man, New Series*, vol. 18, no. 2 (June), pp. 327-45.
- Jackson, M. 1994, *Minima Ethnographica: Intersubjectivity and the Anthropological Project*, University of Chicago Press, Chicago.
- Janz, B. 2005, 'Whistler's Fog and the Aesthetics of Place', *Reconstruction Studies in Contemporary Culture*, vol. 5, no. 3 (Summer).
- Janzer, C.L. & Weinstein, L.S. 2014, 'Social Design and Neocolonialism', *Design and Culture*, vol. 6, no. 3, pp. 327-44.
- Jonas, W. 2012, 'Exploring the Swampy Ground', in S. Grand & W. Jonas (ed.), *Mapping Design Research*, Birkhauser, Basel, pp. 11-41.
- Julier, G. 2013, *The Culture of Design*, Sage, Los Angeles.
- Junge, M. 2008, 'Bauman on Ambivalence - Fully Acknowledging the Ambiguity of Ambivalence', in M.H. Jacobsen & P. Poder (ed.), *The Sociology of Zygmunt Bauman: Challenges and Critique*, Ashgate, Aldershot, UK, pp. 41-53.



- Kagan, S. 2011, *Art and Sustainability*, Transcript Verlag Bielefeld, Berlin.
- Kimbell, L. 2011, 'Rethinking Design Thinking Part 1', *Design and Culture*, vol. 3, no. 3, pp. 285-306.
- Klein, S.T. 2005, 'Emma Kunz as Healer', in C. de Zegher & H. Teicher (ed.), *3 x Abstraction New Methods of Drawing: Hilma AF Klint Emma Kunz Agnes Martin*, Yale University Press New Haven and London, pp. 139-142.
- Kristeva, J. 1984, *Revolution in Poetic Language*, trans. L.S. Roudiez, Columbia University Press, New York.
- Langton, M. & Rhea, Z.M. 2005, 'Traditional Indigenous Biodiversity-Related Knowledge', *Australian Academic & Research Libraries*, vol. 36, no. 2, pp. 47-72.
- Laudine, C. 2009, *Aboriginal Environmental Knowledge*, Ashgate, Burlington.
- Lawson, C. 2010, 'The New School Collaborates: Organization and communication in immersive international field programs with artisan communities', *Visible Language* vol. 44, no. 2, pp. 239-65.
- Ledwith, M. & Springett, J. 2010a, *Participatory Practice: Community-based action for transformative change*, The Policy Press, University of Bristol.
- Levinas, E. 1998, *On thinking-of-the-Other entre nous*, trans. M.B. Smith & B. Harshaw, The Athlone Press, London.
- Ljungberg, C. 2009, 'Cartographies of the Future: Julie Mehretu's charting of fluid space', *The Cartographic Journal: The British Cartographic Society*, vol. 46, no. 4, pp. 308-15.
- Malpass, M. 2009, 'Contextualising Critical Design: Classification of critical design practices', paper presented to the *8th European Academy of Design Conference*, The Robert Gordon University, Aberdeen.
- Malpass, M. 2012, 'Contextualising Critical Design: Towards a taxonomy of critical practice in product design', Thesis, Nottingham Trent University, Nottingham, UK.
- Manzini, E. 2009, 'Viewpoint: New Design Knowledge', *Design Studies* vol. 30, no. 1 January pp. 1-12.
- Margolin, V. 2005, 'Reflections on Art and Sustainability', in S. Smith (ed.), *Beyond Green: Toward a Sustainable Art*, Smart Museum of Art, Chicago.

- Max-Neef, M.A. 2004, 'Foundations of Transdisciplinarity', *Ecological Economics*, vol. 53, no. 53 (2005), pp. 5-16.
- Maze, R. 2014, 'Our Common Future? Political questions for designing social innovation', in Y.-K. Lim, K. Niedderer, Johan Redström, E. Stolterman & A. Valtonen (ed.), *Design Research Society Conference 2014*, Umeå University, Umeå Institute of Design, Umeå, p. 560.
- Maze, R. & Redstrom, J. 2007, 'Difficult Forms: Critical practices of design and research', paper presented to the IASDR *International Association of Societies of Design Research: Emerging Trends in Design Research*, Hong Kong Polytechnic University, Hong Kong.
- McCoy, K. 2001, 'American Graphic Design Expressionism: The evolution of American typography', in S. Heller & G. Ballance (ed.), *Graphic Design History*, Allworth Press, New York.
- Mehretu, J. 2006, *Black City*, Hatje Cantz Verlag, Berlin.
- Meier, A.C. 1998, 'Emma Kunz: Life and Work', in A.C. Meier (ed.), *Emma Kunz: Artist Researcher Healer*, Emma Kunz Zentrum, Würenlos.
- Michlewski, K. 2008, 'Uncovering Design Attitude: Inside the culture of designers', *Organization Studies*, vol. 29, no. 3, pp. 373-92.
- Mitchell, D. 2008, 'New Axioms for Reading the Landscape: Paying attention to political economy and social justice', in J.J.L. Westcoat & D.M. Johnston (ed.), *Political Economies of Landscape Change: Places of integrative change*, 89th ed., Springer, Dordrecht, Netherlands, pp. 29-50.
- Mitchell, S.A. 2003, *Relationality From Attachment to Subjectivity*, vol. 20, Taylor and Francis, New York.
- Nelson, H.G. & Stolterman, E. 2012, *The Design Way: Intentional change in an unpredictable world.*, 2nd ed., MIT Press, Cambridge, MA.
- Nicolescu, B. 2002a, *Manifesto of Transdisciplinarity*, trans. K.-C. Voss, State University of New York Press, New York.
- Nicolescu, B., Morin, E. & L. de Freitas 1994, *Charter of Transdisciplinarity*, pamphlet published after Convento de Arrábida, November 6, 1994.
- Nowotny, H. 2004, 'The Potential of Transdisciplinarity', *Interdisciplines*.
- O'Neill, M. & Hubbard, P. 2010, 'Walking, Sensing, Belonging: Ethno-mimesis as performative praxis', *Visual Studies*, vol. 25, no. 1, pp. 46-58.

- Ostergaard, K. & Summers, J.D. 2009, 'Development of a Systematic Classification and Taxonomy of Collaborative Design Activities', *Journal of Engineering Design*, vol. 20, no. 25, pp. 57-81.
- O'Sullivan, J. 2009, 'Chorography: Reflections on its place in visual literacy and creative arts', paper presented to the *3rd Global Conference in Visual Literacies*, Mansfield College Oxford UK, 14-16 July 2009, viewed 4 October 2012, <<http://eprints.jcu.edu.au/11150/%3E>.
- Oxford English Dictionary ED Online* 2000
- Palmer, C., Gothe, J., Mitchell, C., Sweetapple, K., McLaughlin, S., Hose, G., Lowe, M., Goodall, H., Green, T., Sharma, D., Fane, S., Brew, K. & Jones, P. 2008, 'Finding Integration Pathways: Developing a transdisciplinary (TD) approach for the Upper Nepean Catchment', *Proceedings of the 5th Australian Stream Management Conference. Australian rivers: making a difference*, Charles Sturt University, Thurgoona, New South Wales.
- Pearson, M. & Shanks, M. 2001, *Theatre/Archaeology*, Routledge, London.
- Perez-Gomez, A. 1994, 'Chōra: The space of architectural representation', in A. Perez-Gomez & S. Parcell (ed.), *Chōra Volume One: Intervals in the Philosophy of Architecture*, McGill - Queens University Press, Montreal, pp. 2-34.
- Pérez Rubio, A. 2006, 'Interview with Julie Mehretu', *Julie Mehretu: Black City*, Hatje Cantz Verlag, Berlin.
- Petherbridge, D. 2012, 'Nailing the Liminal: The difficulties of defining drawing', in S. Garner (ed.), *Writing on Drawing: Essays on drawing practice and research*, Intellect Books, Bristol, pp. 27-41.
- Plant, R., Walker, J., Rayburg, S., Gothe, J. & Leung, T. 2012, 'The Wild Life of Pesticides: Urban agriculture, institutional responsibility, and the future of biodiversity in Sydney's Hawkesbury-Nepean River', *Australian Geographer*, vol. 43, no. 1, pp. 75-91.
- Plato 2005, *Timaeus Critias Cleitophon Menexenus Epistles*, 10th ed, Loeb Classical Library, Harvard College, Cambridge, MA.
- Poggenpohl, S. & Winkler, D.R. 2010, 'What have we learnt from communication design failure?', *Visible Language*, vol. 44, no. 1, p. 13.
- Poynor, R. 2008a, 'It's the end of graphic design as we know it', *Eye*, vol. 69, pp. 76-7.

- Priest, G. 2010, 'The Shapes of Water: Memory Flows Newington Armory', *Realtime*, Review, vol. 97, July 12 2010, viewed 13 December 2013, <<http://www.realtimearts.net/article/97/9919%3E>.
- Raby, F. 2007, *Design Dictionary: Perspectives on Design Terminology* 2007, Birkhäuser, Basel. pp. 94-96
- Rickert, T. 2007, 'Towards the Chōra: Kristeva, Derrida and Ulmer on emplaced invention', *Philosophy and Rhetoric*, vol. 40, no. 3, p. 251-273.
- Rigney, L.-I. 1997, 'Internationalisation of an Indigenous Anti-Colonial Cultural Critique of Research Methodologies: A guide to Indigenist research methodology and its principles', *Journal for Native American Studies*, vol. 14, no. 2, pp. 109-21.
- Rittel, H.W.J. 1972, 'On the Planning Crisis: Systems analysis of the 'First and Second Generations'', *Bedriftsøkonomen*, vol. 8, pp. 390-6.
- Robinson, J. 2008, 'Being Undisciplined: Transgressions and intersections in academia and beyond', *Futures* vol. 40, no. 1, pp. 70-86.
- Rohl, D.J. 2011, 'The Chorographic Tradition and Seventeenth and Eighteenth Century Scottish Antiquaries', *Journal of Art Historiography*, vol. No 5, (December), p. 1-18.
- Russell, A.W., Wickson, F. & Carew, A.L. 2008, 'Transdisciplinarity: Context, contradictions and capacity', *Futures*, vol. 40, no. 5, pp. 460-72.
- Sanders, E.B.N. 2002, 'From User-Centred to Participatory Design Approaches', in J. Frascara (ed.), *Design and the Social Sciences*, Taylor and Francis, London, pp. 1-8.
- Sanders, E.B.N. 2006, 'Design Research in 2006', *Design Research Quarterly*, vol. 1, no. 1.
- Sanders, E.B.N. 2013, 'Perspectives on Participation in Design', in C. Mareis, M. Held & G.J. (Hg.) (ed.), *Wer gestaltete die Gestaltung? Praxis, Theorie and Geschichte des partizipatorischen Designs*, Transcript, Bielefeld, pp. 61-74.
- Sanders, E.B.N. & Chan, P.K. 2007, 'Emerging Trends in Design Research', paper presented to the *International Association of Societies of Design Research*, Hong Kong Polytechnic, 12-15 November 2007.
- Sanders, E.B.N. & Stappers, P.J. 2008, 'Co-Creation and the New Landscapes of Design', *Co-Design Interdisciplinary Journal of Design*, vol. 4, no. 1, pp. 5-14.

- Sanders, E.B.N. & Stappers, P.J. 2014, 'From Designing to Co-designing to Collective Dreaming: Three slices in time', *Interactions*, vol. 21, no. 6 (November-December), pp. 25-33.
- Scazzosi, L. 2011, 'Limits to Transformation in Places' Identity: Theoretical and methodological questions', in Z. Zoca, P. Clavel & J. Agnew (ed.), *Landscapes, Identities and Development*, Ashgate, Farnham, Surrey, pp. 9-25.
- Schön, D.A. 1991, *The Reflective Practitioner: How Professionals Think in Action*, Ashgate Publishing Aldershot.
- Schwab, G. 2011, 'Creating Unrealities Rethinking Mimesis as Production of Difference', *Crossroads*, vol. IV, no. 11, pp. 21-31.
- Selvin, A. & Shum, S.B. 2014, *Constructing Knowledge Art An Experiential Perspective on Crafting Participatory Representations*, Morgan & Claypool, viewed 14 August 2015.
- Shanks, M. 2012, *Michael Shanks*, 21 January 2013, <<http://documents.stanford.edu/MichaelShanks/11%3E>.
- Smith, L., Bratini, L., Chambers, D.-A., Jensen, R.V. & Romero, L. 2010, 'Between Idealism and Reality: Meeting the challenges of participatory action research', *Action Research*, vol. 8, no. 4, pp. 407-25.
- Smith, L.T. 1998, *Decolonizing methodologies: Research and indigenous peoples*, ZED Books, New York.
- Spretnak, C. 1993, *States of Grace: The recovery of meaning in the postmodern age*, 2nd ed., HarperCollins, New York.
- Spretnak, C. 1997, *The Resurgence of the Real*, Addison Wesley Publishing Company Inc., Reading, MA.
- Standley, P., Bidwell, N., George, T., Steffensen, V. & Gothe, J. 2009, 'Connecting Communities and the Environment through Media: Doing, Saying and Seeing along Traditional Knowledge Pathways', *3C Media*, vol. October, no. 5.
- Steffensen, V. 2003, [http://www.youtube.com/watch?v=wwEcjmTwH\\_o](http://www.youtube.com/watch?v=wwEcjmTwH_o) viewed 12 December 2013.
- Steinheider, B. & Legrady, G. 2004, 'Interdisciplinary Collaboration in Digital Media Arts: A psychological perspective on the production process', *Leonardo*, vol. 37, no. 4, pp. 315-21.

## REFERENCES

- Stewart, S. 2005, *Open Studio Essays on Art and Aesthetics*, University of Chicago Press, London.
- Suchet, S. 2002, "'Totally Wild?' Colonising discourses, Indigenous knowledges and managing wildlife', *Australian Geographer*, vol. 33, no. 2, pp. 141-57.
- Suchet-Pearson, S., Lloyd, K., Wright, S., LallakBurrarrwanga & Hon. Bawaka Country, 2011, 'Nature The Land Can Understand', paper presented to the *Geography on the Edge Australian Geographers Annual Conference 2011*, University of Wollongong, Wollongong.
- Taborsky, E. 1997, *The Textual Society*, University of Toronto Press, Toronto.
- Tan, L. 2011, 'Understanding the Different Roles of the Designer for Social Good. A Study of Design Methodology in the DOTTo7 (Design of the Times 2007) Projects', Thesis, University of Northumbria, Newcastle.
- Taussig, M. 1993, *Mimesis and Alterity: A particular history of the senses*, Routledge, London.
- Tawa, M. 2002, 'Place Country Chorography: Towards a kinesthetic and narrative Practice of Place', *Architectural Theory Review*, vol. 7, no. 2, pp. 45-58.
- Teicher, H. 2005, 'Kaleidoscopic Visions', in C.D. Zegher & H. Teicher (ed.), *3 x Abstraction New Methods of Drawing Hilma AF Klint Emma Kunz Agnes Martin*, Yale University Press, New Haven & London, pp. 127 - 37.
- Teurlings, J. & Stauff, M. 2014, 'Introduction: The transparency issue', *Critical Studies=>Critical Methodologies*, vol. 14, no. 1, pp. 3-10.
- Tilley, C. 2008, 'Phenomenological Approaches to Landscape Archaeology', in B. David & J. Thomas (ed.), *Handbook of Landscape Archaeology*, Left Coast Press Inc, Walnut Creek, CA.
- Traditional Knowledge Revival Pathways (TKRP) 2003, viewed 12 December 2013, <[http://www.youtube.com/watch?v=wwEcjmTwH\\_o%3E](http://www.youtube.com/watch?v=wwEcjmTwH_o%3E).
- Ulmer, G.L. 1994, *Heuretics: The logic of invention*, John Hopkins University Press, Baltimore.
- Ward, T. 1997, 'Learning To Change The World or Decolonising Design Education', *Emergent Paradigms in Design Education: Sustainability, collaboration and community*, conference proceedings, University of New South Wales, Sydney, pp. 79-101.

## REFERENCES

- Watson, R. 2009, 'Mapping and Contemporary Art', *The Cartographic Journal: The British Cartographic Society*, vol. 46, no. 4 (Art and Cartography – Special Issue), pp. 297-307.
- Williams, R. 1977, *Marxism and Literature*, Oxford University Press, Oxford.
- Willis, A.-M. 2006, 'Ontological designing', *Design Philosophy Papers*, Collection Three, pp. 80-98.
- Woodward, M. 2009, 'Editorial: Rendering the visual visible: social dimensions of graphic design', *visual: design: scholarship Research Journal of the Australian Graphic Design Association*, vol. 4, no. 1, pp. 1-3.
- Yale, E.E. 2008, 'Manuscript Technologies: Correspondence, collaboration and the construction of natural knowledge in early modern Britain', Thesis, Harvard University, Cambridge, MA.
- Zimmermann, J. & Forlizzi, J. 2008, 'The Role of Design Artefacts in Design Theory Construction', published by Carnegie Melon University Research Showcase@CMU, June 2008, pp. 1-11.

## Additional Bibliography

- Akama, Y. & Barnes, C. 2011, 'Probious: Research Australian Communication Design through Collaboration and Design Practice', *Studies in Material Thinking*, vol. 6 (December), pp. 1-14.
- Allen, S. 2000, *Practice: architecture, technique and representation*, G+B Arts International, Amsterdam.
- American Institute for Graphic Arts (AIGA) 2009, *Design Business and Ethics*, AIGA, viewed 3 December 2013, <<http://www.aiga.org/design-business-and-ethics/>>E
- Archer, B. 1995, 'The Nature of Research', *Co-Design Interdisciplinary Journal of Design*, January, pp. 6-13.
- Associazione italiana degli storici del design 2015, AIS, viewed 1 January 2015, <<http://www.aisdesign.org/aisd/news/design-in-times-of-turmoil-displacement-replacement-emplacement>>E.
- Augsberg, T. 2014, 'Becoming Transdisciplinary: The Emergence of the Transdisciplinary Individual', *World Futures: The Journal of New Paradigm Research*, vol. 70, no. 3-4, pp. 233-47.
- Baker, R., Davies, J. & Young, E. (eds) 2001, *Working On Country: Contemporary Indigenous Management of Australia's Lands and Coastal Regions*, Oxford University Press, Melbourne.
- Barad, K. Spring 2003, 'Posthumanist performativity: Towards an understanding of how matter comes to matter', *Signs: Journal of Women in Culture and Society*, vol. 28, no. 3, pp. 801- 831
- Barnard, M. 2005, *Graphic Design as Communication*, Routledge, New York.
- Barnes, A. 2011, 'Realising the Geographic landscape of the everyday: A practice-led investigation into an interdisciplinary geo/graphic design process', Thesis, London College of Communication, University of the Arts, London.
- Barnett, R. 2003, *Beyond All Reason: Living with Ideology in the University*, The Society for Research into Higher Education and Open University Press, Buckingham, UK.
- Bauman, Z. 1993, *Life in Fragments: Essays in Postmodern Morality*, Blackwell, Cambridge, MA.
- Bauman, Z. 2000, *Liquid Modernity*, Polity Press, Cambridge, UK.



- Bauman, Z. 2001a, *Community: Seeking safety in an insecure world*, Blackwell, MA.
- Bauman, Z. 2001b, *The Individualized Society*, Polity Press, Cambridge, UK.
- Blauvelt, A. 1994a, 'In and Around: Cultures of Design and the Design of Culture', *Emigre*, no. 32.
- Blauvelt, A. 1994b, 'The particular problem of graphic design (history)', *Visible Language*, vol. 28, no. 3.
- Blauvelt, A. 2009, *Towards relational design*, The Design Observer Group, Design Observer, viewed 28 May 2010, <<http://www.designobserver.com/observatory/entry.html?entry=7557%3E>.
- Boekraad, H. 2007, *My work is not my work: Pierre Bernard Design for the public domain*, Lars Müller Publishers, Switzerland.
- Bohm, D. 1996, *On Dialogue*, Routledge, New York.
- Bondt, S.D. & Smet, C.D. (ed.) 2012, *Graphic Design History in the Writing 1983-2011*, Occasional Papers, London.
- Brenner, J.E. 2003, 'Logic Art and Transdisciplinarity', *Technoetic Arts: a Journal of Speculative Research*, vol. 1, no. 4, pp. 1477-965.
- Brew, A. 2001, *The Nature of Research Inquiry in Academic Contexts*, Routledge Farmer Group, London & New York.
- Burns, C., Cottam, H., Vanstone, C. & Winhall, J. 2006, 'Red Paper 02 Transformation Design', *Red Papers*, p. 33, viewed August 2010, <<http://www.designcouncil.org.uk/red%3E>.
- Butler-Kisber, L. & Poldma, T. 2010, 'The Power of Visual Approaches in Qualitative Enquiry: the use of collage making and concept mapping in experiential research', *Journal of Research Practice*, vol. 6, no. 2, p. 16.
- Carter, P. 2010, *Ground Truthing: Explorations in a Creative Region*, University of Western Australia Publishing, Crawley, Western Australia.
- Caruso, C. & Frankel, L. 2010, 'Everyday people: Enabling User Expertise in Socially Responsible Design', in D. Durling, R. Bousbaci, L.L. Chen, P. Gauthier, S. Roworth-Stokes & E. Stolterman (ed.), *Design and Complexity*, Design Research Society, Montreal, pp. 1-14.

- Cavavero, A. 1995, *In Spite of Plato: A Feminist Rewriting of Ancient Pilosophy*, Polity Press, Cambridge, UK.
- Christensen, C.B. 2006, 'Popping the Bubble: The Ethical Responsibility for Design Review of John Thackera's *In the Bubble*', *Design Philosophy Papers*, vol. 4, no. 2, pp. 133-58.
- Cohen, R.A. (ed.) 1986, *Face to Face with Levinas*, State University of New York Press, Albany.
- Colmar 4th century, 'Tabula Peutingeriana',  
<[http://en.wikipedia.org/wiki/Tabula\\_Peutingeriana%3E](http://en.wikipedia.org/wiki/Tabula_Peutingeriana%3E).
- Conklin, J. 2006, *Dialogue Mapping: Building Shared Understandings of Wicked Problems*, John Wiley and Sons Ltd, Chichester, UK.
- Corner, J. (ed.) 1999, *Recovering Landscape: Essays in contemporary landscape architecture*, Princeton Architectural Press, New York.
- Cosgrove, D. (ed.) 1999, *Mappings*, Reaktion Books, London.
- Cosgrove, D. 2008, *Geography and Vision*, I.B. Tauris and Co. Ltd, New York.
- Crouch, C. & Pearce, J. 2012, *Doing Research in Design*, Berg, London.
- Csikszentmihalyi, M. 2002, *Flow*, 2nd ed., The Random House, London, UK.
- Cundill, G.N.R., Fabricius, C. & Marti, N. 2005, 'Foghorns to the Future: Using Knowledge and Transdisciplinarity to Navigate Complex Systems', *Ecology and Society*  
<http://www.ecologyandsociety.org/vol10/iss2/art8/>, vol. 10, no. 2, p. 8.
- Curnow, W. 1999, 'Mapping and the Expanded Field of Contemporary Art', in D. Cosgrove (ed.), *Mappings*, Reaktion, London, pp. 253-68.
- Curseu, P.L. 2006, 'Emergent states in virtual teams: a complex adaptive systems perspective', *Jornal of Information Technology*, vol. 21, pp. 249 - 61.
- David, B. & Thomas, J. (ed.) 2008, *Handbook of Landscape Archaeology*, Left Coast Press Inc, Walnut Creek, CA.
- Davison, A. 2008, 'Contesting Sustainability in theory-practice: In praise of ambivalence', *Continuum: Journal of Media & Cultural Studies*, vol. 22, no. 2, pp. 191-9.

- Delanty, G. 2001, *Challenging Knowledge: the university in the knowledge society*, SRHE and Open University Press, Buckingham, UK.
- Deleuze, G. 2004, *Francis Bacon: The Logic of Sensation*, trans. D.W. Smith, University of Minnesota Press, Minneapolis.
- Deleuze, G. & Guattari, F. 1987, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. B. Massumi, 6th ed., vol. 1, Continuum, London.
- Denis Wood, J.F. 2008, *The Natures of Maps: Cartographic Constructions*, University of Chicago Press, Chicago.
- Derrida, J. 1995, *On the Name*, T. DuToit, D. Wood, J.P. Leavey Jr & I. McLeod (ed.), Stanford University Press, Stanford, CA.
- Derrida, J. & Eisenman, P. 1997, *Chōra L Works*, Monacelli Press, New York.
- Design Dictionary: Perspectives on Design Terminology*, 2007, M. Erlhoff & T. Marshall (ed.), Birkhäuser, Basel.
- Despres, C., Brais, N., & Avellan S. 2004, 'Collaborative planning for retrofitting suburbs: transdisciplinarity and intersubjectivity in action', *Futures*, vol. 36, pp. 471-86.
- Doane, M.A. 2007, 'Indexicality: Trace and Sign: Introduction', *Differences: A Journal of Feminist Cultural Studies*, vol. 18, no. 1.
- Dunne, A. 2001, *Design Noir: the secret life of electronic objects*, Birkhauser, London.
- Dykes, T.H., Rodgers, P.A. & Smyth, M. 2009, 'Towards a new disciplinary framework for contemporary design practice', *CoDesign*, vol. 5, no. 2, pp. 99-116.
- Eagleton, T. 1988, 'The ideology of the aesthetic', *Poetics Today*, vol. 9, no. 2, pp. 327-38.
- Elkins, J. 2009, 'The three configurations of studio-art PhDs', in J. Elkins (ed.), *Artists with PhDs: on the new doctoral degree in studio art*, New Academia Publishing, Washington, DC, pp. 7-20.
- European Landscape Convention of 2000*, Council of Europe, Cultural Heritage, Landscape and Spatial Planning Division, Directorate of Culture and Nature, Strasbourg.

- Faulkhead, S., Russel, L., Singh, D., McKemmish, S., 2007, 'Is community research possible within the Western academic tradition?', in A. Williams & R. DeSouza (ed.), *Researching with Communities: grounded perspectives on engaging communities in research*, Muddycreek Press, Auckland & London.
- Ferran, B. (ed.) 2013, *Visualise: Making Art in Context*, Anglia Ruskin University, Cambridge, UK.
- Findeli, A. 2001, 'Rethinking Design Education for the TwentyFirst Century: Theoretical, Methodological and Ethical discussion', *Design Issues*, vol. 17 no. 1 (Winter), pp. 5-16.
- Findeli, A. 2008, *Searching for design research questions*, Bremen, viewed 10 October 2011, <<http://vimeo.com/2494085%3E>.
- Fisher, R.E. 1997, *Art of Tibet*, Thames and Hudson, London.
- Forlizzi, J. & Lebbon, C. 2002, 'From Formalism to Social Significance', *Design Issues*, vol. 18, no. 4 (Autumn), pp. 3-13.
- Foster, H. 2012, 'Post-Critical', *October*, no. 139 (Winter), pp. 3-8.
- Foucault, M. 1994, 'What is an Author?', in J.D. Faubion (ed.), *Aesthetics Method and Epistemology*, Penguin Group, London, pp. 205-22.
- Franzato, C. 2011, 'Design as speculation', *Design Philosophy Papers*, vol. 1.
- Frascara, J. 2007, 'Hiding Lack of Knowledge Bad Words in Design Education', *Design Issues*, vol. 23, no. 4 (Autumn), pp. 62-8.
- Frascara, J. & Winkler, D. 2008, 'On Design Research', *Design Research Quarterly*, vol. 3, no. 3, pp. 1-3.
- Frascara, J., (ed), 2015, *Information Design as Principled Action*, Common Ground Publishing LLC, Champaign, IL.
- Frigg, R. & Hunter, M. 2010, 'Front Matter', in R. Frigg & M. Hunter (ed.), *Beyond Mimesis and Convention Representations in Art and Science*, vol. 262, Springer, Heidelberg, pp. xv-xxviii.
- Gablik, S. 2004, *Has Modernism failed?*, Thames and Hudson, New York.
- Garlick, S. & Palmer, V.J. 2008, 'Toward an Ideal Relational Ethic: Rethinking university-community engagement', *Gateways: International Journal of Community Research and Engagement*, vol. 1, pp. 73-89.

- Giacardi, E. 2005, 'Metadesign as Emergent Design Culture', *Leonardo*, vol. 38, no. 4, pp. 342-9.
- Grand, S. & Jonas, W. (ed.) 2012, *Mapping Design Research*, Birkhauser, Basel.
- Grande, J.K. 2004, *Art Nature Dialogues: Interviews with environmental artists*, State University of New York Press, Albany.
- Grocott, L. 2012, 'Designerly Ways of Researching: Design knowing and the practice of researching', *Studies in Material Thinking*, vol. 6, pp. 2-24.
- Grosz, E. 2008, *Chaos, Territory, Art: Deleuze and the Framing of the Earth*, Columbia University Press, New York.
- Guba, E.G. & Lincoln, Y.S. 1989, *Fourth Generation Evaluation*, Sage Publishing, Newbury Park, CA.
- Hadorn, G.H., Bradley, D., Pohl, C., Rist, S., & Wiesmann, U. 2006, 'Implications of Transdisciplinarity for Sustainability Research', *Ecological Economics*, no. 60, p. 10.
- Hall, S.S. 2004, 'i, Mercator', in K. Harmon (ed.), *You are here: Personal geographies and other maps of the imagination*, Princeton Architectural Press, New York, pp. 15-19.
- Hamilton, S., Whitehouse, R., Brown, K., Combes, P., Herring, E. & Thomas, M.S. 2006, 'Phenomenonology in Practice: Towards a methodology for a 'subjective' approach', *European Journal of Archaeology*, vol. 9, no. 1, pp. 31-71.
- Harley, J.B. & Woodward, D. 1987, *The History of Cartography Volume 1: cartography in prehistoric, ancient, and medieval Europe and the Mediterranean*, University of Chicago Press, Chicago & London.
- Harmon, K. (ed.) 2009, *The Map as Art: Contemporary artists explore cartography*, Princeton Architectural Press, New York.
- Harrison, H.M. & Harrison, N. 2010, *The Harrison Studio*, Santa Cruz California, viewed 3 July 2010, <<http://theharrisonstudio.net/index.html%3E>.
- Haseman, B. 2006, 'A Manifesto for Performative Research', *Media International Australia Incorporating Culture and Policy*, vol. 18, pp. 98-106.

- Holliday, A. 2007, *Doing and Writing Qualitative Research*, 2nd ed., Sage Publications, London.
- Hurni, L. & Sell, G. 2009, 'Cartography and Architecture: Interplay between reality and fiction', *The Cartographic Journal The British Cartographic Society*, vol. 46, no. 4, Art and Cartography Special Issue, pp. 323-32.
- Incommunicado 05 information technology for everyone else: I-Reader*, G. Lovink & S. Zehle (ed.), Conference in Amsterdam, June 15-17, 2005, Institute of Network Cultures, Amsterdam.
- Inns, T. (ed.) 2007, *Designing for the TwentyFirst Century: Interdisciplinary questions and insights*, Gower Publishing, Aldershot, UK.
- Irigaray, L. 1993, *Sexes and Genealogies*, trans. G.C. Gill, Columbia University Press, New York.
- Irigaray, L. 1993, *An Ethics of Sexual Difference*, trans. C. Burke & G.C. Gill, Cornell University Press, Ithaca.
- Jonas, W. 2006, 'A Special Moral Code for Design', *Design Philosophy Papers*, vol. 4, no. 2, pp. 117-32.
- Jonas, W., Morelli, N. & Munch, J. 2008, 'Designing a product service system in a social framework: methodological and ethical considerations', *Undisciplined! Design Research Society Conference 2008*, Sheffield Hallam University, Sheffield, UK.
- Josef, B. 2003, 'Logic Art and Transdisciplinarity: a new logic for the new reality', *Technoetic Arts: a Journal of Speculative Research*, vol.1 no. 3, pp.169 -80.
- Kester, G.H. 2004, *Conversation Pieces: Community and communication in modern art*, University of California Press, Berkeley.
- Kiem, M. 2011, 'Theorising a Transformative Agenda for Craft', *Craft and Design Enquiry*, vol. 3, p. 21.
- Kimbell, L. 2009, 'Beyond Design Thinking: Design-as-practice and designs-in-practice', paper presented to the *CRESC Conference*, Manchester, September 2009.
- Koskinen, I., Zimmermann, J., Binder, T., Redstrom, J. & Wensveen, S. 2011, *Design Research Through Practice: From the lab, field and showroom*, Morgan Kaufmann, an imprint of Elsevier Inc, Waltham, MA.

- Kouyoumdjian, S., Newmark, N. & Turnbull, D. (ed.) 2010, *Memory Flows*, Centre for Media Arts Innovation, CMAI, UTS, Sydney.
- Kristeva, J. 1980, *Desire in Language: A semiotic approach to literature and art*, trans. T. Gora, A. Jardine & L.S. Roudiez, Columbia University Press, New York.
- Lacy, S. (ed.) 1995, *Mapping The Terrain: New Genre Public Art*, Bay Press, Washington.
- Latour, B. 1993, *We Have Never been Modern*, trans. C. Porter, Harvard University Press, Cambridge, MA.
- Latour, B. 2004, 'Why has Critique Run out of Steam? From matters of fact to matters of concern', *Critical Inquiry*, vol. 30, pp. 225-48.
- Leidy, D.P. 1997, *Mandala: the architecture of enlightenment*, Thames & Hudson in association with Asia Society Galleries and Tibet House, London.
- Levinas, E. 1989, *The Levinas Reader: Emmanuel Levinas*, Basil Blackwell, Oxford & Cambridge.
- Liamputtong, P. & Rumbold, J. (ed.) 2008, *Knowing Differently: Arts based and collaborative research methods*, Nova Science Publishers Inc, New York.
- Lorraine, T. 1999, *Irigaray and Deleuze: Experiments in visceral philosophy*, Cornell University Press, Ithaca.
- Löwgren, J. & Nagai, Y. 2008, 'Dealing With Diversity: Issues in design research and design research methods', *Artifact: Journal of Visual Design*, vol. 2, no. 1, pp. 1-2.
- Lupton, E. & Miller, J.A. 1996, *Design Writing Research*, Phaidon, London.
- Manning, E. & Massumi, B. 2014, *Thought in the Act: Passages in the ecology of experience*, University of Minnesota Press, Minneapolis.
- Martin, K.N. 2011, 'Visual research: Introducing a schema for methodologies and contexts', Thesis, North Carolina State University, Raleigh, NC.
- McConvell, P. & Thieberger, N. 2001, *State of Indigenous Languages in Australia - 2001*, Second Technical Paper Series No 2, Environment Australia Cataloguing-in-Publication, Canberra, p. 120, viewed 4 August 2014, <http://laptop.deh.gov.au/soe/2001/publications/technical/pubs/indigenous-languages.pdf>.

- Meggs, P. 1998, *A History of Graphic Design*, 3rd ed., John Wiley, New York.
- Meggs, P. & Purvis, A. 2006, *Meggs History of Graphic Design*, John Wiley, Hoboken, NJ.
- Michlewski, K. 2008, 'Uncovering Design Attitude: Inside the culture of designers', *Organization Studies*, vol. 29, no. 3, pp. 373-92.
- Moffitt, J. 1998, 'Ptolemy's Chorographia in the New World: Revelations from the Relaciones Geograficas de la Nueva Espana of 1579-1581', *Art History*, vol. 21, no. 3, pp. 367-92.
- Moles, A.A. & Jacobus, D.W. 1988, 'Design and Immateriality: What of it in a post industrial society?', *Design Issues*, vol. 4, no. 2, pp. 25-32.
- Neiva, E. 1999, 'Redefining the Image: Mimesis, convention, and semiotics', *Communication Theory*, vol. 9, no. 1, pp. 75-91.
- Nicolescu, B. 2002b, 'A New Vision of the World - Transdisciplinarity', *The Design and Delivery of Inter- and Pluridisciplinary Research*, The Danish Institute for Studies in Research and Research Policy, Aarhus, pp. 108-11.
- Nicolescu, B. 2007, 'Transdisciplinarity as Methodological Framework for going beyond the Science-Religion Debate', in B. Nicolescu (ed.), *Transdisciplinarity in Science and Religion*, Curtea Veche Publishing House, Bucharest, pp. 61-77.
- Nicolescu, B. 2008a, 'In Vitro and In Vivo Knowledge - Methodology of Transdisciplinarity', in B. Nicolescu (ed.), *Transdisciplinarity Theory and Practice*, Hampton Press Inc., Cresskill, NJ.
- Nicolescu, B. (ed.) 2008b, *Transdisciplinarity Theory and Practice*, Hampton Press Inc, Cresskill, NJ.
- Nicolescu, B. 2009, *Moral Project*, International Centre for Transdisciplinary Research, viewed 10 January 2010,  
<<http://basarab.nicolescu.perso.sfr.fr/ciret/english/projen.htm%3E>.
- Nicolescu, B. 2010, 'Methodology of Transdisciplinarity - Levels of Reality, Logic of the Included Middle and Complexity', *Transdisciplinary Journal of Engineering and Science*, vol. 1, no. 1 (December), pp. 19-38.
- Nicolescu, B. 2014, *From Modernity to Cosmodernity*, Suny Press Excelsior Editions, Albany.



- Niedderer, K. & Reilly, L. 2010, 'Research Practice in Art and Design: Experiential knowledge and organised enquiry', *Journal Of Research Practice*, vol. 6, no. 2, pp. 1-11.
- Nini, P. 2004, *In Search of Ethics in Graphic Design*, viewed 30 August 2011, <<http://www.aiga.org/in-search-of-ethics-in-graphic-design/%3E>.
- O'Brien, K. 2010, *Sep Yama / Finding Country To rethink the city map with Indigenous places*, UTS, viewed 29 May 2010 <<http://www.lib.uts.edu.au/events/event/8348%3E>.
- Oksala, J. 2006, 'From Sexual Difference to the Way of Breath: Toward a feminist ontology of ourselves', in E. Mortensen (ed.), *Sex, Breath and Force: Sexual difference in a post feminist era*, Lexington Books, Oxford, pp. 33-49.
- O'Neill, M. in association with S. Giddens, C. Bagley, P. Breatnach, D. Bourne & T. Judge 2002, 'Renewed Methodologies for Social Research: Ethnomimesis as performative praxis', *The Sociological Review*, The Editorial Board of the Sociological Review, pp. 69-88.
- O'Neill, M. 2014, *Scientists resign 'living dead' species to extinction, call for triage debate*, ABC, <<http://www.abc.net.au/news/2014-03-19/australian-species-facing-extinction-living-dead-triage/5331908%3E>.
- O'Sullivan, J. 2011, 'The Chorographic Vision: An investigation into the historical and contemporary visual literacy of chorography', Thesis, James Cook University, Cairns.
- Pearson, M. 2006, *In Comes I: Performance memory and landscape*, Exeter University Press, Exeter.
- Perkins, C. 2008, 'Cultures of Map Use', *Cartographic Journal: The British Cartographic Society* 2008, vol. 45, no. 2, Use and Users Special Issue 2008, pp. 150-8.
- Petherbridge, D. 2010, *The Primacy of Drawing: Histories and theories of practice*, Yale University Press, New Haven.
- Pigrann, H. & Strelow, H. 2004, *Ecological Aesthetics Art in Environmental Design: Theory and Practice*, Birkhauser, Basel.
- Planetware 2000, *The Cosmic Octave: An overview of the theory of The Cosmic Octave by Hans Cousto 1978*, viewed 29 August 2013, <<http://www.planetware.de/octave/cosmic-octave.html%3E>.

- Poggenpohl, S.H. 2004, 'Practicing Collaboration in Design', *Visible Language*, vol. 38, no. 2, pp. 138-57.
- Poggenpohl, S.H. 2009, 'Practicing Collaborative Action in Design', Poggenpohl, S.H. & Sato, K. (ed), *Design Integrations: Research and Collaboration*, Intellect, Chicago. Chapter Six.
- Poggenpohl, S.H. & Ahn, S.-S. 2002, 'Between Word and Deed: The ICOGRADA Design Education Manifesto', *Design Issues*, vol. 18, no. 2, pp. pp.46-56.
- Poggenpohl, S.H. & Sato, K. (ed), 2009, *Design Integrations: Research and collaboration*, Intellect, Bristol Chicago.
- Pohl, C. & Hadorn, G.H. 2007, *Core terms in transdisciplinary research*, td-net for transdisciplinary research, Bern, viewed 25 October 2011, <[http://www.transdisciplinarity.ch/d/Transdisciplinarity/documents/HB\\_Core\\_terms.pdf%3E](http://www.transdisciplinarity.ch/d/Transdisciplinarity/documents/HB_Core_terms.pdf%3E).
- Poynor, R. 1999, 'First Things First Revisited', *Emigre*, no. 51.
- Poynor, R. 2008b, *Observer: Strained Relations*, F+W Media, viewed 24 February 2013, <[http://www.printmag.com/Article/Observer\\_Strained\\_Relations](http://www.printmag.com/Article/Observer_Strained_Relations)>.
- Reckwitz, A. 2002, 'Towards a Theory of Social Practice: A development in culturalist theorising', *European Journal of Social Theory*, vol. 5, no. 2, p. 245-265.
- Rendell, J. 2013, 'Working Between and Across: Some psychic dimensions of architecture's inter- and transdisciplinarity', *Architecture and Culture*, vol. 1, nos. 1&2, pp. 129-42.
- Renn, O. 1999, 'A Model for an Analytic-Deliberative Process in Risk Management', *Environmental Science and Technology*, vol. 33, no. 18, pp. 19-29.
- Rhie, M.M. 1999, *Worlds of Transformation : Tibetan art of wisdom and compassion = [Gnas 'gyur dkyil zin]*, Tibet House in association with The Shelley and Donald Rubin Foundation, New York.
- Rickert, T. 2013, *Ambient Rhetoric: The attunements of rhetorical being*, University of Pittsburgh Press, Pittsburgh.
- Roberts, L. 2006, *Good: An introduction to ethics in graphic design*, AVA Publishing, London.

- Rose, D.B., Daiyi, N., Deveraux, K., Daiyi, M., Ford, L., Bright, A. & photographer, D'Amico S., 2002, *Country of the Heart: An Indigenous Australian Homeland*, 2nd edn, Aboriginal Studies Press, Canberra.
- Rust, P.C., Mottram, P.J. & Till, P.J. November 2007, *Review Report AHRC Research Review. Practice Led Research in Art Design and Architecture Version 2*, Arts and Humanities Research Council UK, Sheffield Hallam University, Nottingham Trent University, The University of Sheffield.
- Sampson, K. 2006, 'A Difference of Origin', in E. Mortensen (ed.), *Sex Breath and Force: Sexual difference in a post-feminist era*, Lexington Books, Oxford, pp. 17-33.
- Schuler, D. & Namioka, A. 1993, *Participatory Design: Principles and practices*, Lawrence Erlbaum Associates, Hillsdale, New Jersey.
- Scott, J. (ed.) 2010, *Artists in Labs: Networking in the margins*, Springer Verlag, Wien.
- Seago, A. & Dunne, A. 1999, 'New Methodologies in Art and Design Research: The object as discourse', *Design Issues*, vol. 15, no. 2, pp. 11-17.
- Serres, M. with Latour, B. 1995, *Conversations on Science, Culture and Time*, University of Michigan Press, Ann Arbor.
- Sevaldson, B. 2008, 'Rich Design Research Space', *FORMakademisk*, vol. 1, no. 1, pp. 28-44.
- Shumack, K. 2007, 'Conversations with the Self-Knowledge Creation for Designing', *Kybernetes*, vol. 36, no. 9/10, pp. 1515-28.
- Smith, D.W. 2003, 'Deleuze on Bacon: Three conceptual trajectories in "The Logic of Sensation"', in G. Deleuze, *Francis Bacon: The Logic of Sensation*, trans. D.W. Smith, University of Minnesota, Minneapolis, pp. vii-xxix.
- Smith, S. 2005, 'Beyond Green: Toward a sustainable art', Smart Art Museum, Chicago.
- Spivak, G.C. 1988, 'Can the Subaltern Speak?', in C.Nelson, & L. Grossberg (ed.), *Marxism and the Interpretation of Culture*, University of Illinois, Chicago, p. 271.
- Spretnak, C. 1993, *States of Grace: The recovery of meaning in the postmodern age*, 2nd ed., HarperCollins, New York.

- Spretnak, C. 1999, 'The Rise and fall of Modern Ideologies of Denial', in C. Spretnak, *The Resurgence of the Real: Body, nature, and place in a hypermodern world*, Routledge, New York, pp. 37-79.
- Statkiewicz, M. 2002, 'Chōra and Character Mimesis of Difference in Plato's Timaeus', in J. Swearingen & J. Cutting-Gray (ed.), *Extreme Beauty: Aesthetics politics death*, Continuum, New York. pp. 56-67.
- Steier, F. (ed.) 1991, *Research and Reflexivity*, Sage, London.
- Steiner, G. 1975, *After Babel: Aspects of language and translation*, Oxford University Press, London.
- Straus, E.W. 1967, 'The Phantom Limb', paper presented to *Aisthesis and Aesthetics: The Fourth Lexington Conference on Pure and Applied Phenomenology*, Lexington Kentucky USA, 6-8 April 1967.
- Strelow, H. 2004, *Ecological Aesthetics Art in Environmental Design: Theory and practice*, Birkhauser, Basel, Switzerland.
- Taborsky, E. 1998, *Architectonics of Semiosis*, St Martin's Press, New York.
- Taylor, R. 1971, *A basic course in graphic design*, Studio Vista/Van Nostrand Reinhold Publishing Company, London.
- Thackara, J. 2005, *In the Bubble: Designing in a complex world*, Massachusetts Institute of Technology, Cambridge, MA.
- The Blackwell Dictionary of Twentieth Century Social Thought* 1994, 1st ed., Blackwell Publishing, Oxford.
- Thrower, N.J.W. 1972, *Maps and Man: An examination of cartography in relation to culture and civilisation*, Prentice Hall Inc., Englewood Cliffs, NJ.
- Tilley, C. 1994, *A Phenomenology of Landscape: Places, paths and monuments*, Berg, Oxford.
- Toffs, D. 1997, 'Hyper rhetoric', in A. Crawford & R. Edgar (ed.), *Transit Lounge: An interface book from 21C*, Craftman House in association with G+B Arts International, Sydney.
- Tonkinwise, C., *The Grammar of Design: Incomplete draft*, viewed 9 June 2012, <[http://newschool.academia.edu/camerontonkinwise/Papers/1552612/The\\_Grammar\\_of\\_Design\\_Thinking\\_-\\_INCOMPLETE\\_DRAFT%3E](http://newschool.academia.edu/camerontonkinwise/Papers/1552612/The_Grammar_of_Design_Thinking_-_INCOMPLETE_DRAFT%3E).

Toorn, J.V. 1998, *Design Beyond Design: Critical reflection and the practice of visual communication*, Jan van Eyck Akademie, Maastricht.

Tour d'Horizon 2008, *td-net bibliography*, Network for Transdisciplinary Research, viewed 24 October 2011,  
<<http://www.transdisciplinarity.ch/e/Bibliography/index.php%3E>

Traditional Knowledge Revival Pathways (TKRP) 2003, viewed 12 December 2013, <[http://www.youtube.com/watch?v=wvEcjmTwH\\_o%3E](http://www.youtube.com/watch?v=wvEcjmTwH_o%3E).

Tress, B.T., & Fry, G. 2005, 'Researchers' Experiences, Positive and Negative, in Integrative Landscape Projects', *Environmental Management*, vol. 36, no. 6, pp. 792-807.

Tuan, Y.-F. 1977, *Space and Place: The perspective of experience*, University of Minnesota, Minneapolis.

Turnbull, D. 1989, 'Maps are Territories Science is an Atlas: A portfolio of exhibits', Deakin University Press, Geelong, Victoria.

Turnbull Hocking, V. 2011, 'Beyond the Object: An intersection of design and research within a sustainability context', Thesis, Australian National University, Canberra.

Ulmer, G.L. 1989, *Teletheory: Grammatology in the age of vVideo*, Routledge, New York.

Verbeek, P.-P. 2006, 'Materializing Morality: Design ethics and technological mediation', *Science, Technology, & Human Values*, vol. 31 (Ethics and Engineering Design), pp. 361-80.

Wahl, D.C. & Baxter, S. 2008, 'The Designer's Role in Facilitating Sustainable Solutions', *Design Issues*, vol. 24, no. 2, pp. 72-83.

Weick, K.E. 2004, 'Designing for Thrownness', in R.J. Boland & F. Collopy (ed.), *Managing as Designing*, Stanford University Press, Stanford California, pp. 74-8.

William, C. 1722, *Britannia or a Chorographical Description of Great Britain*, 2nd ed., University of Adelaide, viewed 19 September 2014,  
<<https://ebooks.adelaide.edu.au/c/camden/william/britannia-gibson-1722/p14010002.html>>.

Williams, R. 1988, *Keywords of Culture and Society*, Fontana Press, London.

- Winkler, D.R. 2009, 'Visual Culture and Visual Communications in the Context of Globalisation', *Visible Language*, vol. 43, no. 1, pp. 4-43.
- Yee, J., Jefferies, E. & Tan, L. (ed.) 2013, *Design Transitions Inspiring Stories: Global viewpoints. How design is changing*, BIS Publishers, Amsterdam.
- Yunupingu, M. 1994, 'Yothu Yindi: Finding balance', in *Voices From The Land*, 1993 Boyer Lectures, ABC Books, Sydney.
- Zegher, C.D. 2010, *On Line: Drawing Through the Twentieth Century*, The Museum of Modern Art New York, New York.
- Zegher, C.d. 2005, 'Abstract', in C.d. Zegher & H. Teicher (eds), *3 x Abstraction New Methods of Drawing Hilma AF Klint Emma Kunz Agnes Martin*, Yale University Press and The Drawing Centre, New York, New Haven and New Haven, pp. 23-41.
- Zimmermann, J. & Forlizzi, J. 2008, 'The Role of Design Artefacts in Design Theory Construction', published by Carnegie Melon University Research Showcase@CMU, June 2008, pp. 1-11.