



**The Space of Culture –  
the Place of Nature  
in Estonia and Beyond**

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in Estonia and Beyond**

# Approaches to Culture Theory Series

## VOLUME 1

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### **Aims & Scope**

The *Approaches to Culture Theory* book series focuses on various aspects of analysis, modelling, and theoretical understanding of culture. Culture theory as a set of complementary theories is seen to include and combine the approaches of different sciences, among them semiotics of culture, archaeology, environmental history, ethnology, cultural ecology, cultural and social anthropology, human geography, sociology and the psychology of culture, folklore, media and communication studies.

# **The Space of Culture – the Place of Nature in Estonia and Beyond**

Edited by  
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# Approaches to Culture Theory

## Foreword by the Series Editors

The motivation in initiating this book series is to provide a forum for discussion on the contemporary culture theory as approached by a variety of disciplines. The core group includes archaeology, human geography, ethnology, social anthropology, communication and contemporary culture, folklore, religion studies, and semiotics. This list is not exclusive for other branches in humanities or social sciences studying culture. Yet, in 2008 the research teams in these disciplines in Estonia established the Centre of Excellence in Cultural Theory (CECT) with support from the European Union. The CECT focuses its research on the inheritance and creativity of cultural practices from ancient times to the present. Research groups cooperate to find new, and combine established, approaches and themes — ancient social and cultural systems, folklore and heritage, contemporary everyday practice, the evolution and translatability of sign systems, landscape and sociological processes, media and life story research — in order to advance theoretical analysis of culture.

Culture theory has a great role to play, not only as a set of theories in the humanities and social sciences, but also as a self-description of culture that forms a factor in the dynamics of culture and science. The series thus also aims to enhance methodological and theoretical standards in cultural research. We strive towards significant improvement in both the selfunderstanding of disciplinary fields and in the comprehension of general theoretical models by juxtaposing and comparing data, theories, and the methods of research in an interdisciplinary environment through crossdisciplinary cooperation. The editors intend this book series to facilitate the publication of significant results in the field of culture studies from around the globe.

Valter Lang

Kalevi Kull

Tiina Peil

Tartu & Tallinn, March 2011

## **Contents**

<i>Notes on the Editors and Contributors</i>	7
<i>Acknowledgements</i>	10
Introduction <i>Tiina Peil</i>	11
<b>Humanities and Ecosemiotics</b>	
Eight Historical Paradigms of the Human Sciences <i>Roland Posner</i>	20
Pre-modern Ecosemiotics: The Green World as Literary Ecology <i>Alfred K. Siewers</i>	39
Foundations for Ecosemiotic Deep Ecology <i>Kalevi Kull</i>	69
<b>Constructing Nature</b>	
The Positioning on the Landscape of Culture and Mind: Methods for the Social Construction of Nature <i>Maaris Raudsepp</i>	78
Mapping Human Impact – Expanding Horizons: Interdisciplinary Integration <i>Morten Tønnessen</i>	93
Writing the Environment: Finnish Written Nature Narratives <i>Kirsi Laurén</i>	107
<b>Landscapes and Environmental Change</b>	
Changes of Environment in the Stockholm Region: Preconditions and Perspectives <i>Urve Miller, Jan Risberg, Sven Karlsson</i>	122
Jōmon Style and Yayoi Style: A Worldview Transition within Neolithisation in the Japanese Archipelago <i>Junzo Uchiyama</i>	136
The Civilising Hero, a Question of Domestication in Yakutia <i>Emilie Maj</i>	153
Fire Cultivation in Estonian Cultural Landscapes <i>Liisi Jääts, Marge Konsa, Kersti Kihno, Pille Tomson</i>	165
A World of Domesticated Landscapes <i>Mats Widgren</i>	181
<i>Index</i>	186

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# Introduction

**Tiina Peil**

This volume contains a selection of papers first presented at the Centre of Excellence in Cultural Theory (CECT) annual conference *Spatiality and Visualisation of Culture–Nature Relationships* in Tallinn, Estonia, on 22–24 October 2009. The objective of the conference was to open up the discussion of the spatiality of culture and to examine the ways of constructing nature and domesticating landscapes.

The first call for papers invited contributions that would challenge the ontological separations of nature and culture and address conceptual problems of culture–nature relationships. The focus was put on temporal and spatial practices that leave a visual mark or a memory and constitute engagement with the land in different cultures around the world. It was set up for both a range of empirical presentations and for contributions that address theoretical and methodological challenges and consider recent humanist and ecological perspectives on space (spatiality) and time (temporality). The call stated that the conceptualisation of nature and culture, or natural and human processes, as distinct and separate entities is entrenched in the humanities, as well as in the social and physical sciences. This could be challenged by highlighting the role of space and location and subscribing to the view that the terrain is sentient and shared, since subjectivity in the form of consciousness, agency, morality and law is part of all forms and sites of life. The call went on to discuss two key concepts in the analysis of human–environment relations, stating that human impacts and cultural landscapes have been crucial in contributing to the understandings of the long-term human role in Earth processes. Paradoxically, the use of these terms may have reinforced the view of humans as external to the natural system, as well as advancing anthropo- and euro-centred reductions of nature in a similar way to the natural sciences' way in dealing with culture. The contributors were encouraged to discuss the substantiveness of culture in nature and to understand nature as performative expression, as something one does as well as contemplates, thus

Peil, T. (2011) Introduction. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond*. *Approaches to Culture Theory* 1, 11–17. Tartu University Press, Tartu.

emphasising transdisciplinarity. A rarely adopted approach to conference organisation was taken and no keynote speakers invited. Rather, the conference aimed at wide scope and voluntary effort, which also explains the greatly varying length of the contributions in this volume.

The call can be deemed successful with interest shown in geographically distant places like Japan and the United States and many countries in Europe. Determining Estonia as the focus in such a strong manner in the book's title aims to highlight the place and time of the event of the conference in the spirit of the call for papers, as well as academic traditions and aspirations in Estonia at the turn of the first decade of the twenty-first century. Such positioning is inevitable as well as crucial in selecting among possible stories and trajectories and hopefully does not read as territorial parochialism or (patronising) support to the small and vulnerable, but rather as a critical attempt to retain an appreciation of speciality without stumbling into exclusivity, considering the global dimension simultaneously with the local and personal. For example, balancing between the humanities and natural sciences takes on significance in local and temporal contexts since geography, and it seems archaeology, have often been pigeonholed as being, or aspiring to be, among the natural sciences. Hence location (and time) can have ramifications for the discussion of human–environment relations. Recognising the significance of language, and at the same time understanding the necessity of communication and readability, English, as the modern academic lingua franca, was chosen as the means of communication and consequently as the language for publication. Wanting to acknowledge other languages and cultural contexts, translators' names are indicated in recognition of their role and all the references are presented in their source languages and their alphabet used. Unfortunately complete consistency was not possible, since the Japanese proved to be technically impractical. The variety of sources and number of languages and translations can be taken to underscore the geographical scope with, again, a centre in Estonia with its possibilities and limitations. Highlighting geography as well as history, space as well as time, culture as well as nature is reflected in the use of metaphors. Those of journey and trajectory, alongside map and narrative, as well as landscape accentuate the processes of change, since they have the necessary spatiality while at the same time being temporal in their accent. These aspects of culture in nature were emphasised during the conference fieldtrip in the vicinity of Tallinn concluding in the hamlet of Parasmäe (Figure 1).



**Figure 1. Conference participants at Wiina farm, 24 October 2009.**  
**Photograph: Eric Clark.**

The conference included 18 oral and 25 poster presentations. All their authors were invited to contribute to the proceedings. The response was astounding with 36 papers suggested for publication. As is often the way of these endeavours about ten did not materialise and nearly as many fell through or were withdrawn in the review process. The papers were screened by the conference's scientific committee and then refereed by two people. The net result was fifteen papers on the broad theme of the spatiality of nature–culture relationships, five of which are intended to be published in a special issue of *Geografiska Annaler Series B: Human Geography*, while the rest appear in this volume. In addition, Kalevi Kull's theses, that develop deep ecology principles, reformulating them on a semiotic basis, were included. The ecosemiotics approach was thus emphasised and came to form the theoretical mainstay of the proceedings as one possible way in which to examine the substantiveness of culture in nature. The obvious materiality of the conference report, occupying a certain spot on the table or on the bookshelf, and staking its place in Estonian research and wider theoretical debate, also draws attention to the conference theme. This volume is the first in a series launched by the CECT on its path to develop culture theory across various disciplines.

The proceedings thus set out to construct a tentative bridge between the physical and perceived worlds, between the understandings of culture and nature, their spatiality and temporality. This could prove to be an insurmountable task as each of these concepts is a phenomenon under dispute. In addition, this aim meant taking on all the hang-ups of cultural and environmental studies. The former is often criticised for being insufficiently scientific and anthropo-centric; the latter for inadequately considering the human factor. Encouraged by the fact that combined approaches are increasingly promoted as the way forward for all the disciplines, and that space is something shared, the contributions in this volume open up for discussion on these issues. Defining the terms was deemed unnecessary despite some academic traditions', especially in the natural sciences, assertion that knowledge is best conveyed through such clear definitions. The humanities tend to shy away from determining exact criteria to the extent of "being in horror [...] of pedantic semantics" (Miller 2010, 1). Nevertheless, true transdisciplinarity requires awareness and a degree of consensus in the use of the terms. The extent to which the texts can or should be standardised in their use of terms (for example, using Earth or earth, humans and humankind compared to Man and Mankind, not to speak of the use of signs and abbreviations) was another challenge for the editors. The choices were primarily informed by contemporary critical human geography, although leeway was allowed for the authors' 'home' disciplines. Although the ambitious aim was to produce a coherent entity rather than a collection of papers, again the appreciation of speciality necessitated the occasional inconsistency.

The variety of contributions in this volume thus indicates the possibilities of tackling the spatiality of culture phenomena across disciplinary boundaries. The contributions were arranged around a general question of how humans organise the spaces in which they live and how communities relate to nature. The papers were divided according to the themes indicated in section titles: the humanities and ecosemiotic approach to nature, constructing nature, and examining environmental and landscape change. The first provides an historical review of the humanities and expands on the more theoretical themes. The second section discusses some ways for constructing (wild) nature with specific examples. The final one illustrates the changes that various cultures have brought about in the environment examining landscapes and domestication. The focus of the volume is on the phenomena that are present within the process of becoming something else, on the hybridity of more-than-human worlds, or what Doreen Massey (2008, 7) calls "place-moments".

The phenomena under scrutiny in the first section are thus the humanities. The possibilities of (eco-)semiotics in outlining environmentally grounded cultural narratives, such as the 'ecosemiosphere', form the core in all three contributions. Roland Posner's paper starts the discussion by examining the substance and function of the humanities through a process of re-invention in eight stages from classical Greek philosophy to contemporary culture studies. Posner claims that each of these eight concepts was motivated by a contemporary attempt to account for new types of signs and sign processes that had become necessary for a successful life and thus establishing semiotics as a basis for the human sciences. Alf Siewers builds on and extends this theme by uniting elements of ecosemiotics and ecopoetics in the discussion of what he terms overlay landscapes with a triadic deep structure spanning text, culture, and physical geography. He argues that the environmental commitment of these structures has relevance to contemporary concerns about engaging culture with ecological restoration. In the final contribution in this section, Kalevi Kull proposes an ecosemiotic foundation to deep ecology based on the understanding of the linguistic source of violence as a capacity that becomes possible only in animals with symbol-based sign systems. This section is thus primarily concerned with humankind's organisation of the everyday, as well as theoretical and moral spaces.

The second section of this volume is also mainly concerned with concepts, mental landscapes and the semiotic tools used in attributing meaning to nature. The focus here is on methodology and techniques with the authors providing specific examples of socialising, narrating, and mapping nature showing human beings claiming an embedded rather than detached position in the (natural) world. Maaris Raudsepp discusses the relationships between self, culture, and nature as inclusive opposites by using spatial metaphors, especially that of landscape. Her theoretical description of the individual mind and socio-cultural reality is exemplified in a social psychology study of attitudes to nature in Estonia at the turn of the millennium. She argues that symbolic positioning can be described — in addition to an objectivist view — as a subjectivist view of agents who create their own semiotic *Umwelt*. The *Umwelt* approach is further examined by Morten Tønnessen who continues with a phenomenological reading of Jakob Uexküll's work. He attempts to create means to qualify quantitative data and discuss the merits and shortcomings of two methodologies — the ecological footprint and the ontological niche — in investigating (mapping) the human role in nature. In the final paper, Kirsi Laurén discusses the ways in which, as she terms it, people 'live' the environment and how



nature (specifically the mire) experiences are narrated in Finnish folklore. All three papers in this section reflect on the ways cultures construct and value nature by examining personal or group space of (Nordic) nature experiences.

The third section of the volume continues the discussion of cultural processes in interpreting nature (space) and in civilising worlds in last millennia. The question of how humans organise the spaces in which they live in specific locations and times is confronted directly. The authors present intricate case studies, in which no single trajectory from simple and extensive land-use to complex methods and intensive land-use accompanied by progressive changes in the worldview and relationships to nature can be traced. Urve Miller, Jan Risberg, and Sven Karlsson describe the interactions between the physical landscape and humans in the Stockholm Archipelago in conditions of constant change in the configuration of land and sea. They also present the methodological development of the techniques applied and the integrated interdisciplinary and international collaboration possibilities in environmental history research. Junzo Uchiyama analyses the extent of changes in Japan during the Neolithisation period — the transitional period from a foraging lifestyle to an agrarian one — and their role in shaping modern landscapes. He argues that changes in the appearance of pottery during this transition reflect a shift in worldview. This, in its turn, introduced a division between the human domain and the natural world in the use of space in settlements at the time, which, he argues, has persisted to the present. The theme of civilisation and its impact on the way people depict their relationships with nature is picked up by Emilie Maj in her study of Sakha (the Republic of Yakutia in the Russian Federation). In her paper Maj builds on Philippe Descola's hypothesis on transfer from animism and analogism, arguing that one does not necessarily replace the other but the different modes can co-exist in time and space. She also demonstrates that the ideas of wild and domestic are not transferable from one culture to another, as exemplified by the Sakha discussing these ideas in their own language, in which no real distinction between an entirely wild space and a purely domestic one is made, or in Russian. Liisi Jääts, Marge Konsa, Kersti Kihno, and Pille Tomson discuss the introduction of cultivation methods from a more practical and economic viewpoint. They argue that fire cultivation in Estonia was maintained as part of the agricultural system for centuries, thus discarding the previously dominant idea from agrarian studies according to which fire cultivation was interpreted as an archaic technique that was replaced when more intense methods became available. Furthermore, the attitudes have changed, as, for

instance, the modification of plants and animals through the various techniques of domestication can be seen as the birth of civilisation, or, from a 'green' standpoint, as the beginning of the environmental destruction of pristine nature, as Mats Widgren argues in the final contribution to this volume. He claims in a manner summarising the arguments presented in the five papers of this section that assumptions that the rift between 'culture' and 'nature' occurred with the introduction of agriculture, or that cultivation spread from one or a few centres, need to be critically reviewed. In current understanding, the process of becoming something else is thus never a simple one way path, nor is it one that has a single or limited number of departure points. In fact, Widgren calls for a fundamental re-conceptualisation of the very essence of domestication and of the role of humans in shaping past and present landscapes. The space of culture and the place of nature in various cultures are thus discussed critically throughout the proceeding in a way that challenges their ontological separations and opens up a way to consider culture–nature relationships on a more equal basis.

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# **HUMANITIES AND ECOSEMIOTICS**

# EIGHT HISTORICAL PARADIGMS OF THE HUMAN SCIENCES

**Roland Posner**

In all cultures of the world, the members of the young generation must prepare themselves for life within the environment into which they were born.<sup>1</sup> They do this by learning to adjust themselves to the social institutions, to handle the tools in use, and to master the valid sign systems. That is, they acquire the social, civilisational, and mental competences of their culture. In the schools and universities of the West, the academic disciplines that teach the relevant knowledge and skills have for several millennia been known as the humanities.

This term is predominantly used in a more narrow sense today. It has become an administrative concept, which is often defined negatively as comprising the disciplines outside the natural, social, and engineering sciences as well as outside the professional schools of law, medicine, and theology. Historically, attempts to define the humanities positively by characterising their epistemological status, have been made either by describing the distinct kind of knowledge to which they contribute, or by specifying the distinct methods of research that enable them to gain that knowledge. The most popular characterisation conceives of the humanities as studying the human spirit (Latin: *spiritus*, French: *esprit*, German: *Geist*) and as striving methodologically not to explain, but rather to understand. It is in these terms that the educational function of the humanities also tends to be assessed.

In what follows, I will put this discussion on a broader basis by examining the various conceptions of the humanities that were developed in the course of European history. I will show that each of these conceptions was, and is, motivated by trying to account for newly introduced types of signs and sign processes. This observation will then justify the claims that semiotics (the theory of signs and sign processes) (1) provides a scientific basis for a rational explication of the tasks and terminologies of all the humanities; (2) can serve to redesign the traditional humanities of the various cultures as human sciences; and (3) is able to specify the cultural role and educational values of the human sciences as a whole.<sup>2</sup>

Posner, R. (2011) Eight historical paradigms of the human sciences.  
– Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond. Approaches to Culture Theory 1*, 20–38. Tartu University Press, Tartu.

## Traditional European Conceptions of the Humanities

In Europe, reflections on the substance and the function of the humanities have a history that goes back to the Homeric epics and to classical Greek philosophy. During this history, the humanities were re-invented eight times:

1. In the Greek city-states of the fifth century BC the humanities took the form of *paideia* ('education'). The task was to prepare the young males for manhood and citizenship, for politics in the Greek sense. (Note that this word has the same root as the Greek word for city, *polis*, and its derivative *politēs*, 'citizen'.) For this purpose itinerant Sophists were employed — including famous philosophers such as Protagoras (485–415 BC) and Isocrates (436–338 BC) who developed programmes of private tuition to teach traditional myths, train political action, and practice reading and writing.
2. For the Romans of the first century BC, the goal of education was *humanitas*, the formation of living beings that do not behave like animals but stand their ground in public communication on forums and market places. This skill was typically trained in schools of rhetoric for which Cicero (106–43 BC) and later Quintilian (AD 40–95) provided the teaching materials.
3. In late Antiquity, education was achieved by teaching the *artes liberales*, i.e., the skills needed for doing business as a free person. They comprised language-related skills, namely grammar, rhetoric, and dialectics (the *trivium*), as well as mathematical skills, namely arithmetic, geometry, astronomy, and music (the *quadrivium*). Having been elaborated in pre-Christian times, the *artes liberales* were re-designed by St Augustin (AD 354–430) and Boëthius (AD 480–524), so that they could be taught in monasteries in connection with the Bible as preparation for a Christian life. As such they later became the fundamental disciplines of university education in the Middle Ages.
4. In the age of Renaissance, the wealthy citizens of Italian city-states conceived of education as *studium humanitatis*. This idea was developed by Humanists such as Coluccio Salutati (1331–1406) and Pico della Mirandola (1463–1494), who emphasised that religious experience (*divinitas*) is not sufficient for a young person to become *humane* ('properly human') and proposed the reading of ancient secular texts in addition to the Bible.
5. In eighteenth-century France, the canon of texts to be read was extended to include literature (*belles lettres*) written by enlightened contemporary authors and was designated as *litterae humaniores*. Encyclopedists such as Diderot (1713–1784) and d'Alembert (1707–1783) developed appropriate lists of texts in their educational programmes for the lycée, gymnasium, and college.

6. In Romantic Germany (around 1800), the humanities were reconceptualised as studies of the human spirit and designated as *Geisteswissenschaften* ('humanities'). Idealist philosophers such as Schelling (1775–1854), Hegel (1770–1831), and Dilthey (1833–1911) focused on the activities and results of human work (known as *ergon* in Greek and *opus* in Latin) and introduced them as independently relevant objects of research and teaching. Any work in that sense was taken to be educationally important, and that led to the inclusion of works of art, works of music, works of architecture, philosophical works, and legislative works, as well as craftwork among the artefacts to be studied.
7. In the heyday of colonialism, around the turn of the twentieth century, when the competing attempts of Western nations to dominate the world became increasingly hampered by its cultural diversity, the question of what a culture is became prominent. In imperialist Germany, neo-Kantian philosophers such as Windelband (1848–1915), Rickert (1863–1936), and Cassirer (1874–1945) drew attention to the various symbolic forms of human behaviour and pointed out their culture-specific character.<sup>3</sup> They regarded the comparative study of the symbolic forms produced in a culture and the comparative study of all cultures as central tasks of the *Geisteswissenschaften* and suggested re-naming them as *Kulturwissenschaften* ('culture studies').
8. In the context of globalisation at the turn of the third millennium, this proposal has gained new attention. In many Central European universities, the humanities are now being re-organised into faculties of culture studies. They are usually grouped around media studies, which investigate the specific types of messages with which we can reach each other in the global context: Not only via simple spoken and written communication, but also by means of static and moving pictures (films); gramophone, audiotape, and broadcasting; telephone, videophone, and telefax; e-mail, chatting, blogging, and web pages; books, journals, newspapers, and television; conversations, symposia, telephone, and Internet conferences; processions, demonstrations, rallies, web jamming; and the information flow in cyberspace based on computing and telecommunications. If one is to believe Bernard Berelson (1912–1979) and Marshall McLuhan (1911–1980), to be human is reducible to being a competent media partner in the various media.<sup>4</sup> The time has come for the epistemology of the humanities to consider the validity and the shortcomings of this position.

## Central Ideas and Consequences

In comparing these historical versions of the humanities in detail, one notices that they share a number of properties while differing in many others. What they have in common is that they all tried to account for the knowledge and skills that students need in order to reach full participation in the life of the culture into which they were born. However, they differ in that,

- each responded to a different historical challenge,
- each was organised by a different leading idea,
- each endorsed a different field of knowledge and skill,
- each was subject to different restrictions.

1. The Greek *paideia*, for instance, was designed to help students become distinct from those whom the Greeks called barbarians; it centred on the faculties of reading and writing as well as philosophical argument in small dialogue circles; and it excluded non-Greeks, women, and slaves.
2. The Roman *humanitas* demanded the teaching of everything that distinguishes humans from animals; it centred on the faculties of remembrance (*memoria*), verbal formulation (*enunciatio*), and public speech (*oratio*); and it was accessible to the free men of all nations, but again, not to women or slaves.
3. The *artes liberales* of the Christian Middle Ages were designed to discipline the bodies and souls of their students against heathen practices. They aimed at preparing the students for reading and interpreting the Holy Scriptures and were intended for all free persons, no longer generally excluding women.
4. The Renaissance *studium humanitatis* was developed in explicit contrast to the study of theology (*studium divinitatis*); it introduced male and female students alike to the best human experiences that were found documented in the classical writings of Ancient Greece and Rome made newly available to Latin Europeans by Islamic translators and Byzantine scholars; eligible for this type of education were the children of wealthy citizens and noble families, those who had no means to support themselves were excluded.
5. With the emphasis on the *litterae humaniores* (*belles lettres*) the Enlightenment reacted against the uncivilised custom of collecting natural curiosities (called *realia*); the study of both ancient and contemporary languages and the knowledge of literature and art was offered to provide a human framework of thought for the cultural integration of *realia*; excluded from this approach were the peasants.



6. The nineteenth-century studies of the human spirit (*Geisteswissenschaften*) were designed to defend the specific tasks of the humanities against those of the natural and engineering sciences, which had become popular during the industrial revolution; the concept of work was introduced to focus students' attention not only on literature, but also on the fine arts, historical documents, and political monuments, which were analysed using the procedures of the newly developed university disciplines of philology and historiography; excluded were persons lacking school education.
7. The approach of culture studies in Central Europe (*Kulturwissenschaften*), which developed in the early twentieth century and is becoming popular once more, emphasised the uniqueness of each human individual, each work of art, and each culture as a whole; it claims that the natural sciences by definition cannot do justice to this research interest since they strive to reach general laws by employing nomothetic methods; the humanities, in contrast, are taken to be able to account for what is individual and unique, since they use idiographic methods that concentrate on specific circumstances; of course, such an approach is unsuitable for uncultured persons, in other words those who do not have sufficient knowledge of those circumstances.
8. The approach of media studies in our own time focuses on the experience of computer-assisted global telecommunications and follows the idea of a worldwide free flow of not only goods but also information and knowledge; it concentrates on investigating the specific properties and differences between the various existing media and the possibilities of combining them by means of digitised media technologies; excluded are the uninformed, in other words those who have no access to these technologies (especially radio, television, telephone, and computers).

In retrospect one can say that each of these eight re-conceptions started by giving a strong impulse to the humanities and severely changed the traditional ways of both communication and communication research. Each time cultural life appeared in a new guise, which led to new attempts to categorise the world. However, as time went by, each new approach lost much of its original organisational power for the academic disciplines involved. These disciplines tended to disintegrate into mere lists of subjects, and the theoretical aspirations present at the start were again and again reduced to the mere teaching of practical routines: (1) *paideia* was reduced to reading and writing; (2) *humanitas* became equated with mastering rhetorical figures and tropes; (3) the *artes liberales* dwindled into the *trivium*, in which not much more was taught than the grammar of Latin; (4) the *studium humanitatis* became equi-

valent to the ability to quote classical authors; (5) the *litterae humaniores* (*belles lettres*) were instrumentalised for writing essays according to classical patterns of style; (6) the *studies of the human spirit* were practiced as etymology, and historiography became story-telling; (7) *cultural studies* degenerated into tourism; (8) concerning *media studies*, the foreseeable development will produce ‘knowledge dealers’ and experts in the application of the latest media technology.

Nevertheless, such skills are not irrelevant and if one regards them in the chronological order of their emergence, a step-by-step extension of tasks and a widening scope of problems dealt with can be observed.

1. When the Greeks started to be concerned with writing, this led to increased knowledge and expansion of their own **language** (classical Greek).
2. When the Romans became interested in holding successful public speeches, they had to train not only their linguistic competence but also their **body language** (including adequate posture, gestures, and facial expressions).
3. When medieval monasteries taught a canonic foreign language (Latin), they did so to train the ability of **translating** the Holy Scriptures from that language into the students’ mother tongue. This was progress, even if the translations were often given word by word, inscribed as interlinear versions into the original text.
4. The Renaissance humanities then extended the range of their subject matter from religious to non-religious texts in the classical foreign languages, and from linguistic artefacts to ancient architecture and sculptures. This made them proceed from word-by-word translations of texts to verbal **commentaries** on artefacts based on knowledge about the circumstances of their production.
5. The Enlightenment systematised the interpretation of literature and art by introducing **analyses of style**, claiming that the style of an utterance makes its receiver understand not just the text, but also its author. What is significant here was expressed in the famous *aperçu* of Georges Buffon (1707–1784): *Le style est l’homme même* (Buffon 1753).
6. The nineteenth century widened the scope of the humanities by including
  - not only religious and literary texts, but also non-aesthetic texts such as historical treaties, state constitutions, and laws;
  - not only sculptures and architecture, but pictures, music, and artefacts outside the arts such as the tools and utensils studied in archaeology.

These were preserved and restored when fragmented, and held in high esteem as **objectivations of the human spirit**. Their interpretation was assumed to give access to what Hegel called the objective spirit of a period, age, or epoch.

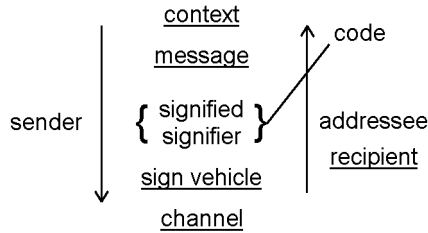
7. Twentieth-century cultural studies then added the competence of understanding and comparing **entire cultures** on the basis of the artefacts, institutions, and customs that occur in them.
8. If the media studies of today fulfil their promises, we will eventually discover why humans have separate and partially competing **sense modalities** such as the eye seeing, the ear hearing, the nose smelling, the mouth tasting, and the skin touching/ feeling; how an optimal division of labour between them can be organised with the help of media technology; and how this division of labour can, for humans of all cultures, guarantee adequate access to their natural and social environments.

Skills practiced in the humanities include (1) reading and writing, (2) making efficient speeches, (3) translating the Holy Scriptures, (4) commenting on literature and the fine arts, (5) understanding authors, (6) restoring human artefacts, (7) comparing human cultures, (8) organising human perception and knowledge.

These various skills need not be learned only by doing, but can also be analysed and taught on a theoretical basis. The academic disciplines that study them do not form an unconnected set of separate domains, but rather build on one coherent epistemological foundation: that of semiotics.

## The Basic Tasks and Competences of Semiotics

Semiotics deals with *semiosēs* (sign processes). A semiosis is generally said to involve a sender, who intends to convey a message to an addressee and who makes sure that he or she is connected with the addressee through a shared channel. In preparing the intended message, the sender chooses an appropriate code and selects from it a signified (a meaning) that includes the message. Since the signified is correlated through the code with a corresponding signifier, the sender then produces a sign that is a token of this signifier. If everything goes as intended by the sender, the addressee perceives the sign through the channel and takes it as a token of the signifier, which refers to the signified on the basis of the code. The addressee then reconstructs the message from the signified with the help of the context given in the shared situation (Figure 1).



*The terms denoting factors whose presence is necessary and sufficient for the semiosis to take place are underlined. The left-hand arrow indicates the sequence of the sender's choices, the right-hand arrow that of the addressee's*

**Figure 1. Factors of semiosis.**

Examples of a semiosis containing all the components are the production and comprehension of a verbal utterance, for example when saying "I greet you" (Saussure 1916); the conveying of a message through emblematic gestures such as a handshake (Ekman & Friesen 1969); and the operation and observation of street signs, for instance traffic lights (Prieto 1966). A semiosis of this type is called communication by Emile Buysens (1943) and Georges Mounin (1970).

A more detailed analysis of what goes on in a semiosis leads us to isolate particular types of process within the production and reception of signs.<sup>5</sup>

A Thus when I am the sender, having in mind the message of greeting you and wanting to use the verbal code of English, I must choose between the various greeting concepts offered by the English language and decide: Do I wish to give you a formal, a familiar, or an intimate greeting? Do I wish to address you explicitly or to include you in a general greeting? These are different signifieds. The process of selecting one of them is the first step of sign production. This depends on the relationship between sender and addressee and is therefore called a *pragmatic* process. We say the sender *interprets* the intended message through a signified taken from the accepted code.

B Having decided on the signified, I choose the necessary components of the corresponding signifier and construct a well-formed English expression out of them, such as "I wish you a good morning, dear colleagues" (formal and explicit), "good morning" (formal and implicit), "hello" (familiar), "hi" or "ciao" (intimate). Selecting the appropriate items from one's vocabulary and composing a well-formed expression

is the second step in sign production. It comprises syntactic and semantic processes and leads from the signified to the signifier. We say: The sender *encodes* the signified in a signifier taken from the accepted code.

C Having composed the signifier to be produced, the sender can put to work his or her articulatory apparatus and pronounce this signifier. Here, there are again several options open which concern the manner of pronunciation.

The sender can speak

- slowly, loudly, and with a rising tone, such as “good morning!”
- or quickly, softly and with a falling tone, such as “good morning!”

He or she can articulate all sounds with great precision as in [ɡɒd mo:rnɪŋ], or let the sounds merge as in [ɡmo:rnɪŋ]. This process of transforming the intended signifier into a physical event is the third step of sign production. Just as the first step, it depends heavily on the sender’s assessment of the context and the sender’s relationship to the addressee, which is why we also classify it as a *pragmatic* process (Figure 2). We say: The sender *realises* the intended signifier through a certain sign (also called a ‘sign vehicle’).

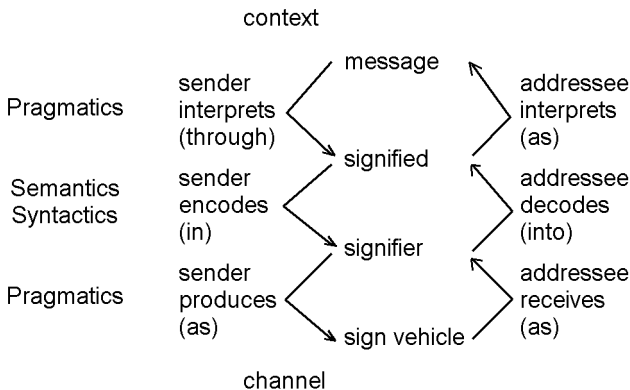


Figure 2. Pragmatic processes.

Analogous things happen in sign reception.

A The addressee *receives* the physical event as a token of a certain signifier. For example, he or she assigns the utterances [gʊd mo:rnɪŋ] and [gmo:nɪŋ] both to the English expression “good morning”.

B The addressee then *decodes* this signifier into a signified. For example, he or she takes it as a formal greeting through which he or she is addressed implicitly.

C Finally the addressee *interprets* the fact of having been addressed in this way as a sign of ‘politeness without special personal attention’, which is the message conceived from the recipient’s perspective. As this example shows, the recipient’s message need not always coincide fully with the sender’s message, even if they use the same code.

All the processes described so far contribute to a semiosis that takes place between a sender and an addressee. This type of semiosis is generally called communication. However, semioticians also deal with *sign processes without a sender*, in which the addressee is but a simple recipient, as when one takes a fact as an indicator of another state of affairs. For example, a doctor takes the red spots on a child’s skin as signs (indicators, symptoms) of measles. In this case we again have a channel (light) transmitting a sign (the redness of the skin), which involves a signifier (the pattern of the red spots); there is a code correlating the signifier with a signified (‘measles’), which, in the given context, is the basis for inferring the message (‘the organism with the red skin has measles’). However, there is no intentional sign production taking place here, since there is no sender.

In addition to senderless sign processes we have to consider *sign processes without a code*. These are the cases in which there is no standard connection (be it innate or conventional) between a signifier and a signified intervening in the interpretation of the sign. An example of a senderless sign process without a code is a pedestrian crossing the main street and taken by a driver in a side street as an indicator of there being no fast traffic in that part of the main street. In this case we have a channel (the light in the street), a sign (the fact of the pedestrian crossing the street), a message (‘there is no fast traffic in that part of the main street’), and a context (the crossroads), but no sender and no pre-existing code systematically correlating signifiers and signifieds: There is no generally known signifier and no signified, only a concrete sign (sign vehicle) and a message inferred from its occurrence on the spot.

The presence of a sender and that of a code do not imply each other. There are senderless sign processes that function on the basis of a code, as when we classify an abandoned piece of clothing as a signifier of a skirt or dinner-jacket. There are codeless sign processes that senders

perform intentionally in order to convey a message, as when a young man in the presence of a young woman, who happens to look at him, imitates one of her involuntary body movements in order to express his sympathy with her (a case of a flirt).

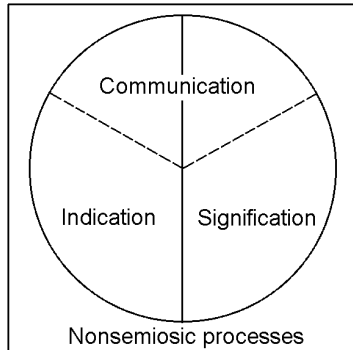
The types of semiosis I have introduced can be summarised as follows:

— If a semiosis involves a *sender* who produces a sign intentionally and openly in order to make an addressee receive a message, the resulting sign is a communicative sign, and if the addressee receives the message, the resulting process is called *communication*. (Communication can occur without signifiers and signifieds, but not without senders or addressees.)

— If a semiosis involves a *code* (i.e., a standard connection between a signifier and a signified), the sign in question is a signifying sign, and the resulting process is called *signification*. (Signification can occur without senders and addressees, but not without signifiers or signifieds.)

— If a semiosis involves *no code*, the sign in question is an indicating sign, and the resulting process is called *indication*. (Indication can occur without signifiers or signifieds and without senders or addressees, but not without signs, messages, or recipients.)

The relationship between communication, signification, and indication is illustrated in Figure 3. It shows that signifying signs and indicating signs may both occur outside communication, but can both be utilised by a sender in order to communicate messages.



**Figure 3. The relations between communication, signification, and indication as types of semioses.**

Indicating signs are the basis of the most elementary sign processes in humans and primates, but they also play a role in the most complex sign processes, for example, in communication through language, since they are needed by the communication partners to control correct understanding. In our greeting example, for instance, there is a great difference between the polite but formal and implicit “good morning” being said in passing and without changing bodily orientation, and the same thing being said by a person halting for a moment and turning to the addressee with a slight bow. Halting and turning here function as additional signs indicating personal esteem.

## **A Semiotic Conception of the Humanities**

As I hope to have made clear, the factor model of semiosis is a convenient tool for the analysis of various kinds of sign processes. However, does it also cover the practical skills exercised within the humanities? My response to this question is yes. All these skills are directly related to the factor model of semiosis. And what is even more important is that each historical stage of the humanities appears to have been developed in order to overcome a specific problem that arose because some factor of semiosis was yet unknown or needed implementation. I would like to illustrate this with some examples.<sup>6</sup>

Take the invention of writing systems and the practices of *reading and writing*. When you are standing near a building with another person at 11 o'clock in the morning and that person says to you, “Let us meet in front of the building this time next week!”, you can easily infer his or her message merely by relying on your shared knowledge of the situation and by taking into account what this sentence signifies. However, imagine you are taking a walk along the beach and you find a bottle lying there that contains a piece of paper on which you read, “Let us meet in front of the building this time next week!” Now you will not be able to infer a message, although you have decoded perfectly the signified from the signifying sign. Without knowing the sender and without sharing the context (place and time) of the sign production, it will be impossible for you to make sense of the signified.

This example shows that writing is not just a way of conveying an intended message by producing the same signifieds as in an oral message, merely switching from the acoustic to the optical channel. On the contrary, in writing one must choose different signifiers in order to compensate for the fact that the writing context is hidden from the addressee. In our case, the sender must re-phrase the oral text, for instance, by writing, “The sender suggests that Professor Posner and he meet at the entrance of Tallinn Port on Thursday, 22 October, at 11 o'clock”. If the addressee was forced to find the place, time, and



participants of this meeting himself without any additional indications, that might prove to be a very difficult, if not impossible, task.

One of the first recognised aims of European humanities was to set up explicit principles guiding the addressee or recipient of written messages in reconstructing their context of production. This is made evident in the Platonic Dialogues by the discussions of the difference between names on the one hand, and indexical morphemes and deictic expressions, on the other.

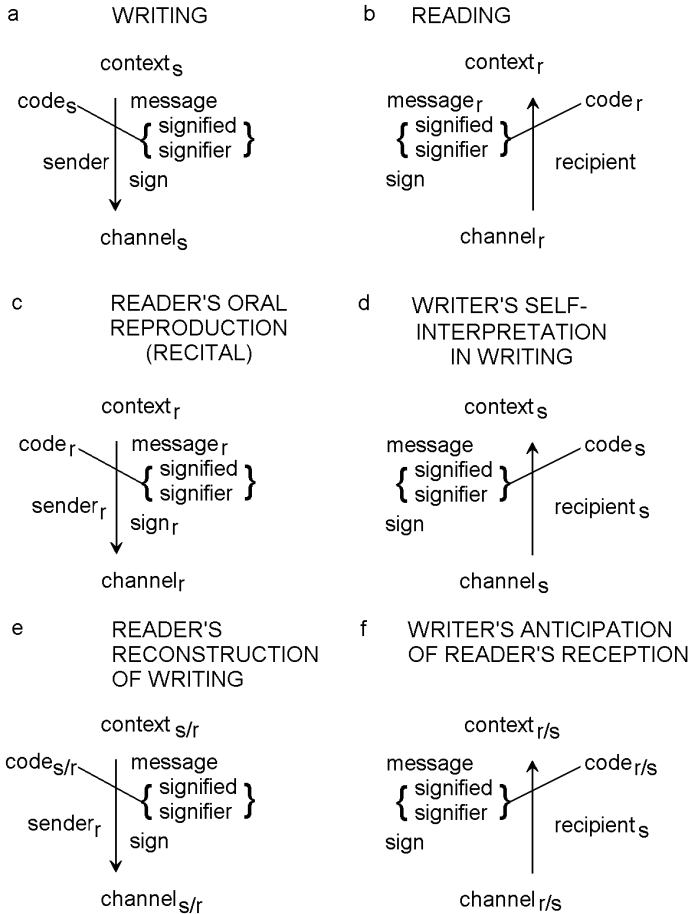


Figure 4. Written communication.

Before the introduction of writing systems, the standard semiosis between humans had been face-to-face communication, which allowed them to use several channels (or sense modalities) simultaneously. In this form of communication both sender and addressee are present in the same situation, they can see, hear, smell, and touch the same objects and events, and use them as additional signs helping to infer the intended message from the verbal signifieds. When there is a danger of misunderstanding, the addressee can always ask and solve the problem on the spot.

The introduction of writing made the visual channel available for the transfer of verbal messages, but at the same time it changed the structure of our communication. Instead of being at the same place at the same time and sharing the situation with the addressee, the sender of written communication is usually in a different place, time, and situation when producing the message, compared with the place, time, and situation of the addressee when trying to recover that message. Technically speaking, communication is split into two sign processes here, taking place on two different channels and in two different contexts (Figure 4).

Learning to utilise written language thus demands not only learning a writing code (such as Chinese logograms, the Onmun script, or the Latin or Cyrillic alphabet) but also learning to adjust to an unknown situation in which the communication partner might be while producing (Figure 4a), receiving (Figure 4b), or reproducing (Figure 4c) the message in question. The sender must anticipate a probable type of reception situation each time (channel and context) and the addressee must reconstruct a probable type of production situation for the message in question.

While in the production situation there is only a sender anticipating an addressee with a hypothetical decoding capacity and a probable channel and context of reception, in the reception situation there is only an addressee reconstructing a sender with a hypothetical encoding capacity and a probable channel and context of production. The consequences of this split in the original situation of face-to-face communication can hardly be overestimated. The competence of anticipating and of reconstructing another individual's behaviour over longer periods of time distinguishes present-day humans from all other animals.

The second skill that was analysed and elaborated on in the early tradition of the European humanities was *public speech*. In producing a public speech, one does not communicate with just one person but confronts a large group of persons, which can develop its own dynamism. This group is usually structured into various types of official and implicit addressees. Thus, starting the lecture on which this paper is

based, I had the choice of uttering one, several, or all of the following phrases: "Dear Head of the Centre of Excellence in Cultural Theory, dear research group leaders, dear members of the local organising committee, dear Estonian colleagues, dear international guests, dear students..." In such a situation, my and your attention would have shifted from one type of person present to the other as I spoke.

In semiotics one differentiates between

- the addressees, that is, those whom the sender wants to reach and whom the sender wants to believe that he or she wants to reach them,
- the bystanders, that is, those whom the sender wants to reach, but whom the sender does not want to believe that he or she wants to reach them,
- the excluded ones, that is, those whom the sender does not want to reach and whom the sender also does not want to believe that he or she wants to reach them,
- the eavesdroppers, that is, those whom the sender does not want to reach and whom the sender wants to believe that he or she does not want to reach them.

These role attributions can change within one and the same speech.

A similar multiple play can take place in the relationship between what a speaker says and what he or she means by it. Thus, when in Shakespeare's drama *Julius Caesar* Marc Anthony says, "Brutus is an honourable man", he can either intend the addressees to believe that Brutus is honourable, or that he is not honourable. He can try to achieve the latter understanding by repeating the sentence with an ironic intonation. Training in this kind of speaking behaviour for public speeches presupposes the distinction between a *message* (here: 'Brutus is not honourable') and the *signified* of an utterance (here: 'Brutus is an honourable man'). It is that distinction which plays a basic role in speeches with rhetorical figures.

What further complicates the situation in public speeches is that they are usually not given spontaneously but are prepared by writing a manuscript, which is then often learned by heart and eventually reproduced in a manner as if it were formulated on the spot. At least that was the Roman habit.

These considerations make it understandable that the Roman teachers of public orators not only emphasised the difference between a *sign* and its *context*, as the Greeks did, but were also keen on distinguishing between the proper meanings (*signifieds*) of words and their utterance meanings (*messages*), a *written* sign and its *spoken* articulation, as well as verbal and nonverbal *channels* of articulation. By analysing these differences, ancient rhetoric contributed a great deal to

the factor model of semiosis and thus became one of the most powerful doctrines of the humanities.

After the Roman Empire fell in the fifth century AD, a new skill became important: For more and more people, Latin was becoming a foreign language and using Latin texts required *translation*. Translation can be oral or written. Oral translation requires splitting the standard situation of face-to-face communication in a new way. When person A wants to communicate with person B who does not master A's language code, A has to address an intermediary, person C, who acts both as a recipient of the signs produced by A and as a sender of the signs necessary for B to understand A's message. This can be described as a combination of two different sign processes. In contrast with writing and reading, which can both be regarded only as fragments of a communication process, the two components of oral translation both amount to full-grown face-to-face communication (except for translation performed in translation booths with headphones).

It is interesting to see how these two processes are connected in practice. There we find that although the speaker A has to reach the translator C in order to get his or her message transmitted to his or her communication partner B, he or she tends to apply verbal forms of direct address (such as the second person pronoun you or thou) that B cannot understand.

This is the reverse of certain feudal bureaucratic situations where the king used his minister as an intermediary between himself and his subjects who came to the palace to ask for help. Thus the King of Prussia, Frederic II, had the habit of applying the second person pronoun (the German equivalent of you) to the minister and the third person pronoun (the German equivalent of he or she) to the petitioner. The King would, for instance, say to the minister, "You may tell him, his petition is accepted". Later this way was continued even when no minister happened to be present. The King then turned directly to the petitioner, saying, "His petition is accepted. He may now leave the Hall of Audience." (Vennemann & Wagner 1970). This is how the third-person singular pronoun (and its corresponding possessive pronoun), in fact, acquired the function of a pronoun of address in early New High German. It continued to be applied to low-class people in Germany until long after the French Revolution.

This story confirms that oral translation must be analysed as being composed of two separate sign processes, which tend to merge to various degrees. This also holds true for written translation. In translating written texts in the medieval monasteries, the reader and the translator tended to be the same person, and the signifiers in the text to be translated (the 'holy words') were so prominent that their signifieds were

specified by writing the corresponding signifiers of the target language above them, but their messages were often left unexpressed.

In the same vein, early theoretical conceptions of translation tended to suppress certain factors of the two sign processes involved in the task. In oral translation, the addressee of the translation B was confused with the addressee of the text to be translated (the translator C). In written translation, the signifieds of the original text were confused with the signifieds of the translation and both were mixed up with the original message. It took several centuries to understand that translation itself is an auxiliary sign process involving the complete set of sign factors, which becomes necessary when the recipients of a given sign complex cannot recover its message because they do not master its code or do not retrieve its production situation.

The table summarises the sign factors, professions and disciplines treated in the European humanities.

	DATE	SIGN FACTOR	PROFESSION	BASIC DISCIPLINE
1	400 BC	Greece: sender and addressee	dialogue partner	philosophy
2	AD 100	Rome: signifiers	orator rhetorician	rhetoric
3	AD 500	Middle Ages: signifieds	translator annotator	grammar
4	AD 1400	Renaissance: context	commentator interpreter	hermeneutics
5	AD 1700	Enlightenment: virtual versus real senders and addressees	essay writer stylist	stylistics
6	AD 1800	Romanticism: artefacts (sign complexes, texts)	philologist historian	philology etymology history
7	AD 1900	Imperialism: society, civilisation, mentality	traveller tourist	comparative literature
8	AD 2000	Globalism: channels and messages	media specialist knowledge dealer	computational telecommunications

## The Humanities Conceived as Human Sciences

With these remarks concerning the semiotic explication of the earliest three paradigms applied (and still accessible in written form) in the history of the humanities of Europe, I have reached the end of this programmatic paper.

I have made the following claims plausible by exemplification:

- The subject matter, terminology, and training goals of the humanities in each of their European versions can be fully reconstructed within the theoretical framework of semiotics.
- If the humanities do not limit themselves to developing rules for an adequate sign behaviour of humans, but also take on the task of studying the conditions of the possibility of these rules, they will have a chance to overcome their status of being arts and eventually become sciences.
- It will then make sense to conceive of the humanities as human sciences and of semiotics as their theoretical basis.

### Notes

- 1 I have discussed the concepts of culture, institution, society, artefact and civilisation, mentefact and mentality elsewhere (Posner 2004).
- 2 I regard the latter as one of the main tasks of cultural semiotics (Posner 2004).
- 3 Windelband 1878–1880; Rickert 1899; Cassirer 1923–1929.
- 4 Berelson 1952; McLuhan 1962, 1964.
- 5 The examples used in the following have been partly discussed in Posner 1989, 245ff and Posner 1997, 229ff.
- 6 For other historical stages, see Posner 2009, especially Chapter 5; for detailed analyses of the interaction between the humanities and the media technologies since the Renaissance, see Goody 1987; Giesecke 1991; Briggs & Burke 2002.

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# PRE-MODERN ECOSEMIOTICS

## THE GREEN WORLD AS LITERARY ECOLOGY

**Alfred K. Siewers**

Travelling between the 2009 CECT conference at Tallinn University, where the original version of this paper was presented, and a seminar on ecosemiotics at the University of Tartu, I found myself plunging into a holy spring in rural north-eastern Estonia. That experience (to which I will return below) embodied points that I sought to make in both presentations, regarding how narratives can function environmentally as landscapes. The presentations highlighted a specific regional pre-modern story tradition of 'overlay landscapes' in the islands around the Irish Sea, on a chronological continuum from the 'Celtic Otherworld'<sup>1</sup> in early Irish and Welsh texts to the 'green world' of Middle and Elizabethan English texts (Frye 1967). I suggested that this tradition illustrates an ecopoetics that articulates the reciprocal shaping of human culture in empathetic relation to ecosystem (Thompson 2007). Such overlay landscapes interweave stories of an ancestral or spiritual realm with empirically physical geography in cultures around the world, as also seen for example in Iroquois and Ojibway tales in North America, early Icelandic sagas, and the Australian aboriginal dream-time and songlines (Watson 1989).

Jonathan Bate (2000, 245) defines 'ecopoesis' as poetic expression "which may effect an imaginative reunification of mind and nature", a psychosomatic and experiential inhabiting of nature linked to language, going beyond merely pastoral or technological literary settings. This essay will attempt to show a relationship between such ecopoetics in literature, ecosemiotics in landscape, and ecological restoration. Bate's definition follows earlier discussions in environmentally oriented phenomenology, which in the late twentieth century adapted Martin Heidegger's work to describe meaningful landscape as a network of place experiences, while morphing into areas as far afield (and sometimes as critical of Heidegger's views) as Gilles Deleuze's and Felix Guattari's geophilosophy (Deleuze & Guattari 1987). Heidegger defined

Siewers, A.K. (2011) Pre-modern ecosemiotics: the green world as literary ecology. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond. Approaches to Culture Theory* 1, 39–68. Tartu University Press, Tartu.



a sense of place as a relational event, which he symbolised with the metaphoric coming together of a fourfold of Earth, sky, mortals and gods, rather than an interiorly represented object (Heidegger 2001; Harman 2007). Edward S. Casey (2003), among others, explicated how this could be adapted to landscapes as networks. Deleuze and Guattari (1987), on a postmodern trajectory, in turn developed a theory of 'bodies without organs' or 'rhizomic' continuities, using a natural image of interlocking root networks between culture and nature, human intellect and physical environment, similar in some respects to pansemiotic notions of meaningful environment, but emphasising a physical continuum. Such efforts parallel medieval 'pansemiotic cosmologies' of an incarnational cosmic 'language of music or energy-information', such as Maximus the Confessor's *logoi* (Maximus 2003), or John Scottus Eriugena's primordial causes as *theophanies* (Eriugena 1987). In fact, the philosopher Peter Hallward (2006) calls Deleuze and Guattari's rhizomic cosmology a revived Eriugenism.

Today ecosemiotics provides an opportunity to connect such insights more directly with cultural phenomena such as literature. The nineteenth-century American Pragmatist Charles Peirce developed the basis for the field a century ago by identifying the process of meaning-making (or *semiosis*) with both logic and self-emptying (but also self-realising) empathy. Peirce explicated the semiotic process as a triadic dance of Sign, Object (potentially identifiable with the physical environment) and Interpretant (the latter definable as meaningful context, habit or perhaps best as tradition) (Peirce 1998). That opened the door for a more systematic understanding of the relationship between sign and environment in the present century in Tartu and elsewhere (Nöth 1998). Recent scholarship in the sciences of mind supports the Peircean identification of semiosis with ecological connectiveness through the notion of *ecopoiesis* (a term related to Bate's *ecopoesis* and to *ecopoetics*) as exemplifying how the human mind develops in ecosystems rather than in individual discrete interiority, by means of environmental empathy akin to Peirce's 'agapism' and to notions of self-realisation in deep ecology, paralleling the ecosemiotic view of eco-region as a semiotic sign process (Peirce 1992; Thompson 2007). *Ecopoiesis* often refers in the natural sciences to physical shaping of ecosystems through, for example, ecological restoration. Its potential reference to both narrative and physical shaping of the environment suggests the focus of this essay.

The outlining here of a particular regional literature of overlay landscape will relate Peirce's semiotic process to *ecopoesis* in a specific eco-region, using a proposed concept of 'environmental semiosphere' or

'ecosemiosphere'. This term extends earlier definitions of specific symbolic cultures as semiospheres, or meaningful environments, into physical environments. It also extends onto a regional level the description in ecosemiotics of 'nature-texts' integrally related to physical environment (Maran 2007). The effort will examine the melding of global and indigenous worldviews with the Earth in a regional context, namely the Irish Sea islands, a region of dynamically entwined physical and cultural elements during the early Middle Ages, which will here be described as archipelagic in its entwining of land, sky, sea and wind. Ecosemiotics provides a way to understand more deeply the environmental function of overlay landscapes, such as the Otherworld of early Irish Sea islands, by highlighting them as a triadic semiotic landscape process. In the process, that triadic landscape discloses itself as one of four elements that constitute ecopoiesis (to use the more generic literary spelling) as defined here, by adapting Heidegger's idea of the fourfold to literary studies: Triadic overlay landscapes join metonymy in imagery, time-plexity in multidimensional narrative, and a grounded ethos of habitation in the world, in shaping ecopoetic textuality. The concluding section of this essay will suggest how these basic elements for a model of ecopoiesis themselves each parallel an aspect of Heidegger's metaphoric fourfold of place as intersubjective event — Earth, sky, mortals and gods respectively (the latter two combining in Peirce's Interpretant, the first two being Object and Sign) — to join with physical geography to form an ecosemiosphere.

Overlay landscapes that emerged in narratives of the islands around the Irish Sea — from the Otherworld of early Irish and Welsh literatures to the elvish realms of Middle English and Elizabethan poetry and drama defined as the Green World by Northrop Frye — involve a dynamic and multidimensional sense of landscape (Siewers 2009). In them, engaging story is overlaid in effect on physical topography and geographical features to produce a reciprocally formed culture and nature of place. The paradigm can be traced back to an historical overlap of indigenous and biblical traditions of cosmology in the literary cultures of the early Irish Sea. However, these overlay landscapes also suggest an overlap between Trinitarian understanding of modes of semiotics in early medieval cultures and psychoanalytic understanding of triadic semiotic processes of the Real, the Imaginary and the Symbolic. We see this in Julia Kristeva's (1989) reinterpretation of these in light of poetic language, mirroring Charles S. Peirce's triadic of Object, Sign and Interpretant respectively (the latter again in terms of 'meaning', 'context', or 'tradition').

In discussing the inter-relation of these semiotic models and ecosemiotics, this essay will argue that the pre-modern insular overlay landscapes function as ecosemiospheres. In this role they both expand our sense of what constitutes an 'ecocentric' text as defined by the pioneering ecocritic Lawrence Buell (1995) — a narrative entwining the human in larger contexts related to the Earth — while aiding our understanding of how such narratives may contribute to twenty-first-century regional ecological restoration efforts.

## **Experiencing Overlay Landscapes Today**

My encounters with on-the-ground overlay landscapes in the Estonian countryside during the time this paper first emerged form a contemporary example of landscape traditions involving the triadic processes of meaning mentioned above. These experiences included visits to national parkland that are both a cultural and natural reserve, while considering the history of the intermingling of nature and culture in wooded meadows studied by ecosemioticians (Kull et al 2003). However, in terms of personal firsthand experience, they especially involved the aforementioned plunge into the holy spring at the Pühtitsa Dormition Orthodox women's monastery, near the Russian border in north-eastern Estonia at Kuremäe.

The Sunday after the conference and the day before my presentation at Tartu, my two Russian-speaking roommates from the monastery guesthouse got me up for a walk though a misty late-October dawn, through a graveyard and then to a country lane, arriving at a small shrine at a spring dedicated to the Mother of God. There my previously unknown companions led me to a small bathhouse where they showed me how to plunge ritually three times into the spring. Afterward we made our way back up to the guesthouse, passing an ancient oak's trunk and small chapel, both linked by sixteenth-century tradition to a vision associated with the place, involving the discovery of a sacred icon of the Mother of God by the spring. Then we went past a gateway whose iconography depicted the discovery of the icon at the tree and the spring, into the cathedral church where the faithful venerated the icon amid chanting, incense and participation in the Eucharist.

The layers of landscape and narrative were complex. Russians founded the monastery in 1891 when the area was part of the now-vanished czarist Orthodox empire, on the site of a half-built Lutheran church, in turn on a hill whose name means 'blessed', believed long before to have been home to a forest chapel of the Finno-Ugric Vodic people, near medieval trade routes to Novgorod (Estonian... nd). Today it stands as a

sign of Russian cultural colonialism to some Estonians. Nonetheless in its complex layering of place, the site suggests some parallels to Glastonbury in England, with the complex re-imagined accounts there across centuries of native and colonial pasts, about which I have written elsewhere (Siewers 2002). Briefly describing first my phenomenological experience of the landscape layers of Pühtitsa, as experienced with my morning companions and its community, can hopefully illustrate an overlay landscape with triadic meaning in ecosemiotics, apart from the politically contested aspects, to clarify the paradigm of ecosphere before considering much older examples from around the Irish Sea.

Peircean triadic frameworks for semiosis involve describing that process environmentally as relationship rather than as an interiorised Saussurean binary of signified and signifier: the latter comparable to Scholastic semiotics of archetype and analogue, or scientific metaphysical semiotics of subject and object. For Peirce, such semiotic binaries were neither fully semiotic nor communicative, qualities that become basic definitions of life itself in biosemiotics and ecosemiotics today (Nöth 1995). Rather, they ultimately reify a kind of binarised violence of culture versus nature. Contrarily for Peirce, the semiotic process in its relationality equates with both logic and a kind of self-realising love or *kenosis* (sacrificial but vivifying an outpouring of self) that can be understood today both in terms of neurophenomenological understanding of the role of environmental empathy, and relationality in development of the human mind (Peirce 1992; Thompson 2007).

In Peirce's sense of the semiotic process, experience of the holy spring at Pühtitsa as outlined above involves a relationship of Sign, Object and Interpretant. The latter, the most ambiguous of Peirce's terms is defined as a third element of meaning or habit or law, also understandable as context or tradition (Short 2004). So in reading the landscape ecosemiotically, the story of the holy spring embodied in the icon and communicated both orally and performed in bodily devotions, liturgical work and ascetic prayer, would be the Sign; the physical landscape of the spring and hill and tree would be the Object; and the Interpretant would be the Orthodox tradition and cosmology relating the symbol of tree and spring to the Mother of God identified with a spiritual Paradise on a continuum with the Earth.

To unpack further the Interpretant as tradition shaping an ecosphere through a dynamic of memory, performance and practice, let us consider how the symbol of the Tree of Life in Genesis is explicated in Greek patristics (the backdrop for Orthodox traditions) as Christ and as also symbolising contemplation, or a kind of semiotic process involving ascetic practice. This tradition describes the Tree as

the *Logos* whose branches are filled with *logoi* or divine energies in Creation (Eriugena 1987; Thunberg 1997; John of Damascus 1999; Stăniloae 2000). Likewise the common source of the rivers of the world in Genesis is associated with the place of the tree in Eden, as is the combination of sacred tree and well in other traditions such as Norse mythology. That association can engage the spring at Pühtitsa with symbolism of the waters on which the Holy Spirit moved in the Genesis creation story, and also with the living water of Christ that in Christian tradition is associated with baptism.

The Theotokos, or Mother of God, herself in Orthodox tradition is often iconographically associated with a living spring, even as she is identified in liturgical hymns as a spiritual garden, the human person bridging heaven and Earth. She is considered both a special intercessor and the first person of regular birth to be brought to heaven (in effect restored to Paradise as well) in both body and soul at the Dormition for which the monastery in Pühtitsa is named. The Dormition in Orthodoxy, distinct from the Assumption in Roman Catholic tradition, emphasises the humanity of the Virgin Mary, reflecting the absence of the Scholastic doctrine of the Immaculate Conception. The Mother of God is a human being born and dying normally, although her soul and body are reunited in heaven before other human beings. She becomes a key intercessor identified again with a personal relationship between heaven and Earth. As such the Theotokos herself embodies a kind of cosmic semiosis in Orthodox tradition, paralleling the notion of iconography itself as a kind of embodied cosmic semiotic process linking physical and cosmic spiritual realms including Paradise envisioned as a kind of spiritually earthly place typing Earth's coming transformation to heaven (Siewers 2009). Her body in this tradition is itself an overlay landscape, encompassing all Creation with the Creator in her womb, while she also is encompassed by God.

In all this, what Edward S. Casey (1987, 15) termed an “activist memory” shapes in tradition the phenomenological reality of a landscape in which human subjectivity develops in relation to the physical environment. This realises an ecosemiosphere. Casey defined an activist memory as one that shapes realities based on interaction with realised or performative experiences of memory. Such a sense of memory can be stimulated by what the eco-phenomenologist David Wood (2003) has called ‘timeplexity’ — cultural narratives that articulate multiple overlaying dimensions of time and non-time, which when disrupted in modern objectifying landscape, form the condition termed ‘solastalgia’ by environmental psychology today (Smith 2010).

My experience of the landscape of Pühtitsa Hill exemplified time-plexity, within the Orthodox tradition of a fourfold patristic Christian model of time and non-time. Those four modes include, first, conventional human or 'cell phone' time, for example my dismayed checking of 'the time' very early on Sunday morning when awakened by my roommates in the monastery guesthouse. Second, the natural time of cyclical seasons reflects a sense of how time may move differently for non-human beings in the natural world — as in the rural Estonian autumn around us on our walk to the spring. Third, the eternal time of created incorporeal beings that fill seeming empty spaces showed forth as the time of angels who are said to gather at the Divine Liturgy, such as the one we attended after visiting the spring. Fourth, the everlasting uncreated non-time of God touches and sparkles in the physical world through uncreated energies (or *logoi*) of God in the Orthodox theology of creation, as in the iconographic landscape encompassing both spring and church and experience of the Eucharist itself as a both real and symbolic communal transfiguration of nature (Mantzaridis 1996; Romanides 2007).

In terms of both cosmic iconography and semiosis, human beings made in the image of God are considered to be so in both body and soul, modelled on the incarnate Christ. They exercise in this tradition biblical 'dominion' by participating in cosmic semiosis with the divine *logoi* by which they can in effect become gods (Gregory of Nyssa 1994a). They can be at one with the divine energies, although not the essence of God. They experience, in effect, the 'new Earth' transfigured into a Paradise that is both earthly and, beyond that, spiritual. Thus human beings in this performative tradition of nature participate in all the patristic modes of time and non-time, in 'active memory' shaping a dynamic landscape of both semiosis and empathy. This multi-layered dynamism parallels Heidegger's sense of the fourfold 'thing' or place as event. It contrasts with the Augustinian sense of 'eternal present' (St Augustine 1961), and the transcendent subjectivity required to gaze on the panoply of linear time as a kind of monolithic objectification of landscape, which encourages what Casey (1987, 15) calls a "passive memory" in modern Western technological culture.

The above-described semiotic process in its time-plexity involves a network of landscape experiences. In them, to use Peirce's terms, Interpretant can also become Sign in realising a purpose from the empathetic connectivity of the process. Thus the tradition of the tree and the spring can become a sign for the Orthodox *ecumene*, a perspective of cultural landscape different from that of the post-Christian or Catholic or Protestant West, featuring its own networks of meaningful environment.

Ultimately it also involves the Earth as a whole through the cosmology's basis in the opening of Genesis and global networks of Orthodox Christianity, as a potential ecosemiosphere of the Earth.

The Interpretant of the Orthodox symbology of the tree and the well, related to the Theotokos, thus potentially becomes a Sign for the Object of the Earth, relating also to an Interpretant of the universal Church identified with the Earth. That Church itself becomes a sign for the Earth understood regionally at Pühtitsa through the Interpretant of the landscape. This relates to Evan Thompson's (2007) notion of *ecopoiesis*, which he uses in the context of modern phenomenological and mind sciences to describe the Gaia hypothesis in a developmental sense, by which human minds and culture collectively co-shape themselves with the Earth. Ultimately the Orthodox identification of the Mother of God with Paradise spanning heaven and Earth shapes a Christian *ecopoiesis*, ranging dynamically from the local and regional to the planetary and beyond.

*Ecopoiesis* for Thompson (2007) is in Peirce's terms the semiotic process mutually forming *autopoiesis* of individual cells or organisms in tandem with their networked environment, ultimately the Earth. It reflects the triadic model of Peirce's *semiosis*, expressed in the type of overlay landscape found at Pühtitsa. As noted earlier, in some biological and engineering sciences, *ecopoiesis* literally means a physical shaping of the ecosystem, as in an ecological restoration process. Yet in ecocritical terms, *ecopoiesis* or in literary terms *ecopoetics*, also follows Lawrence Buell's (1995, 6–8) definition of an *ecocentric text* as (1) featuring a "nonhuman environment" as a presence that suggests "human history is implicated in natural history", (2) in which "the human interest is not understood to be the only legitimate interest", (3) "human accountability to the environment is part of the text's ethical orientation", and with (4) "some sense of the environment as a process rather than as a constant".

Returning to the sense of narrative as landscape at Pühtitsa, the overlay landscape can be articulated in terms of the related four elements of *ecopoetics* mentioned earlier. (1) It includes the triadic process discussed above. (2) Within that, it features metonymic or physically oriented metaphor (the Sign), embodied in the Pühtitsa icon and its traditions, reflecting the Orthodox sense of the Eucharist as a symbol not dividing the real and the figurative, but integrating them in a mystery. (3) The aspect of time-plexity already discussed above forms the meaningful relationship between Sign and Object in 'activist memory', acting as Interpretant. (4) An ethos-grounded in-place, in the holy spring and environ, forms a meaningful physical environment of *semiosis* involving

experience of the Earth as holy that can restrict human exploitation or objectification of that Object, akin to American Indian notions that “wisdom sits in places” (Casey 1987, 15; Basso 1996; Wood 2003). These in turn can be related to Buell’s four points of ecocentricity, transposing (3) and (4).

This pattern of triadic-relational ecopoetic landscape reflects psychoanalytic modes of semiosis examined by the theorist Julia Kristeva (1984; 1989). Kristeva, in examining the semiotics of poetic language, adapted the Lacanian view of language and human development as reflecting a development from the mode of the Real (beyond language) to the Imaginary (or mirror-stage of formation of the self in the context of community and culture) to the Symbolic (the constituting of self in language separated from the Real). Even as Deleuze and Guattari (1987) critiqued that sense of the separation of the Symbolic from the Real as a culturally specific Western psychoanalysis, Kristeva (1989) posited a poetic semiosis that could involve a dynamic inter-relation of the three modes, which she also related to a non-Western sense of triadic cosmology. In a Kristevan reading of Pühtitsa as landscape, the spring and physical environs could be considered the Real, the icon and performative devotion to the Theotokos the Imaginary or iconographic, and the landscape tradition, the sense of landscape as narrative, the Symbolic.

Kristeva’s explication of early models of the Trinity as a model for human development (humanity in the Orthodox tradition being seen as made in the image and likeness of Christ and hence ultimately of the Trinity) suggests a theological pre-modern feedback loop, paralleling the semiotic and psychoanalytic models mentioned above. The non-Western Orthodox formulation of the Trinity, as Kristeva points out, lacks the so-called *filioque* clause in its Nicene-Constantinopolitan creed (Siewers 2009). In it, the Holy Spirit proceeds from the Father, and the Son is the only begotten of the Father. In later Western Latin versions of the same creed, the term *filioque* was inserted to emphasise that the Holy Spirit proceeds from the Father “and the son”. The resulting effectual fusing of Father and Son, Kristeva (1989) notes, shaped a dyadic formula of reality empowering development of a Western subjectivity that emphasised autonomy and equality of the individual’s increasingly interiorised reality. By contrast, she points out, the more triadic and relational Orthodox theological framework paradoxically emphasised identity and difference in its balance of Father, Son and Holy Spirit. Identity with difference engenders in turn a cosmic ethos of spiritually erotic empathy, which parallels Thompson’s notion of developmental environmental empathy and Peirce’s sense of empathetic semiosis. All three of these parallel models (psychoanalytic ‘semanalysis’,



the latter Kristeva's own term for her system, the eco-phenomenology of Thompson, and the ecosemiotics of Peirce) overlap in reading the landscape-narrative to highlight a mutual environmental significance in an ecosemiosphere.

The phenomenological description of the experience of Pühtitsa sketched above, considered in light of the above relational paradigms for landscape-narrative as a practice or performance of environment, illustrates a non-modern interpretation of landscape through ecosemiotics, although the monastery at Pühtitsa itself was founded only in the 1890s, but based in older traditions. The section that follows attempts to carry the application of this model back further in time, to literature from the first millennium or early medieval era in the British Isles, to examine more fully the applicability of ecosemiotics to pre-modern landscape-narratives and insights into current environmental concerns this may afford.

## **Pansemiotic Medieval Approaches**

In the case of early Irish and Welsh Otherworld stories, what later became known in English as elvish or fairy landscapes entwined local geographies and environmental features from Neolithic mounds to the archipelagic interweaving of sea and land in insular landscapes. Monastic literary centres in the islands described spiritual deserts akin to what St Athanasius' *The Life of St Antony*, an influential prototype of medieval hagiography, had called a spiritual sea in the physical deserts of the Eastern Mediterranean (Siewers 2005a). 'Desert asceticism' began in the fourth century as a kind of counter-cultural protest against the Roman Empire but quickly became an embodied 'practice of nature' in which fasting, prostrations, daily liturgical cycles, a sense of exile in often harsh but aesthetically inspiring rural landscapes involving reconstructing one's subjectivity in larger cosmic contexts linked to one's body (Lane 1998; Chryssavgis 1999; Sheldrake 2001). Meditative prayer and chanting without ceasing, akin to modern hesychasm in the Athonite tradition, involved a grounding of heart in the mind and an opening to the energies as grace. In effect, the ascetic tradition as Interpretant of the desert became then a Sign for geographies in the islands around the Irish Sea. Its Interpretant in turn became the ascetic tradition of apophatic theology of divine energies infusing nature, integrating the physical and the spiritual.

Patristic interpretations of the opening chapters of Genesis formed a basis for this performative cosmology. It influenced both early traditions of Celtic and Eastern Orthodox asceticism used as examples in

this essay. It also helped to provide a model for the literary Green World overlay traditions that grew from early Irish ascetic performance of a spiritual desert in the islands. Frye (1967) described the Green World of English literature in Edmund Spenser's *Faerie Queene* and William Shakespeare's *A Midsummer Night's Dream* as a fairy world aligned with the natural world and poetic imagination that mirrored everyday human life. This green world developed first in Middle English literature, notably Geoffrey Chaucer's *Canterbury Tales* and the anonymous *Sir Gawain and the Green Knight*. In those early texts the debt to the Celtic Otherworld was clear in key thematic areas (Siewers 2009). The relation of the green world to actual geography was more precise in Spenser's work, although Shakespeare's Puck and fairies owe an apparent debt to Celtic traditions as well (Harries 1991; Siewers 2010).

Physical matter was seen as infused with uncreated divine energies, not so much an objective reality in itself but as a dynamic process. This was arguably a factor in positive cultural exchange with native cosmologies evident in the spread of these monastic cultures to not only the Irish Sea (where they provided the basis for Irish and Welsh literary cultures), but also in regions that later saw a literary flowering of other non-modern overlay landscapes, particularly Iceland in its sagas. The exegetical basis for such an overlay landscape in the hexameron tradition going back at least to the fourth century, and foundationally influential in both early Irish and Eastern Orthodox traditions of cosmic space, can be glimpsed in St John Chrysostom's commentary. In the revelation of creation to Moses in Genesis 1, in effect God writes a book or letter to human beings about their Earth:

He gives you a glimpse of it before its making as lacking form and outline so that you may see its limitations and admire the one who produces it and confers on it all its potential, the purpose being for you to glorify the one who prepares such wonderful things for your welfare (Chrysostom 2004, 35–36).

His accompanying exegesis discusses how such cosmic narrative leads to a non-objectifiable sense of matter, an impetus for alms-giving and ascetic living as expressing a cosmic semiosis of empathy. He describes the scriptural language itself as both historical and contemporarily experiential. Such emphasis on relational process as shaping and imbuing the Earth with everlasting transformative energy is a hallmark of desert ascetic theology and its later articulations of hesychastic practice. It also parallels different notions in indigenous cultures, such as Native American and Daoist, of the physical environment as flush with energies (Oleksa 1987; Christensen 1999).

Formulations of the Trinity influential in desert asceticism emphasised a triadic movement of hypostases whence came these divine energies in nature. Evidenced in key Irish-related texts, these early traditions of the Trinity differed from the formulation of more binary Western notions of the Trinity in the later Scholastic era (Siewers 2009). The latter, on the contrary, supported a duality of mind and body emerging from Augustine's dyadic model of the Trinity, with its emphasis on individual interiority, which became the norm in Western Europe at the time of the Norman Conquest of the Irish Sea islands (Kristeva 1989). Augustine's emphasis on the authority of the Father and Son together in the Trinity shaped a model for a powerful Western sense of individuality, the subject from which proceeded the Holy Spirit as a kind of object associated with creation. The early Irish Stowe Missal, a rare liturgical manuscript, in its original form eschewed the Augustinian formula for the Trinity in favour of the earlier Nicene-Constantinopolitan Creed, which emphasised more a perichoretic balance among the Three Persons of the Trinity. The early Irish philosopher John Scottus Eriugena did the same in the most complete Hiberno-Latin philosophy of nature, his *Periphyseon*. This triadic cosmic model involved, through the adapted desert asceticism expressed in early Irish spiritual texts, an emphasis on immanent transcendence (avoiding the binary of subject-object) in the presence of divine energies in the physical world, or theophanies as Eriugena often termed them. These emanated from the triadic Trinity as a whole, rather than the dyadic Trinity of Scholasticism, which manifested a Thomist created (objectified) grace amid an objectified analogic landscape of Earth.

For St Paul, in a text that provided a basis for patristic overlay cosmologies enduring in desert asceticism and its literary offshoots in the Western islands, "faith is the substance [not just the analogy] of things hoped for, the evidence of things not seen" (Heb 11:1). Cosmologically this implies a kind of enchantment of landscape (the reverse of modern disenchantment) that potentially addresses from a pre-modern stance:

[...] environmentalists need to tap into the creative worlds of mythmaking, even religion, not to better sell narrow and technical policy proposals, but rather to figure out who we are and who we need to be (Schellenberger & Nordhaus 2004).

The emphasis for them lies in performative cultural practices of nature, related to traditional stories that shape cultural relationships to overlay landscapes such as those of the early Irish Sea islands. Practices of nature such as desert asceticism based on Genesis, embodying

ecosemiospheres of Earth regionally or globally, to them presumably would be valued not so much as either myth or religion per se, but as empirical phenomenological experience shaping human communities of relationship within landscape.

The 'pansemiotic' nature of medieval approaches to the physical environment thus appears more 'ecocentrically' as *energy* in Greek and Syriac patristics and their reflections and parallels in early Irish practices and literature, rather than in later Latin Scholastic emphases on cosmic *analogy*. In contrast to earlier Aristotelian definitions of energy, this Christian uncreated energy emerged in nature from its apophatic mystery of essence. Heidegger echoes the cosmological significance of this energy theory in describing primordial nature or *phusis* as both disclosing and hiding itself, and so avoiding objectification in its realisation (Harman 2007). The difference between this approach and the allegorical emphasis in later Western semiotics and cosmology, based on a more binarised semiosis of analogies formed by divine archetypes and suggested by Question 13 of the first part of Aquinas' *Summa Theologica*, can be glimpsed in the 'fairyland' landscape overlay in literature of the early Insular tradition shaped by desert asceticism, by comparison with Dante's *Commedia*. The early Irish Otherworld and derivative-retro overlay landscapes such as *The Canterbury Tales* and *Sir Gawain and the Green Knight* entwine the energies of an imaginative green world with real world geography. By contrast, in Dante's scholastically influenced *Commedia*, landscape is allegorically based on analogy and removed from any particular earthly geography. The emphasis in modern scientific and technological worldviews of a mathematic framework for experiencing landscape, separated from personal phenomenology, emerged from the latter sense of cosmic archetype and analogue. The ultimate 'subject' metaphysically became the individual scientific mind, rather than that which is experienced in the world, which became object.

The Otherworld's underlying energy doctrine emerges in the cosmology of St Maximus the Confessor in the seventh century and its adaptation by the Irish philosopher Eriugena in the ninth century, already referenced. They elaborated on earlier patristic writers — drawing on Paul's writings and including St Gregory of Nyssa, St Athanasius the Great and the Christian Dionysius — in doctrine that was later developed by Greek patristic writers such as St Symeon the New Theologian in the tenth century and St Gregory Palamas in the fourteenth century. For Maximus, the essence of created beings lay in the potential of uncreated *logoi* (words or harmonies) of the *logos*, which also in effect were the uncreated energies by which created beings could

undergo divinisation or union with those activities of God. These *logoi* were not archetypes in the essence of God, as in Scholastic cosmology, but again energies or activities emanating from the unknowable essence and interwoven with the world, which distinguished them from created grace. In the old Greek sense of *analogia*, there was a dynamic ongoing relationship of ratio through these energies between Creation and God, even as the divine essence remained forever distinct from the world (Siewers 2009).

In constituting the environment as embodying information-energies, the Maximian *logoi*/ energies function in overlay or 'enchanted' landscapes of Earth as a Christian prototype of contemporary secular biosemiotic and ecosemiotic views of triadic semiosis as life and evolution itself as information-based sign-communication (Kull 1998; Hoffmeyer 2008). Contemporary physics itself suggests a return in secular terms to an information-energy model of matter that also parallels ecosemiotics. A developing understanding of quantum entanglement recently has led to the suggestion that quantum-energy information models, rather than material laws, may provide the best descriptors for the properties of the universe (*Physicist...* 2010). Postmodern cosmology suggests the latter may be holographic in basic framework, according to 'new physics', oddly paralleling experience of overlay landscapes in pre-modern traditions in their iconographic pop-up participatory experience for audiences (Chown 2009). The strong anthropic principle also shapes cosmological speculation today by scientists such as Stephen Hawking, suggesting both the centrality of human semiosis to our universe and the possibility of other realms of existence entwined with our own, as in Eriugena's early medieval notion of the human realm as the embodied semiotic overlapping of spiritual and physical realms (Barrow & Tipler 1986; Hawking & Mlodinow 2010).

In summary, early Irish texts such as *Immram Brain*, *Tochmarc Étainé*, *Táin Bó Cúailnge*, the Four Branches of the Welsh *Mabinogi*, *Culhwch ac Olwen*, and the 'legendary poems' attributed to Taliesin attest tropes of a spiritual-imaginary overlay landscape in geography of Europe's Atlantic islands. These reflect from monastic literary cultures the early energy doctrine, mingled with native traditions and distinct from the Scholastic cosmology of analogy. In the latter, exemplified by Aquinas' work, *logoi* had become archetypes in the Divine Mind differentiated from the energies of created grace. Such cosmology was reflected in that of Dante's *Commedia*, with its allegorical and extra-earthly landscapes, focused around the experience of an individual human being encountering historical subjects in fantasy landscapes. By contrast, the early Irish Otherworld related directly to earthly geography,

to historical landscapes with otherworldly beings, thus reflecting how the individual human subject was considered shaped within a practice of networks of divine energies in nature.

Unlike the dyadic model for reality in emerging medieval Scholasticism, involving archetype and analogue and influencing development of theoretical metaphysics and individualistic cognition as hallmarks of the West, the Otherworld trope involved a triadic relation of overlay landscape tradition to text and to physical geography. It did so with a sense of sign involving participation, reflecting in part again the original Greek sense of *analogia* as involving proportional relationship, in keeping with a psychosomatic sense of energy rather than an arbitrarily interiorised association of signified and signifier identified with individual cognition. In this the Otherworld also symbolises a significant ecossemiospheric overlap between three models already outlined for understanding both language and cosmology: (1) The Trinitarian deep structure of early Christian culture on the Irish Sea and its cosmological reflections; (2) Peirce's triadic model of semiosis or process of sign-making; and (3) Kristeva's adaptation of the Lacanian psychoanalytic triad of the Real, the Imaginary and the Symbolic to poetic language formative of the intersubjective self.

Appreciating the overlap of these models enables a more specific theoretical model for understanding the environmental function of narrative overlay landscape. Kristeva's analysis of early Trinitarianism as a premodern model of the pansemiotic can relate the Trinity's Father, Son and Holy Spirit to Lacan's modes of the Real, the Imaginary and the Symbolic respectively, and in the same sequence to Peirce's triad of the semiotic process as consisting of Object, Sign and Interpretant. The Interpretant forms the contextual 'meaning-plan' or practice of nature in which reader and author emerge within semiosis or cosmic sign-making, themselves taking shape in the landscape as sign of the overall process or tradition. Thus the Real or source-beyond-language would be the physicality of the cosmic world, the Imaginary or cosmic Sign (analogous to the *Logos*) would be the text-stories in which the subject's identity first forms, and the Symbolic or Interpretant would be the pansemiotic 'language' or context. So in this case, the Interpretant involves a cultural landscape of the spiritual-ancestral Otherworld, a network of trans-human contexts entwining and shaping signs, human subjectivity and non-human realms.

Such pre-Scholastic and pre-modern models do not privilege speaking above writing as does Scholastic semiotics, but rather stress a blend of the two in an iconographic writing akin to the harmonies (*logoi*) of the cosmic music articulated by St Gregory of Nyssa (1994b), spanning

the spiritual and the physical realms.<sup>2</sup> In them, writing itself would be a physical process, akin to iconodulic theology's proclamation of the Incarnation as a thickening of Word into Image (the *Logos* being the Image of God within which human being is made, according to readings of Genesis 1 in this milieu) (Balfour 1982). There is not in such triadic early structures the melding of the Father and the Son, the Real and Imaginary, and the Sign and Object, found in later more dualistic Scholastic notions of the Trinity and signs. The latter indeed became the basis for Western dyadic views of mind-body, subject-object, and nature-culture (Kristeva 1989).

In dualistic Western cosmic semiotics, a self-interiorised cultural 'actual' becomes accepted as a *Matrix*-like reality projected as 'real' landscape, such as the Enlightenment-inspired grid of right-angled property survey lines that reshaped much of America's landscape. By contrast, the triadic structure of pre-modern overlay landscapes, playing off physical geography, grew on the islands of the Irish Sea a kind of three-dimensional or iconographic version of Peirce's triad and Buell's definition of an ecocentric text. That holoscopic iconographic effect forms the model for an environmental semiosphere that I seek to develop here: a realm of environmental meaning linking geography, cultural narratives and landscape in participatory imaginative energy.

## The Otherworld Trope in Irish Sea Islands

Let's examine more specifically how all this works in the early Irish Sea texts mentioned above. In *The Voyage of Bran*, the Otherworld is the sea itself (Meyer 1972; Mac Mathúna 1985). It encompasses the islands within it including Bran's home on Lough Foyle, an inlet of the sea touching on what is now Derry in Northern Ireland and associated with underwater wonders. Travelling on the sea, Bran experiences a sense of travelling in clouds above lands within the sea as described by a sea god:

An extraordinary beauty it is for Bran  
In his coracle across the clear sea:  
but to me in my chariot from a distance  
It is a flowery plain on which he rides about.  
What is clear sea for the prowed skiff in which Bran is,  
That is a delightful plain full of flowers  
To me in a chariot of two wheels.  
Bran sees multiplicitous waves beating across the clear sea:  
I myself see in Mag Mon  
Red-headed flowers without blemish.  
Sea-horses glisten in summer

As far as glances of Bran's eye traverse:  
Blossoms pour forth a stream of honey  
In the land of Manannán son of Ler.  
The sparkle of the expanses that you go over,  
The brightness of the sea, on which you row about,  
Yellow and blue-grey-green are spread out,  
It is Earth that is great.  
Speckled salmon leap from the womb  
Of the shining sea, on which you look;  
They are calves, beautifully coloured lambs  
At peace without strife...  
The expanse of the plain, the number of the host,  
Beauties shining with bright quality,  
A fair stream of silver, stairs of gold,  
Bring a welcome at every great feast.  
A pleasant game, most delightful,  
They play in fair contention,  
Men and gentle women under a bush,  
Without sin, without crime.  
Along the top of a wood has floated  
Your coracle across ridges,  
There is a beautiful wood with fruit  
Under the prow of your little boat.  
A wood with blossom and fruit,  
On which is the vine's true fragrance,  
A wood without decay, without defect,  
On which are leaves of golden hue.  
We are from the beginning of creation  
Without age, without decay of Earth-freshness.  
We do not expect weakness from decline.  
The sin has not come to us.

Here we may stop to recall the formational landscape of desert as spiritual sea for early Christian monastics, as described in *The Life of St Antony* in the sense of otherworldliness within landscape indicated by desert asceticism (Lane 1998; Sheldrake 2001). However the early Irish use of the Latin *desertum* to describe the sea, islands and land refuges of monastics-in-exile, transfigured the actual sea into a spiritual desert, with the latter term standing for elemental human interaction with the cosmos that subverts social norms. As expressed in *The Voyage of Bran*, written down in such an insular monastic environment, this archipelagic mirroring of overlay landscape entwines the sea and land



so that it becomes difficult to determine a primary earthly reality. Bran's own home on 'solid Earth' itself becomes an Otherworld in the story. The early Irish use of the colour *glas* (translatable as 'the colour of sky in water') as a colour term spanning the spiritual and the physical exemplifies this cosmic mirroring of landscape in the Otherworld trope, reflecting the mirroring of aerial and terrestrial waters in Genesis (Siewers 2009). *Glas* designated a type of martyrdom related to both marine and aerial imagery and to bodily asceticism, as well as to a wind direction from the south-west associated both with the sea and the Otherworld. All with apparent affinities to the energy doctrine of desert asceticism mentioned above.

This ancestral Irish Otherworld, described as in the above text *in the sea*, was also mapped in other monastically produced literature as accessible from Neolithic mounds in the landscape, as in *The Wooing of Étaín*, perhaps roughly contemporary in origin to the Bran story, from the late eighth century (Siewers 2009). In the *The Cattle Raid of Cooley* (its various versions dating back in their core probably to the same era as well), a conflict marks the end of the old order of pre-Christian Ireland, with otherworldly presences entwined in geography of the countryside that is in fact today marked by highway and hiking/bicycling markers (Siewers 2009). Likewise the Welsh *Mabinogi*, dating from perhaps the early twelfth century but drawing on earlier traditions (some of Irish origin), involves a textual landscape tapestry criss-crossing south and north Wales. Its layers of re-imagined mythical and biblical meanings overlay Welsh geography in a probable act of narrative resistance to Norman Conquest condensing native experience of landscape in defiance of attempted erasure of indigenous traditions of landscape by a colonial regime (Carey 2007; Siewers 2009).

One commonality of the early overlay landscape traditions of Irish Sea cultures is their reflection in the Otherworld of archipelagic environmental entwinements of the elements on the islands. These subvert the realities of sea and land by the mutually reciprocal engagements of both, akin to Frye's comments on the back-and-forth of human world and Green World in some Elizabethan texts influenced by those traditions (Frye 1967). The archipelagic environment helped shape a different kind of landscape from the more continental-oriented monumental and allegorised sense of Earth, associated with colonising regimes, that emerged from early Anglo-Saxon and Frankish cultures and was also reflected in the emerging Roman Catholic Church of the later Middle Ages. The archipelagic perspective by contrast was seen arguably also in Greek cultural and linguistic views of the cosmos, the sea-like patristic sense of the desert, and in encounters of foundational

Cappadocian Christian thinkers with the elemental entwining of their jagged mountainous 'desert'. It remains significant today both because of our growing realisation that not only Europe but the Earth as a whole itself is an archipelago of entwined elements of land, sea and air, and also because of the current environmental need by world cultures for such models of melding global and indigenous worldviews.

Eriugena (1987), following on Christian scriptural references, referred to theophanies in nature as cloud-like, a melding of human imagination and divine energies manifesting themselves in the mingling elements of Earth. Peter Hallward compared such Eriugenian imagery, with its roots in early Irish Sea cultures, to the postmodern geophilosophy of Deleuze and Guattari (Hallward 2006). Their 'bodies without organs', like Eriugena's theophanic clouds, suggest a melding of imaginative and physical reality that can be compared to Gregory of Nyssa's music. For Deleuze and Guattari, double-enfolded landscapes, such as the overlay traditions here described, change the cultural formation of desire spatially: From the common equation of desire with lack in the analogy-driven landscapes of the West to a relational sense that we can think of as symbolised by meditative chanting, such as in the desert tradition of hesychastic prayer known today as the Jesus Prayer, liturgy or song (Siewers 2009).

Such a figure of chanting or music conveys the sense of participatory energy, as distinct from dyadic analogy, discussed above in relation to the cosmology of the overlay landscape. Music can include a melding of sign and physicality, metonymic in a similar way to the famous example of the Greek term *pneuma* for 'spirit', 'breath' and 'air', akin to the overlay landscape's entwining with both physical world and text. A cosmic music as a figure of the pansemiotic appropriately figures large in pre-modern cosmologies associated with early Irish Sea Christian cultures, as in for example the book of the Wisdom of Solomon in the Septuagint: "For the elements were changed in themselves by a kind of harmony, like as in a harp notes change the nature of the tune, and yet are always sounds" (19:18 LXX, cited in Brenton 1851). St Gregory of Nyssa's exegesis of the Psalms states: "The order of the universe is a kind of musical harmony of varied shapes and colours with a certain order and rhythm... the song woven together with divine words" (Gregory of Nyssa 1994b). Likewise, in indigenous traditions, an Ojibway creation story similarly entwines music and the cosmos in a kind of overlay landscape associated with imagination:

The Creator sent his singers in the form of birds to the Earth to carry the seeds of life to all of the Four Directions. In this way life was spread across the Earth. On the Earth the Creator placed the swimming creatures of the water. He gave life to all the plant and insect world. He placed the crawling things and the four-leggeds on the land. All of these parts of life lived in harmony with each other. Gitchie Manito then took four parts of Mother Earth and blew into them using a Sacred Shell (Benton-Benai 1988, 2).

In *The Voyage of Bran*, a description of the insular Otherworld in terms of the biblical Tree of Life of Paradise notes that:

There is an ancient tree in blossom there on which the birds call to the Hours, it is in harmony usually that they all call together every Hour. Colours of every hue shine throughout the smooth familiar plains; joy is continuous, together with music (Mathúna 1985, 47).

The *Navigatio Sanctis Brendani* features a similar sense of cosmic song (Selmer 1989). This pre-modern idea of the cosmic landscape as ultimately pansemiotic, in signs that form an energy infusing the material world described in musical terms, was picked up by modern fantasy in the works of J.R.R. Tolkien and C.S. Lewis, both medievalists. Tolkien (1977, 1) in the elvish creation story for his Middle-earth wrote of the elves' creator speaking to created spiritual beings thus:

Then Ilúvatar said to them: "Of the theme that I have declared to you, I will now that ye make in harmony together a Great Music... ye shall show forth your powers in adorning this theme, each with his own thoughts and devices, if he will."

Lewis (1998, 42), too, wrote of the creation of his world of Narnia:

[...] it was the stars themselves which were singing, and... the first voice, the deep one, which had made them appear and made them sing.

In its geography some have seen the hills of Lewis' native County Down in Ireland (Duriez 2005) and it is ultimately described as an extension or overlay of the Earth's landscape in the transfiguration of the Earth at the end of the Narniad.

## Ecopoetics and Environmental Fantasy

As songs shape the cosmos in this tradition, so too, in overlapping significance, stories comprised of cosmic signs beyond human language (suggested by the multiple meanings of the Greek *Logos* uniting 'harmony' and 'story') form it. Indeed, story is one translation of the Greek *Logos*, which through Christian interpretation of Genesis 1–3 also became identified with *ikon* or image. The distinctive imaging of God by human beings includes the naming of non-human beings, a kind of metonymic storytelling or poetics. The cosmic poetry of Genesis 1 itself forms the story of creation that also shapes Creation in God's words or the *logoi* of the *logos*. The term *ecology* itself in its retro-etymology can be read as 'the story of home', or, in this non-Augustinian and pre-Scholastic patristic Genesis tradition, 'the image of home': An equivalent for overlay landscape in the premodern traditions here described. Such a three-dimensional or iconographic sense of narrative conveys what Thompson (2007) finds in *ecopoiesis* (literally a shaping of ecology) entwining human subject and nature — 'laying down a path while walking' — the reciprocal shaping of the human mind in empathetic relation to ecosystem. Such iconographic landscape-narrative involves the triadic landscape, metonymy, timeplexity and grounded ethos that define ecopoetics, as adapted both from Heidegger and these pre-modern models.

This narrative overlay landscape as a source of triadic space reflects in certain respects also the rhizome used as an organic cosmic image by Deleuze and Guattari (1987) for the entwinement of imagination and physicality, an image of a grass root they set in contrast to a Western arboreal master image of hierarchy in culture. Yet the overlay landscape as *ecopoiesis* in cosmopolitan patristic Christian traditions involves an entwinement of the transcendent and the immanent, the global and the indigenous. It embodies a distinctive incarnational panentheism that eschews both a Platonic transcendence and an ethno-centric local attachment to matter that would idealise or objectify nature respectively. Instead, the insular overlay tradition is reminiscent of the Old Norse cosmic tree, Yggdrasil (itself like early Irish Otherworld stories known to us from an archipelagic Christian milieu). Both branches and roots, in many realms all arrayed around Middle-earth, it has parallels in images of trees in Celtic-language and continental shamanistic cultures. That cosmic tree, identified in Eriugena's writings and in Greek exegesis by St John of Damascus and others, with the Tree of Life and the Cross, with the *Logos* with branches of *logoi*, melds the rhizomic and the arboreal, the indigenous and the global. The 'Every Tree' of

Eden was interpreted as the 'All Tree' by Greek fathers and Eriugena (Eriugena 1987). Thus the multiplicitous yet linked 'Every Tree' of Eden, a place described as a mountain encompassing the Earth by St Ephrem the Syrian and St Gregory of Nyssa in perhaps the prototype for the Otherworld tradition (Ephrem 1997), is distinguished from the stand-alone and isolating Tree of the Learning of the Knowledge of Good and Evil (following the Septuagint's wording), in which self-knowledge is an abstraction, an objectification of nature and self, a removal from Eden and cosmic connectedness, at least when its fruit is consumed immaturely and distinguished from the 'All Tree'.

It is this incarnational-yet-transcendent sense of landscape as process, landscape as overlay, which ultimately distinguishes pre-modern traditions of the overlay landscape discussed here (even as re-imagined by Tolkien and Lewis), in their Green World, from the cyber world of technological globalisation (Edwards 1995). They display a phenomenological personalism in their intersubjectivity lacking in the Epicurean-inspired atomism and infinite space of Phillip Pullman's (2007) scientifically based fantasy cycle *His Dark Materials*. The latter's anti-Green-World fantasy of multiple realms and interiorised daemons indicates how even what appears to us today as environmentally oriented can be nonetheless primarily allegorical and compromised by technological metaphysics. Pullman's fantasy worlds engage a modern secular re-reading of *Paradise Lost*, which even in Milton's original Puritan and quasi-Arian Protestant milieu was closer to the interiorised allegory of Dante than to indigenous traditions of landscape in the early Irish Sea ecosemiosphere of the Otherworld/Green World.

Thus Tolkien's Middle-earth remains Earth-centred while that of Pullman's, writing a few generations later, in a more technologically virtual milieu and in a more environmentally damaged planet, depicts multiple worlds in which there is no link to a framing environment of Earth. We are left, in effect, with the 'disposable Earth' view promoted today by Hawking and some other scientists: As we wreck the Earth, there will be other worlds to conquer through space colonisation (Dermont 2010). We see this even in James Cameron's self-proclaimed environmental parable *Avatar*, in which the Earth is environmentally destroyed and we can only view an eco-friendly culture through 3D-glasses on another planet, thanks to a purported US\$250 million production budget (Keegan 2009).

## Conclusion

The merging landscapes of Estonia in my travels between the Dormition women's monastery, Tartu's Semiotics Department, and Tallinn's mix of medieval walled city with casinos and bustling Baltic capitalism, revealed for me a melding of ecosemiospheres in sharp contrast with the Frankfurt airport of my journey back to North America. The international air hub exemplified a vision of placeless globalisation at odds with the very concept of ecosemiosphere that was present even in the copy of Tolkien's fantasy cycle in my luggage. While Pühtitsa and Tolkien's landscapes separate out from one another on one level as physical and textual, they both share a heavily articulated triadic semiosis or (in the old Greek sense of *Logos*) harmony, or (in Peirce's term) agapism, shaping for both an otherworld of landscape focused on Earth. There is the story (Sign), the physical landscape it overlays (Object), and the relational tradition in which subjectivity forms (Interpretant). In the case of Pühtitsa the physical Object expresses a meld of stream, tree, hill and community. In the case of Tolkien, Middle-earth is also our Earth in past enchantments, reminiscent of Heidegger's definition of Earth as mysterious withholding from the world that nonetheless helps to shape a meaningful world (Foltz 1995). Then there is the Interpretant, the meaning or law or context or tradition that of the identification of the Theotokos with the Earth, and of the elvish fantasy history of Tolkien as modern-day adaptation of the Green World (Siewers 2005b). In terms of qualities of ecopoetics outlined earlier, both ecosemiospheres involve time-plexity, an environmentally grounded sense of ethos, metonymic signs and triadic landscape. Metatextually their semiosis relates them with landscape — Middle-earth being a kind of fairyland of Europe expressing Heideggerian regioning of Earth, Pühtitsa its countryside linked to tradition.

Yet the difference between them and the work of Pullman or the landscape of the Frankfurt airport may not result primarily from intentional philosophy so much as from passage of time. Nature arguably became more virtual and human culture further removed from longer-term traditions of rural life throughout the twentieth century, with both more entwined in a globalised consumer approach to the environment, whether capitalist or socialist. In this sense, an observation by Kalevi Kull (1998, 358), "biodiversity is directly dependent on community age", applies to traditions of storytelling expressed in literature. Biblical, indigenous, and pre-modern literary traditions, often overlooked in contemporary environmental studies, may yet inform present-day narratives of ecological restoration in our 'post-financial-crash' world.<sup>3</sup>

From within European and Mediterranean traditions, elements of older ecospheres may help to build coalitions for ecological renewal, as seen for example in the appeal of Tolkien's work across political and religious boundaries from eco-anarchists in England to evangelical Protestants in America. Previously hidden aspects of earlier ecospheres such as the early Irish Sea can help us shape our own semiospheres (realms of meaning) environmentally as the old West adjusts to new economic and environmental realities.

In the process, such traditions can explicate the relationships not only between ecosemiotics and eco-poetics sketched above, but also between the phenomenological experience of place suggested by Heidegger's fourfold (Earth, sky, mortals, gods) and the elements of eco-poetics (triadic landscape, metonymy, time-plexity, grounded ethos). As Graham Harman (2007) has noted, Heidegger's fourfold as an explication of place-event (as opposed to objectified place) remains a lacuna in much interpretation of the philosopher's contribution to environmental philosophy. Yet Harman's explication suggests the relation of Heidegger's fourfold with the four aspects of eco-poetics delineated above in *Immram Brain* and other pre-modern texts. The Earth as concealed but non-specific parallels the triadic landscape of ecopoesis, which across cultures suggests the mystery of our relation with the Earth, as in *Immram Brain's* evocation of the Otherworld in known contiguous geography of the archipelago. The sky as a kind of revealed yet specific measure of Earth reflects the metonymic imagery of eco-poetics, as in the sea of the Irish coast as a metonym for monastic desert and Paradise in *Immram Brain, Navigatio Sancti Brendani* and other texts. Mortals as a non-specific condition form a mode of Heidegger's fourfold that reveals time-plexity through their condition, as with members of Bran's crew. And gods conceal a specificity that relates to an ethos of place, as in the need to respect and not objectify the nonhuman conditions of the Otherworld as the 'other side' of nature in Bran's journeys, seen in the figure of the sea god in the story. This all also recaptures the old sense of ethos as place. In addition these fourfold overlapping models, suggestive of eco-semiosphere, relate to Peirce's triadic semiosis, in terms of Earth as Object, sky poetically as Sign, and mortals and gods together symbolising the Interpretant of tradition.

When I returned from Estonia, I encountered another story-shaped world in North America, at a meeting with Tadodaho Sid Hill, the spiritual leader of the Haudenosaunee or Iroquois Confederacy of native peoples in North America. The Iroquois are recognised as sovereign nations with certain legal boundaries and rights by the United States.

However, the Confederacy itself is a realm of story whose boundaries ambiguously extend across much of the northeastern United States and Canada, the traditional homeland of the Haudenosaunee peoples. Its traditional leaders, most notably Oren Lyons, have sought to mobilise their traditions on behalf of environmental causes. At the wooden council longhouse hall of the chief fire of the Confederacy on the Onondaga Nation territory near Syracuse, New York, a structure entered by few non-native people, the Tadodaho spoke with a group of our environmental studies students and faculty. In describing the relation of native stories about animals and gods to the Iroquois view of the land as having rights of its own, and of the obligation of human beings to consider the effect of their actions on the seventh generation beyond themselves, Tadodaho Hill stressed the influence of the Iroquois Confederacy's structure on the US Constitution. However, surprisingly to the group, the greatest flaw he cited in the latter was the separation of church and state. Yet his comment reflected not a legal constitutionalist standpoint but a perspective on cultural narratives. To paraphrase directly, he said: "You have no traditions of stories of the land as a community of peoples."

One recent effort involving my university and the Haudenosaunee seeks to apply some of the ideas in this essay to environmental restoration. Drawing on historical research, GIS mapping technology, literary research and environmental journalism, a consortium of groups has developed a proposal for a national historical trail along the four-hundred-and-forty-mile-long Susquehanna River, which was once a prime corridor between the heartland of the Iroquois lands and the Chesapeake Bay. Both the Susquehanna and the Chesapeake continue to face severe environmental challenges. Designation of the corridor, which has received an initial positive response from the National Park Service and currently remains under review, could be an opportunity to connect people in the Susquehanna Valley through stories of the region with their shared watershed ecosystem, in a public-private national park corridor.

In another example of applied environmental humanities, which I covered as an environmental journalist, the Chicago Wilderness movement has drawn on pioneer narratives and study of Native American land management, as well as of early Midwestern natural history to help shape large-scale ecological restoration efforts in a metropolitan area involving prairie, savannah and wetlands (Siewers 1998). To do this sometimes controversial work, supporters drew also on local naturalistic adaptations of the City Beautiful movement that left their mark on earlier boulevards and park corridors in the metropolitan area, seeking



to situate the new restoration efforts within that local landscape culture as well as within the region's history. In the future, the developing field of ecosemiotics, drawing also on historical and non-modern traditions, will probably find new ways to combine ecopoetic phenomenology of landscape with ecological restoration in 'stories of home'. In doing so, it will highlight the ongoing power of human story to engage reciprocally with ecosystems in potentially shaping sustainable ecosemiospheres.

## Notes

1 The Otherworld is a modern term often used as scholarly shorthand for a trope found with variations in early Irish and Welsh literatures. Although any unitary sense of the concept in early medieval times is contested, the presence of such an overlay landscape in all major Irish Sea literatures is distinctive (Sims-Williams 1990, 67; Carey 1991; Siewers 2009, 85–87).

2 His discussion of cosmic harmonies as energies also parallels that in the deuterocanonical book of the Wisdom of Solomon; later the sub-Roman Latin Christian philosopher Boëthius also described cosmic harmony in musical terms, but emphasised it more in proto-Scholastic terms as inherent in Creation rather than creational energy as in the Greek discussion.

3 Lynn White, Jr (1973a, b) famously implicated Christianity in environmental destruction in the West. Yet in a follow-up essay he qualified this by limiting his thesis to dominant Augustinian and Scholastic Western interpretations of Christianity.

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# FOUNDATIONS FOR ECOSEMIOTIC DEEP ECOLOGY

**Kalevi Kull**

An approach to human ecology is proposed here as a development and reformulation of deep ecology principles on a semiotic basis. The ecosemiotic foundation of deep ecology is formulated in the form of ten brief theses, given in three compatible versions. The approach is based on the understanding of the linguistic source of violence, or violence as a capacity that becomes possible only in the condition of animals with symbol-based sign systems.

The text was written in Estonian in May 2004 and published on the Internet (the site of the Institute of Zoology and Botany, Tartu at [www.zbi.ee/~kalevi/](http://www.zbi.ee/~kalevi/)). Here it appears for the first time in English with the ambition of replacing Arne Næss' (1989) theses on deep ecology, but not by refuting, rather, by rethinking them. I had an opportunity to talk with Arne Næss on some of these issues when he was in Tartu at the seminar at the Estonian Naturalists' Society in October 1998. Apparently, Jakob Uexküll's thought had inspired both of us.

The step-wise development of ecosemiotics and discussions with colleagues and students on the importance and fruitfulness of a semiotic basis for ecology — and particularly human ecology — led at a certain point to the idea of developing deep ecology on a semiotic basis. A Tartu course on ecosemiotics included both semiotic principles and deep ecology and also an analysis of the human impact on diversity, using research on wooded meadows. The latter was described, for example, in the paper co-authored by Toomas Kukk and Aleksei Lotman for the conference entitled *Uses of Nature — Towards an Anthropology of the Environment*, organised together with Andreas Roepstorff and Tim Ingold in Estonia in May 1998 (Kull et al 2003). Further, Riste Keskaik and Kaie Kotov contributed to a set of theses being formulated (Kull et al 2004). The version here is a more radical one and, however brief, attempts to be logically complete.

Kull, K. (2011) Foundations for ecosemiotic deep ecology.  
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The essence is to integrate in the theses the deeper foundations of semiotics, possible due to recent developments in biology and ecology, especially in biosemiotics and ecosemiotics. Life is viewed as a semiotic system — a communicative system based on action of signs — and an ecosystem as based on semiotic interspecific bonds. At the core of these deep ecology principles is the understanding of what human consciousness is and how it is related to human types of action. This understanding is based on semiotic theory that demonstrates the differences between the types of signs used by different groups of organisms (Kull 2009) and particularly on the role of the human usage of symbols that results in languages. Usage of symbols is connected with the capacity to freely combine objects, including the combining of one's decisions. As distinct from any other species, this gives humans the capacity to make consciously bad decisions that may hurt someone. Thus, true violence — torture — is a result of language. Animal predator-prey relationships are not violent because they do not include an intention to torture (Weber 2007). Tim Ingold (2000, 69, original emphasis) has also claimed in *The Perception of the Environment*, of the relations with animals in hunter-gatherer societies, that: “[...] the encounter, at the moment of the kill, is — to them — essentially *non-violent*.”

## The Ecosemiotic Principles of Deep Ecology

1. Because of its capacity for language, the species *Homo sapiens* has an unprecedented capacity for violence, for affecting other species and its own environment, for causing manifold problems, for self-deception.
2. Self-awareness, learning the workings of the world and of life, enables *Homo sapiens* to understand the consequences of the powers that language provides, to see the deceptive nature of intentions, and to learn how to act without transforming the environment and without using violence.
3. Positive and negative feelings not only exist in animals with a capacity for language but in many others as well. The activities of organisms with the capacity for language undoubtedly affect the emotional state of many animals, including themselves.
4. With the capacity to be conscious of actions, a choice between creating happiness and not creating happiness is inevitable.<sup>1</sup> Since there are no higher criteria for choosing,<sup>2</sup> the freely chosen decision to walk the path of creating happiness<sup>3</sup> is fundamental.<sup>4</sup>

5. Diversity, or heterogeneity, is a fundamental value. It is more general than any measurable value.<sup>5</sup> Diversity results from the capacity of living beings to make a difference, to recognise, to distinguish.
6. Although culture is a powerful system for generating diversity, it has, especially during Modernity, extensively eradicated heterogeneity and increased uniformity.<sup>6</sup> Fewer different forms are used in the action of building and reshaping than were found in what these activities replace.<sup>7</sup> Additionally, the broad application of measurable values results in the proliferation of unification and standardisation, with a corresponding reduction in diversity.<sup>8</sup>
7. All living beings change their environment; they also undergo change themselves. However, there is a difference between participating in that which exists, by which diversity is retained, and replacing (transforming) that which exists, by which diversity is often decreased. Awareness of this difference presumes a distinction between managing (or maintaining) communities, and producing cultural communities (a distinction between semi-natural biotic communities and artificial biotic communities),<sup>9</sup> as well as a clear distinction between healing and altering.<sup>10</sup>
8. In order to preserve zest for life, the world does not have to be progressively changed; rather, the preservation (non-alteration) of the world should be chosen. This means choosing a non-cumulative culture instead of a cumulative one.<sup>11</sup> This rests upon local ecosystemic identity.
9. Such choices are only for, and come from, creating happiness. Therefore no modes or means are justified that would, in pursuing them, contradict this principle.<sup>12</sup>
10. Since the above theses do not contain local presumptions, it follows that such an understanding can be potentially universal to all thinking beings. Since the understanding gained from these theses encourages the creation of happiness, teaching this view is justified.<sup>13</sup>

The above theses can be briefly formulated as follows:<sup>14</sup>

1. The capacity for language leads to the capacity for violence.
2. With science, one can learn how to leave the world unchanged.
3. Zest for life characterises many animals.
4. The deepest choice humans face is about creating happiness.
5. There is no more fundamental value than diversity.



6. Modern culture has tended to eradicate diversity.
7. Living as mortals in semi-natural biotic communities allows the preservation of diversity.
8. Non-cumulative culture can sustainably provide for continuous zest for life.
9. Violence is unjustified.
10. Teaching this view is justified.

## Notes

1 This includes creating happiness in others as well as in oneself.

2 This position reflects green existentialism.

3 This is nearly equivalent to the principle that love is the most fundamental basis for choice, of which there is none deeper.

4 The struggle for survival is not a higher principle than creating happiness. Organisms without a capacity for language cannot resist survival, nor can they resist evolving, adapting, or increasing in diversity. These properties arise from the structure of organisms, from the makeup of life; they are not themselves goals that have taken shape over time. Survival is but the consequence of the capacity for individual adaptation (plasticity) that is universal to all life. The capacity for individual adaptation (finding one's way, making choices) is a universal property of living beings in a similar way that inertia is a universal property of all bodies. However, the struggle for survival as a goal presumes the capacity to distinguish between being alive and not being alive; this is probably a distinction that only human beings are capable of making. Consequently, other animals do not struggle for life; they have only means of adaptation. The struggle for survival in humans has no other genuine — that is, true — rationale other than that which derives from creating happiness; however, it cannot be concluded from this that survival should be understood as a universal, unconditional goal.

In fact a paradox in the formulation of survival as a fundamental principle, which has been widespread in the modern period, for example under the impact and in the style of German biologist and philosopher Ernst Haeckel (1834–1919), is that it has been one of the more important justifications for expansion and violence and the foundation for the paradigm directed at technical and expansionist progress and not at perfection and persistence. Thus the erroneous interpretation of the principle of survival, especially the interpretation originating from the Enlightenment and strengthened by Darwinism, has contributed significantly to the ecological crisis.

5 Diversity can be defined as the existence of unconvertible differences. Diversity is non-quantitative by nature, i.e. it is not tantamount to the number of differences, although admittedly it can be described in this manner. That diversity is the most significant value is not a matter of subjective decision; it

is an ontological quality, an internal quality. Heterogeneity is the foundation of meaning, dialogue, creativity.

6 The heterogeneity of culture lies in the co-existence of several (multiple) mutually non-convertible value systems.

7 For example, we commonly recognise culture as different from wild nature by the abundant and prevalent presence of geometric forms and by a smaller number of different forms.

8 Examples would be currency and competition. Once competition is introduced to a particular field, a set of practices that may previously have featured individual or regional differences and incommensurabilities, but which were mutually acknowledged as intrinsically valuable, become subject to rules of commensurability and a measure of external value. Because of the implementation of a measure of value (without which there can be no competition), competition tends to expand, and since competition requires the acceptance of the rules of the competition, this brings about the categorisation and unification of the field, leading to the loss of heterogeneity. Global competitions standardise the rules of the field globally.

9 This means, for example, that the displacement of species should not be encouraged, nor should indigenous (local) species be mixed with introduced species.

10 For example, artificially lengthening life-spans is alteration, in so far as senescence is not a disease. From this derives the right to die naturally, as well as the obligation not to genetically modify organisms.

11 Non-cumulative culture refers to a highly diverse, in-equilibrium, culture based on steady-state economy and recycling. On the Earth as a whole, this would mean the coexistence of multiple different delineated cultures. This would in turn lead to a decrease in globalisation, made possible by reducing access to long-distance transportation, and more generally with the re-reduction of artificially expanded openness of ecosystems and the preservation of richness at borders. Non-cumulative cultural memory is characterised by systematic forgetfulness. Since culture generates diversity, creativity can last in a finite world only if accompanied by forgetting. Growth in the overall amount of knowledge is not a general precondition for the persistence of a culture. For the preservation of a culture it is sufficient that certain core knowledge and core structures about a persistent way of life are passed on. In a culture with 'changing the world' as one of its general principles, no definitive core knowledge could guide persistence; consequently such a culture requires unlimited accumulation of knowledge. Such, indeed, was modern culture. Importantly, non-accumulative knowledge also pertains to the reformulation of science as an art of understanding, explaining, and healing rather than a producer of tools for change. Technologies need not be irreversibly replaced, they can recur. Thus the major function of science would be to provide a possibility to live in understanding the world and life, and to prevent (otherwise unexpected) harm and violence.

12 Although the formulation of these theses has observed the internal logic of the stance, there is a close connection with several of Nass' theses, including the importance of non-violence. The proposition concerning the value of diversity (point 5) is meant to replace (or rather, specify) Nass' thesis on the intrinsic value of all life.

13 Moreover, this also refers to choices and the importance of semiotic reasoning in many fields, including moral philosophy (points 1, 3, 4, 5, 7 and 9), philosophy of science (points 2 and 8), cultural theory (points 1, 6 and 8), economics (point 8), education (points 8 and 10) — as is appropriate to a deep ecological and semiotic view.

14 An additional simplified version of these theses would be as follows:

1. Many environmental problems are related to capacities that distinguish humans from other animals.
2. Causing these problems is not inevitable; one can learn to avoid them.
3. These problems have a direct impact on many organisms, not just human beings.
4. Only compassion explains why we should deal with these problems in the first place.
5. Although environmental problems are varied, it generally holds that if diversity is preserved, most other problems are avoided.
6. Modern culture, with its ideal of scientific–technological progress and competition, has frequently destroyed diversity.
7. It is not that the environment cannot be changed, but rather that it should not be irreversibly transformed, because it is then that environmental problems appear.
8. Postmodern culture, with its halted progress, can be imagined as one that is not engaged in transformations, but nevertheless remains perpetually creative with its strive towards perfection.
9. Using coercion to produce such changes is unjustified.
10. It can be substantiated that teaching such an understanding is justified.

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# **CONSTRUCTING NATURE**

# THE POSITIONING ON THE LANDSCAPE OF CULTURE AND MIND METHODS FOR THE SOCIAL CONSTRUCTION OF NATURE

**Maaris Raudsepp**

Self, culture and nature relate to each other as inclusive opposites: necessarily differentiated, yet forming united systems (Valsiner 1998). We can describe nature as part of culture (domesticated, culturally regulated nature) and human culture as part of nature (the naturalisation of culture); self as part of collective culture and culture as part of the self ('individual culture'). Boundaries between culture and nature are flexible (Nöth 2007) due to human semiotic freedom and meaning-making capacity. Humans are able to regulate their experiences, thoughts, and activities with the help of semiotic tools (Valsiner 2007). On the one hand, we can naturalise sociocultural phenomena, for example by essentialising social groups, attributing to them immutable, 'natural' characteristics and thus modifying attitudes and behaviour towards these groups (Wagner et al 2009). On the other hand, we can socialise nature, include it in our sociocultural realm in the form of various meaning complexes, transforming natural phenomena and processes — living and dying, the genome, the forest, so-called ecological problems — into social objects, for example, the symbolic meaning of diseases or climate change. The domesticated part of the world is the one we can speak of, pay attention to, and towards which direct our conscious activity. Outside such a domesticated world lies a 'wild' reality that is not represented in peoples' consciousness. The domesticated worlds of different groups need not overlap (Wagner & Hayes 2005). Description of nature as a social object requires interdisciplinary cooperation. Ethnologists and historians describe the historically stabilised meanings of nature, social scientists focus on social and psychological mechanisms of meaning formation.

Spatial metaphors for theoretical description of mind and sociocultural reality that Pierre Bourdieu (1991) calls the 'social field' and

Raudsepp, M. (2011) The positioning on the landscape of culture and mind: methods for the social construction of nature. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond*. *Approaches to Culture Theory* 1, 78–92. Tartu University Press, Tartu.

Hubert Hermans (2002) the 'cultural space' or 'landscape of mind' allow us to describe the totality of respective objective and phenomenological realities and to elaborate on the metaphoric potential, using spatial terms like distance, direction, orientation, coordinates. Landscape metaphor refers to visible, experientially accessible structures within self and culture, which enables different positioning within its framework. Spatial metaphors can be used with invisible objects (mind, identity, culture); they contain many layers, dimensions and the potential for further elaboration.

In this article I will follow a metaphoric path relating to the concept of positioning in sociology and socio-cultural psychology. I will try to synthesise theoretical views towards positioning at two levels: (1) taking (holding) objective positions in some integrated whole (social and cultural landscape): the level of structural determinism; and (2) subjective positioning in the landscape of mind (I-positions, personal construction of meaning): the level of semiotic freedom. Empirical illustrations are drawn from studies of the meaning of environmentalism and nature in Estonia.

## **The Objective Configuration of Positions**

The meaning of any cultural form can be determined only in relation to some wider context, in relation to some bounded whole and other elements within that whole. There are various conceptual models for describing how a multiplicity of positions form a symbolic space and how this space functions as an integrated whole.

The most prominent positioning model in sociology is presented by Pierre Bourdieu (1991). According to him the social world is a multi-dimensional space, differentiated into relatively autonomous fields of practice. Individuals occupy certain positions in these fields on the basis of the amounts of the different types of capital they possess. He argues that "Social reality exists, so to speak, twice, in things and in minds, in fields and in habitus, outside and inside of agents" (Bourdieu & Wacquant 1992, 127). Field, as a space of relations, acts to give structure, guiding the activities of its agents through sets of enduring dispositions he terms 'habitus':

The notion of habitus accounts for the fact that social agents are neither particles of matter determined by external causes, nor little monads guided solely by internal reasons, executing a sort of perfectly rational internal program of action. Social agents are the *product of history*, of the history of the whole



social field and of the accumulated experience of a path within the specific subfield (Bourdieu & Wacquant 1992, 136; original emphasis).

Each position determines a certain viewpoint, a certain vision of the social world, certain complexes of beliefs and attitudes. "Worldviews [...] are views taken from a certain point, that is from a given position within social space [...] the vision that any agent has of space depends on his position in that space" (Bourdieu 1990, 130). This vision includes not only a 'sense of one's place', but also a 'sense of others' place' and a 'sense of distance' between the positions (Bourdieu 1991). In other words, it reflects both a particular position and the whole. All positions and respective viewpoints are thus relational; they make sense only in the context of other positions and dynamics of forces operating between them.

In social psychology a very similar systemic model was created in the theory of social representations (Moscovici 1998). According to this theory (Wagner & Hayes 2005), systemic and hierarchically organised fields of social representations (shared meanings) contain all the resources that can be used within the communicative practices of specific semiotic subjects (groups, societies, cultures). This field provides shared intersubjective content and common dimensions of meaning. Individuals and groups may position themselves differently in relation to these dimensions, in accordance with the representations they use for constructing social objects and interpretations of reality. Certain positioning is linked to specific sets of social representations: Meaning-making and stabilising systems which are revealed in beliefs, images, emotions, activities, lay theories, regulative ideas and other forms of collective thought and interaction (Wagner et al 1999). Social representations express the characteristics of (collective) subjects, objects, and their relationships (meaning), describing the 'domesticated worlds' of certain groups (Wagner 1998).

Willem Doise (1994) analyses social representations as implicit organising principles, or 'structuring structure'. These abstract underlying principles (categories, dimensions, reference points) reflect the regulative influence of the social meta-system on cognitive functioning and organise symbolic relationships between social agents. According to these principles, individuals or groups identify and differentiate themselves, choosing their relative positions within the representational field.

More than consensual beliefs social representations are [...] organising principles, varied in nature, which do not necessarily consist of shared beliefs, as they may result in different or

even opposed positions taken by individuals in relation to common reference points (Doise et al 1993, 4).

These organising principles are usually not directly observable but are deduced from a pattern of responses. They may be described as dimensions in the semantic space that structure individual positioning, or as a set of implicit rules. This is a structuralist approach that stresses the importance of underlying structures in the social and cognitive meta-systems. These structures determine the symbolic space or 'representational field' that delimits the possible choices of symbolic positioning for members of a group. Diversity in the social field means that individuals position themselves differently, engaging with any phenomenon from a particular point of view relative to other agents (Clémence 2001). The representational field acts as an integrated whole and each of its individual participants has access to this holism.

Positioning in the theory of social representations is predominantly linked to identities — "Identity is first a social location, a space made available within the representational structures of the social world" (Duveen 2001, 268) — and their dynamic interrelations:

Individual and group positioning [...] refers not only to the symbolic occupation of a space of identity and action which needs to be defended, but also to the dynamic through which positioning expresses identity and allows individuals to build the space of reality in which their identity can be expressed (Elejabarrieta 1994, 248).

A more dynamic model is presented within discursive psychology (Harre & Moghaddam 2003; Harre et al 2009). Positioning is analysed in the context of discursive activity. Positions are distributed or taken and acquire meaning in the course of interaction and discourse, in relation to the used categories and a particular story line. Discursive positions (identity) are fluid, local, and ephemeral. Meanings are not fixed but rather are strategically chosen and negotiated among the discourse partners.

All these models are characterised by relationism: Positioning makes sense only within some integrated symbolic whole organised by specific coordinates. These wholes are culturally maintained types of contextualisation, meta-level organisers of meaning. A representation obtains new qualities in different meaning contexts. Such relatively stable, yet dynamic, forms of thought and language have been described as representational fields, speech (communicative) genres, cultural frames, thematic networks, interpretative repertoires, ideological formations, divergent rationalities, symbolic formations, etc. Such meaning

fields are not aggregates of elements but dynamic, heterogeneous and hierarchically organised systems. Therefore the positions within them are hierarchically differentiated (being dominant or subordinate, central or peripheral) and systemically related (relations of conflict or compatibility). Fran Elejabarrieta (1994, 248) states: "If an individual or a group takes up one social position it is because there exists another one towards which this positioning is directed and to which it refers." Taking a position implies entering into certain relationships — domination, opposition, alliance, attraction, repulsion — with other positions.

The objective configuration of positions in the social and collective representational field is relatively stable. Much more flexible is subjective positioning in the personal symbolic field.

### **The Subjective Point of View: Personal Positioning**

The ability to change positions in the personal symbolic field is uniquely human. With the help of semiotic means, a subject can distance him or herself from any immediate situation and position him or herself deliberately in the semiotic field. Culture is used as a 'psychological distancing device' by the individual (Valsiner 2000). It is a device that enables one to choose one's point of view and determine inner distance from the immediate situation (to be immersed within it, or distanced from it). In contrast to fixed social positions and roles, personal positions are dynamic and flexible.

Jaan Valsiner (1998) describes the phenomenon of dependent independence (or bounded indeterminacy) in which a person, confronting a system of external constraints, afforded by the social meta-system, is relatively free to construct his or her own meaning system and strategies of action. The external system of semiotic resources consists of general guiding principles that channel and constrain the range of individual choices (variability). Socio-cultural constraints provide general principles that organise individual cognition and behaviour. A person in a real situation, being supported by these general semiotic tools, constructs his or her own system of meaning. Semiotic freedom manifests itself here in (1) a person combining various social suggestions in a unique way, and in (2) a person self-distancing from social suggestions. By recombining culturally provided semiotic tools, an individual constructs his or her own system of regulations with which to solve specific tasks moment by moment, and with which to adapt to the future.

Personal positioning may be understood as freedom and duty: The translation of macrosocial influence (general meanings, social suggestions) into the concrete situations, activities and tasks, with which an

individual is engaged, and the coordination of macro- and micro-levels. Taking a position means establishing some relationship with the representational whole and other elements within it.

Even occupying a fixed role position, a person has freedom to modify his or her inner personal position (for example, reification or subjectivisation of a natural object), to express different modalities, styles or genres of representation (for example, serious or humorous).

Mikhail Bakhtin (1986) has described the flexibility of personal positioning: A subject may have monological relations with people as reified objects and dialogical relations with personalised 'natural world' subjects like trees or animals. It is the whole through which elements gain their meaning and sense. Changing an entire representational field will transform the meaning of particular representations.

Subjective movement in the symbolic field, change of I-positions, leads to change of meanings, point of view, for example, adopting the viewpoint of an actor or an observer. By adopting other positions and viewpoints reflective abilities can be developed (Gillespie 2006). Individuals can modify their positions in relation to sociocultural context along two axes (1) between being 'in' or 'out' of the situation, or (2) playing different roles, realising different modalities, relying on different representations. One may also choose to be regulated by another representational field; for example, an artistic or playful context. There is a potentially limitless number of semiotic contexts, each of which has specific affordances, obstacles and opportunities for the agent, and each of which provides tools for self-regulation and the construction of meaning. Any indeterminacy of subjective positioning requires interpretative efforts from external observers or partners of interaction.

## **Heterogeneity of Meaning Fields**

Human semiotic activity (at cultural, group, and individual levels) can potentially produce an infinitive variety of meaning systems. The contemporary meaningful world is heterogeneous and polyphonic: Various representations and rationalities from different cultural and historical contexts — competing and even contradictory versions of reality — co-exist and interact with each other. Moscovici (1998) uses the term 'cognitive polyphasia' to denote various forms of thinking and speaking about the same phenomena. Depending on the task or activity, a member of society can use different social representations of the same object (for example, nature).

Various forms of knowledge may live side by side in the same individual or group. Heterogeneity of meaning fields can be described along different lines observing the co-existences of

- old and new meaning complexes (traditional, modern and post modern);
- meaning complexes that are related to different spheres of activity (for example, pragmatic, symbolic, scientific, aesthetic, recreational, spiritual, ethical, emotional, aspects of meaning);
- different modalities in relation to the world (for example, communicative genres in Bakhtin's sense);
- different levels of reflexivity (for example, experiential, conceptual);
- various expressions of meaning (behavioural, discursive, symbolic).

The representational diversity described above implies the diversity of possible positions in social and cultural fields. Distinguishing social and personal positions reflects not only different degrees of constancy but also different mechanisms of positioning. Most stable and inflexible are socio-political positions (class, ethnicity, gender, and other stable social identities), more transient and ephemeral are discursive positions (distribution of mutual roles in dialogue). Potentially the most flexible are personal positions (inner play of the what-if game, for example I as actor versus I as observer). Macrosocial systemic determinants are more important in social positioning, individual semiotic activity is crucial in personal positioning.

Mechanisms of personal positioning are elaborated in the theory of a dialogical self, described as 'a dynamic multiplicity of I-positions in the landscape of mind' (Hermans 2001; 2002). Self and culture are described as united diversity, consisting of a multiplicity of positions that interact mutually.

Peter Raggatt (2007) has made an attempt to classify the positionings in the dialogical self. He distinguishes between (1) personal positioning, expressed by personified roles (for example, hero versus villain, happy self versus sad self), and (2) social positioning, which may be discursive (positioning within dialogue), institutional (family, work roles), or sociopolitical (class, ethnic, gender categories). Each position in the objective sociocultural space or subjective landscape of mind provides a specific view of that space (Bourdieu 1990); each position affords a unique perspective to a subject (Bakhtin 1986) providing the person with different sets of cultural resources.

## Synthesis: Levels of Meaning

Teun van Dijk (1998) identifies three main structural levels of a social representation. These are (1) the cultural level, common to a particular culture, (2) the ideological level, which is specific to particular groups, and (3) the level of individual experience. The cultural level is determined by macro-level structural determinants, the group level is influenced by group interests and inter-group relations, and the individual level reflects the personal experiences and strategies of an individual agent. This is a hierarchically organised system where the higher level provides regulative principles for the levels below, and the lower levels produce variety within the higher levels.

Based on the previous analysis of positioning in objective (Bourdieu's 'social field', or the 'representational field' in the theory of social representations) and subjective fields ('personal cultural field' in sociocultural psychology), I propose a hierarchical model of regulative processes realised through positioning. The model presupposes three levels of regulation and positioning:

1. The socio-cultural regulatory system: consensually shared symbolic resources (symbolic coordinates) and social suggestions produced by the socio-cultural macrosystem;
2. The group level regulatory system: group-specific positioning in the collective representational field;
3. The individual level regulatory system: personal semiotic activity, subjective meaning-making in particular activity settings and during one's lifetime.

Accordingly we can separate three levels of meaning. (1) Cultural meanings (consensual beliefs shared by an entire cultural group), which are relatively stable and formed in the course of history, for example, myths, fairytales, and legends related to nature; (2) Group-specific meanings related to group identity and to self-differentiation from other groups, for example, holy places in forests for pagan nature believers but not for Christians; beliefs about forest as a symbol of Estonian nationhood, or Estonians' special closeness to nature, which separates them from other nations; a 'green' mentality as characteristic to certain subgroups, naturerelated family traditions, the predominance of aesthetic meaning in nature for artists and photographers; (3) System or individual (subjective) meanings that are unique in each individual and context specific. Such differentiation of various regulatory levels is important for the analysis of the formation and transformation of meaning, which may proceed spontaneously in the course of socio-cultural change, or deliberately in, for example, education, ('green') propaganda, individual

therapy. There are different levels and means for the social construction of nature.

## **Different Levels of the Meaning of Nature**

At the most general (cultural) level we can differentiate between different historical layers of meaning. For example, archaic animistic beliefs about holy places in the forest, perception of the forest as the living environment by hunter-gatherers; the opposition between forest and home typical of agrarian societies; the opposition between forest (country-side) and city typical of industrial societies; modern rationalistic beliefs justifying the exploitation of natural resources; romantic nature beliefs and idealisation of the forest originating in the nineteenth century; and ideas of environmental ethics and sustainable development which began to spread in the twentieth century. All these historical layers may be found today in the cultural meanings of nature.

Two national surveys (2002, 2006) were conducted by the Environmental Psychology Research Unit at Tallinn University. The sample (ca 1000 respondents) represents the population of Estonia by age, gender, ethnic and territorial distribution. Multi-item measures of environmental awareness were grouped into the following blocks: attitudes and beliefs about the natural environment (including emotional involvement with nature, perceived restorative qualities of forest, values of nature); attitudes and beliefs concerning environmental protection issues (such as environmental concern); and attitudes of environmentally responsible activities (including behaviour intentions, perceived social norm, knowledge of environmental consequences, self-reported habitual behaviour). In addition, sets of psychological measures were used (Raudsepp 2005; Raudsepp & Heidmets 2005).

On the one hand, representations of forest originating from different historical periods and cultural contexts co-exist side by side. A person may hold both animistic beliefs and have a scientific worldview. On the other hand, varieties of meanings of nature are related to different personal positions in society and to peoples' varied needs and activities as they relate to nature. Today people have freedom to choose between different aspects of meaning, for example, either to perceive the forest as spiritual and to relate to forest inhabitants respectfully as people; or to perceive the forest as an ecosystem from a scientific perspective; or to approach the forest from a social or economic perspective (as a common resource or activity setting for different interest groups). Different viewpoints may also exist in isolation (for example, there are no forest fairies in the world of the natural scientist) or, simultaneously, combined with others in various ways.

In addition, in a 1996 survey, the organising principles of general ecological beliefs, as well as positionings within them, were studied (Raudsepp 2001). The data enabled the determination of four dimensions in attitudes towards nature, labelled as utilitarian, pro-nature, ecocentric, and radical. The last three represent different levels of commitment to environmentalism: A superficial and abstract pro-environmental position; a more nature-oriented position explicitly antagonistic to the utilitarian attitude to nature; and a position that allows radical claims about the necessity to subordinate human interests to the intrinsic interests of nature. The theoretically possible diversity of environmental beliefs (or visions of the world) was simplified into distinct meaning complexes including (1) a general pro-nature orientation reflecting the conventional environmental friendliness associated with a variety of arguments (health, beauty, the spirituality of nature, the interests of future generations); (2) a more radical pro-nature orientation that prioritises nature's interests and opposes economic growth, and (3) general pro-growth orientation reflecting utilitarian and pragmatic attitude towards nature (taking it to be a resource) without ideologically based constraints. The results indicated that the grand opposition between the idealistic and pragmatic orientations towards nature, as well as between conventional and radical forms of environmentalism, were valid in the Estonian context.

The positions on these main dimensions were set by age, gender and level of education. General environmental friendliness is more characteristic of older respondents and women. Less educated respondents and men tend to hold pragmatic and anthropocentric beliefs concerning human–environment relationships, reflecting the dominant social paradigm. An ambivalent type of environmentalism uniting contradictory beliefs, such as technological optimism, supporting the growth of consumption, and, at the same time, expressing environmental concern, is more common among younger and better educated respondents. An ambivalent structure of beliefs expressed in simultaneous approval of statements such as “economic growth is damaging to the environment” and “growth is desirable for other reasons” reflects one of the basic cultural rifts of our time.

The empirical typology of environmental belief systems showed that a distinction between these main dimensions could take different forms among older and younger people. Among the first, the opposition was formed between an idealistic pro-environmentalism and a pragmatic attitude to nature while the majority of the latter can be described either as radical ecologists, or as holding relatively indifferent (ambivalent) attitudes towards the environment.



However, the results did not reveal consistent relationships between environmental belief types and particular social identities: General environmental beliefs had a diffused character and tended to be dispersed among all social categories. This finding was in accordance with observations made in Western Europe of a disappearance of a distinct demographic group that promotes the cause of environmentalism exclusively. It might be concluded that at this general level environmental beliefs seemed to be irrelevant in group-related goals and they were not used for self-definition within social space.

The group level in meaning production and maintenance was evident in specific activity based groups, such as forest owners, or forestry professionals; or identity based groups, such as urban dwellers, age, or ethnic groups. Stereotypical beliefs about certain groups' relationships with nature pertain to this level of analysis. Group stereotypes as they relate to the closeness to nature of different ethnic groups were also examined. A widely held belief was that Estonians were more environmentally sensitive than non-Estonians since they had settled permanently for thousands of years, they were firmly rooted at this particular location and attached to it (in contrast to migrant non-Estonians' transience). Another frequently used argument referred to the claim that Estonians have an inherent 'forest-people' mentality expressed best in the statement "they are able to understand nature and live in harmony with the environment"; again, as opposed to the 'steppe-inhabitant' mentality of the Russians who were seen to experience our nature as strange. On the other hand, the Russians were seen as more environmentally sensitive since as recent migrants they had rural backgrounds and therefore preserved direct contacts with nature, for example, picking berries and mushrooms. Another line of reasoning departs from the argument that, as many non-Estonians live in severely polluted areas, they experience environmental problems more directly and therefore are more environmentally sensitive. Finally, the view that no differences in the environmental sensitivity of Estonians and Russians were evident was also expressed. Several 'holomorphic representations' were thus observed (Wagner & Hayes 2005). These position other groups differently along the coordinate of closeness to, or distance from, nature.

On the individual level all available symbolic resources originating from the cultural and group levels have been synthesised and recombined on the basis of personal experience and intention. Such synthesis could be observed in an interview study with environmental experts conducted in 2004. The table presents some examples of the hierarchical organisation of individual meaning complexes as found in this study (Raudsepp 2005).

	MAIN GUIDING IDEA	IMPLICATIONS OF ENVIRONMENTAL PROBLEMS	LOCAL SPECIFICITY	ARGUMENTS RELATED TO PES	SELF-REPORTED PEB
1	God, universal harmony (natural, cultural and spiritual environment)	Stewardship, eco-revolution, individual responsibility	Necessity of overcoming individual temptation	Necessity of examples	Congruence: committed PEB
2	God	Fatalism, inevitable catastrophe	Scepticism about general solutions	Individual efforts for the sake of one's family; PEB more important than PEA	Congruence with own definition: committed PEB plus subjective ambivalence
3	A. Schweitzer: reverence of life	Universal respect	Necessity of value change on the level of culture and opportunities provided by the state	Necessity of examples; PEA as important as PEB	Congruence: committed PEB (providing eco-friendly products)
4	Sustainable development	State regulation, societal change		Depending on conditions; either PEA or PEB more important	Congruence: committed PEB
5	Natural science: universal interdependence, causal chains	Need for balance; institutional and individual responsibility; technological optimism	Radical reduction of consumption	PEA and PEB may well be separated	Conflict: insufficient PEB, discrepancy between knowledge and behaviour
6	Natural science	Technological optimism	Awareness Lifestyle change Supportive infrastructure	PEA as important as PEB	Congruence: Moderate PEB
7	Closeness to nature, emotional ties with nature	Restore proper relations with the nature, redefine the concept of quality of life	Preserve traditional closeness to nature	PEB and contact with nature are important	Congruence: committed PEB (providing alternative activities, nature experiences)
8	Social harmony	Societal change	Cultural and state support to PEB	PEA should automatically lead to PEB	Moderate PEB
9	Natural science	Scepticism and pessimism in relation to society	No good models for overcoming consumerism	PEA as important as PEB, unity of words and deeds	Conflict (I eat my words)

*PEP – pro-environmental lifestyle, PEB – pro-environmental behaviour  
PEA – pro-environmental attitudes*

*1 – male teacher, 2 – female teacher, 3 – male businessman, 4 – female official,  
5, 6, 7 – male specialist, 8 – male journalist, 9 – male official*

A particular general idea (located in the available cultural field) is applied in particular local contexts and personal life situations. A variety of general guiding principles or values (the necessity of universal harmony, submission to the will of God, reverence for life) were used to make sense of environmental problems and their implications, both at global and local scales. Individual and group-specific life context provided opportunities and barriers for the realisation of an environmentally friendly way of life. The resulting conflict between a personal system of environmental representations and an actual system of everyday practices might trigger additional semiotic activity in order to explain and justify this incongruity.

## Conclusion

The concept of positioning is useful when describing intrinsic diversity and explaining the dynamics of the self and sociocultural systems. Theoretical debates concerning the processes of positioning, coordination of diversity (the polyphony of voices), dialogic relations between different positions are lively in sociocultural psychology today. In this article the symbolic positioning was described as an objectivist view, an ecosystemic description of the organising principles and interrelations between different positions; and as a subjectivist view of agents who create their own semiotic *Umwelt* by active positioning.

The advantages of the proposed models and of using spatial metaphors contribute to thinking relationally, in systems of relationships between the different layers of reality. The concept of positioning enables us to describe and analyse various phenomena at different levels in terms of the whole and of the relationships within. This helps us to unite objective (naturalistic, external) and subjective (phenomenological, internal) points of view. One of the methodological implications arising from the proposed framework is that the positions can be understood in particular context; the whole field (either in the objectivist or subjective sense) has to be reconstructed with all positions and their interrelations. In terms of biographical research this means that the I-positions of a respondent can be understood in the context of the whole repertoire of his or her diachronic I-positions (over one lifetime) and the structure of synchronic I-positions in the present cultural field. Investigation of positioning, either on the objective level or in the subjective sense, has to be reconstructive and interpretative.

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# MAPPING HUMAN IMPACT – EXPANDING HORIZONS INTERDISCIPLINARY INTEGRATION

**Morten Tønnessen**

This paper<sup>1</sup> deals with the question of how we can map the impact that humankind is having on (or rather in) ecosystems worldwide. Can it be measured? Do global, aggregate measures of sustainability make any sense? How are we to interpret quantitative environmental data in a qualitative manner? After all, empirical evidence only has a function — indeed, only *makes sense* — when it is adequately contextualised and understood. These questions are too grand to be answered satisfactorily within the framework of this short text, but if nothing else, approaches to dealing with them will be outlined.

The premise is that in order to understand the natural world, we should start out by grasping what makes sense to the living (and in living systems). The result is a pluralist, phenomenologically oriented outlook informed by biosemiotics. Deep ecologist Arne Næss (1985) stressed the need to develop one's 'ecological self' through identification with others. The end goal of the larger work of which this paper is but a minute part, is to achieve a scholarly understanding of the ways in which the living (here, humans) are constituted by the relationships in which they take part. It would be an illusion to think that such an undertaking — or indeed any undertaking in the realm of the living — can be wholly descriptive (lest it be perspectivist, and the reader fully empathic yet perfectly neutral). Both the ecological footprint notion and my own idea of ontological maps — two approaches to mapping human impact — are normatively laden, each in its own way, and I will return to this in due course.

The basic motion in this text is that from self to world. The self, I will assume, is ultimately the stuff of which the natural world is made. The way our human selves practically branch off into the world of others can be represented figuratively, based, in short, on qualitative

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analysis of aggregate numerical environmental data, with Uexküllian terminology at the base (Uexküll 1928; 1940).

I feel compelled to remark, at the outset of this article, that the terms qualitative and quantitative are admittedly of so wide-ranging usage that to review their sheer denotations within the Earth and life sciences would require an article of its own. Thus, this disclaimer: In the current work, I do not intend to address the quantitative revolution in geography, or any related or unrelated topic, except what I address explicitly herein. What I will be addressing — in a particular sense — is maps and the act of mapping. From an overall perspective, however, it should be noted that:

Cognitive mapping is engaged in *all* semiotisation of the environs beginning from the formation of the *Umwelt* on the biological level to the presentation of ‘cultivated understanding’ of the world (Randviir 2004, 7; emphasis added).

Science is indeed a second-order mapping of the world. To the extent I do find it worthwhile here to ponder upon matters of the qualitative and the quantitative — such an ostentatious and impossible theme — it is, for one thing, because quantification is something of an arch enemy for radical environmentalism (deep ecology). It can be seen as a near synonym for an ‘instrumental attitude to nature’ and yet it may be its Achilles heel. Quantification is potentially problematic for environmentalism because it entails systematic, reductive objectification with reference to human measuring systems and is the main ‘method’ for the absorption of organic, living nature into a pre-defined mechanical world. On the other hand, quantification is inescapable for any culture aspiring to the status of civilisation. What really matters is how quantification is made use of, and for what purposes. In our society, quantification is so ingrained in our technological systems that many radical environmentalists have developed allergies to the very mention of it, as well as to any mention of economy. However, unless environmentalists develop a proper understanding of these ‘despicable’ phenomena, they are unlikely to have a say in how these civilisation-building, nature-wrecking features develop.

I would like to recall phenomenologist Maurice Merleau-Ponty's dictum (1962, viii–ix) that, “We must begin by reawakening the basic experience of the world, of which science is the second-order expression”. As the reader might see throughout this paper, my approach is inspired by the work of Merleau-Ponty (1908–1961) in that it dwells with experience as the starting and end points for scientific investigation. While Merleau-

Ponty disclosed the human body as the subject of awareness, German-Baltic biologist Jakob Uexküll (1864–1944) had already done the same and further extended the usage of the term ‘phenomenal world’ (*Umwelt*) to all living creatures (Uexküll 1928; 1940). According to Uexküll’s outlook, the organism and its relevant surroundings (its environment in an experiential sense) are not separate entities, rather, the *Umwelt* is part of the animal. Biological studies, therefore, should be carried out with an emphasis on the experienced world of the organism, which can be reconstructed based on studies of its behaviour and its physical make-up. Uexküll’s *Umwelt* theory ultimately brings about a relational notion of nature. What we call ‘nature’, he claimed, is a totality consisting of the various *Umwelten* and their planful interrelations (Uexküll 1928).

The phenomenal world at large, then — nature considered as the totality of all the life worlds of all that lives on this planet we call Earth — mirrors the biosphere understood as the sphere of the living in a more material sense. This is the starting point for the perspective I will pursue throughout this paper: Man’s place in nature will methodically be rephrased as ‘humankind’s place in the phenomenal world at large’. What matters in this reconfiguration of the natural world is, to put it simply, what matters to the living themselves. Uexküll’s *Umwelt* theory can be complicated by mentioning that for organisms other than animals, such as plants and fungi — to speak only of us multicellulars —, there might not be *Umwelten* and hence no functional cycles (in Uexküll’s terms) connecting organism and environment, but rather a kind of dwelling place. In their life worlds, there are no *Umwelt* objects, no meaning carriers, only meaning factors, such as wind, humidity, and temperature. Naturally, these meaning factors appear in our human life world as well. The decisive point is that wherever there is life, there is meaning (for someone, something that lives). In my interpretation, whoever is alive, is the subject of a phenomenal world; that is, a life world within which one navigates by way of meaning (significance, functional tone and affordance).

## Qualities and Quantities

The principles on which this text is based unavoidably compel us to consider, however superficially, the practicability of an investigation into the qualities (or *qualia*) of experience and into the organisation of subjective states per se as highlighted by Kalevi Kull, Claus Emmeche, and Donald Favareau (2008). In *Biosemiotic questions* they argue,



One [...] major question — i.e., ‘How does the world in which any individual organism finds itself appear to that organism?’ — has been often perceived as inaccessible to scientific investigation and has therefore been left unresolved by reductionist biology. But in our opinion, scientific knowledge of other species’ phenomenological experience need not be seen as any more a priori inaccessible than any other of science’s previously ‘unsolvable mysteries.’

For while it is trivially true that we do not have a direct access to other organisms’ (or even other human beings’) phenomenological experience, it is important to take note that scientific knowledge is always ‘indirect’ in some sense (Kull et al 2008, 44).

The indirectness of the scientific enterprise is related to its status as a third-person perspective, as opposed to the first- and second-person perspective of the experienced world. Detachment, it appears, is the price of objectivity. What matters a great deal, however, is what aspects of reality we depict from a third-person perspective: Are those aspects that we choose to focus on themselves objective (third-person), subjective (first-person), or social (second-person) features? In another context, Kull has emphasised that paying less attention to mathematics in biological methodology is part of the biosemiotic turn (Magnus & Tønnessen 2010). Biological reality, in other words, should be remodelled, rather than measured, based on how the living themselves generate models of their reality.

Surely, many quantitative approaches in the life sciences tend to be reductionist in dismissing all data that do not match the chosen parameters. Many of these also tend to look for numerical correlations only, and thus end up dismissing a number of varieties of causation based on more approximate logics, including what can be referred to as semiotic causation. As Kull et al write, the life sciences should get rid of “a self-defeating metaphysics wherein only the dyadism of brute physical interactions [...] are taken as explanatorily exhaustive of what is ‘real’” (Kull et al 2008, 51). Experience, cognition, feelings and the like *can* only be explained (as meaningful phenomena) if we allow for something akin to semiotic causation, operating at different levels of biological integration wherein we observe emergent qualitative novelties. To be more concrete, let me propose that semiotic causation can be taken to apply to life processes in which developments are directed (and restrained) by (1) recognition, (2) categorisation, (3) contextualised interpretation, and (4) subsequent action (attempted re-categorisation) with regard to the perceived object of a living subject.

While those approaches that are often called reductionist by opponents may be dismissive of certain aspects of reality, several traditions on the qualitative side of the coin — that of Jakob Uexküll's *Umwelt* theory, for one — likewise tend to neglect informative data simply on the grounds that they do not match their defined methodology. Qualitative approaches, too, can be reductionist. In Uexküll's case, this is particularly clear in his preference for an 'ahistorical biology'. In our time of rapid environmental change, neglecting the historical dimension of the life processes is both counterintuitive and counterproductive. I have criticised the ahistoricity of the *Umwelt* theory and introduced the concept of '*Umwelt* transitions', a Uexküllian notion of environmental change, elsewhere (Tønnessen 2009). What is needed is an interdisciplinary methodology capable in principle (if not in practice) of taking in the whole width of empirical findings.<sup>2</sup>

Needless to say, priorities have to be made within any methodological framework. My point is that a methodology that is too biased on the qualitative side is just as restricted as one which is excessively biased towards being quantitative. Kull et al (2008, 44) define biosemiotics as "the study of qualitative diversity found in and by living systems". That it may certainly be, but note that the definition could not, strictly speaking, have been rephrased to read "the qualitative study of living systems", unless, that is, qualitative and quantitative were applied only as loose, characterising terms. It should be pointed out that the authors explicitly view the semiotic and the reductionist/physicalist approach to biology not as alternatives but as complementary, approaches. Even the most quantitative study has to encompass at least some qualities (represented as objects) in order to be comprehensible at all. On the other hand, a qualitative study without any underlying quantitative measures implied would be unlikely to offer much systematic knowledge about history (development(s), evolution), or even about the complexity of nature. However we choose to represent nature in scientific terms, we should bear in mind the inescapable danger of reducing complex objects to "the totality of the simple", to borrow a phrase from Juri Lotman (2005, 206).

In the remaining sections, I will evaluate the (mainly quantitative) notion of ecological footprints and my own (mainly qualitative) concept of ontological niches, develop a variety of ontological maps — figurative representations of socio-ecological relations — and enquire into how numerical data can be interpreted qualitatively. While the ontological maps may serve as simplified illustrations of ontological niches, thus adding both colour and substance to the proposed conceptual innovation, the concluding section on qualifying quantitative data treats a

more general problem which is of concern to scholars of most fields and lies at the heart of this whole disposition.

## **Ecological Footprint and Ontological Niche**

In what follows I am going to discuss the merits and shortcomings of two methodologies, the concepts of ecological footprint and the human ontological niche, with respect to how either of these can be applied as tools in mapping human impact in nature.

I will start by examining the concept of the ecological niche. First introduced in 1992 (Rees 1992; Wackernagel & Rees 1996), it is now being used by the World Wide Fund for Nature (WWF) in its annual *Living Planet Report* and developed methodologically by the Global Footprint Network (GFN). The latter derive many of their calculations from international data sets published by the Food and Agriculture Organisation (FAO) of the United Nations, the International Energy Agency (IEA), the United Nations Statistics Division (UNSD) and the Intergovernmental Panel on Climate Change (IPCC). Claimed to be a tool that makes sustainability measurable, the notion condenses a complex array of consumption data down to a single number.

The developers of the ecological footprint stress that it includes only those aspects of resource consumption and waste production for which the Earth has regenerative capacity. What it does, is convert consumption into the land used in production, along with the land theoretically needed to sequester the greenhouse gases produced. By dividing humanity's ecological footprint (currently 2.7 global hectares per person) by world biocapacity, which is (often) modelled as being constant, we arrive at the conclusion that humanity as a whole has been unsustainable (accumulating ecological debt) since the late 1980s. When the footprint of a country does not surpass its biocapacity, it is said to be sustainable. As we can see in WWF figures, global biocapacity is modelled as being potentially decreasing (in case of sustained or accumulated ecological overshoot) or increasing (in case of proper management).

The ecological footprint model has several limitations, not least the fact that there are many environmental problems it cannot represent. It further says little or nothing about the intensity of land use. From an ethical point of view, it is biased toward anthropocentrism in assuming that sustainability entails that humanity can exploit the Earth's biocapacity fully. It is also anthropocentric from a methodological point of view, since it represents human consumption and ecosystem services only, both being solely human interests. As Nathan Fiala (2008, 519) remarks, "Better measures of sustainability would address [environ-

mental issues] directly." The simplicity of the ecological footprint is not only its greatest advantage but also its greatest disadvantage.

One could also question the feasibility of integrating measures like the ecological footprint concept into national accounts, which many favour doing. By naming the calculations at the national level National Footprint Accounts, GFN gives the impression that the ecological footprint concept can be an element in a green measure of a country's Gross Domestic Product (GDP). Calculating three apples plus two oranges, however, is hard enough: US\$1000 minus one forest devastated by firewood consumption is immensely more intricate. We may very well be better off concluding that the benefits of ecosystem services and goods, in terms of market economy, do not have a common denominator. The danger lies in reducing flows of life to economic goods with a market value determined by market forces. In the emerging field of climate economics, this tendency is all too evident. It is an objectifying, commodifying strain of thought. That said, there is no doubt that GDP as a measure is under constant revision, and rightly so.

In its proper context, the ecological footprint concept is incredibly valuable. To be able to express how many planet Earths we would need to keep up with current consumption does indeed have a rhetorical value, and an informational value, at that. As a gross measure of sustainability, however, it is incomplete and, further, ethically biased. The ecological footprint measure should not be taken to sum up the status of the environment, nor be sanctioned to dominate as a measure of where we are heading in ecological terms. Interestingly, the WWF balances the use of the ecological footprint notion with a measure of the status of selected, somewhat representative, wildlife populations worldwide.

The 'ontological niche' (Tønnessen 2009), a notion derived from von Uexküll's *Umwelt* concept, can be defined as the set (or whole) of ecological relations (or contrapuntal relations, be they somatic, social, or ecological) a being or life form partakes in at a certain point in natural history. Figuratively, ontological niches would best be represented not as separate slices, but rather as overlapping phenomenal fields where the phenomenal field of any one being overlaps with the fields of all other beings and other *Umwelt* objects with whom and with which it is interacting. Such a figure, or ontological map, would depict the being in its phenomenal relations. It would portray the being as a creature with a specific phenomenal world where a certain selection of other beings and objects are involved.

The human ontological niche concept, then, is designed in order to display the ecological relations in which humanity partakes. Because its biggest advantage is its specificity (which is of qualitative rather

than quantitative character), it is suited to account for variety within and across ecosystems. It further allows for disparate ethical assumptions. The pluralist character of *Umwelt* theory enables an *Umwelt* ethics (Tønnessen 2003) to establish that the different ways in which the world is, and in which the world is looked upon, are to be ascribed value. A derived ethical imperative is that the human ontological niche should not dominate (too much) at the expense of the 'area occupied in the phenomenal world at large' of other creatures.

While the sole threshold of the ecological footprint model is the usage of resources comparable to one Earth's biocapacity, the ontological niche model allows for different positions relative not only to what might be called our fair share of nature, but also as to the ethical legitimacy of the ecological relations in which we engage. In other words, it allows for disparate views on our current management of wildlife, of livestock and of crop species, and so on, rather than choosing bio-productivity (or more precisely, the human utility of current and future bio-productivity) as the sole criterion for sustainability.

In terms of methodology, it is significant that the ontological niche concept is not only potentially specific, and thus telling, but furthermore flexible with regard to the delimitation of the being or life form at hand. This creature can be anything from an individual, that is, an organism, to a population of individuals, to a species or subspecies. The limitation of the notion mirrors its strength and proper usage: As an interpersonal, subjective, notion it cannot be objective in the same way as the more abstract, detached ecological footprint concept can. It should further be noted that a time series with several snapshots of the anthropological–ecological situation at different points in time have to be applied in order to make the human ontological niche notion suitable to represent the *development* of terrestrial biodiversity.

As we have seen, the two methodologies, or notions, are fundamentally different, and can thus not be compared one by one. While the ecological footprint approach tends to focus on biomass (natural creatures qua resources), an ontological niche approach tends to focus on individuals/subjects, wherever there are individuals. In conclusion, the two notions are both of use and value. The ontological niche concept may represent a constructive and indispensable complement to the ecological footprint concept in modelling human impact in ecosystems.

## The Development of Ontological Maps

Imagine that we would now endeavour to model selected global environmental data in order to illustrate how the human ontological niche concept can be applied as a modelling tool scrutinising human impact in nature. The basic problem is this: How can we model human impact in nature — a crude, aggregate measure — based on a theory of the phenomenological experiences of (more or less) individual creatures, be they human or non-human?

There are various ways of illustrating quantitative data, for example, of the global populations of cattle and buffaloes, small ruminants, camels, horses, pigs, poultry, sheep, and goats figuratively. (For real-life data, see FAO 2006.) One would be to plot symbols of all these categories on a logarithmic scale, counted in millions. How could we represent these global data in qualitative terms? An ontological map of the same data could, if the human species were in focus (if *its* ontological niche was to be depicted), consist of a centred circle representing humans, surrounded by circles of sizes roughly corresponding to the population levels of these other creatures. All of the livestock circles would be connected with the human circle in the middle by lines of one or more colours (or tones), signifying their functional relationship to the human species: Food, partner, enemy and/ or medium (the four main functional cycles according to Uexküll). In the case of livestock, the functional tone for food would typically dominate. Differences not only in the size of the circles but also in the thickness or brightness of lines, could serve to represent the relative importance of livestock groups and the character of our relations to them. Standards could be customised systematically.

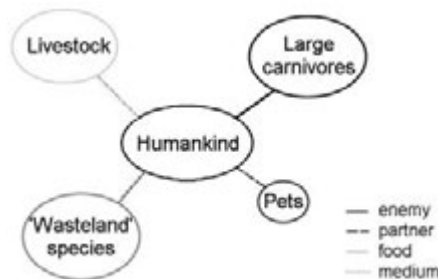


Figure 1. An ontological map of traditional relationships between humans and animals.

In more general terms, some crucial traditional features of the human ontological niche could be represented as depicted in Figure 1. (Note that a positive attitude to conservation can change the quality of our relationship to large carnivores as well as to wasteland species.)

In this section I shall present two more samples of figurative representations of complex relationships (to be exact, social/ecological relations). As with Figure 1, they are so-called cluster diagrams (diagrams representing a cluster or group of something), more specifically network diagrams (representing an interconnected group or system), even more specifically a variation of sociograms (representing a social system or network). However, first I ask the reader to envision again a figure, in this instance a figure of the functional division of the Earth in human terms. The whole surface of the Earth would here be divided into human categories (food, partner, enemy and medium) to illustrate our current ecological dominance, such as the fact that humankind is, according to the WWF and others, consuming resources surpassing our planet's biocapacity.

The next figure to imagine is a modern world map modelled on Figure 1 and depicting the author's most significant social and ecological relations. Here it should be noted that in the case of human beings there are, strictly speaking, more than four functional categories, although these four remain central. One should, furthermore, be allowed to include entities such as, for example, parks and mountains, even though these are not perceiving subjects but rather objects of experience or ecosystems, typically with the functional type of medium. Who does matter to the reader? How do they matter? And what matters? What is the medium in which the reader feels at ease?

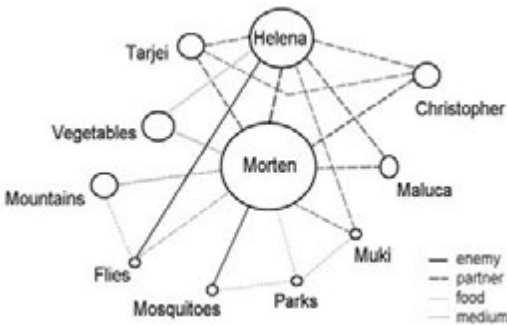
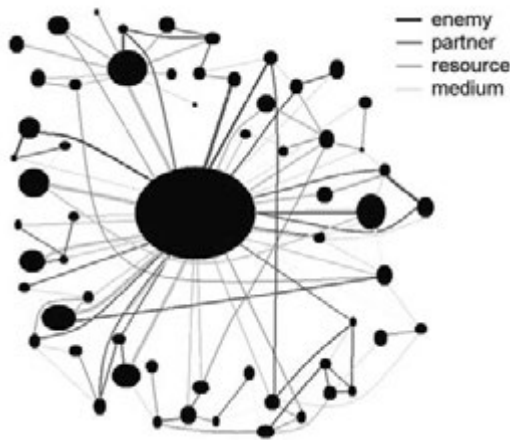


Figure 2. Ontological map of some of the author's significant relationships.

Figure 2 is a figurative representation of some of my significant others. The ontological map represented as Figure 1 is incomplete in that it has only one central node. A complex ontological map will include multiple nodes, or centres. In Figure 2, in my ecological sociogram, interrelations are also represented (for instance, we see that unlike me, Helena does not view flies favourably).

An even more complete ontological map would include not only the interrelations of the involved parties, but all the significant relations of all parties. Ultimately, we could draw a global (terrestrial) map, depicting, at our preferred (or achievable) level of resolution, all the significant ecological relations of the human species (Figure 3).



**Figure 3. Sketch of a global ontological map, centred on the human species.**

First, note in Figure 3 that the category of ‘food’ has in this configuration been replaced with the broader category of ‘resources’. Here the dominant size of the central node is meant to correspond to our present ecological dominance, as reflected in our many and major ecological relations as well as in our numbers. No life forms are named and no calculations lie at the base of this Figure, although some patterns are hinted at. For instance, many of the enemies of life forms that are useful to us (resources, partners) are also, by association, our enemies. In the same way, an enemy of one of our ecological enemies may very well, for that very reason, be our partner. In this way we see the power relations of our current anthropocentric, resource-oriented politics represented figuratively although this is but a raw sketch.



As a final point, let me stress that the ontological maps of different perceiving subjects, different life forms, are — and this is crucially important — different in their categorisation. While for a tick there are only mammals, and for a layman there are cattle and pigs, there may be both species and finer divisions (not to mention individuals) for a farmer. In consequence, viewed in context, ontological maps have to be constantly redrawn. A truly global map is necessarily an approximate abstraction as with all maps. Otherwise, such a map would be as complex as nature itself and would have lost its purpose.

A few simple comments highlighting the main salient points from the discussion above could be given as follows:

- *Relative–Absolute*: From a phenomenological point of view, everything is relative to the subjects. However, absolute numbers (the totals relative to the entire Earth system) matter too.
- *Qualitative–Quantitative*: Quantitative data must be analysed in qualitative (oversight) terms. However, qualities alone tell as little about an empirical situation as quantities alone. Volume matters and so does the quality (nature) of our ecological relations.
- *Simplifying–Re-presenting complexity*: All modelling entails simplification. What is decisive is that qualitative analysis at all steps exists to guide quantitative representations, and that alienating decontextualisation is to be avoided.

## **On Interpreting Numerical Data Qualitatively**

In simplified, general terms the dominating modern worldview can with some credibility in existentialist Gabriel Marcel's sense (Marcel 1933) be claimed to be problematic (as opposed to mystic). Nature, in short, is treated as an object with which we have an external relationship only. In this sense, the ecological footprint model, being an objectivist one, is symptomatic of modern thought. In less sympathetic versions of objectivist models, humanity is not part of the problem and environmental problems are approached, first of all, as challenges for applied sciences as problems to be solved by technical means. However, our reductionist notions “will only fit an object before which we can place ourselves, reducing ourselves, to some extent, to its measure, and reducing it to ours” (Marcel 1949, 169–170).

This leads us to the general problem of qualifying numerical data. The key to interpreting numerical data qualitatively is in translating quantitative measures to characterising, or summarising terms. What matters is not the exact numbers but the fundamental relationships and developments.<sup>3</sup>

***Step one: determining existence status***

The first step amounts to pinpointing the existence status of numerical relationships. Is the relationship within the given timeframe established, dissolved, or persistent (and if so, is it changing in character)?

***Step two: determining the character of the relationship***

The second step, which entails deciding the character of the numerical relationship, includes the important task of distinguishing between fact and fiction (numbers do not). Is the character of the relationship communicative, signification and/ or representational? Generally speaking, communicative relationships represent social or ecological hardcore reality, and signification relationships individual or first-person hardcore reality, whereas representational relationships represent abstracted or symbolic reality; the correspondence of which, with hardcore reality, must be subject to further scrutiny.

***Step three: translating numerical data into characterising terms***

The third and final step in interpreting numerical data qualitatively, as it is outlined here, consists of applying selected fundamental terms to which these data can be translated, including range, ratio, proportions; change (increasing, decreasing; max, min; top, bottom); turning point; domination, subordination (dominant or marginal factor or element); complex(ity); rule, exception; it being logical or law-like, arbitrary or conventional. Needless to say, the more particular specifications of these categories will differ from field to field. These are general guidelines only.

In conclusion, I am inclined to repeat that in the context of environmental problems, even though everything is, according to our phenomenological perspective, relative to the perceiving subjects, the Earth system is the relevant absolute (or, indeed, context) to which everything else is ultimately relative.

**Notes**

1 The current work was conducted as part of the research projects entitled The Cultural Heritage of Environmental Spaces: A Comparative Analysis between Estonia and Norway (EEA-ETF Grant EMP 54); Dynamical Zoosemiotics and Animal Representations (ETF/ESF 7 790); and Biosemiotic Models of Semiosis (ETF/ESF 8 403).

2 Something similar could be said about the various ways in which environmentalism is informed by science: By disregarding many a quantitative measure, many schools of environmentalism simply cannot fathom the importance of, say, economic growth, or the global demographic trends of the current century, which do indeed restrain, and situate, workable environmental thought (Tønnessen 2008).

3 As an example of the possibility of achieving a set of concise conclusions when dealing with long-term prognoses despite a huge span of possible future values, I have reviewed the prospects of the global (growth) economy up to AD 2300 (Tønnessen 2008).

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# WRITING THE ENVIRONMENT

## FINNISH WRITTEN NATURE NARRATIVES

**Kirsi Laurén**

Despite modernisation and technological development, humans are still dependent on nature. We are part of our environment and, likewise, the environment is part of us; we *live* our environment. However, when studying cultural relationships with nature it is important to be aware of the nature–culture dichotomy, which has long been central in Western philosophy and practice. This dichotomy has affected the ways people regard their environments. In addition, environmental studies have concentrated mainly on the field of the natural sciences. It therefore follows, at least partly, that thus far cultural points of view have been relatively hidden in the field of environmental studies. The idea of juxtaposition between humans and nature in contemporary societies is still not as widely shared cross-culturally as might be thought. There are peoples and cultures that do not externalise nature in this way (Richardson 2001; Moran 2006).

This paper presents aspects of cultural relationships with nature by using written narratives as empirical research material. It concentrates on contemporary Finnish understanding of the mire (peatland, swamp, bog) by exploring personal, experience-based environmental writing. Why should one study especially mire experiences? Finland has more mires and peatlands in relation to its land area than any other country in the world: One third of its total land area is covered with them (FFRI 2009, 35). In Finland mires and peatlands have always been utilised in various ways: People have picked berries and hunted game there, and since the beginning of farming, peatland hay provided fodder and bedding for cattle. The most visible changes in peatlands were clearance and drainage for agriculture, forestry and the peat industry. For example, approximately sixty percent of the ten-million hectare peatland was drained for forestry in the twentieth century. At the time this was interpreted as progress and improvement for the Finnish economy (Päivänen & Paavilainen 1998; Laurén 2006). Thus, it can be presumed

Laurén, K. (2011) Writing the environment: Finnish written nature narratives. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond. Approaches to Culture Theory* 1, 107–119. Tartu University Press, Tartu.

that most Finnish people have some kind of relationship with mires and many have had at least one encounter with this type of environment. It is therefore interesting to find out how Finns relate to mires today and what cultural meanings they give to them (Laurén 2006).

Contemporary attitudes and meanings given to the mire are significantly premised on cultural traditions and factors. In Western post-modern culture, the dark, still waters of mires symbolise eternity, the uncertainty of life, death and disease, the monstrous, and the melancholic. In Finnish folk tradition the mire has many negative connotations. It was believed that frost that ruined crops was seen to creep out of the lowlying mire. Diseases could be banished to the mire using spells, and the mire was also seen as a source of many illnesses. More sinisterly, fatherless children could be left in the mire (Laaksonen 2008). In old runic songs and in the Finnish national epic *Kalevala*, the mire is often a place of evil deeds and exile. The old shaman Väinämöinen, after defeating the young Joukahainen in a singing contest, exiles his rival there.

The trend of viewing mires as mythical, melancholy places connected with death continues in modern Finnish literature. However it is more common in contemporary poetry and visual arts to appreciate mires as entirely natural entities and to highlight their significance as beautiful wilderness areas. Humankind's actions in changing the mire landscape are today subject to criticism (Laurén 2008a).

The question of how cultures relate to their environments is not a black and white issue. I approach the subject representing the viewpoints of cultural research that have traditionally yielded information and knowledge about human nature. The most general way to study people in their environment is to observe them in their daily lives and ask them to talk about their personal experiences and conceptions of nature. To get new information and to collect empirical research material consisting of people's ideas, memories and ways of living has been an integral part of, for example, folkloristic and cultural anthropologic research. This kind of empirical work, relating to the human relationship with nature is important in contemporary societies because everyday life and personal pasts and experiences have a remarkable role in the process of giving meaning to different places and environments. However, individual values and attitudes are always born in a certain culture. The meanings we give to our environments are tightly bound up with the culture in which we live.

## Place in Examining Human Relationships with Nature

As a folklorist I am interested in traditions and cultural meanings represented in narratives. When researching cultural relationships with nature I have engaged with experiences through personal narratives written by Finns today. The theoretical grounding of my study is the idea that culture is public; meaning that people's thoughts and cultural meanings are manifested in public symbols (Geertz 1973). Culture means the systems of shared meanings, which the people who belong to the same community, group or nation use to help them interpret and make sense of the world. As Stuart Hall (1995; 1997) has stated, shared meanings give a sense of our own identity, who we are and where we belong. The clearest example of a public system of symbols is language. By using language, people construct and communicate meaning to one another and therefore language provides one useful model of culture. Alongside language, tradition is another system of shared meaning. Tradition can be taken to mean customary ways of doing things and connects present forms of life with the ways of life of one's ancestors. Culture is not settled, enclosed or internally coherent, rather it is a meeting point where different influences, traditions, and forces intersect (Hall 1995; 1997; Lotman 1990). Yet, tradition and modernity must not be seen as oppositional, since modernity contains traditionality (Anttonen 2005).

The study of memory is a privileged area for the examination of the link between the individual and the social. The individual relationships between people and the surrounding world are manifest in people's experiences and their memory-based representations. People usually represent their experiences and ideas by narrating orally, literally, or in various artistic ways. By narrating personal experiences and memories, people, at the same time, manifest their worldview and their culturally shared values. The study of memory and cultural representation reveals how traditions live on and are affective to today's life (Laurén 2008b).

Consequently, narratives of places, for example mires, are representations of experienced places. Like nature, place is a cultural category: we experience it because we are enculturated beings (Richardson 2001). Thus, place is an existential phenomenon, not merely a geographical object (Relph 1996). My study is based on the idea that the relationships that individuals have with other people and with the surrounding environment, are manifested in their experience-world. People's activities are to a large extent intentionally directed towards specific goals and the world we live in manifests itself as a collection of meanings. Reality is always an interpreted reality. In the phenomenological-hermeneutic

research tradition people are investigated according to the way they relate to the world. A person's relationship with the world is holistic and experience is not divided into separate mental and material aspects. Relationships with the world are based on how human beings sense and observe things and how we understand the world through our physical experience. For individuals, reality is constructed through meanings that are created within a community, and in this way meaning unites us with others (Varto 1992; Laine 2001; Lehtinen 2002; Laurén 2006). Accordingly, narrated experiences of place are representations of culture.

In answer to questions about environment, people usually talk about their homeland and home district. The visual landscapes of one's homeland described with images, metaphors and mysticism surrounding the details makes the landscape primarily a creation of culture and only thereafter a creation of nature. The endurance of inherited landscape myth and memory throughout the centuries, shapes institutions that we live with today (Schama 1996). Consequently, by investigating the cultural meanings of mires, the focus is on human representation of them. In this study, the concept of place is essential. Place is a key feature of all meaning systems. Culture does not require place, yet we imagine cultures 'placed' in landscape cultures (Hall 1995). Doreen Massey (1994; 1995) has argued that places are not static, they are processes. This can be taken to mean that places can be conceptualised in terms of social interactions, both local and those that stretch more widely over the globe. Thus, every place is a unique mixture of the relations that configure social space. Places are infused with meaning and feeling. The way people feel about places indicates the senses of place. The meanings given to a place may be so strong that they become a central part of the identity of the people experiencing them. Emotions about places can be connected to the notion of identity (Rose 1995). Therefore, when investigating the experiences and cultural meanings of mires, emotions and feelings cannot just be shrugged off. On the contrary, they are revealing. It is common that the feelings one has toward a place like home, the locus of memories and the means of gaining a livelihood, are permanent but harder to articulate (Tuan 1974). The concept of place helps us understand personal, lifelong relationships with the mire.

Another significant concept used as an instrument of interpretation is that of modalities. It expresses the way in which the writers relate to nature, revealing the values behind the text, the motivation of the actors, as well as the actors' relationships to situation and activity (Greimas 1982; Tarasti 1990). Modalities depict the relationships between narrative and narration covering a scale between necessity and

possibility. For example, the words people use to express their motivation for visiting the mire (“shall go”, “had to go”), can be telling of their attitudes.

## **Finnish Narration**

Among qualitatively oriented cultural and social sciences use of interview and observation in the discussion of theme is widespread. Today in many literary cultures it is possible and worthwhile to use people’s expressive capabilities in writing on a voluntary basis. In Finland, there is a long tradition of collecting written research material by organising thematic writing competitions and collections. The Finnish Literary Society and its Folklore Archive have long been central in this activity. These thematic writing collections are usually targeted at the general public (Pöysä & Timonen 2004; Pöysä 2009). Therefore the participants typically represent various social backgrounds and age groups. This makes the writing valuable research material as it gives voice to the people, whose perceptions have often been neglected by the dominating (historical and political) discourses. Typically the writers and their forms of writing do not follow the conventions of scholarly ethnographic writing or institutionalised literature but rather combine the conventions of biography, documentary and fiction writing. Most of the texts are written by people who are just interested in the theme in question. They are amateur writers who have been regarded as neither ‘real’ authors of ethnographic scholarly texts, nor literature, even though they may have some knowledge of these writing practices.

Writing competitions are quite easy and inexpensive to organise, and when successful they can bring forth a massive text corpus. Depending on the theme of the collection, the extent of an achieved text corpus can consist of hundreds or even thousands of texts. For a researcher, the texts are interesting because the writers usually are unrestricted by scientific conventions and write about things that are significant to them. The influence of the researcher in the collection process is minimal, whereas in an interview (or questionnaire) study the researcher is more actively involved by asking questions and thus prompting the respondent to cover particular themes, possibly neglecting others (Apo 1995). Authors are able to write their text at one sitting or divide their writing sessions into different days. However, public competitions and their prizes have an influence on what and how people write. People may, for example, practice self-censorship on sensitive issues, and in the hope of competition success, may try to fulfil the belletristic expectations of the organisers.



My research material consists of 237 written stories collected during the Mire Story writing competition, organised by the Finnish Peatland Society<sup>1</sup> and the Union of Rural Education and Culture<sup>2</sup> as a nationwide enterprise in 1998. The purpose of the competition was to get information about the informants' experiences of mires. The best stories were to be published in a book to celebrate the fiftieth anniversary of the Finnish Peatland Society in 1999. People were asked to write about their mire experiences and tell their stories in their own words, although they could also write about something they had heard, or make up a story. The call for entries was published in national newspapers, for example, the *Helsingin Sanomat*<sup>3</sup> and distributed among some amateur writers' associations. The invitation was also distributed among the Folklore Archive's respondents, about 200 people living all around Finland.

The Mire Story competition was a great success and almost a thousand texts were received. The lengths of the texts varied from one to fifteen pages (mainly typed out, some handwritten). The writers were of both sexes in varying ages between 12 and 86. The most typical writer was a woman (two-thirds of all the respondents were women), 45 to 65 years old. In this way, the competition was typical as women are generally more willing to participate in such enterprises. The writers represented various social backgrounds and were from all over the country. People without any contact or interest in mires, or who do not like to write, probably did not have any reason to send something and thus the sample is not representative of all Finns. Those who took part had something to say about the subject. The themes of the stories varied widely, including, for example, peatland agriculture, berry picking, peat harvesting, peatland forestry, hiding, children playing, hunting, bird watching, criminal offence, folklore. The stories are archived at the Joensuu Folklore Archive of the Finnish Literary Society.

The purpose of my analysis is to review the authors' viewpoints by looking beyond the texts and concentrating on the composition and the language and its semiotics. Little research had been previously conducted on this subject and therefore the study was tightly bound to the empirical data. The choice of the texts for research purposes and their analysis was based on careful questioning, conceptualisation, comparison, and datacoding using methodology described by, for instance, Anselm Strauss and Juliet Corbin (1996), as well as Kathy Charmaz (2000). The selected essays concentrate mainly on the writers' personal mire experiences. The texts reveal the writers' life-long relationships with nature, which is narrated in biographical context. Such life stories formed the largest part of the sample: 139 texts with the writers mainly being over

forty years old. Writing that mainly concentrated on the aesthetic and emotional descriptions — emotional experience stories — formed the remainder of the sample, with 98 texts, the writers being mainly under 40 years old (for more about the sample see Laurén 2006).

In the analysis, the central role was given to the Mire Story competition authors and their narratives. The historical and social context of the writers' lives and events depicted in their stories was considered. Cultural factors that had influenced the writers and their texts, for example, folklore, literature arts, need to be taken into account.

## **Finnish Mire Experiences**

I investigated peatland narratives to find the features, values, and attitudes that are characteristic of Finnish culture and which reflect the writers' personal signifying processes, identifying the ones that were mentioned repeatedly in the narratives. The main object of the investigation was discussing the writers' personal nature experiences. I now turn to the most characteristic aspects of the narratives giving some text examples (excerpts from narratives).

In my research material the writers mainly focus on their personal mire experiences, although some fictive stories and poems were also included. The time span of the stories is remarkable, from childhood to adulthood. The oldest authors often started with experiences from the 1930s, the youngest write about their relationship to the mire as experienced in the 1990s. Common narrative structures include distinctions between the past and present. Biographical context and life-long experiences are typical, due to the construction of personally important natural places being a long-term process (Massey 1995). Biographical texts give a historical perspective that helps us to understand what has happened in our environment in nearly one hundred years.

The mire plays a particularly significant role in the childhood memories of the older (over forty years old) writers, in whom it has become an important part of their identities and is attached to childhood landscapes and places. In memories situated in the countryside, mires provide the background for activity. The mire was the place where people went to do the work that was necessary on the farm, including digging ditches, extracting peat and making hay. The wet peatland swarmed with mosquitoes and these chores were usually experienced as troublesome. The mire was seen as an environment to be made into something more useful by draining and cultivating it for grain, hay or timber production. The cultural ethos of the work in mires at the time of the farming community emphasises the arduousness and

endurance required to gain a livelihood from this environment. Picking cloudberries, cranberries, lingonberries, blueberries in the mires and surrounding forests offered an important addition to the income of rural households. Hence, all family members were expected to participate including young children whose first memories of the mire were often connected with this activity. Family participation, along with some playful competition — the aim was to pick as many berries as possible — made nature a place of social interaction in the sense discussed by Doreen Massey (2008). The following is a typical story of a first mire experience:

In my childhood the only way to earn pocket money was to pick berries and sell them. In those days there was no such thing as weekly pocket money from the parents. The child benefit from the state and the income from our little dairy farm were spent on the family's everyday expenses. With the income earned from berry picking we bought clothes for the winter. In consequence, I started berry picking before I was school age.<sup>4</sup>

The mire is simultaneously well known, yet strange; a “hybrid between firm ground and open water”, as described by Ari Lehtinen (2000, 126). The mire can be seen as a kind of anomaly because it is both land and water at the same time, or, actually, strictly neither land nor water (Giblett 1996). Narratives of mire experiences therefore often contain the feeling of fear as an essential part of people's relationships with the mire. The possibility of sinking into the mire was a real threat, especially to small children and grazing cattle. The possibility of getting lost, being bitten by snakes, or meeting large carnivores in mires also raised fear.

A vigorous nature experience is also, to some extent, related to stories of fairies and dead children that are familiar from folk mythology and maintain the image of the mythical wilderness. The mire is viewed as something beautiful and mysterious but at the same time threatening. People are still in awe of the boggy peatland. The awe partly influences by the mythical images relating to the mire and, more pragmatically, by the difficult terrain and the murky water of the bog pools. For a person looking for extreme experience today, the wilderness, and the mire in particular, offers a challenge and a change of environment in which one's capabilities can be tested to the limit. Participating in a long hike or in various sporting activities in the mire, such as swamp football or volleyball, provides an experience out of the ordinary (Laurén 2006; Nikkilä & Korhonen 2008).

The closer the narratives are to the present day, the more they emphasise the aesthetic, ecological, emotional, and experiential factors. Narration becomes more poetic and the mire is experienced through different senses, especially the smells, colours, tastes, and the feeling of the boggy soil under one's feet become significant markers of the mire experience. According to these narratives, the best mire experiences are gained alone as it is then possible to fully encompass nature and experience it holistically. An example of such a narrative is as follows:

I feel as though I have arrived at the entrance to nature's paradise. My eyes are resting; I see a wide peatland as far as my eyes can travel. I stop, I listen, I look. White and plain, the marsh ledum fascinates me, its smell and beauty sensitises me — I feel so happy. Without any hurry I move on.<sup>5</sup>

In many urbanised societies people live far away from mires and forests and it is no longer necessary for them to go there for reasons of livelihood. The number of people who make their living from primary sources has decreased and the work in nature is becoming more and more specialised. Mires are thus no longer part of everyday life. Nature is today often regarded as a place for recreation, as exotic wilderness that people visit at their leisure in order to experience something different. Berry picking remains one of the main purposes for visiting mires but, in addition, people also seek emotional experiences there. The peace and silence attract people. Fear that wilderness is disappearing because of careless treatment in human hands is evident in the narratives. The writers are critical of the past and current forestry, peat extraction and agricultural practices in the mires that have damaged the environment, especially in the 1950s and 1970s when large mire areas were turned into forest. The favourite places to visit are those mires perceived as 'wild' or 'natural', about which people feel protective. Statements like this one written by a 65-year-old man — "the remaining mire areas in our country constitute our national richness. They should absolutely be reserved and not destroyed imprudently"<sup>6</sup> — characterise this pride in, and concern for, the future of the mires.

Personal narratives relate to writers' individual experiences, although at the same time, they reveal many culturally shared and often conventional aspects of people's understandings of environmental ties. Mires and peatlands are seen as important parts of Finnish nature and as expressing the Finns' cultural identity. As an example, the mire is often described metaphorically as melancholic and persistent, both features that are believed to characterise the Finnish people. Both the writers' personal and also cultural roots are described as being in the

mire and the forest, which form part of the 'home' in the sense described by Yi-Fu Tuan (2006). I can conclude based on these environmental narratives that mires have a significant place in Finnish culture, but the nature–culture dichotomy mentioned at the beginning of this paper is not commonly shared by all Finns. In spite of the fact that the majority of the Finnish people today lives in cities, many feel that nature is important for their emotional and physical well-being, and therefore they wish to make regular visits. The physical closeness, the fact that mires and forests are still easily attainable even in densely populated areas, probably has an important role in that these natural areas are not disappearing from the national consciousness. The role of the mire in the lives of Finns has changed from a place of necessary work to that of possible recreation: Mire and forest closer to home figure in everyday practices; large wilderness areas, such as national parks are important for relaxation (Laurén 2009).

Experience-based narratives are inspiring for a researcher interested in human mentality. The contents and styles of the written texts vary greatly, which makes them both interesting and at the same time challenging to study. Defining what is personal, what can be allocated to culture in more general terms and how representative of the culture these narratives are can be complicated. Although the writing competitions and collections are conducted on a nationwide basis, the submissions are voluntary and it is logical to assume that people who do not have an interest in the subject are not included. Hence the sample is not representative of all the Finns, although even with this in mind and considering the narratives sent in, it can be argued that the mire does have a role in the Finnish mind.

Environmental narratives also reveal what aspects of nature are important in a narrator's various life situations. Texts written voluntarily, prompted by a very general request only, open up opportunities to examine personal experiences and cultural meanings, which can be difficult to find with other research methods that are directed by the researcher to a greater degree. This method also includes people who prefer writing to talking. Such narratives show that the formation of personal relationships with nature is a lifelong, complex process. They also reveal more general changes in attitudes and relationships between culture and nature in time. In case of the mire in Finland, the change is from a place of hard work and physical discomfort into a site of aesthetic, sensual, as well as corporeal pleasure.

## Notes

1 The Finnish Peatland Society is a scientific society that aims to encourage the study of all aspects of peat and peatlands and to promote their sustainable use. The Society also acts as the Finnish National Committee of the International Peat Society.

2 The Union of Rural Education and Culture is a Finnish organisation providing educational and cultural services by organising exhibitions, multi-artistic cultural events, seminars and writing competitions, for its members and co-operation partners.

3 *Helsingin Sanomat* is the biggest daily independent, non-aligned subscription-based newspaper in Scandinavia, read by more than three-quarters of the residents of the Helsinki metropolitan area and a quarter of all Finns.

4 Extract from Mire Story competition entry submitted by a 38-year-old woman; my translation into English; source: JpaS 1635–1642.

5 Extract from Mire Story competition entry submitted by a 37-year-old woman; my translation into English; source: JpaS 2744–2746.

6 Extract from Mire Story competition entry submitted by a 65-year-old man; my translation into English; source: JpaA 2219–2228.

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# **LANDSCAPES AND ENVIRONMENTAL CHANGE**

# CHANGES OF ENVIRONMENT IN THE STOCKHOLM REGION PRECONDITIONS AND PERSPECTIVES

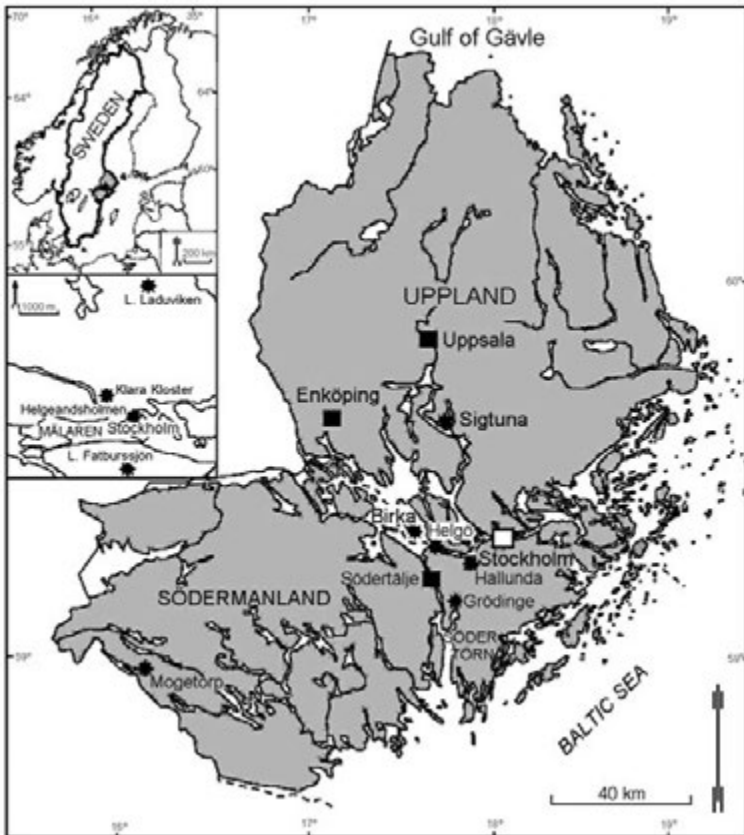
**Urve Miller, Jan Risberg, Sven Karlsson**

A well-balanced interaction between nature and culture is favourable to both (Nestmann 1974). There are changes of environment that are caused by natural forces and cannot be controlled by people (Wanner et al 2008) and others that are caused by people for the welfare of humankind and culture (Birks et al 1988; Skliris & Lascarotos 2004; Austin et al 2007). Those improvements can either be positive for cultural development (for example, dams, irrigation systems, bridges, tunnels, and power plants), or result in a negative impact, which affects nature and destroys the environment (Brown 2008). It is also believed that humans have appreciated the surrounding landscape in different ways throughout their history (Westerdahl 1992; Helskog 1999; Peil 1999; Farina et al 2005). The aim of this paper is to summarise the interaction between natural and cultural environmental changes in the Stockholm region including parts of the counties Södermanland and Uppland (Figure 1).

## **Background**

The Stockholm region has acted as a hot-spot for studies of environmental change for almost a century. Among the pioneers of such studies were Gerard De Geer (1932), Ebba Hult De Geer (1948), and Erik Granlund (1928). They applied studies of clay varve and dendrochronology, neotectonics and shore displacement combining the results with archaeological data. Sten Florin (1944) and Maj-Britt Florin (1958) developed the technique of stratigraphic studies by combining palaeoecology with archaeology. The Florins focused on vegetation changes, shore displacement, and land-use, although without access to the radiocarbon dating technique.

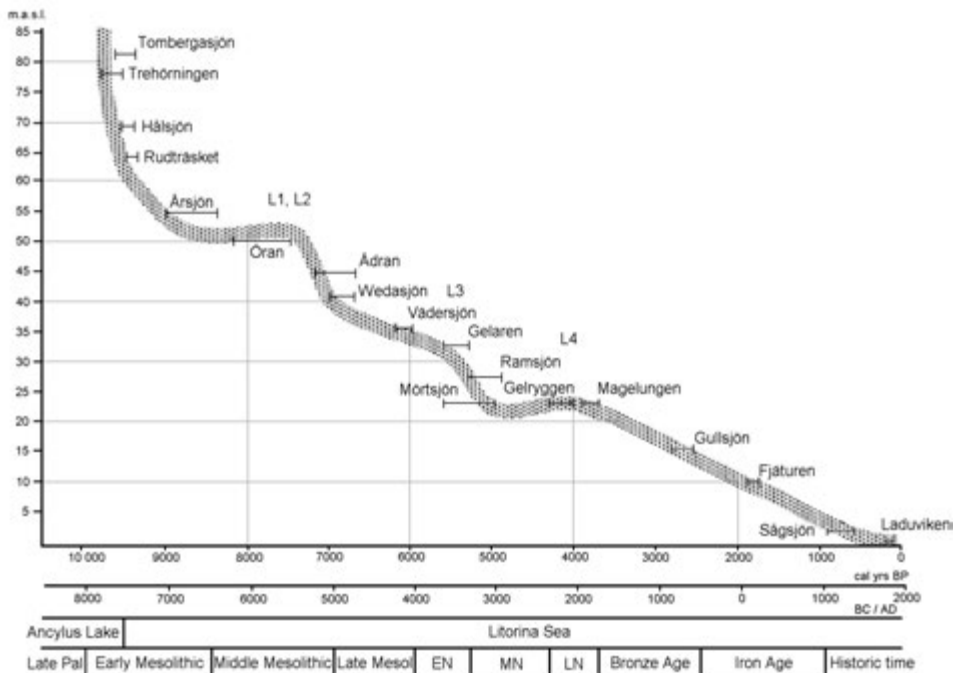
Miller, U., Risberg, J. & Karlsson, S. (2011) Changes of environment in the Stockholm region: preconditions and perspectives. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond*. *Approaches to Culture Theory* 1, 122–135. Tartu University Press, Tartu.



*The locations of sites mentioned in the text are shown  
Inset maps of central Stockholm (lower left) and  
northern Europe (upper left)*

**Figure 1. Map of the Stockholm region.**

The establishment of such a laboratory, although the technique was only applicable for large sample volumes, at the Museum of Natural History in Stockholm in the late 1950s was an initial point in the improvement of age control (Nydal 1995). The Svedberg Laboratory in the mid-1980s, and later the Ångström Laboratory at Uppsala University, were capable of analysing very small sample quantities, improving the possibilities for interdisciplinary research in environmental change (Possnert & Olsson 1984; Olsson 1991).

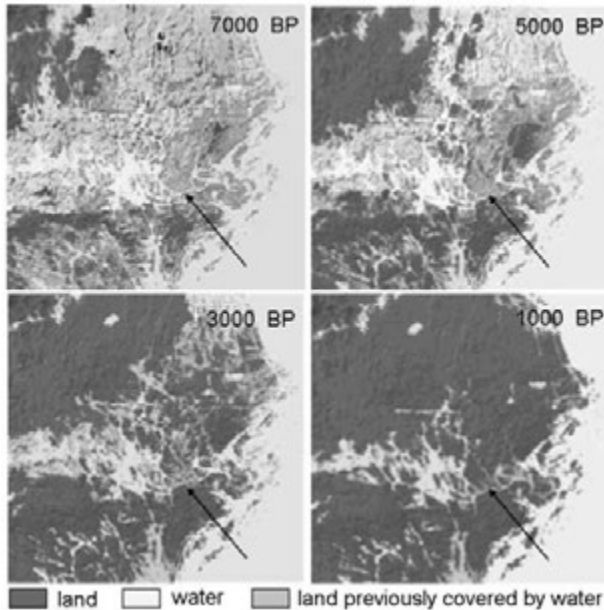


*Sites represent small lakes located mainly south of Stockholm*

**Figure 2. Shore displacement model for the Stockholm area (Karlsson & Risberg 2005).**

The establishment of a shore displacement model can be mentioned as an example, although their construction has always been debated (Figure 2). The dating of terrestrial macrofossils has greatly improved the accuracy limiting problems like reservoir effects (Åkerlund et al 1995; Olsson & Risberg 1995). The AMS dating of the isolation sequences in sedimentary basins and shore-bound settlement sites are both connected with several problems. Combining ages for these two sets of data in central and northern Uppland, the results indicated that the average site was located approximately three metres underwater (Risberg et al 2005). When applying the same technique to the Södertörn peninsula, south of Stockholm, the opposite was evident, with the difference believed to be dependent on the bedrock topography.

Studies of environmental history continued conducted by Urve Miller and Ann-Marie Robertsson, first at the Geological Survey of Sweden and later at Stockholm University. Miller and Robertsson (1981) improved our knowledge of settlement sites in relation to mean sea level and evaluated human impact on vegetation and soils. Modern techniques such as GIS, implemented by Jan Risberg and Göran Alm, have allowed the reconstruction of the palaeogeography taking uneven isostatic uplift into account (Risberg et al 2005). These maps give detailed information on the configuration of ancient shore lines and possible sailing routes and harbour basins within the archipelago and towards the mainland (Figure 3).



*The maps are based on the ages and altitudes of isolation sequences of sedimentary basins and shore-bound archaeological sites. More intense isostatic uplift towards the north has been considered  
The arrow marks the present position of Stockholm*

**Figure 3. Configuration of the landscape in the Stockholm region (Sund 2010).**

## **Interdisciplinary Cooperation in Examining the Baltic Environment**

Numerous studies in the last fifty years, in the form of graduate works and licentiate and doctoral theses, have included investigations of material from sedimentary basins and archaeological sites in the Stockholm region (Miller et al 2004). At Stockholm University interdisciplinary research courses, workshops, excursions, and symposia have been arranged since the beginning of the 1980s. The programmes were later supported by the Nordic Academy for Advanced Studies (NorFa and NordForsk) and included in the Council of Europe interdisciplinary network PACT. These activities represented an integrated approach of scientific and archaeological methods and techniques for the benefit of European cultural and environmental heritage.

Environmental history became the new interdisciplinary field of studies, comprising landscape history, land-use analysis, palaeoecology, and landscape archaeology (Miller 1993). Close collaboration with archaeologists in the Stockholm region was the basis and driving force in several projects, such as investigating the Stone Age sites in Grödinge and on the Södertörn peninsula south of Stockholm; Bronze Age sites at Hallunda; Roman Iron Age sites at Helgö; and late Iron Age and Viking sites on Björkö with the proto-town Birka. The latter three were located in the Mälars Basin west of Stockholm. In addition, medieval sites on Helgeandsholmen, Fatburen, and Klara Kloster in central Stockholm were studied (Figure 1). This change of settlement pattern across history clearly demonstrates how the changing environmental conditions have influenced the cultural development of the region (Robertsson et al 1995; Karlsson & Robertsson 1997). New insights and a re-evaluation of the events important in the regional history of the landscape, environment, and settlement have been achieved (Jaanusson 1981; Miller & Robertsson 1981; 1982; Ambrosiani & Clarke 1992; Miller et al 1995; 1997).

Collaboration between geoscientists, archaeologists, biologists, historians, and physicists in recent decades has been of the utmost value for interpreting cultural development (Stančikaitė et al 2009). Within these studies, and parallel to pollen, diatom, and microfossil analyses, new parameters such as phytoliths, magnetic susceptibility, elemental analysis, and complex analyses of coprolites have been developed and tested (Risberg & Miller 1998; Risberg et al 2002a, b).

Another important goal was to establish interdisciplinary collaboration by bringing local and national networks to a wider international level. In this way, a forum for young scientists was established in which they could discuss and publish their results. The networks that were

established at the time are, when needed, still functioning even without continued financial support. As a result of this cooperation, a better understanding of the landscape and an improved knowledge of the long-term history and archaeology of the region was achieved. A collaborative picture of the landscape was developed with the changing shoreline, vegetation and settlements all influenced by variations in climate and environment.

### Environmental Change as the Norm in the Stockholm Region

The salinity of the Baltic Sea has changed several times in the last 15 000 years from being mainly fresh because of the melting ice in the Baltic Ice Lake to being, at times, partly brackish, as during the Yoldia Sea Stage, in which the sea was connected with the Atlantic Ocean through southern-central Sweden. A freshening of the water took place in the Ancylus Lake when the rapid land uplift closed the marine connection. Again, when the connection to the ocean opened through the straits in the south — the Öresund and the Danish Straits — the water in the Litorina and Post-Litorina Sea became marine and brackish (Figure 4).

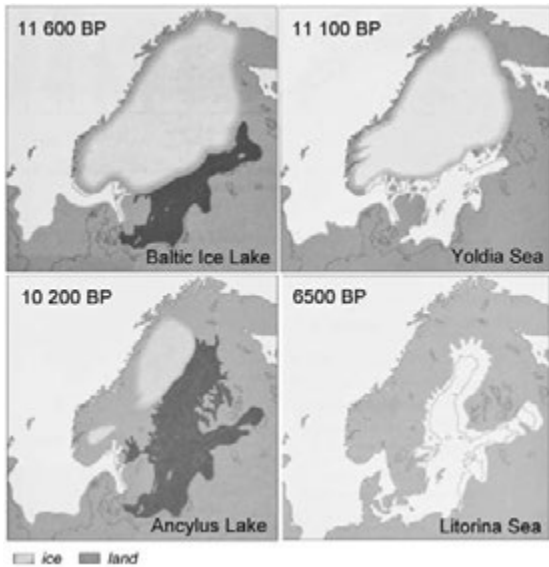


Figure 4. Development of the Baltic Basin after the last deglaciation (Björck & Svensson 2002).



These salinity changes influenced the composition of fauna and vegetation in and around the Baltic Basin with the early presence of seal as an example (Ukkonen 2002; Veski et al 2005). Access to fresh water was an essential factor for people living in the region. Esker ridges contained groundwater springs but their location and quality changed in relation to the settlements because of the land uplift.

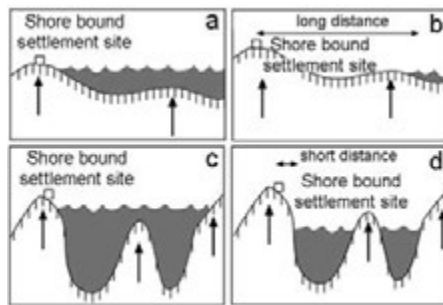
In a changing environment, the foundation of settlements and cultural monuments, for example, hill forts, holy places, cemeteries, and the construction of harbour basins is a hazardous enterprise (Bailey & Flemming 2008). Their suitable location deteriorates with time and new places have to be found in the area. In the Stockholm Archipelago and along the shores of the Gulf of Bothnia, several generations of harbour basins on the same island or peninsula can be found (Miller 1995). Therefore, it is essential to reconstruct the environmental conditions at the time of their existence.

The Stockholm region includes parts of the counties of Uppland and Södermanland with substantial differences in their topography and landscape history (Risberg et al 1991; Karlsson et al 1996). They are separated by today's Lake Mälaren, which before approximately AD 1200 was a large gulf that formed part of the Baltic Sea (Miller & Hedin 1988; Risberg et al 2002b). This means that the area has transformed from brackish water to a freshwater archipelago, changing the presumptions for the inhabitants (including people). The gradual decrease in salinity resulted in a change in the fauna, which the people had to adapt to. In addition, sailing routes, harbour locations, and settlement sites were affected by this transformation. For example, the location of the cultural, political and commercial centres was changed from Helgö to Birka and later to Sigtuna and Stockholm over an approximately one-thousand-year period (AD 250–1250). The two former sites were island-based while Sigtuna was established on the mainland. Stockholm developed to have a key position since it controlled the sailing routes between Lake Mälaren and the Baltic Sea. This was important because large quantities of goods — for example ores, metals, and furs from the surrounding mainland — had to pass through Stockholm. It can be concluded that the city became the capital of Sweden because of its location.

A presumption for the vegetation to grow is that land and soil exists for it to 'take root'. Uppland is considered the youngest county in Sweden since large areas are located below fifty metres above present sea level (m.a.s.l.). This means that the main part of the land area emerged from the sea later than 4000 BC; that is, from the Neolithic period onwards (Åkerlund 1996). Since then, new land areas have constantly emerged above the sea level moving the mainland shoreline

eastwards. During the late Neolithic period, the eastern half of the county still consisted of islands and skerries. From the Iron Age onwards, Uppland became part of the mainland and was covered by similar vegetation to that which exists today, often with cultivation at the lower altitudes. The first people are known to have arrived in around 9000–10 000 BP (Knutsson & Knutsson 2004) living in the Archipelago as seal hunters and fishermen. When additional land emerged during the Bronze and Iron Ages, people were able to occupy extensive clay areas. These landscape alterations changed the living conditions for the settlers, resulting eventually in the appearance of the farming communities. In a flat landscape the shore-bound settlement sites were forced to be relocated after a relatively short period (Segerberg 1999).

The shore displacement continues in the Stockholm Archipelago. A vegetation succession from an outer treeless zone consisting of small skerries covered by pioneer vegetation via a maritime deciduous forest to an inner coniferous forest can be observed (Miller & Wenner 1968; Karlsson 2007). In contrast, Södermanland south of Stockholm is a fissure-valley landscape with pronounced topography allowing settlement sites to remain shore-bound for long periods of time (Figure 5).



*a, b – the gently undulating landscape of northern and central Uppland  
c, d – the fissure-valley landscape of the Södertörn peninsula*

*The arrows indicate that land uplift results in a long horizontal distance between the settlement site and the shore in Uppland. With a similar uplift rate, the distance to the shore is shorter on Södertörn.*

**Figure 5. Schematic drawing showing the effects of isostatic uplift (Åkerlund 1996).**

Both Uppland and Södermanland are today dominated by coniferous forest where mainly pine and spruce grow (Sjörs 1971). Due to the geomorphology, vegetation and climate, the area can be divided into three regions (Nordiska ministerrådet 1977):

— The mosaic landscape of Södermanland and the southern part of Uppland is to a large extent cultivated with heterogeneous forest vegetation. In areas with exposed bedrock, pine dominates while the valley systems, which are not cultivated, are covered by spruce or deciduous trees, for example, birch and oak.

— The northern part of Uppland consists of low-lying flat areas dominated by coniferous forests, mainly spruce. Mires cover large areas. The Quaternary deposits are to a large extent lime-rich, influenced by lime from bedrock in the Gulf of Gävle.

— The coasts and archipelagos of the Baltic Sea consist of about 6000 islands larger than 2000 sq metres and almost 25 000 skerries. In the northern part, the Archipelago bears traces of the old cultural landscapes. The flora is diverse, favoured by lime-rich Quaternary deposits. The outer archipelago belongs to the maritime birch forest region and is dominated by clusters of islands and skerries decreasing in size on the seaward direction. The southern part of the Archipelago has similar vegetation with the exception that the maritime birch forest is nearly absent. The annual precipitation and mean temperature are slightly higher in the southern part of the Archipelago than in its northern part.

## Concluding Remarks

There are many different types of environmental change. It is important for scientific purposes to differentiate between them and divide them into local, regional, and global. In an area with shore displacement due to land uplift, the local and regional changes are the most obvious while the large-scale climate changes are mostly global. An interesting question is whether social differences between people living in regions where change is the norm and people living in relatively stable areas, is a result of these preconditions? Or is it that different kinds of people choose to live in these differing areas?

Changes in vegetation also have different origins. Natural vegetation succession is dependent on environmental conditions and climate, while changes caused by human impact, such as deforestation, land use, monoculture and settlement, can result in environmental changes in the short term and in the longer term also in climate change (Head 2000; Miller 2002).

People living in the Archipelago experienced dynamic changes in the coastline configuration and also in the salinity of the Baltic Sea Basin. Since the uplift was faster in the past, such changes would have been obvious even within one generation. If we take the example of three generations, which could exist contemporaneously, they would have had to adapt to landscape alteration by, for example, the relocation of harbours to new sites. Furthermore, old sailing routes had to be abandoned and new routes found as the sea became too shallow. This population was also subject to climate change, especially during warm periods when a rise in sea level could exceed land uplift. Such periods could result in inundations and force settlements to be relocated.

In contrast, people living further in on the mainland were less affected by shore displacement, although changes in climate were also an important factor for them, especially after the introduction of farming (Welinder 1975; Sporrang 1986).

It is likely that these variable presumptions of environmental change resulted in different cultural views on the landscape, perhaps also influencing religious thought and general character. People living in an environment where change was the norm must have found it easier to adapt. Their relationship with nature must have been humble, showing respect for, and acceptance of, natural change rather than resistance to it.

## **Future Perspectives**

What kind of climate and environmental change, which call for cultural adaptation, can be expected in the future? If there is a substantial temperature increase around the globe, glaciers will melt causing a rise in mean sea level. These environmental changes will probably have more significant effects on the southern parts of the Baltic since isostatic uplift in the north will partly compensate for the increase. A more efficient inflow of saline water through the Öresund and the Danish Straits will prevent the formation of sea ice. The inflow will have positive effects on oxygen levels in the deeper parts of the Baltic, promoting the growth of cod. In the Stockholm area, the rate of the regressive shore displacement will slow, resulting in a more static landscape as expressed through shoreline configuration. On land, a temperature increase and possibly also wetter conditions will affect vegetation; perhaps even grapes could be grown.

Another alternative, a decrease in temperature, will cause a lowering of sea level and isolation of the Baltic Sea from the Atlantic. The water will change to fresh, which in turn means more permanent ice cover

during the winter (Miller 1986). These two alternatives seem to represent two different time scales. The warming is more current in the shorter term, while the cooling is the main trend in the longer term. It is important to keep in mind that, according to the long-term climate cycle, we are living in the later part of an interglacial period.

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# JŌMON AND YAYOI STYLES A WORLDVIEW TRANSITION WITHIN NEOLITHISATION IN THE JAPANESE ARCHIPELAGO

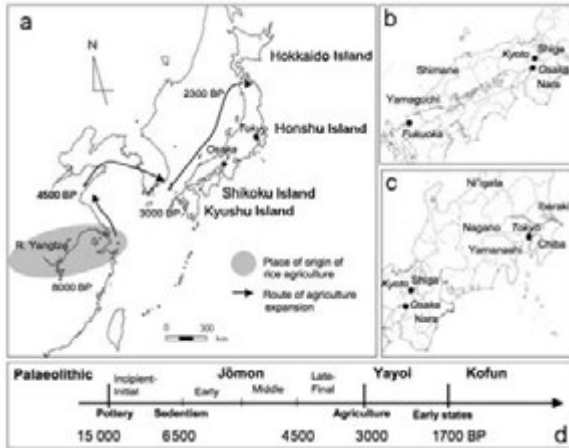
**Junzo Uchiyama**

A worldwide tendency in the study of the historical origin of the modern landscape is to emphasise the influence of the modernisation period. The process is usually estimated to have started, at the earliest, with a string of socio-cultural changes in the twilight of the Middle Ages and to have accelerated after the industrial revolution. A claim that a landscape change of incomparable magnitude appeared only in the modernisation period (Antrop 1997) has led to a long period of human history before the Neolithic age being neglected in landscape studies. Nonetheless, as several eco-historians have already acknowledged (Hughes 2002; Ruddiman 2005) the extent of changes wrought during the Neolithisation period, namely the transitional period from a foraging lifestyle to an agrarian lifestyle, should not be underestimated when considering the formation of the modern landscape. In fact, several fundamental cultural elements, such as sedentary lifestyle, agriculture, keeping livestock, and constructing large settlements and landmarks, which characterise the modern lifestyle and human-nature relationships, are rooted in this time in history. However, the cognitive aspects of the changes occurring in human-nature relations in the Neolithisation period remain unclear.

The design and forms of artefacts are reflections of culture and we can see how people perceive their world through how they use space and reflect their cultural representations on the landscape (Tilley 1994). A comparison of these cultural elements during and after Neolithisation could provide us with a new perspective on understanding the changes in the cultural landscape triggered by the process of Neolithisation. In this paper, I aim to picture the shift in mental structures during and after the Neolithisation period by focusing on two major cultural representations in Japanese prehistory, namely art and settlement struc-

Uchiyama, J. (2011) Jōmon and Yayoi styles: a worldview transition within Neolithisation in the Japanese Archipelago. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond*. *Approaches to Culture Theory* 1, 136–152. Tartu University Press, Tartu.

tures. The Jōmon period (ca 15 000–3000 BP) — an era of mainly foraging economy — is compared to the following Yayoi period (ca 3000–1700 BP) — an age of early agrarian economy. Finally, I will consider what the driving force of change was at that time.



*a – map of East Asia showing the route of the diffusion of agriculture (the dates refer to the first attested evidence of rice paddy agriculture)*

*b, c – maps of western and central Honshu Island respectively with related prefecture names*

*d – chronology of prehistoric Japan*

**Figure 1. Map and chronology of the Japanese Archipelago.**

## **Background: Neolithisation in Japan**

As an archaeological term, Neolithisation was originally defined with reference to prehistoric western Eurasia, in other words, the Middle East and Western Europe. The process can be defined by the establishment of a sedentary lifestyle followed by both an agro-pastoral economy and technological innovations in artefacts. Archaeologically it is initially recognised by the appearance of large-scale settlements and subsequently by the emergence of polished stone tools and pottery. In

1936, based on the assumption that dramatic increases in population induced by sedentism and a food-producing economy accelerated the evolution of society and technology within a comparatively short period of time, Gordon Childe first termed the process of Neolithisation as the Neolithic revolution, which would be universally experienced by every society in its historical development.<sup>1</sup>

Although Childe's interpretation of history had its base in the theory of social evolutionism, in which every culture, past and present, is understood in terms of the various stages of societal development, his standpoint should be valued for emphasising the significance of the pre-historic event of Neolithisation and its influence on modern civilisation. Elements of the Neolithisation period, such as sedentism, large settlements, and high dependence upon domesticated food resources had an enormous impact on landscape formation in later periods. However Neolithisation has not always progressed in accordance with Childe's scenario in all the regions of the world. The Japanese Archipelago is one such example.

In Japan, the process started not with agriculture but with the technological innovation of tools, the usage of pottery and polished stone adzes. Large-scale settlements and shell middens appeared next, indicating a high level of sedentism (ca 15 000–10 000 BP). There is general agreement among archaeologists that a foraging-based economy continued for a long time throughout the Jōmon period (Habu 2004).<sup>2</sup> The late Jōmon period and early Yayoi period were precipitated by the introduction of both intensive agriculture, based on wet rice paddies, and the usage of metal tools (bronze and iron), from continental China into the western part of Japan at approximately the same time, about 3000 BP.<sup>3</sup> The Yayoi agrarian culture spread rapidly throughout the Archipelago, to everywhere climatic conditions would allow rice cultivation, replacing the Jōmon culture and taking only 1000 years to reach the northernmost part of Honshu Island (Figure 1a & d).

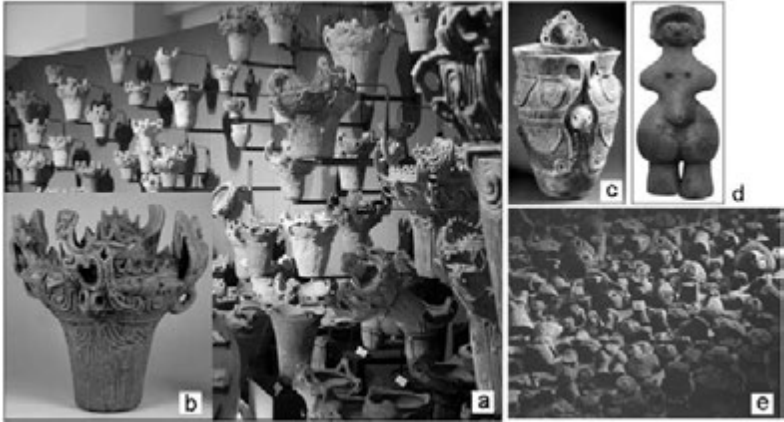
Summing up, compared to the Middle East and Western Europe, Neolithisation in Japan was a much longer process, taking more than 10 000 years of the Jōmon period, and occurring in reverse order. This suggests that the classical definition of Neolithisation is not a universal model applicable to all areas of the world. Regardless of the conditions that caused this phenomenon in Japan, the long-lasting Neolithisation process resulted in a profusion, both in terms of quantity and variety, of cultural remains, and consequently Jōmon Japan can be seen as a suitable example for the examination of the mental landscape prior to agriculture.

## Differences in Aesthetic Representation

Differences between the Jōmon and the subsequent Yayoi cultures can be observed not only in the economy but also in cultural representations. In particular, changes in the design and usage of earthenware exemplify the clear distinction between the two periods.

### *Jōmon representation*

Despite the variations in type, depending on date and place of origin, Jōmon pottery (Figure 2) can be characterised as dynamic in form with abundant decoration and motifs.



*a – flame pots from various sites in Niigata prefecture*

*Photograph courtesy of the Niigata Prefectural Museum of History*

*b – deep flame pot from Umadaka site, Niigata prefecture, height 33 cm*

*Photograph courtesy of the Nagaoka Municipal Science Museum*

*c – pot with ‘childbearing design’ from Tugane-goshomae site,  
Yamanashi prefecture*

*Photograph courtesy of the Board of Education, Hokuto City*

*d – dogū figurine called the Jōmon Venus from Tanabatake site,  
Nagano prefecture*

*Photograph courtesy of the Chino City Togariishi Jōmon Museum*

*e – fragments of dogū figurines from Shakado site, Yamanashi prefecture*

*Photograph courtesy of the Shakado Site Museum*

**Figure 2. Jōmon pottery and dogū figurines (Middle Jōmon).**

In contrast with the diversity of design, however, the categories of shape are rather limited. Although there are various kinds of pottery, such as deep bowls, shallow bowls and spouted vessels, it can generally be argued that, in terms of quantity, deep bowls are dominant at most sites. Deep bowls range in size from only a few centimetres up to slightly less than one metre in height, of which medium-sized bowls of around thirty to forty centimetres in height are the most common. It is assumed that deep bowls were used for cooking, since carbonised food residues and scorching are frequently found on the inside and outside surfaces of the bowls. Considering that a medium-sized vessel allows for the boiling of five to ten litres of water, cooking ware could hold sufficient stew for several people at once. Pottery could also be put to other uses, for example, used as storage or for ritual purposes.<sup>4</sup> In addition, pottery used for coffins can be seen for child burials from the Middle Jōmon onwards.<sup>5</sup>

Although Jōmon pottery ware was apparently put to practical use, it was often excessively decorated to a degree that would jeopardise convenience. This aesthetic aspect reached its peak in the Middle Jōmon phase (5500–4500 BP) when the number of sites, supposedly a reflection of actual population size, peaked in central Honshu (Koyama & Thomas 1981). The so-called flame pots (Figure 2a & b), which were distributed mainly in this region and are seen today as representative of Jōmon arts, bore intricate and flamboyant decoration on their rims. Clay band decoration of spiral patterns covers a vessel's body. The height of the rim decoration often exceeds that of the body itself.

Apart from the pottery, *dogū*, or terracotta figurines, are also characteristic of the Jōmon artistic style (Figure 2c & d). Most of the *dogū* are of human shape and judging by the representation of breasts and body proportions, especially of female form. The overall expression is highly abstract and the same motifs that are used in pottery are often employed with the figurines. Furthermore, *dogū* are most frequently found in the ceremonial areas of sites, in many cases in an intentionally dismembered condition (Figure 2e). The most widely-held theory therefore is that *dogū* represent the Earth goddess and the ceremonial destruction of *dogū* was related to fertility cults, in which, in order to gain a good harvest, killing an old goddess was carried out in the expectation of the incarnation of a new one (Yoshida 1986).

### ***Yayoi representation***

Yayoi expression contrasts markedly with Jōmon expression. The most prominent feature of its pottery is a static and simple design, conforming to practical demands (Figure 3).



*a – pottery from the Ayaragi site (Early Yayoi, ca 2800–2400 BP), Yamaguchi prefecture  
Photograph courtesy of the Shimonoseki City Museum of Archaeology*

*b – jar from the Kugahara site, Tokyo (Late Yayoi, ca 1900–1700 BP)  
Photograph courtesy of the Tokyo National Museum*

*c, d – bronze pikes and ceremonial bronze bells from the Koujindani site, Shimane prefecture*

*e – deposition of bronze pikes, swords, and bells at the Koujindani site*

*These bronze paraphernalia are believed to be produced in the Middle Yayoi period (ca 2400–1900 BP) The latter three photographs courtesy of the Board of Education, Shimane prefecture*

**Figure 3. Pottery and bronze tools from the Yayoi period.**

In the Yayoi period, pottery was produced on a potter's wheel, whereas in the Jōmon period the technique of winding up clay bands by hand was used. Yayoi pottery has a flat rim and a plain symmetrical body with few, if any, decorations. Only simple motifs, such as an incised linear pattern (Figure 3a & b), were used.

Another distinctive feature of Yayoi pottery is its diversification of shape and composition. A wider range of shapes, such as jars, deep bowls, shallow bowls, pedestalled dishes, and goblets can indeed be found at many more sites than in the previous Jōmon period. These various shapes supposedly reflect the different functions of the vessels, adapted for the practical requirements of daily life. Whereas deep bowls were probably used for cooking, as were the Jōmon bowls (although at times they could be put to other use), jars and pots with a large round body

and a narrow neck were mainly used for the storage of harvest. They hardly ever contain traces of cooked food residue and are often found in storage pits. Furthermore, shallow bowls, dishes and goblets seem to have been used as tableware for serving food and drink. At many sites, storage jars are the largest group, suggesting that the storage of harvest became a prime concern.

Regarding *dogū*, the tradition did not continue after the Jōmon period. In the Yayoi period, the technology of baking earth became limited to producing pottery for practical use. Metal tools, mostly bronze, appeared instead as representatives of ritual paraphernalia, such as ceremonial bells, pikes, and swords (Figure 3c–e).

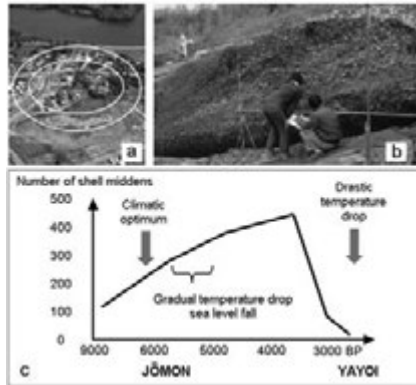
## Worldview Shift during and after Neolithisation

As mentioned above, there are quite contrastive representational features in the crafts of the foraging Jōmon and agrarian Yayoi cultures. This raises several questions: What kinds of differences in aesthetic values and worldviews exist between these two cultures? What driving forces induced such changes? A comparison with other cultural representations could give some insights into how to tackle these questions.

The structure of settlements represents the ways in which people arrange their given space as a residential base and socio-political centre and thus is taken to indicate their basic cultural values (Duncan 1993). The large shell midden complexes (as termed by Uchiyama 2008; see also Kobayashi et al 2004) and moated circular settlements can be taken as the representative forms of settlements in the Jōmon and Yayoi periods respectively. By considering the artistic styles and settlement forms together, I intend to assess how the worldview changed during and after the Neolithisation period in the Japanese Archipelago.

Complex and systematic structures of space use can be seen in many large-scale Jōmon shell middens (Figure 4). In central Honshu especially, these are quite frequently accompanied by a nearby residential area, taking a ring shape as a whole, with shell layers located in a band around the settlement area. The inner residential section normally consists of a storage area, a pit house area, and a graveyard in that order, proceeding from the outside to the centre.

The central open space was probably the site of communal ceremonies based on the fact that various ritual goods and fine pottery with decorative design are most frequently found there. These large ring shaped settlements with such orderly use of space accompanied by the shell middens, known as large shell midden complexes, were normally occupied over several hundreds of years (Figure 5).



*a – Saihiro Jōmon shell midden (Late Final Jōmon), Chiba prefecture  
The white rings indicate the range of the shell midden  
b – close view of the shell layers  
Photographs courtesy of the Board of Education, Ichihara City  
c – changes in the number of shell middens in the Kanto district  
(Tokyo and its environs) compared with climatic changes*

**Figure 4. Shell midden structure and change in their numbers during the Jōmon period (Uchiyama 2008).**



*Shell layers are shown as shadowed areas*

**Figure 5. Spatial structure of a typical large shell midden complex: Ariyoshi-kita shell midden (Middle Jōmon), Chiba prefecture (modified from Uemori & Deguchi 1992).**



It should be noted, however, that the circular shape was not planned. Excavations have revealed that a large shell midden complex is actually an aggregation of many small-scale settlement units belonging to different periods. Each unit, thought to consist of only a few households, has a discarding area (shell layers), storage and residential area, a graveyard and ceremonial place, arranged in linear order (Figure 6). Although never inhabited contemporaneously, as a result of sharing the same location with an arena for ceremonies over generations, the accumulations of settlement units eventually formed what appeared to be a circle (Taniguchi 2005).

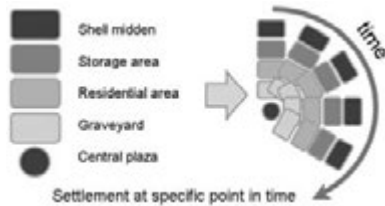


Figure 6. Formation process of the shell midden complex.

### *Jōmon landscape: function of shell middens and pottery*

The spatial structure of large shell midden complexes shows that Jōmon society had a particular cultural behaviour of using a specific location as a ceremonial open space for a considerable time and placing an intensive discarding area at the opposite end of the settlement. In particular, the manner of disposal found in a shell midden block is totally different to that in the contemporary world. Today we dispose of our waste sending it quickly as far away from our residence as possible, while in Jōmon culture, the debris of meals, artefacts like pottery and stone tools were placed in the designated block close to the residential area. Moreover, disposal was not limited to the resources since quite frequently human bodies are found in the shell layers.<sup>6</sup> In view of this, shell middens seem to represent the idea that everything should be treated in a proper manner even after the cessation of its practical use. Such customs regarding objects can be widely observed in the ethnological records of the northern Pacific Rim and northern Eurasia. For instance, the Ainu, aboriginal fisher-hunters of Hokkaido, are known (Batchelor 1901; Munro 1962; Watanabe 1972; Irimoto & Yamada 1994) for their festival called *iyomante*, which literally means the 'sending the blessings back ritual' (Figure 7).



*The chief is offering a prayer to the kamuy of a bear  
in the late nineteenth century*

*Author: PHGCOM. This file is licensed under the Creative Commons  
Attribution-ShareAlike 3.0 Unported license;  
retrieved from Wiki\_Japan on 10 March 2011*

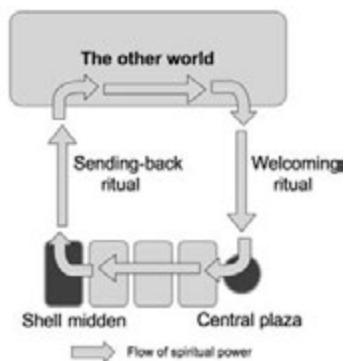
**Figure 7. Scene from an Ainu iyomante.**

For the Ainu, all living creatures, including humans, are essentially the children of deities, called *kamuy*. They originally lived in the *kamuy* world in the form of spirits. Thus, all the things acquired by subsistence activities are visitors in disguised forms from the other world. Consequently, once the process of consumption is over, the remains of every living being should be sanctified and sent back to the spiritual world in a proper ritual, lest the deities decide to stop sending new goods. The Jōmon foraging society of large shell midden complexes might have shared a similar view of the world, in which case it is quite feasible that shell middens functioned as locations at which to conduct the ‘sending the blessings back’ ceremonies (Uchiyama 2008).

This theory may lead us to a further inference that Jōmon society must also have conducted a welcoming the blessings ritual as a paired ceremony to the sending back ritual. People celebrated the descent of spirits to the community in the form of hunted or collected living things and may even have tried to seduce them into descent. If this is so, one can easily imagine that pottery played a major role in such a ritual because the activity of cooking itself, in small-scale societies, symbolically means, as Claude Lévi-Strauss (1964) has noted, nothing other than the initiation to welcome the entities belonging to the outside

world into human society and culture. Judging from the fact that both fine pottery and *dogū* terracotta figurines are found with a high frequency in the central communal space of the settlements, this area might have been the best place to conduct the welcoming the blessings ritual.

Thus, the cosmological structure in the Jōmon period could be depicted as a vertical one. The physical or visible small world of humans and the spiritual other world were bridged. Spiritual entities occasionally descended to the human community by transforming themselves into disguised physical forms through a welcoming ritual and then ascended by a sending back ritual (Figure 8). If pottery did function as a mediator for welcoming the spirits and communicating with the other world, the reason for its dynamic and often asymmetrical design with excessive decorations would become quite understandable: These might be the representations of the transformations.<sup>7</sup>

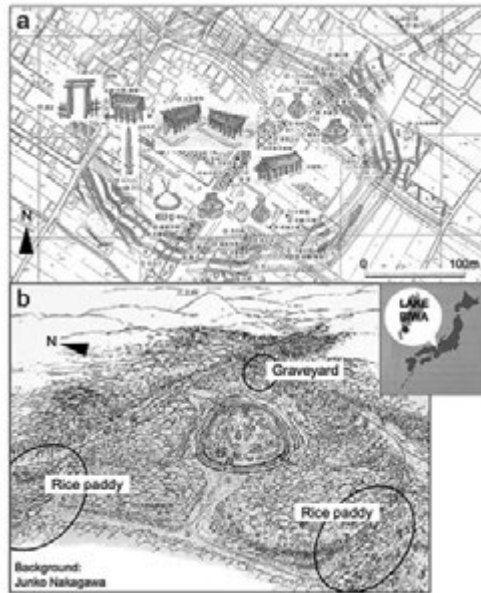


**Figure 8. Cosmological structure in the Jōmon period.**

It could be argued that the structure of the Jōmon landscape and aesthetic values were strongly related to such a cosmology. According to this cosmology, the Jōmon used the central location of a settlement as a place for welcoming the spiritual entities with pottery. The supernatural power, having descended from outside of the human sphere, progressed through the residential area and was ultimately sent back to its place of origin, the world of the deities by the rituals conducted at the location of the shell middens. Consequently, the Jōmon people conceived of themselves as an entity living in the circulation of spiritual power between this world and the other world. The main concern of Jōmon society must have been to keep a good balance between these two worlds by maintaining an adequate circulation of spiritual power.

***Yayoi landscape as seen from settlement and pottery***

In the last 500 years of the Jōmon period (Final Jōmon, ca 3500–3000 BP) the number of ring-shaped settlements with shell middens decreased drastically and then they disappeared completely. In their place, a new type of settlement appeared soon after wet rice paddy agriculture was introduced from continental China in the Early Yayoi period (ca 3000–2500 BP). Such settlements are called moated circular settlements, referring to the fact that usually not only one but several water moats surrounded them (Figure 9).<sup>8</sup>



*a – reconstructed landscape image of Shimonogou,  
the use of space in the outside settlement*

*b – plan of the Shimonogou site (Middle Yayoi, ca 2400–1900 BP),  
Shiga prefecture*

*Courtesy of the Board of Education, Moriyama City*

**Figure 9. Structure of a typical Yayoi moated circular settlement.**

Early on, their location was limited to Kyushu Island and their size was approximately fifty to seventy metres, as measured by the diameter of the internal zone surrounded by the moats. This type of settlement became larger, however, and more widely distributed in the Japanese Archipelago. They were especially typical of the western part of Honshu and northern Kyushu in the Middle and Late Yayoi periods (ca 2500–1700 BP). Several settlements reached over 700 metres in diameter in the latter period, probably reflecting considerable increase in population due to the success of rice agriculture economy.

The ring shape was not the result of an accumulation of small settlement units as in a Jōmon large shell midden complex but appears to have been a matter of design. A clear division of space is marked by the use of moats with the overall size and structure of the settlements being apparently well planned (Kuze 2003). The area inside the moats was seemingly designated for the activities of daily living including places of residence and storage, as well as a political centre. The outside area was for activities concerning subsistence and relations with the other world, that is, the outside zone comprised of working places, such as rice fields and a funeral block. There is no specific place for collective disposal of household waste. Small shell accumulations are often found within individual dwelling pits instead. This fact implies that, in the Yayoi period, waste treatment became a matter for the household rather than a social ceremony. The moats probably had practical purposes, such as defence of the inside area and controlling flood damage. Such systematic settlement design with clear compartmentation became evident only in the Yayoi period.

These changes in settlement structure and space use in the Yayoi period indicate that the Jōmon worldview had faded away. Settlement areas were subdivided into several sections, each segment was allocated a different cultural role under human control. In particular, separation by water moats symbolised that people started to establish an exclusive zone with clear boundaries monopolised by humans. This does not necessarily mean that access to the other world would have been entirely closed; however, the disappearance of shell middens indicates that it had narrowed considerably. As a result, humans were left to take control of things entering the human domain, including domesticated animals and plants and conveniences like pottery. This may be the reason why pottery lost its dynamic forms and designs that were widespread in the Jōmon period and took practical forms and had static design to meet various daily requirements instead. In other words, pottery lost its sanctified position as a mediator in calling spiritual power from the other world into society.

## The Worldview Shift in Context

Comparing the Jōmon foraging period with the subsequent Yayoi agrarian period in prehistoric Japan, I have described how the aesthetic representations of pottery changed in general during and after the Neolithisation period. Mental aspects of the landscape as a backdrop to society in combination with the shift in the use of space in settlements were also considered. The dynamic design of Jōmon pottery can be inferred to be a reflection of a worldview in which all material entities in this world are transformations of spirits from another world. Pottery was expected to play a ceremonial role in a ritual to welcome blessings and be a mediator to bring spirits into the human world. Thus it can be said that the human world was quite open and interactive with the other world in the Jōmon Neolithisation period. On the other hand, when the long process of Neolithisation concluded and the Yayoi period started, humans clearly set out to stake their claim to sovereignty of their own territory by setting an exclusive boundary against the outside world. The static and functional form of Yayoi pottery graphically tells us that pottery was exclusively dedicated to practical use in daily life.

If such a scenario, as discussed above, is indeed the case, then what kind of factors induced such a shift in perceptions of the world? Here it should be noted that, worldwide, many ethnographic and historical records and analyses suggest a similar sort of divergence in mental outlook between foraging and farming groups. For example, Colin Turnbull (1983) mentions that the Mbuti foragers of the Ituri rain forest in Congo (Kinshasa) perceive the forest as the world of spiritual forces, which provides life and energy to empower people. In contrast, for the Bantu farmers, the forest is a symbol of everything they are struggling against. In Japan, historical records of regional topography, edited by order of the Imperial Court in the eighth century, often refer to a strained relationship between farming communities and the local deities. For example, *Hitachi-no-kuni-fudoki* (Topography of Hitachi Province, the present Ibaraki prefecture) related a legend saying that when people cleared the wilderness to open new rice fields, a group of snake deities (*Yatonokami*), present on the land from the distant past, attempted to block the development. Ultimately, the deities were banished into the mountains by a community leader dressed in armour and carrying a pike. Later, the leader forged a nonaggression pact with the deities stating that they must not come into the village beyond the newly drawn boundaries marked by the ditches and sticks.<sup>9</sup>

Considering these records, it can be surmised that the transition in the mode of subsistence from a foraging-based economy to an

agriculture-based economy is the most feasible direct cause of the breakdown of the Jōmon mental structure. This perspective may also be supported by the fact that the dramatic change in worldview occurred in the very final stages of the long process of Neolithisation in Japan and came to a close with the introduction of agriculture. Thus it can be concluded that the establishment of a domesticated space accompanied by agriculture ushered in the new worldview of a division between the human domain and the natural world.

## Notes

1 Recent investigations have revealed that the Neolithisation process in the Middle East started in the late Palaeolithic. Large-scale settlements appeared and polished adze technology spread during the climate oscillations at the end of the last glacial age (the late Natufian culture, ca 12 000 BP). The first agriculture-based economy can be seen in the Levant around 10 000 BP (Pre-Pottery Neolithic). Pottery technology did not appear until the last stage of Neolithisation, ca 9000 BP (Pottery Neolithic). Thus, it took approximately 3000 years for Neolithisation to occur in the Middle East. The Neolithic culture then passed through Anatolia and on to the European continent from 8000 BP onwards arriving on the British Isles about 2000 years later (Bellwood 2005).

2 Apart from the small-scale cultivation of plants, such as herbal grasses and millets, the socio-economic system was largely dependent upon hunting-fishing-gathering at the time. The increase and decrease in numbers and scale of sites suggest that the Jōmon foraging societies fluctuated quite considerably over a long period of time (Koyama & Thomas 1981). The Middle phase (ca 5500–4500 BP), especially in the central Honshu area, is normally considered as the peak of the Jōmon culture in terms of not only the number of sites but also the diversity of artefacts.

3 Yayoi was followed by the Kofun period (ca the third to the seventh century AD). Large tumulus mounds mark the formation of the early state at the time. The oldest records of Japan, written in China, such as the *Wei shu* (*The History of the Cao Wei Empire*, the third century AD), testify to the existence of a number of small chiefdoms in the western part of Japan. More recent Chinese chronicles and archaeological finds suggest that these were unified under the dominant polity centred in Yamato and Kawachi provinces (close to present Nara and Osaka) called *Wa* in the following centuries. Its kings started to send tributes to China. *Wa* is supposedly the origin of the Japanese Imperial polity in later periods.

4 There is a theory that some types of pottery (in particular those with a brim and perforations around the rim) could even have been used like drums for rituals by leathering the rim part (Kobayashi et al 2004).

5 In case of funeral use, pot coffins are often found in an upside down position with evidence of deliberate destruction of the base.

6 In addition to burial in shell layers, there is a graveyard site located in the area surrounding the central open space. This indicates that some level of social differentiation had already started in the Jōmon period (Nakamura 2000).

7 Even though figurative design is quite rare in Jōmon pottery, there are some examples. One such motif depicts scenes of childbearing in which the face of a newborn baby can be seen having just passed through the birth canal (Figure 2c). Given that, in the Jōmon worldview, humans themselves were an entity coming and going ceaselessly between this and the other world, such representations support the view that pottery form and design symbolise the image of welcoming spirits into the human world.

8 The place of origin of Yayoi moated circular settlements is still obscure in continental East Asia. A similar type of settlement is reported in the Neolithic Pengtoushan site of the central Yangtze (Hunan Province) in southern China, which is known as one of the earliest sites of rice agriculture (ca 8000 BP). However, the time lapse is too great and thus the cultural relation between the Yayoi settlements and Pengtoushan remains obscure (Nakamura 2009). Even so, this type of settlement was recognised in the southern part of Korea in the Mumun period (ca 3500–2800 BP), around the same time as in Japan.

9 The snake is a motif often seen in the decorations of both Jōmon pottery and *dogū*. Some scholars have tried to find relevance in the remains of the Jōmon mentality present in the worship of snake deities in later periods (Naumann 2000). If this is indeed the case, this worship might have stemmed from some actual event when rice farming in the region started.

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# THE CIVILISING HERO, A QUESTION OF DOMESTICATION IN YAKUTIA

**Emilie Maj**

Any study of the link between nature and culture can make good use of Philippe Descola's last book *Par-delà nature et culture* (2005). He distinguishes four types of human–nature relationship, which structure societies according to the physicalities and interiorities of human and non-human beings. As the term non-human includes at the same time animals and spirits, this paper is oriented towards a symbolic analysis of the Yakut religion and way of thinking. I propose the use of Descola's hypothesis, according to which people's relationships with spirits transform from animism to analogism when the action of domestication appears in the cultural landscape. Indeed, in a system in which the relationship between humans and spirits with animal shapes is horizontal (discussed further below) the idea of protection engenders a relationship of dependence, a new hierarchy and servitude: Humans have to pray to the ancestor spirits to ask them for benevolence. Descola's affirmation, according to which the hunting system cannot coexist with the pastoral system, but rather the latter replaces the former after the establishment of the idea of protective dominion over animals, is questioned as a more nuanced picture emerges. I propose to see how these ideas can be applied in northern Siberia to the Yakut horse herders, cousins of the Turks and Mongols of Central Asia. Escaping from Genghis Khan's invasions (Ksenofontov 1992), they went north, following the Lena River with their horses and cattle. Coming to an area more favourable for reindeer, they undertook the domestication of nature by creating pastures with grass and lakes in the taiga a few hundred kilometres from the Arctic Circle.

Located on the Eurasian continent in the far north-eastern region of Siberia, the Republic of Sakha (Yakutia) is bounded on the north by the Arctic Ocean. Occupying a fifth of the land territory of the Russian Federation, with a surface area of 3 101 200 sq km, nearly sixty percent of the Yakutian territory is located in the northern Siberian region with the rest above the Arctic Circle. The territory extends from east to west

Maj, E. (2011) The civilising hero, a question of domestication in Yakutia. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond. Approaches to Culture Theory* 1, 153–164. Tartu University Press, Tartu.

for over 2500 kilometres including three time zones, and 2000 kilometres from north to south. The Yakut are the most numerous among the Siberian peoples. Breeders of horses and cattle, they live mainly along the rivers of central Yakutia. They are members of pan-Turkic Central Asia, in which they hold a particular position. This is explained by the transposition of a way of life for Turks and Mongols from the steppes to the hostile taiga, as well as being one of the few non-Islamised Turkic peoples. Mainly reindeer herders and hunters inhabit the south and the northwestern region of the Olenek. The Even live in the mountainous area of Verkhoyansk, where they breed reindeer, and in the Kolyma region in the north-east. Some Yukagir and Chukchi, fishermen and reindeer herders live in the north along the Indigirka and Kolyma Rivers. Dolgans, reindeer herders speaking the Yakut language, live in the north-west.

Ellej, the civilising hero of the Yakut, is a particularly interesting figure when analysing people's relationships with nature in a pastoral system. Through the use of the anthropological perspective, I aim to understand whether the Siberian people make a distinction between nature and culture, as well as discussing the question of the consequences of domestication in an area where the idea of wilderness is determinant. In addition, I shall explain the introduction of the idea of monotheism as the Yakut's first religious system.<sup>1</sup>

## Civilising the Taiga

The original migration to the north is recorded in Yakut folklore and in the legends of the two Yakut ancestors: Omogoj and Ellej. Having come from the south after losing his book while travelling, Ellej met a Yakut man, a horse and cattle breeder, in the taiga. Ellej worked for the man for three years and, when the man gave him one of his daughters, he settled in a pasture with his wife and was the first to build a house with windows. Ellej took Omogoj's daughter in marriage and introduced the central cultural elements of Yakut identity to the taiga landscape by building a traditional Yakut-style winter house (*balağan*, today an icon of Yakut identity) with a surrounding enclosure (*kürüö*) for cattle. Smokey fires (*tüpte*) were then lit to ward off the swarms of mosquitoes and these fires also attracted cattle and horses seeking protection from the mosquitoes. He also prepared a cup (*āoron*) from which the Yakut drink fermented mare's milk (*kymys*). Lastly, he organised the libation festival, *Yhyakh* (Ksenofontov 1977; Seroshevski 1993). Yakut legends describe the hero Ellej as the founder of a new form of Yakut culture in the taiga landscape.

Ellej is a legendary figure; the first man in this region to have an impact on nature by bringing sophisticated techniques to breeding practices. This symbolic figure depicts the changes operating when the Yakut arrived in their current area where life retained a significant degree of nomadism but also demanded active physical manipulation by burning forest for opening pastures or by creating lakes.

### ***The Yakut landscape***

Prior to collectivisation, which took place in the 1920s and 1930s, the Yakut family lived on an *alaas* (Mészáros 2008). These were unique features in the landscape and included lakes surrounded by grassland, located in the forest and near the mountains. The pastures enabled the Yakut to breed horses and cattle in an area around the house, while the surrounding forests provided a habitat for equine herds and for small and large game like hare (*Lepus timidus*) or elk (*Alces alces*). The Yakut were semisedentary, moving between different ecological zones in the varied landscape of valleys, plains, and forests, all situated in a permafrost zone. They divided their time between their winter dwellings (*kystyk*, nearer the forest) and summer encampments (*sajylyk*, in open valleys or meadows). September was known as the *bala an* month (*balağan yja*) during which the Yakut spent four weeks on the *otor*, an abundant prairie, in order to fatten the cattle. In fact, in the taiga, *alaas* is the ideal place for breeding cattle, which gives it symbolic significance in Yakut culture. In the past, the whole family would take part in the seasonal migrations from pasture to pasture.

Cattle and horses required large amounts of fodder and so settlements were located in the areas best suited for grazing while the lakes could be fished and hunting was possible in the surrounding taiga. In order to expand the *alaas*, the Yakut started burning off the vegetation in order to halt reforestation (Zykov 1986) and their impact on nature increased.

### ***The wild and the domestic***

In Western cultures the word 'wild' means primarily what has not been changed or tamed by human beings. By extension, it applies to what is outside the rules, what is cruel and violent. Past centuries have equated the savage with the primitive, in other words with that which is outside of culture, or which is not civilised. In Yakut thought, the 'wild' has several meanings. Indeed, when I questioned the Yakut about the character of their horses, they said that they were *d'iki*, the transposition of the Russian term *дикий*, designating wild. However, when I asked for the word *d'iki* to be translated into the Yakut language, they used the term *khayyl* that refers to untrained and not the term *kyyl*

indicating wild animal. Similarly, the category of 'domestic' is not transferable from one culture to another. For example, if animals are related to the home (*domus*) in Western thought, among the Yakut, they are divided into livestock (*süöhü*) — a term whose etymology has no connection with the home (*d'ie*) — and into other domestic animals (*d'ie haramaja*) including dogs, cats, poultry that are. The inhabitants of Yakutia do not keep pets or animals that are not of practical use.

The Yakut keep horses for meat and milk and as means of transport; when not saddled, horses are left to roam freely. They describe the horses they ride as 'being not yet tame'. The notion of wild horses, or horses that revert to a wild state (*kyylajbyt at* or *kyyl at*), often figure in various narratives. A few decades ago, in the village of D'argalaakh, horses were kept in the wild. The breeders' only role was to count them when they were seen. This could cause problems when the horse was needed, as expressed by one breeder: "If they are too wild, they can smell a man at a kilometre's distance."<sup>2</sup> It is then impossible to make them move in the desired direction and the breeder is forced to make detours.

In some regions of Yakutia, as today in Eveno-Bytantay, horse breeding coexists with reindeer breeding (Maj 2009a). In the symbolic domain, the differences between horses and reindeer become less sharply defined than the conceptual distinction between horses and cattle. For example, domestic reindeer (*itiekh taba*, literally 'hand-fed reindeer', or *itiekh kulun* or *itiekh sylgy*, 'hand-fed foal') that have become wild are described by the Yakut term *kyylajbyt taba*, *kyyl taba* or *kyylajbyt sylgy*. All things considered, horses and reindeer are animals that are seen as being able to return to a wild state and in this way are the ideal domestic animals for Yakut stockbreeders and hunters in the taiga.

The term *kyylajbyt kihi* or *kyyl kihi* can also be used to designate a man living alone in nature who does not like visitors, except one person (*kihi*) at a time. The term *kyylajbyt kihi* shows that the man himself is not excluded from the link between the wild and the domestic, the two terms that are thus not separated but considered in relation to each other.

This minimal interference with the animals did not diminish the role of humans in the manipulation of landscape (Maj 2009b). As noted above, a major task in the practice of rearing animals in the taiga was burning off grazing land in spring. The same informant explained in 2004, "If we do not treat the grasslands this way, there will be dead grass (*dulğa*), which is no good for the horses."

## The Human–Nature Relationship in a Horizontal World

There is no sharp distinction between the territory inhabited by human beings and the domain inhabited by animals: The word *tya* today means both village and forest. On the other hand, a conceptual distinction exists between the forest in which humans have been active, known as *ojuur*, and the remote areas of taiga untouched or unaltered by the presence of humans, known as *ykkjy ojuur*, meaning literally ‘the forest where trees are numerous’. Fishing is practised in the *alaas* (with its central lake) and hunting is practised in the forest (*tya* and *ojuur*), which border on remote areas of land untouched by human presence. For these activities, and in particular for hunting, a man must take precautions and ask the spirits for luck. In fact, the more the space is inhabited by spirits, the more careful the people have to be not to vex the *ajyy* and *ichchi* spirits, who are supposed to live in these remote areas. In Descola’s terms the spirits are “supposed to have cognitive, moral, and social qualities, similar to those of humans” (Descola 2005, 57). Fishing, hunting, and breeding success depended on the human relationship with these spirits.

### *Physicalities and interiorities of humans and spirits*

The Yakut have two types of relationship with the spirits. The first is a horizontal relationship with *ichchi* spirits, who are nature spirits, givers of prey and are supposed to incarnate in the form of animals. This horizontal relationship responds to an egalitarian relationship between spirits and humans who are supposed to live together in the same landscape. As an illustration, Baaj Bajanaj, the main spirit of the forest concerned with hunting activities, often appeared in the form of a bear. The second relationship, joining herders with *ajyy* spirits, was vertical because it implied a protection of humans by ancestor spirits. These spirits were givers of domestic animals, and also givers of the *sür*, one of the components of the human soul (*kut-sür*) (Gogolev 2002). For example, the pantheon of these spirits includes Ürüng Ajyy Tojon, protector of men and their possessions; Juhuguj Ajyy, the spirit of horses and men; Ijejekhsit, the protector of humans and their cattle; Ajyysyt, the protector of oxen and children.

The relationship between the Yakut and the spirits depends on the way the Yakut see the spirits: If they are animal, they are considered as non-human; if they are ancestors they are regarded as dead humans, superior to those alive. Descola (2005) has created a classification of the human–spirit relationship in different cultures. He distinguishes between (1) animism, in which humans and animals seem to have

analogical interiorities but different bodies, (2) totemism, characterised by a double continuity of souls, of forms and behaviours, (3) analogism, in which interiorities and physicalities are different, and (4) naturalism, according to which the physicalities are similar because of the continuity of the material, but interiorities remain different because of the discontinuity of the souls. If following Descola's categories, it can be argued that two systems exist at the same time in Yakut culture: animism and analogism.

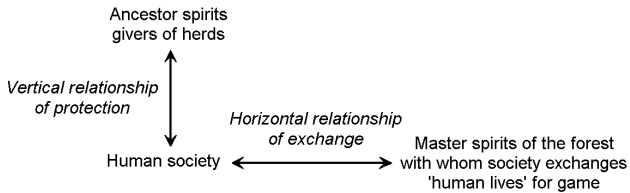
***Domestication: from animism to analogism***

According to Descola (2005), the *animisme donateur* among hunting peoples, who have an egalitarian relationship with the spirits, would give birth to *analogisme protecteur*, creating hierarchies, dependencies, security, and servitude to the ancestors. The transfer from spirits protecting wild animals to a worldview according to which humans domesticate animals would occur. This small and apparently insignificant step towards security, constrains humans to dependence on their human ancestors and on elders and divinities that must be entreated for kindness (Descola 2005).

For Descola (2005) pastoral and hunting shamanic systems cannot coexist because one replaces the other. This excludes, at the same time, the possibilities of protection coming from the spirits, givers of domestic animals, and the idea of exchange with the master spirits of wild animals. In her theory on Siberian shamanism, Roberte Hamayon (1990) argues that on the path from hunting to pastoral shamanism, a transition from spirit givers of prey that are supposed to incarnate in animal shape, to spirit givers of domestic animals that are considered human ancestors and are supposed to have a human or half-human form occurs.

Designated by alliance partners, as is usual in the hunting life, humans and animals are on an equal footing: When trading between the two worlds, humans think that the donor has the same nature as the given object, because this object is somehow a symbolic projection of the donor and therefore humans behave with it as with an ally; there was an identification between what is dispensed and the dispenser, between the deer and the forest spirit, between nature and supernatural. If, however, the donor of subsistence is considered in continuity with the man, as his ascendant, the donor cannot be confused with what he gives to the man, so he cannot be identified with him; then there is dissociation between the supernatural, and the humanised donor and the given natural object (Hamayon 1990, 607; my translation).

Hamayon (1990) has also shown that the ancestor spirits are regarded as the entities that give cattle. For this reason, it can be argued that not only does a unique relationship develop vertically, but also that two relationships exist in parallel: One of exchange with the ancestor spirits who give cattle, which is actually becoming vertical in modern society; the other of exchange with the master spirits of the forest, with whom the relationship based on exchange has not changed. Thus, as suggested by Hamayon, in Yakut society and more generally in Siberian culture, there is a dualism in animal breeding and duality in hunting life, as schematically presented in Figure 1.



**Figure 1. The human-spirit relationships according to the Siberian way of thinking.**

According to Descola (2005), this step from the concept of gift to that of protection was made by the advent of domestication, which put the protection of the herds that were previously thought to be supernatural gifts under the ancestors' control. The protection offered by the ancestors is well illustrated in Yakut culture by the *kyjdaa* ritual. This ritual was practised, according to legend, in the eighteenth century by those Yakut who were preoccupied with not losing the riches they had accumulated. Three times in their lives they would send a whole herd of horses to the spirits, wishing that they accept the gift and, in exchange, allow the birth of new foals in spring. The return of the herds to their owners was interpreted as a sign that the spirits refused the gift and that the man would lose his goods (Ergis & Popov 1960; Khudjakov 1969; Maj 2007). The *kyjdaa* ritual — a ritualised liberation of horses offered by rich Yakut to the spirits — can in my view explain the transition from predominantly hunting shamanism to a more important pastoral shamanism, in which prayers are given to ancestral spirits who are supposed to protect the herds, bring abundance and otherwise regulate the propagation of livestock.



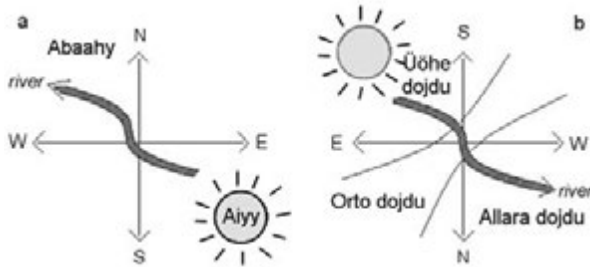
The figure of the hero Ellej also illustrates the path from hunting shamanism to pastoral shamanism. It was Ellej who, according to the legend, introduced the cult of *ajyy* spirits, in particular the ritual practices related to Juhuguj, the protector spirit of horses. He made offerings of milk products to *ajyy* spirits, who are supposed to live in the south-west, where the sun rises. At the same time that Ellej was changing the pastoral way of life by 'civilising' it, these new practises introduced a split between the wild and the domestic and were a first step towards the verticalisation of the symbolic human–spirit relationship.

### ***A path to the Christian God***

In the epics (*oloŋkho*), the Yakut universe consists of three horizontal worlds: the upper world (*üöhe DOJDU*), the middle world (*orto DOJDU*), and the lower world (*allara DOJDU*). In the lower world live a plethora of *abaahy* and *ajyy* tribes, each of which has a different role. In the epics *allara DOJDU* is not the world of death. Rather it is the domain of the *abaahy*, seen as other tribes. This domain serves as a parallel world inhabited by the *abaahy* and *ajyy* tribes. It is a world of iron where the grass does not grow. The different tribes living in any of these three domains can temporarily enter other worlds.

At the centre of the middle world is the *Aar Luuk Mas* tree, which forms a symbolic junction between the three worlds. In epic narratives this model of the universe is also presented as an inclined world, which tilts from south-east to north-west with the underworld to the cold north and the upper world to the south. The south-east is a positive direction; it is the source of life and of abundance. It is the direction of the rising sun, to which the Yakut orient the entrance to their houses and from which the herds of horses come along with the spirits who own them.

The north and the west are sorrowful directions where the dead live, and this is why the dead are placed with their head in these directions. Moreover, the correspondence between the bottom of the universe and the north means that the aquatic environment is regarded as particularly dangerous. There are more hazards and dangers and thus more caution is demanded in dealing with this environment. This correspondence between water, the north and *allara DOJDU* is the reason why *allara DOJDU* is considered to be the world of the dead. In this conception, the direction of the river, from south to north, is the direction of death. The river is the axis of the world, as illustrated in Figure 2.



**Figure 2. The orientation of the world in Western (a) and Yakut (b) thought.**

Figure 2a shows the Yakut landscape according to the Western compass orientation. The ‘bad’ direction is the north. In Yakut geography, the north is related to the downstream flow of rivers. That is also the direction of the world of dead people. Figure 2b highlights an interesting phenomenon. It is important to note that the Yakut draw their maps with north downwards. In traditional Yakut understanding, there is no opposition between hell and paradise. However, when I attempted to draw a correspondence between the three Yakut worlds and the river’s direction (in the north the downstream land is the ‘world at the bottom’, the river is the ‘middle world’ while in the south the upstream land is the ‘high world’), I noticed that these directions correspond to the Christian understanding of the universe, which superimposes paradise at the top, the human world in the middle, and hell at the bottom.

### ***The Yhyakh celebration in Yakutsk: the transcendent Sun***

The conception of the landscape described here makes it possible to separate the world of humans and the world of the spirits and opens the door to a transcendence of the spirits and to their symbolic domination over humans. The sun, which stands to the southeast, is in the high world: A place where the spirits, the givers of domestic animals, seem to live. In contrast, the north-west is the direction of the world of the dead and the direction of tombs.

The process of verticalisation continues today when the Yakut pray to the sun during the *Yhyakh* summer festival. Today, the *Yhyakh* festival has been transformed by ethnologists and the authorities into a cult of the sky: The Sun is welcomed at 3:15 on the morning of 21 June. As part of a ritual performed by an *algyschyt*, a priest who recites

prayers to the deities, the Yakut stand with their hands oriented to the Sun as it appears. Today, the idea that before people believed in numerous spirits surrounding humans, they believed in one God, is promoted (Zhanaidarov 2003). Paganism is being seen as primitive or feudal. This is perhaps the result of a reading of Wilhelm Schmidt's (1931) theory about monotheism as the first religion of 'primitive' people; a reading that stands against evolutionist ideas. Today, tengrism (or *тенгрианство* in Russian from the Mongolian word *tengri*, the sky) is sometimes considered a state religion for the nomadic people of Central Asia. The use of the ancient concept of order from the sky allows the religious legitimation of political unity and is a tool with which to (re)build ethnic and national identity (Hamayon 2003).

## Conclusion

Traditional Yakut culture was the product of fusion between two sets of traditions: those of the steppe, and those of the taiga and forested tundra landscape of the middle and the upper Lena River (and its tributaries). In moving north, the Yakut had to adapt to the harsh environment of eastern Siberia. They did so by creating dwelling places within the harsh landscape that sheltered them and their herd (cattle and horses) by means of deforestation, drying lakes, and burning dry grass in old meadows. Obtaining their resources from nature they lived in a fragile balance between appropriation of territory and respect for nature, a balance shaped by taboos and rites. Yakut hunters, fishermen and cattle breeders still inhabit a world in which they are surrounded by various spirits, with whom different activities and journeys are shared and negotiated. According to pre-Soviet thought, which for the Yakut means before the 1930s, the Yakut made no real distinction between an entirely wild space and a purely domestic one. Simple acts like burning off dead grass in the *alaas* to help new growth before autumn, thus creating a reserve of food which the horses could find through the snow in winter, were means by which the Yakut created a domesticated space in the landscape. At the broader level, these semi-sedentary communities also tamed their landscapes by marking out unusual trees or mountains, thereby turning them into ritual places.

The hero Ellej, as he is described in Yakut legend, epitomises the traits of surviving in this environment. He supposedly introduced the more sophisticated elements of current civilisation into the Yakut pastoral system. Hunting remained untouched by his or by any other hero's deeds. Today, the Yakut continue to have a horizontal relationship with the spirits of the forest who are supposed to appear in animal

form. The *ajyy* spirits honoured by Ellej during his first *Yhyakh* ritual, are different to those *ajyy* celebrated by present-day Yakut during the national festival of *Yhyakh* in Yakutsk, the capital of the Republic of Sakha (Yakutia). These *ajyy* are no longer only in a vertical relationship with humans, protecting them and their domestic animals, they have also acquired transcendence with the codification of the religion by the Yakut intelligentsia that occurred during the twentieth century. However, hunters seem to resist adapting to this radically verticalised relationship with the entities of the sky, as strikingly summarised by a man interviewed in 2009. When asked about his participation at the ritual, he simply asked: “Why do I need to wait until 21 June to welcome the Sun in this particular place near the town when I welcome it every day in nature when I go hunting?”

## Notes

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2 All extracts used here are from an interview with Sergej Lukin in Eveno-Bytantay Region, 2004.

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# FIRE CULTIVATION IN ESTONIAN CULTURAL LANDSCAPES

**Liisi Jääts, Marge Konsa,  
Kersti Kihno, Pille Tomson**

People have used fire to shape landscapes according to their needs for thousands of years. Fire cultivation, with all the effects characteristic to it, was one of the means by which human-induced fire was present in Estonian landscapes. Fire clears and opens up land, harms some species and gives advantages to others. Plants and animals adapt to particular patterns of fire according to frequency and intensity (Pyne 2001). Thus fire cultivation has had an impact on the environment and the landscape. Knowledge and experience of handling fire in the environment was one of the components of culture. The long tradition of fire cultivation has left its traces in language and in numerous toponyms.

The general term 'fire cultivation' includes different land-use techniques. For swidden cultivation (*ale*, *sõõrd*) an area was cleared of trees and burned, the ash serving as fertiliser. After some years of cultivation the plot was abandoned and vegetation left to regenerate. Slightly different swidden techniques were used in old-growth forest and in young, secondary, forest. There were also differences in preparing the area for winter and summer cereals. For burn-beating (*kütis*) — another fire cultivation method — young trees were cut and tied into bundles. The bundles were placed in rows and covered with sods. The heaps of wood and turf were burned and the mixture of ash and burnt soil spread over the surrounding area.

It is difficult to determine from the historical sources which fire cultivation technique was used in any particular case because the terms swidden and burn-beating were sometimes used synonymously. Overviews of agrarian history often discuss swidden cultivation as an oddity unrelated to the permanent arable, as a primitive mode of land use, the persistence of which appeared inappropriate in the agricultural

Jääts, L., Konsa, M., Kihno, K. & Tomson, P. (2011) Fire Cultivation in Estonian Cultural Landscapes. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond*. *Approaches to Culture Theory* 1, 165–180. Tartu University Press, Tartu.

systems of (early) modern society. Fire cultivation has remained a research topic of minor importance in comparison to permanent arable in Estonia. Very little in-depth research has been conducted on this topic. The situation is different in Finland where fire cultivation has drawn ample attention since the study of agrarian history began (Raumolin 1987). Historian Herbert Ligi (1963) was an exception among Estonian researchers, having produced a chapter on bushland and fire cultivation in his treatise on agrarian land-use methods in the sixteenth and seventeenth centuries that has remained the most thorough analysis on fire cultivation in Estonia. Archaeologist Tanel Moora has also contributed to the study of fire cultivation, focusing mainly on the experimental approach (Moora 1966; 1971; 1974; 1976).

The term bushland (*Buschland* in the Baltic-German sources, *võsamaa* in Estonian) has been described in the eighteenth century sources (e.g. Hupel 1774) as an area covered by young trees and bushes where small plots were regularly chosen for fire cultivation. The parts of bushland neighbouring the permanent arable could be used as a land reserve, cultivating parts of it temporarily. Other more important uses of bushland were grazing and the collection of timber for fuel. Thus, bushland was a multifunctional and extensively used category of land.

The aim of this paper<sup>1</sup> is to discuss the role of fire cultivation in Estonian land-use history and its impact on the environment. We will analyse the reasons for its perseverance and disappearance and move towards formulating the function of fire cultivation in the larger agricultural system in Estonia in the light of recent research. We will map the problems that have arisen so far and put forward future research questions.

## **Fire Cultivation in Historical Perspective**

Indirect data are often used to infer the fire cultivation practices of the prehistoric period. Information on land-use practices is provided by pollen and charcoal particles found in sediments, the settlement pattern and comparison with later periods. An additional method for gaining knowledge on this subject is to conduct an experiment by creating a test field imitating the land-use practices of the past.

Neolithic farming spread across Europe from the Middle East between 7000 and 3500 BC (Roberts 2004). According to the evolutionistic scheme, the development of land-use systems was linear from primitive and extensive techniques such as slash-and-burn cultivation, to more complex and intensive systems (Boserup 1965). Today such interpretation has been called into question (Thorpe 1999; Bogaard 2004).

There is no consensus on the type of land-use of these first farmers. In-depth local case studies imply that different land-use methods, chosen to suit local environmental circumstances, were simultaneously in use in Europe. For example, it has been assumed that in the permanent settlement region of fertile alluvial and loess soils in Central Europe, the first land-use method was intensive garden cultivation of long-established fixed plots (Bogucki & Grygiel 1993; Bogaard 2004). Swidden cultivation played an important role in the economy of northern Scandinavia and large parts of the Finnish inland during the Late Iron Age and the entire historical period (Alenius et al 2009). Researchers have not agreed on early land-use methods in southern Scandinavia (Thorpe 1999) since very little direct data on the matter is available and the evidence there is can be interpreted in different ways. On the other hand, we cannot exclude the possibility that complex agricultural models, combining intensive and extensive cultivation techniques, were already in use in the ancient period.

Cereal cultivation was introduced into Estonia, as into southern Sweden, in ca 4000 BC, more than 1000 years earlier than into Finland. Cultivation started in the coastal zone and spread inland (Poska et al 2004). Early Bronze Age settlement sites were small and used for short periods. The populations probably consisted of single households. The subsistence economy befitting this settlement pattern is dispersed cultivation — a type of limited and mobile slash-and-burn agriculture (Lang 2007). The earliest preserved fossil field systems in Estonia are the block-shaped fields at Saha-Loo near Tallinn. According to radiocarbon dates from charcoal, these fields date back to the Middle Bronze Age, 1300–1000 BC (Lang 2007). The charcoal found during archaeological excavations under clearance cairns and baulks is the primary and often the only evidence of fire cultivation in these fields. Whether the charcoal originates from repeated rotating swidden cultivation, or a single burn used for clearing the forest for permanent arable, remains unknown. There are relatively large systems of permanent arable surrounded with stone borders dated as being from the Late Bronze Age. All the presently known early fields in Estonia have been discovered on the thin rendzina soils found on the limestone bedrock of coastal Estonia and missing in the inland regions (Lang 2007). Pollen analyses support the view of fire cultivation prevailing in south Estonia during the same period (Laul & Kihno 1999). Relying on the archaeological research conducted on the Karula Upland, it has been assumed that in the single-household settlement type of the Upland, the land appropriate for swidden cultivation had been divided among the settlement units and that rotating swidden cultivation was used, meaning that the plots



for swidden agriculture were chosen in a circular configuration around the households and that the cultivators did not need to move their households (Konsa 2005).

During the Middle Ages and Early Modern period the open-field system was the prevalent agricultural system in large parts of Europe. The classic features of the open-field system were individually owned strips of arable in large village fields and commonly owned multi-functional lands used for grazing, gathering wood and other purposes. The open-field system has varied from location to location depending on the landscape, physical conditions and other variables (Dahlman 2008). In Estonia, there is evidence of the open-field system being used since the tenth century. Some evidence has been found that it was already used in the seventh to tenth centuries (Lang 2003). The open-field system with its characteristic strip fields, stayed in use until the enclosure of the mid-nineteenth century. In the Estonian context, the bushland was one of the land categories held as common land. Fire cultivation in bushland can thus be discussed as a regional characteristic within the open-field system model. It would be misleading to classify bushland as uncultivated land — it was an important part of the land-use system, although cropped less frequently than the arable. The large wooded areas in the region probably preconditioned such an arrangement.

Some archaeological evidence of swidden fields in the Middle Ages has also been found. In central Estonia, a three-hectare site with clearance cairn fields was inspected near Jalase village that was probably used for swidden cultivation. According to charcoal analysis, the area had been in use between the fourteenth and seventeenth centuries (Lang 1995). Clearance cairn fields have been found in other locations in Estonia, some of them dating back to the Bronze Age. It is possible that some of the earlier clearance cairn fields can be associated with swidden cultivation (Kaldre 2007) but these systems have not yet been examined.

Fire cultivation was used widely in south Estonia until at least the seventeenth century, not only as a means of expanding the arable but also as an independent land-use technique in its own right (Ligi 1963). It has been claimed (Meikar & Uri 2000) that the bushland formed at least one quarter of all land in agricultural use in the nineteenth century in south Estonia and hence was widespread at the time. By the early twentieth century it had virtually ceased to exist. We lack exact data about the end of swidden cultivation in the bushland, although it seems that researchers have sooner under- than over-estimated the persistence of fire cultivation. Ethnographic reports include a number of fire culti-

vation cases in different parts of Estonia, above all south Estonia, from the 1890s to 1940s (EA 22; KV 53; KV 74).

It is obvious that the role of fire cultivation has not been uniform at all times and in all regions: there is a clear difference between inland and coastal areas. It has also been suggested that in both Estonia and Finland the inland soil type was more suitable for swidden cultivation; the fire cultivation land use methods were first replaced by permanent fields in the coastal areas (Moora 1966; Vuorela 1986). In Estonia the woodland regenerates slowly on the thin alvar soil of the coastal areas, where the cycle of fire cultivation was too long and thus impractical.

## **Traces of Fire Cultivation in the Environment**

The impact of fire cultivation depends on the previous conditions of the site and the burning process itself. According to an example from eastern Finland (the Koli National Park), intensive fire caused high reduction of the thickness of the humus layer, so the quantity and concentration of organic matter after fire was lower than before. In contrast to this, only weak increases of pH and nutrient content were registered in another site with a low amount of burned wood in a rainy year (Matas 2004). Thus, only a certain amount of burned biomass and intensity of fire has an effect on the quantity of available nutrients, organic matter contents and pH of the humus layer. According to several authors (Viro 1974; Matas 2004), the average increase in pH immediately after burning is about two units. Later the pH value decreases, with a faster decrease in the first seven years after the burn. After 30 years, the pH values become similar to those before the burn (Viro 1974). Burning the field surface produces gases in the soil, which expand and loosen the topsoil. Therefore the burnt soil does not need ploughing, the seeds can be simply raked into the soil (Moora 1974).

Burning results in changed light conditions and increased pedological variation. When wood is burnt, high quantities of nutrients go into the topsoil from where new vegetation can take it up. At the same time, after burning, nutrient loss through leaching into the deeper soil layers begins. These factors may affect regeneration of the vegetation.

Palynological analyses of bog and lake sediments give us palynospectra that are widely used to obtain data about vegetation and its changes in the past. As swiddening has played an important role in land use and considerably changed the vegetation, it ought to be reflected in fossil pollen assemblages. This kind of disturbances has been detected in pollen diagrams from the Haanja Upland, southeastern Estonia (Laul & Kihno 1999; Niinemets 2008).

According to pollen diagrams, the most prominent changes are those in tree pollen composition: A decline in *Picea* (spruce) often coincides with a spike in heliophilous *Betula* (birch) pollen. Depending on the ecological conditions, *Alnus incana* (grey alder) or *Pinus sylvestris* (pine) reforests burnt land. The brief decrease of spruce pollen together with high charcoal concentration values is often the only clear indicator of forest clearance. Later on, the shortened rotation periods harmed the regeneration of spruce, so its pollen curve is no longer informative. Frequencies of other tree pollen and the human activity indicator herb pollen became more important, for example *Rumex acetosa/acetosella* (sorrel), which appears abundantly for a short period after harvesting (Huttunen 1980; Vuorela 1986; Kihno & Mäemets 2007).

There are no proper pollen indicators of swidden cultivation, as all the plants belong to native flora, although the periodicity in tree pollen succession, finds of cereals and other anthropogenic pollen types combined with layers of microscopic charcoal in the sediment profiles, may reflect the practice of swidden (Vuorela 1986; Lageras 1996). In addition, an increasing erosion of mineral soil from the areas with destroyed vegetation cover can imply fluctuations in agricultural activity (Vuorela 1989).

The indicative value of species or groups of species may be evaluated by means of studies of the pollen-vegetation relationship in modern analogues of past human-made vegetation types (Gaillard 2007). Palynological tests to study the yearly variation in pollen spectra across the different phases of the fire cultivation cycle were conducted during the experiment in south-eastern Estonia (Kihno et al 2008). Modified Tauber traps (Hicks et al 1996) were used to record pollen deposition at different distances from the field in the years of the experiment. The results of pollen trapping were expected to provide a basis for the recognition of the historical swidden practice in pollen records from peat and lake sediments and mineral soil. Preliminary results for the flowering 2008 season were interesting: Percentages of deposition of allogamous rye pollen in the vicinity of experimental field I were quite low (Kihno 2009). In the present stage of research it is early for conclusions and more thoroughgoing analyses are needed. As the interpretation of pollen data is often based on *Cerealia* pollen curves, it is necessary to study the sedimentation of rye pollen in more detail in the future.

## Experimental Research on the Productivity of Fire Cultivation

A number of fire cultivation experiments have been conducted in Europe since the 1950s (Iversen 1956; Reinold 1977; Steensberg 1979; Engelmark 1995; Soto et al 1995; Tvensberg 1995; Rösch et al 2002; Lovén & Äänismaa 2006; Eckmeier et al 2007) with the objective of gaining knowledge on the techniques of fire cultivation, its impact on the environment, and crop yield. In Estonia, the first experimental swidden field was founded by Tanel Moora in an old-growth forest site in eastern Estonia in 1969 (Moora 1971). In the 1980s, several plots in northern Estonia were re-burned (personal communication with Tanel Moora).

Drawing on his experiments, Moora has stressed the relationship between fire cultivation and relief: A field established in the old-growth forest has to be well exposed, otherwise part of the crop remains in shadow and ripens unevenly (Moora 1974; 1976).



*The undulating landscape of the region is highlighted by the tree-line in the background*

**Figure 1. Experimental swidden field in the Karula National Park.  
Photograph: Marge Konsa, 2007.**

We initiated another experiment in south-east Estonia (the territory of the Karula National Park) in 2007. Two experimental sites were burned, one in 2007 and the other in 2009. On both sites, a 20 to 25-year-old, mainly deciduous, copse was cut, dried and burned and a multi-stemmed landrace winter rye was sown in two consecutive years on the first field; in the second field, the second year of cultivation is underway (Figure 1).

Preliminary results from these experimental fields display similar dynamics to those described in historical sources: The first crop of winter rye from a swidden plot gave ten seeds to one; the second crop from the plot was considerably lower. The first year crop had approximately six stems with ears per plant (max 22 ears); in the second crop from the same field most of the plants had only one stem.

Another small-scale experiment was conducted with the same landrace of winter rye in 2006 in south Estonia near Tartu, where approximately 45 seeds were planted one by one in a burnt-land bed of 1.5 x 3 metres. The seeds were planted straight into the ash to a depth of one centimetre. This experiment produced 28 plants, approximately 40 stems with ears per plant (max 83) and approximately 40 grains per ear, thus amounting to an average productivity of 1600 seeds to one plant (Figure 2).



*a – uprooted specimen of winter rye*

*b – growing plants of winter rye*

**Figure 2. Multi-stemmed landrace of winter rye used in the experiment.  
Photographs: Mari Laane, 2006.**

The productivity of this small-scale planted bed experiment probably cannot be extrapolated to the conditions of larger-scale swidden fields, although its success opens up the discussion to the merits and profitability of small-scale intensive production. The results of other experiments support its findings. For example, a small-scale experiment with landrace winter rye in Norway conducted in 1990, produced seven plants, the biggest with 162 ears, each containing, on average, 75 grains (amounting to 12 150 seeds in total) (Tvensberg 1995). A swidden experiment with an old strain of winter wheat (*Triticum aestivum*) produced 20- to 25-fold crop yield (Rösch et al 2002).

## **The Persistence and Decline of Fire Cultivation**

Any given land-use method is not a rigid complex of elements but a flexible system, always adapting to the changing natural and social situation (Raintree 1991). This holds true for fire cultivation techniques in nineteenth-century Estonia. Fire cultivation did not stop abruptly. Rather, a long process with a change in function and simplification of the work occurred.

A number of factors supported sustaining the perseverance of fire cultivation techniques. Firstly, there were the high yields. A landrace of rye grown on the burnt land differed from the one grown on permanent fields. It was characterised by exceptionally numerous stems: One plant could produce between 30 and 40 (Manninen 1922). At the time prior to agricultural modernisation, the yields of a permanent, manured field were four-fold. The average productivity of the swidden field was reportedly ten- to twenty-fold (Ligi 1963), although the yield was that high only during the first year of cultivation. The yield in the second and the third years was much lower, closer to the productivity of the permanent arable. Together with the termination of swidden cultivation, this landrace variety has disappeared in Estonia.

Secondly, the reason for the persistence of fire cultivation was, paradoxically, the agricultural modernisation process, which gained full speed in Estonia in the middle of the nineteenth century with the process of enclosure. Formerly collectively owned village territory and village arable was parcelled up into privately owned farmland. Change in ownership patterns during enclosure accompanied by the relocation of the farms and the need to clear new permanent arable created conditions for swidden practices to persist (Lõugas 1980). In these new circumstances, fire cultivation gained importance mainly as the quickest and most convenient technique for clearing woodland for new arable, gradually losing its significance as an independent land-use method.

Thirdly, fire cultivation survived side by side with permanent arable cultivation for centuries due to the fact that these two land-use methods complemented each other, enabling people to reduce the risk of crop failure. The productivity of swidden fields could be high but the permanent arable tended to produce a more stable yield, being less vulnerable to draught and rain. The crop of the swidden fields was usually harvested slightly earlier than that of the permanent field, allowing the workload to be spread over an extended period. With rainy weather being a constant threat to the ripening crop, having two fields with different harvest times enabled farmers to react flexibly and reduce the risk of rain damage. The swidden fields thus made production from additional arable possible without increasing the need for manure. This was constantly in short supply, and thus the main factor in limiting the extension of permanent arable. The opportunity of enlarging the overall cultivated surface by using swidden plots fertilised with ash was welcome, especially on the acidic soils of south Estonia.

It has been suggested (Dahlman 2008; Neeson 1993) that the open field system functioning together with commonly held lands lost its significance as the market's demand for agricultural produce increased. Fire cultivation ultimately lost its economic significance when the crop yield in permanent arable reached the same level as in the swidden fields (Öpik 1992). Among the factors contributing to the decline of fire cultivation was the rapid decrease of woodland in the eighteenth and nineteenth centuries. Shortage of forest and timber was severe in some areas in south Estonia and some authors have linked the problem to extensive fire cultivation (Friebe 1794; Kelch 2004). Some attempts to control the exploitation of woodland were made through legislation in the seventeenth century. Restrictions were set for rotating swidden, especially in the old-growth forest. An interval of 24 years was determined as the frequency of cropping in bushland with no more than three consecutive crops allowed (EAA.1406.1.2; Lihwlandi... 1820). The developments were similar in Finland (Vuorela 1981). Legislation on the matter of bushland and fire cultivation in the early nineteenth century shows that these topics kept their relevance, demanding attention at government level.

In the early nineteenth century, the price of timber started a steep climb owing to growing population numbers; there was a constant demand for fuel and building material. Spirit distilleries, saw-mills, tar, brick, and lime production facilities, were numerous, although usually not very large (Ibius 1977; Rosenberg 2010). Therefore the interest in rearranging the management of bushland and investment in forestry grew gradually throughout the nineteenth century (Meikar & Uri 2000).

In the agricultural intensification process, bushland was divided between permanent arable and forest. For instance in Karula, south-east Estonia, seventy percent of the farmers' bushland was turned into arable and about twenty percent became forest (Tomson 2007). With expanded permanent arable, improved agricultural equipment and an intensified land-use system, combined with high prices for timber, keeping permanent arable or forest was more profitable than periodically cultivating extensive bushland.

## Conclusion

The relationships between extensive fire cultivation methods and permanent arable are probably more complex than a straightforward development from one (more primitive) to the other (more advanced). Rather, they ought to be understood in terms of making the best use of natural resources (relief, woodland and soil type) and the labour force available. The techniques for fire cultivation have not formed a rigid set through time. Owing to differences in physical conditions, population numbers, settlement types and subsistence methods, fire cultivation was adapted according to need, being dominant in certain places and periods and subordinate in others.

We suggest that fire cultivation remained an important integral part of the open-field system in Estonia at least up to the seventeenth and eighteenth centuries. The final phase of fire cultivation in Estonia in the nineteenth and early twentieth centuries remains yet to be studied in detail; according to ethnographic data this land-use method was in use longer than so far assumed.

In order to open up a more thoroughgoing discussion of the role and impact of fire cultivation in Estonian cultural landscapes, additional research is required from the humanities as well as the natural sciences. As indicated above, much information can be obtained about fire cultivation by studying its traces in the environment, for example aspects relating to changes in vegetation type, light conditions and soil nutrients.

Further work on a method to distinguish between the sites of natural forest fire and the sites of ancient swidden fields is necessary. Analysis of the charcoal particles and soil profiles may give insights into how to define the differences between natural and agricultural burns. Having a method with which to determine the locations of agricultural land-use can aid analysis of the development of south Estonian landscapes. In examining ancient fire cultivation practices it is also important to determine the tree species of the charcoal from the fossil fields. Access to resources is another significant issue for analysis:



Which social groups had the right to use the various fire cultivation methods, to what extent, and how did these conditions change over time?

Fire cultivation has shaped the cultural landscape in Estonia. Its characteristic features were not only the smoking swidden fields but also the mosaic landscape they produced. Traces of these are barely noticeable in contemporary landscapes, although the history can be traced through pollen surviving in sediments, pieces of charcoal in the soil and records in written sources.

## Notes

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# A WORLD OF DOMESTICATED LANDSCAPES

**Mats Widgren**

Recent research on the historical role of humans in shaping the global environment spurs us to reconceptualise the nature–culture divide. The concept of domestication is central to this understanding. This paper is a short summary of an oral presentation, based on a reading of some recent work that I find provide an important background for such a reconceptualisation. My approach to this problem is through my work with a project entitled Mapping Global Agricultural History. This project takes its departure from a critique of some of the recent attempts to reconstruct global croplands from a historical perspective. By backcasting from recent cropland distributions, these studies tend to project a Eurocentric and colonialist perspective on past land use, especially in Africa and the Americas. Furthermore, they depict the development of human landscapes as the spread of croplands and pastures into previously undisturbed natural biomes (Goldewijk 2001; Pongratz et al 2008) and therefore present a biocentric view of the world in which humans are only late intruders. In our project on mapping global agriculture, we hope to provide a less Eurocentric and less biocentric understanding of the world's environments during the last 1000 years (Widgren 2010).

## **Anthromes Instead of Biomes**

A recent and thought-provoking contribution to the field of mapping global environments is the paper by Erle Ellis and Navin Ramankutty (2008) entitled *Putting People on the Map: Anthropogenic Biomes of the World*. The authors argue against the established view of the environments of the world as consisting of a series of naturally and climatically determined biomes. They argue: "Human-dominated ecosystems now cover more of the Earth's land surface than do 'wild' ecosystems" (Ellis & Ramankutty 2008, 439). According to them, only 22 percent of land consists of 'wild' nature. Moreover this wild nature contributes to

Widgren, M. (2011) A world of domesticated landscapes. – Peil, T. (ed) *The Space of Culture – the Place of Nature in Estonia and Beyond. Approaches to Culture Theory* 1, 181–185. Tartu University Press, Tartu.

only eleven percent of net terrestrial primary production. The conclusion is that 'nature' is now embedded within human systems. It is no longer possible to conserve nature by avoiding human interaction. The authors accompany their argument with an interesting map based on a categorisation of areas of the world into different types of anthrome, or human biome.

If we add an historical dimension to the work done by Ellis and Ramankutty, we have to ask when nature became embedded in human systems? Is this a situation that occurred during the twentieth century in response to population increase and urbanisation, or does it go further back in time? What, if anything, does constitute pristine nature? Was there ever such a thing as pristine nature? The common sense answer would be that the rift between nature and culture occurred with the introduction of agriculture. The modification of plants and animals through domestication and the subsequent changes in the landscape that agriculture and early urbanism entailed, is thus alternatively seen as the birth of civilisation, or, from a green standpoint, as the beginning of the environmental destruction of pristine nature. Regardless of these moral implications, many authors do agree on the huge impact on human–environment relations. For example Peter Atkins, Ian Simmons, and Brian Roberts write in their textbook (Atkins et al 1998, 13): “No other single change in human history can have had a greater effect on the landscape than the domestication and global spread of plants and animals.”

When it comes to the geographical aspects, our understanding of this process of Neolithisation and the first agriculture has advanced very much in the last fifty years. While according to previous understanding, the hearth of agriculture was in the Middle East, it is now widely recognised that we have to understand this process as multi-centred. Again, going back to textbook knowledge, Ian Simmons (1989) summarised the evidence by pointing out four major regions of domestication: Three in Eurasia and one in South America, while acknowledging that there were also other locations. Neil Roberts (1989) shows eleven 'hearth areas' of plant domestication.

## **New Views on Plant Domestication**

There is now strong empirical evidence to re-evaluate not only the geographical distribution of domestication, but also the very nature of the domestication of plants. Based on archaeological research, Michael Purugganan and Dorian Fuller (2009, 845) conclude:

[...] the origins of domesticated plant species were not single events but an extended multistage process in which traits arose sequentially over several thousand years to create the phenotypic assemblage that characterises domesticated species today.

The archaeological results do contrast with the molecular evolutionary studies that have assumed rapid, single origins. Purugganan and Fuller (2009) also argue that domestication can be seen as only one aspect of plant–animal co-evolution, acting much in the same way as natural selection. It is merely in type and intensity that the human–plant relationship, resulting in domestication, differs from natural selection and from other plant–animal co-evolution, such as the way that ants and beetles can be said to have ‘domesticated’ some fungal species. In their mapping of the geographical areas of this human–plant co-evolution, they point out more than twenty areas on all continents except Australia. Thus, all continents have contributed to the globally significant crops of today, such as the sunflower of the native North Americans, the potato of South America, the sorghum of Africa and the banana of New Guinea, to mention just a few. Instead of the former image of a single-centred origin of agriculture in the Middle East, we can thus now see a polycentric origin of the world’s domesticated plants. Domestication occurred independently in different places and regions and in different time periods stretching from 13 000 BP for wheat and barley in the Middle East to perhaps 3000 BP (or even later) for African rice.

## **The Domestication of Landscapes**

The specific case of plant–animal co-evolution that domestication entails includes a series of different actions from humans and has for the Americas been described by Clark Erickson (2006, 241) as involving “planting, transplanting, tending (‘husbandry’ or ‘mothering’), cultivation, weeding, transport outside natural habitats, and the use of fire as a management to enhance survival of economic species”. Erickson (op cit) also comments on how Amazonian peoples, as they move in the landscape, are “constantly gardening the forest, weeding and pruning here and there”.

All these activities thus play an important role in the domestication of plants, but moreover, as Erickson (2006) argues, it is also possible to broaden the concept and think of those activities as leading to the domestication of the whole landscape. The domestication of landscapes thus encompasses all non-genetic, intentional and unintentional



practices and activities of humans that transform local and regional environments into productive, physically patterned, cultural landscapes for humans and other species.

Thus, irrigation systems, anthropogenic soil, managed forests are all part of the domesticated landscape. Erickson (2006, 236) also proposes the hypothesis that Amazonian peoples invest more energy in “domesticating landscapes as a whole than in domesticating individual species of plants and animals”.

## A World of Domesticated Landscapes

Through these recent works it is now possible to examine the nature–culture dichotomy in a new way. It is clear that we have to allow for the several thousand years of human–environment interaction that have led to the development, not only of a few domesticated plants and animals but also of anthropogenic biomes or domesticated landscapes. There is more and more evidence showing that what was previously seen as ‘wilderness’ may in fact represent the results of different types of historical human–environment interaction. The simple cropland–wilderness dichotomy that is used in some modelling obviously gives a poor representation of the landscapes of the world’s past. It is also clear that the domestication of landscape, and the domestication of plants and animals, represent two alternative ways of producing food beyond the subsistence level. This understanding also has implications not only for the way we understand the nature–culture dichotomy, but also, and perhaps even more challengingly, for how we see the forager–farmer dichotomy that has played such an important role in our understanding of the development of prehistoric natural resource management.

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**Index**

- Äänismaa, P. 171, 178  
 Aaltola, J. 118  
 Aasalo, L. 178  
 Ahlgren, C.E. 179  
 Åkerlund, A. 124, 128, 129, 132  
 Alenius, T. 167, 176  
 Alm, G. 125, 135  
 Ambrosiani, B. 126, 132, 134  
 Ammann, B. 177  
 Antrop, M. 136, 151  
 Anttonen, P.J. 109, 117  
 Apo, S. 111, 117  
 Aquinas, T. 51, 52  
 Atkins, P. 182, 184  
 Austin, P. 122, 132  
 Bailey, G.N. 128, 132  
 Bakhtin, M.M. 83, 84, 91  
 Balee, W. 184  
 Balfour, D. 54, 64  
 Barbour, I.G. 68  
 Barringer, R. 68  
 Barrow, J.D. 52, 64  
 Basanta, R. 179  
 Basso, K.H. 47, 64  
 Batchelor, J. 144, 151  
 Bate, J. 39, 40, 64  
 Beer, J. 135  
 Behre, K.-E. 180  
 Bellwood, P. 150, 151  
 Bengtsson, L. 134  
 Benton-Benai, E. 58, 64  
 Berelson, B. 22, 37  
 Berglund, B.E. 133  
 Birks, H.H. 122, 132  
 Birks, H.J.B. 132, 133  
 Björck, S. 127, 132  
 Blažauskas, N. 135  
 Blomkvist, N. 134  
 Boëthius 21, 64  
 Bogaard, A. 166, 167, 176  
 Bogaert, J. 132  
 Bogenrieder, A. 179  
 Bogucki, P. 167, 176, 179  
 Boserup, E. 166, 176  
 Bourdieu, P. 78–80, 84, 85, 91  
 Breaux, J.-P. 91  
 Brenton, L.C. 57, 64  
 Briggs, A. 37  
 Brock, S. 65  
 Brown, A.G. 122, 132  
 Brown, C.S. 65, 68  
 Brunnberg, L. 134  
 Brutus 34  
 Buell, L. 42, 46, 47, 57, 64  
 Buffon, G.L.L. de 25, 37  
 Burke, P. 37  
 Buysens, E. 27, 37  
 Bütikofer, J. 135  
 Cairnie, T.P. 91  
 Cameron, J. 60  
 Carey, J. 56, 64, 65  
 Casey, E.S. 40, 44, 45, 47, 65  
 Cassirer, E. 22, 37, 38  
 Charmaz, K. 112, 117  
 Chaucer, G. 49  
 Childe, V. G. 138, 151  
 Chown, M. 52, 65  
 Christensen, D. 49, 65  
 Chryssavgis, J. 48, 65  
 Cicero 21  
 Clark, E. 13  
 Clarke, H. 126, 132, 134  
 Claussen, M. 185  
 Clémence, A. 81, 91  
 Corbin, J. M. 112, 119  
 Crabtree, P. J. 179  
 Crowley, T. J. 135  
 Cubasch, U. 135  
 d'Alembert 21  
 Dahlman, C. 168, 174, 177  
 Dante 51, 52, 60  
 De Geer, G. 122, 132, 133  
 Deaux, K. 91  
 Deguchi, M. 143, 152  
 Deleuze, G. 39, 40, 47, 57, 59, 65, 66  
 Denzin, N. K. 117  
 Dermont, A. 60, 65  
 Descola, P. 16, 153, 157–159, 163

- Diaz-Fierros, F. 179  
 Diderot, D. 21  
 Dilthey, W. 22  
 Dionysius 51  
 Doise, W. 80, 81, 91  
 Douglas, I. 119  
 Duncan, J. 142, 151  
 Duriez, C. 58, 65  
 Duveen, G. 81, 91, 92  
 Eckmeier, E. 171, 177  
 Edwards, P. N. 60, 65  
 Ehrmann, O. 177, 179  
 Ekman, P. 27, 38  
 Elejabarrieta, F. 81, 82, 91  
 Elias, S.A. 177  
 Ellej 154, 155, 160, 162, 163  
 Ellis, E.C. 181, 182, 184  
 Emmeche, C. 95, 106  
 Engelmark, R. 171, 177  
 Ephrem the Syrian 60, 65  
 Ergis, G.U. 159, 163  
 Erickson, C.L. 183, 184  
 Eriugena, J.S. 40, 44, 50-52, 57, 59,  
 60, 65  
 Farina, A. 122, 132  
 Farr, R. 92  
 Farrel, C. 118  
 Favareau, D. 66, 95, 106  
 Feehan, J. 118  
 Fiala, N. 98, 106  
 Flemming, N.C. 128, 132  
 Flick, U. 91  
 Florin, M.-B. 122, 132  
 Florin, S. 122, 132  
 Flückiger, J. 135  
 Foltz, B. 61, 65  
 Fredén, C. 132  
 Frederic II 35  
 Friebe, W.C. 174, 177  
 Friesen, W. 27, 38  
 Frye, N. 39, 41, 49, 56, 65  
 Fuji'o, S. 152  
 Fuller, D.Q. 182, 183, 185  
 Gaillard, M.-J. 170, 177  
 Geertz, C. 109, 117  
 Gerlach, R. 177  
 Gertz, S.K. 91  
 Giblett, R.J. 114, 117  
 Giesecke, M. 37, 38  
 Gillespie, A. 83, 91  
 Gogolev, A.I. 157, 163  
 Goldammer, J.P. 179  
 Goldewijk, K.K. 181, 185  
 Goody, J. 37, 38  
 Goose, H. 135  
 Goszlar, T. 135  
 Granlund, E. 122, 132  
 Greimas, A.J. 110, 117  
 Grosjean, M. 135  
 Grygiel, R. 167, 176  
 Guattari, F. 39, 40, 47, 57, 59, 65  
 Gustafsson, P. 132  
 Habu, J. 138, 151  
 Hackens, T. 134  
 Haeckel, E. 72  
 Hails, C. 106  
 Hall, M. 179  
 Hall, S. 109, 110, 118  
 Hall, T. 67  
 Hallward, P. 40, 57, 66  
 Hamayon, R. 158, 159, 162, 163  
 Hansson, A.-M. 134, 135  
 Harman, G.H. 40, 51, 62, 66  
 Harre, R. 81, 91  
 Hawking, S. 52, 60, 65, 66  
 Hayes, N. 78, 80, 88, 92  
 Head, L. 130, 133  
 Hedenström, A. 135  
 Hedin, K. 128, 133  
 Hegel, G.W.F. 22, 26  
 Heidegger, M. 39-41, 45, 51, 59, 61,  
 62, 65, 66  
 Heidmets, M. 86, 92  
 Heimdahl, J. 135  
 Heinsalu, A. 135  
 Helm, K. 135  
 Helskog, K. 122, 133  
 Hermans, H.J.M. 79, 84, 91  
 Herrmann, L. 179  
 Hicks, S. 170, 177

## Index

- Hoffmeyer, J. 52, 66  
Hugget, R. 119  
Hughes, D.J. 136, 151  
Hult De Geer, E. 122, 133  
Hupel, A. W. 166, 177  
Huttunen, P. 170, 177  
Ibius, O. 174, 177  
Ijejekhsit 157  
Ingold, T. 69, 70, 74  
Ionita, I. 68  
Irimoto, T. 144, 151  
Isocrates 21  
Iversen, J. 171, 177  
Jaanusson, H. 126, 133  
Jääts, L. 16, 165, 177  
Jarockis, R. 135  
Jess, P. 118, 119  
Jodelet, D. 91  
Johansson, A. 133  
Johansson, B. 134  
Joos, F. 135  
Jovchelovich, S. 92  
Julius Caesar 34  
Kahk, J. 180  
Kaland, P.E. 132  
Kaldre, H. 168, 177  
Kanaer, S. 152  
Kaplan, J.O. 135  
Karlsson, S. 16, 122, 124, 126, 128,  
129, 133–135  
Kashima, Y. 92  
Keegan, R. 60, 66  
Kelch, C. 174, 177  
Keskpaik, R. 69, 74  
Khudjakov, I.A. 159, 163  
Kihlstedt, B. 134  
Kihno, K. 16, 165, 167, 169, 170, 177,  
178  
Kinda, A. 185  
Klassen, V. 135  
Knutsson, H. 129, 133  
Knutsson, K. 129, 133  
Knuuttila, S. 119  
Kobayashi, T. 142, 150, 152  
Koike, H. 152  
Komeie, T. 185  
Konsa, M. 16, 165, 168, 171, 177, 178  
Korhonen, R. 114, 118  
Korpela, L. 118  
Kozlowski, T.T. 179  
Kotov, K. 69, 74  
Koyama, S. 140, 150, 152  
Kriiska, A. 135  
Kristeva, J.K. 41, 47, 48, 50, 53, 54, 66  
Ksenofontov, G.V. 153, 154, 164  
Kukk, T. 66, 69, 74  
Kull, K. 13, 15, 42, 52, 61, 66, 69, 70,  
74, 95–97, 106  
Kurki, T. 119  
Küttel, M. 135  
Kuze, T. 148, 152  
Laaksonen, P. 108, 118, 119  
Laane, M. 172  
Lageras, P. 170, 178  
Laine, T. 110, 118  
Lane, L. 48, 55, 66  
Lang, V. 167, 168, 178  
Larsson, B. 177  
Lascarotos, A. 122, 135  
Latalowa, M. 177  
Laul, S. 167, 169, 178  
Laurén, K. 15, 107–110, 113, 114,  
116, 118  
Lavento, M. 176  
Leal Filho, W. 92  
Lehtinen, A.A. 114, 118  
Lehtinen, T. 110, 118  
Leng, M. 132  
Lévi-Strauss, C. 145, 152  
Lewis, C.S. 58, 60, 66  
Ley, D. 151  
Lidström-Holmberg, C. 134  
Ligi, H. 166, 168, 173, 178  
Lincoln, Y.S. 117  
Lindgren, C. 133  
Lorenzi-Cioldi, F. 91, 92  
Lotman, A. 66, 69, 74  
Lotman, J. 97, 106, 109, 118  
Lõugas, L. 135  
Lõugas, V. 173, 178

- Lovén, L. 171, 178  
 Lyons, O. 63  
 MacMathúna, S. 54, 66  
 Mackay, A. 132  
 Mäemets, H. 170, 177  
 Magnus, R. 96, 106  
 Maj, E. 16, 153, 156, 159, 164  
 Manninen, I. 173, 178  
 Mantzaridis, G.I. 45, 66  
 Maran, T. 41, 66, 92  
 Marc Anthony 34  
 Marcel, G. 104, 106  
 Markova, I. 92  
 Massey, D. 14, 17, 110, 113, 114,  
     118, 119  
 Matas, C.D. 169, 178  
 Matonis, A.T. 68  
 Matsuki, T. 152  
 McLuhan, M. 22, 37, 38  
 Meikar, T. 168, 174, 178  
 Melia, D.F. 68  
 Merleau-Ponty, M. 94, 106  
 Mészáros, C. 155, 164  
 Meyer, K. 54, 67  
 Miller, D. 14, 17  
 Miller, U. 16, 122, 125, 126,  
     128–130, 132–135  
 Misak, C. 68  
 Mizoguchi, T. 185  
 Mlodynow, L. 52, 66  
 Mnamide, S. 185  
 Moe, D. 132  
 Moghaddam, F. 81, 91  
 Moora, H. 178  
 Moora, T. 166, 169, 171, 178  
 Moran, E.F. 107, 118  
 Moscovici, S. 80, 83, 91  
 Moses 49  
 Mounin, G. 27, 38  
 Müller, S.A. 135  
 Munro, N.G. 144, 152  
 Nakamura, O. 151, 152  
 Nakamura, S. 151, 152  
 Næss, A. 69, 75, 93, 106  
 Naumann, N. 151, 152  
 Neeson, J.M. 174, 179  
 Nestmann, L. 122, 134  
 Niinemets, E. 169, 179  
 Nikkilä, L.-E. 114, 118  
 Nordhaus, T. 50, 67  
 Nöth, W. 40, 43, 67, 78, 91  
 Nydal, R. 123, 134  
 Olausson, M. 134  
 Oleksa, M. 49, 67  
 Olsson, E. 124, 134  
 Olsson, I.U. 123, 134  
 Öpik, E. 174, 180  
 Paavilainen, E. 107, 118  
 Page, H. 179  
 Päivänen, J. 107, 118  
 Palagushkina, O. 132  
 Pardoe, H. 177  
 Peil, T. 122, 134  
 Peirce, C.S. 40, 41, 43, 45–48, 53,  
     54, 61, 62, 67, 68  
 Perez, R. 179  
 Philogene, G. 91  
 Pico della Mirandola, G. 21  
 Piela, U. 119  
 Pongratz, J. 181, 185  
 Popov, A.A. 159, 163  
 Poska, A. 135, 167, 179  
 Posner, R. 15, 20, 37, 38  
 Pöysä, J. 111, 119  
 Prentice, I.C. 135  
 Prieto, L.J. 27, 38  
 Protagoras 21  
 Pullman, P. 60, 61, 67  
 Purugganan, M.D. 182, 183, 185  
 Pyne, S.J. 165, 179  
 Quintilian 21  
 Raddatz, T. 185  
 Raggatt, P.T.F. 84, 92  
 Raintree, J.B. 173, 179  
 Ralska-Jasiewiczowa, M. 133  
 Ramankutty, N. 181, 182, 184  
 Randviir, A. 94, 106  
 Raudsepp, M. 15, 78, 86–88, 92  
 Raumolin, J. 166, 179  
 Rees, W. 98, 106

## Index

- Reick, C. 185  
Reinold, P.J. 171, 179  
Relph, E. 109, 119  
Ricard, M. 133  
Richardson, M. 107, 109, 119  
Rickert, H. 22, 37, 38  
Risberg, J. 16, 122, 124-126, 128,  
132-135  
Roberts, B.K. 182, 184  
Roberts, N. 166, 179, 182, 185  
Robertsson, A.-M. 125, 126, 133-135  
Robinson, M. 119  
Roepstorff, A. 66, 69, 74  
Romanides, J. 45, 67  
Rösch, M. 171, 173, 177, 179  
Rose, D. 92  
Rose, G. 110, 119  
Rosenberg, T. 174, 179  
Rothbart, D. 91  
Ruddiman, W.F. 136, 152  
Saarnisto, M. 176  
Saarse, L. 179  
Sabat, S.R. 91  
Saluäär, S. 135  
Salutati, C. 21  
Sarkkola, S. 118  
Schama, S. 110, 119  
Schellenberger, M. 50, 67  
Schelling, F.W.J. 22  
Schier, W. 177, 179  
Schipani, I. 132  
Schmidt, M.W.I. 177  
Schmidt, W. 162, 164  
Schottenhammer, A. 152  
Schulz, E. 179  
Šeirienė, V. 135  
Selirand, J. 178  
Selmer, C. 58, 67  
Seroshevski, V.L. 154, 164  
Shakespeare, W. 34, 49, 65, 66  
Sheldrake, P. 48, 55, 67  
Shitara, H. 152  
Short, T.L. 43, 68  
Siewers, A.K. 15, 39, 41, 43, 44,  
47-50, 52, 56, 57, 61, 63, 64, 67  
Simmons, I.G. 182, 184, 185  
Sims-Williams, P. 64, 68  
Šinkūnas, P. 135  
Sjörs, H. 130, 135  
Skloris, N. 122, 135  
Smith, D.B. 44, 68  
Solomina, O. 135  
Soto, B. 179  
Spenser, E. 49, 67  
Sporrong, U. 131, 135  
St Antony 48, 55  
St Athanasius 48, 51  
St Augustin 21, 45, 50, 64  
St Gregory of Nyssa 45, 51, 53, 57,  
60, 65, 66  
St Gregory Palamas 51  
St John Chrysostom 49, 65  
St John of Damascus 59  
St Maximus the Confessor 51, 68  
St Paul 50  
St Symeon 51  
Stančikaitė, M. 135  
Stăniloae, D. 44, 68  
Star, S.L. 65  
Steensberg, A. 171, 179  
Stocker, T.F. 135  
Strauss, A.C. 112, 119  
Sund, C. 125, 135  
Svensson, N.-O. 127, 132  
Tadodaho Sid Hill 62  
Taltiesin 52  
Taniguchi, Y. 144, 152  
Tarasov, P. 135  
Tarasti, E. 110, 117, 119  
Tarvel, E. 180  
Thomas, D.H. 140, 150, 152  
Thompson, E.T. 39, 40, 43, 46-48,  
59, 68  
Thorpe, N. 166, 167, 179  
Thunberg, L.T. 44, 68  
Tilley, C. 136, 152  
Tingvall, C. 134, 135  
Tinsley, H. 177  
Tipler, F.J. 52, 64  
Toadvine, T. 65, 68

- Tolkien, J.R.R. 58, 60–62, 67, 68  
Tomson, P. 16, 165, 175, 177, 179  
Tønnessen, M. 15, 93, 96, 97, 99,  
100, 105, 106  
Tuan, Y.-F. 110, 116, 119  
Turnbull, C.M. 149, 152  
Tvensberg, M. 171, 173, 179  
Uchiyama, J. 16, 136, 142, 143, 145,  
152  
Uemori, H. 143, 152  
Uesugi, K. 185  
Uexküll, J. von 15, 69, 94, 95, 97, 99,  
101, 106  
Ukkonen, P. 128, 135,  
Uri, V. 168, 174, 178  
Vahtre, S. 179  
Valli, R. 118  
van Dijk, T.A. 85, 91  
Varto, J. 110, 119  
Vennemann T. 35, 38  
Veski, S. 128, 135, 179  
Viro, P. J. 169, 179  
Vuorela, I. 169, 170, 174, 179, 180  
Wackernagel, M. 98, 106  
Wagner, H. 35, 38  
Wagner, M. 135  
Wagner, W. 78, 80, 88  
Wanner, H. 122, 135  
Watanabe, H. 144, 152  
Watson, H. 39, 68  
Weber, A. 70, 75  
Welinder, S. 131, 135  
Wenner, C.-G. 129, 134  
Westerdahl, C. 122, 135  
White, L. Jr. 64, 68  
Widgren, M. 17, 181, 185  
Widmann, M. 135  
Windelband, W. 22, 37, 38  
Wood, D. 44, 47, 68  
Wright, H.E. 133  
Yamada, T. 144, 151  
Yoshida, A. 140, 152  
Zhanaidarov, O. 162, 164  
Zykov, F.M. 155, 164