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THE SOCIOLOGY OF TRANSLATION AND THE POLITICS OF SUSTAINABILITY

EXPLORATIONS ACROSS CULTURES AND NATURES

Edited by

John Ødemark, Åmund Norum Resløyken,
Ida Lillehagen, and Eivind Engebretsen



The Sociology of Translation and the Politics of Sustainability

This book uses sustainability to explore the interfaces between translation studies, the cultural history of knowledge, and science and technology studies (STS).

The volume examines various material, cultural, and epistemic translation practices where sustainability serves as a boundary object between natural and cultural inquiry. By turning to the intellectual traditions that influenced but were left behind by STS and actor-network theory (ANT), we aim to challenge and expand the Sociology of Translation developed in ANT. Concepts such as ‘inscription’ (Derrida), ‘actant’, ‘narrative’ (Greimas), and ‘world/worlding’ (Heidegger, Spivak) were reemployed—translated—in the canonical STS texts. What networks of meaning were left behind in this reemployment? The way the book showcases a combination of cultural and knowledge historical perspectives on the construction of the Sociology of Translation and practical experiments across the registers of nature and culture is novel. There have been brilliant individual attempts to realign the Sociology of Translation with narratives and modes of enunciation, but none has related the Sociology of Translation to the networks and traditions which enabled it but to which it erased its relations and debts.

This innovative work will appeal to scholars in translation studies, cultural studies, environmental humanities, medical humanities, and science and technology studies.

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Introduction

From the Sociology of Translation to a Translational Environmental Humanities

John Ødemark and Clemet Askheim

I

The Sociology of Translation and the Environmental Humanities

This book uses sustainability to explore the interfaces between translation studies, the cultural history of knowledge, and science and technology studies (STS). Our objective is to examine various material, cultural, and epistemic translation practices, where sustainability serves as a boundary object between natural and cultural inquiry. In what has become a fruitful area of empirical research, scholars in the history of knowledge and STS have come to focus their attention on ‘science in action’—seen as a kind of translation. Combining anthropological fieldwork with the new theoretical tools of material semiotics made it possible to study objects, relations, and constellations as ethnographers, but without privileging human consciousness, or presupposing what kinds of objects, actors, or relations one is studying. This was a ground-breaking move, providing new perspectives on issues like technology, science, and nature. By turning to the intellectual traditions that influenced but were left behind by STS and actor-network theory (ANT), we aim to challenge and expand the Sociology of Translation developed in ANT. We believe this is timely in a situation where ANT is becoming increasingly influential in translation studies and the humanities more broadly (Ødemark and Engebretsen 2018; Ødemark 2019).

A case in point is D. Chakrabarty, who in *Humanities in the Anthropocene: The Crisis of an Enduring Kantian Fable*, makes a call for ‘perspectives’ and ‘stories’ that go beyond ‘any anthropocentric perspective’. The remedy for the humanities in the Anthropocene is found in the work of Bruno Latour:

The connected stories of the evolution of this planet, of its climate, and of life on it cannot be told from any anthropocentric perspective. These other perspectives are necessarily anchored in stories of deep time, and they make us aware that humans come very late in the history of this planet, which was never engaged in readying itself

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for our arrival. We do not represent any point of culmination in the story of the planet. This is where Latour's—and some other scholars' attempts—to open up vistas of aesthetic, philosophical, and ethical thought help us to develop points of view that seek to place the current constellation of environmental crises in the larger context of the deeper history of natural reproductive life on this planet. This I see as a primary purpose of the 'new' humanities of our times.

(Chakrabarty 2016: 394)

Already in the title of the article, Chakrabarty associates the cultural and historical challenges that a new humanities attuned to 'the deeper history of natural reproductive life', with what he calls 'the Crisis of an Enduring Kantian Fable'. This fable is almost oxymoronically associated with the logos of the Enlightenment, a prominent philosopher of reason, namely I. Kant. It is still with us, it 'endures' in the Anthropocene. The Kantian fable is in crisis as an epistemological model for understanding the world. Besides, its funding narrative logic is also one of the causes of the current crisis of nature and climate.

Kant's anthropocentrism is based upon his notion of teleology (*Zweckmäßigkeit*), the idea that man is 'the true end of nature' (Kant 2006). The conscious awareness of man's position in nature, as its *Zweck*, is what raises humankind above other species. As Kant says in *Conjectural Beginning of Human History*, the text Chakrabarty analyzes:

The fourth and final stage, by means of which reason completely raised the human being above its society with animals, was that he understood (however vaguely), that he was actually *the end of nature*, and that nothing which lives on earth can compete with him in this regard. The first time he said to the sheep, '*the coat that you wear was given to you by nature not for you, but for me*', and stripped it of this coat and put it on himself ... he became aware of a privilege that he, by virtue of his nature, had over all animals.

(Ibid.: 28, italics in the original)

This, then, is also the narrative telos of the Kantian fable as told in *Conjectural Beginning of Human History*. Fable (in the Aesopian tradition) is surely the only European genre in which animals and nature speak. In this genre, animals are mobilized to enact moral principles in exemplary story worlds. Moreover, animals mostly speak and act as a species (the Fox is a generic fox, etc.).

If fables present animals as speaking and having moral significance, the Kantian tale of man and animals in this conjectural history is rather an anti-fable, since, it leaves animal society behind in the name of reason and

the human species. While sheep and humans still share the same logos, it is man who speaks for nature—to the sheep—about the different natures of man and sheep, explaining that the body of the animal is a gift for man.

In the passage cited from Chakrabarty above, *perspective*—a predominantly visual figure—is intrinsically related to *narrative*; the need for perspectives that consider that the non-human is rooted in a demand for *stories* that incorporate geological and evolutionary deep time, a past that goes beyond the human, and sees this as further embedded in the deep time of geology and zoology. Such connected stories underscore that the human—and the anthropocentric perspective—is not the narrative telos in ‘the story of the planet’, as in the Kantian fable. Rather, these perspectives make ‘us’ (humans, readers) aware that ‘we’—as a species, ‘come very late in the history of this planet’, and should stop believing that nature and the animal body ‘was given to you by nature not for you, but for me’.

To break with the Kantian fable, Chakrabarty maintains that there is a need for ‘stories’ and ‘perspectives’ that relate human life to ‘the deeper history of natural reproductive life on this planet’, and through this, create a non-anthropocentric perspective. This new and urgently needed ‘vista’ has, then, already been opened in the work of Latour. Hence, the claim is that a ‘new humanities’ prepared for the Anthropocene should incorporate strategies from Latour to cope with climate change and the current crises of nature. Apparently, there are ways of seeing and manners of storytelling that can be used to counter the Kantian fable in Latour’s work. This is the claim not only in Chakrabarty’s article, but in the special issue of *New Literary History* of which it forms a part called ‘Recomposing the Humanities—with Bruno Latour’ (Vol. 47, No. 2/3).

This book also explores the relation between Latour, ANT, and the humanities by turning to Sociology of Translation, which is at the core of the actor-network theory developed by Latour and M. Callon around 1980. In contrast to Chakrabarty, however, we have a more critical stance towards the narratology and epistemology of Latour and ANT: its ability to aid us with new ‘perspectives’ and ‘stories’. Our aim is to supplement the Sociology of Translation with a stronger focus upon language, text, and narrative. Hence, we maintain that a renewed focus upon these key concerns in the humanities is needed, before we turn to the Sociology of Translation as a model for the humanities in the Anthropocene.

We will use the topic of sustainability to explore the interfaces between translation studies, the cultural history of knowledge, and the Sociology of Translation. It is our contention that questions of sustainability challenge us to rethink the relation between the humanities and ANT, and create new instruments of translation, and new languages for studying translation attuned to historical, cultural, and political aspects of commensuration often missed by ANT. Sustainability obviously implies a concern with

both natural science and cultural inquiry, translations across the domains of nature and culture, and of knowledge across the divide between the natural and the human sciences. Moreover, sustainability discourses are organizing politics and practices on large and small scales across the world. The notion of the Anthropocene is now regularly invoked as an occasion for the rethinking of the human in relation to nature, for instance through a re-examination of ‘origin stories’ and ‘narratives explaining the human emergence on earth’ (Ellis 2018: 1). The Sociology of Translation was born as an attempt to describe natural and cultural actors symmetrically, but what happens to symmetry when humanity becomes a geological force on its own?

The Sociology of Translation has been immensely successful, especially within STS, but also within environmental studies more broadly: fields where the human and non-human interact and overlap in various ways, and where traditional social science has faced limits due to its focus upon human culture. Indeed, as Chakrabarty maintains, the humanities do need perspectives from STS to counter anthropocentrism and develop new ‘perspectives’ and ‘fables’. Therefore, the chapters in this book aim at developing various aspects of translation and sustainability, in dialogue with the Sociology of Translation. But it is also our contention that questions of sustainability challenge us to rethink the notion of symmetry in ANT—most importantly, in relation to translation and hermeneutics as an interpretative enterprise, that is, as they have traditionally been conceived in the philosophy of the human sciences (e.g. Ricoeur 1991). As R. Bauman and C. Briggs argue, Latour and the Sociology of Translation ‘left out two of the key constructs that make modernity work and make it precarious!’, namely language and tradition (Bauman and Briggs 2003: 5). Bearing this in mind, we want to supplement the Sociology of Translation with a stronger focus upon language, text, and narrative. To do this we return to some of the textual and narratological concepts that were used to formulate the Sociology of Translation as an analytical approach.

Our ambition, then, is to add a deeper focus on texts and cultural schemes to the general notions of translation in STS. We want to supplement the Sociology of Translation with a textual and semantic dimension. We will do this by turning to the intellectual traditions that influenced but were left behind by STS and ANT. Narratological, textual and hermeneutic concepts such as ‘inscription’ (Derrida), ‘actant’, ‘narrative’ (Greimas), and ‘worlding’ (Heidegger, Spivak) were reemployed—translated—in the canonical STS texts, and added to an omniscient style of narrating taken from classical, realist anthropology (see Chapter 1 on this style of storytelling in Latour and Woolgar). What intellectual networks, debts, and disciplinary traces were left behind in this reemployment of concepts from the humanities? There have been brilliant individual attempts to realign the

Sociology of Translation with narratives, worlding, and various modes of enunciation (e.g. Tsing 2010; Haraway 2016), but few have explored the archaeology and the intellectual ecosystems that enabled it, and how the debt to these knowledge traditions was forgotten (see Asdal and Jordheim 2018; Høstaker 2005; Asdal et al. 2007; Jones 2010). Hence, our aim in this book is to rethink the relation to the human sciences at the movement of the (supposed) rupture in the canonical texts of STS—and reemploy the results in empirical cases concerning sustainability.

The rest of this introduction presents the key ideas behind this project.

II

Translation and Symmetry

What is the idea of ‘translation’ in the Sociology of Translation? We often tend to view translation in entirely discursive terms, that is, as the carrying over and rendering of meaning from one language into another. In Latour and Callon’s seminal *Unscrewing the Big Leviathan*, a vastly expanded notion of translation is at work. ‘Translation’ includes

all the negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself, authority to speak or act on the behalf of another actor or force.

(Callon and Latour 1981: 279)

Thus, translation for Callon and Latour goes way beyond the inter-lingual. As R. Bal and colleagues have observed:

In French, translation connotes both transformation and displacement. Within STS, this emphasis on transformation and displacement is used to describe how networks of actors are made, and often changed, in the process of knowledge production and utilisation.

(Bal et al. 2022: 5)

While the abbreviation ANT only functions in English translation, the French dictionary and STS converge around the idea that translation, science, and all kinds of knowledge practices inevitably involve ‘transformation’ and ‘displacement’. If the expanded usage of ‘translation’ in STS is warranted by the French dictionary, it is also fully in line with the disciplinary idiom in anthropology and the history and philosophy of knowledge and science. In these—related and often overlapping—disciplines, questions concerning rationality, and the commensurability of knowledge from different places and times, cultures, and disciplines, have long been

associated with ‘translation’ (Golinski 2005; Hanks and Severi 2015; Ødemark 2019).

The Sociology of Translation radicalized the ‘Strong Program’ of D. Bloor and the Edinburgh School in science and technology studies. Bloor had claimed that true and false beliefs, winners and losers of scientific polemics, should be dealt with using the same type of sociological explanation. Thus, Bloor argues against examining ‘one side of a scientific dispute while leaving the other side unexamined because it seems right or obvious’ (Bloor 2001: 592). Symmetry is the antidote to this, and for taking truth—sociologically—for granted:

‘Symmetry’ means that this equally distributed curiosity should issue in the same general kinds of sociological explanation regardless of how the knowledge is evaluated. All beliefs confront the same problems of credibility and depend on the same contingencies. True beliefs have no more intrinsic credibility than false ones.

(Ibid.)

The Sociology of Translation went even further—and demanded that nature and culture, human and non-human actors should be tackled using the same explanatory protocols. This obligation constituted the so-called generalized principle of symmetry. In the seminal *Some Elements of a Sociology of Translation*, Callon maintained that scallops and scientists, nature, and culture, that is, human, and non-human actors, should be dealt with using the same descriptive and explanatory language (Callon 1986). Hence, he also constituted an ontologically ‘flat’ *explanandum*, a story world where people and things acted in the same way and were described in the same manner.

A central device in enabling symmetrical descriptions in the Sociology of Translation was the term *actant*—taken from semiology and structuralist narratology. Actants are the deep structural roles of the story, such as ‘hero’, ‘helper’, or ‘villain’ in relation to the hero’s project and perspective—and they can only be identified at the end of the tale. For Callon, semiotics and narratology are model sciences, precisely because they widen the ‘list of actors’ to non-human beings, like bacteria and other beings and entities that Chakrabarty aims to include in a non-anthropocentric environmental humanities (see Chapter 3 on the genealogy of the actant).

It is indeed this opening for the non- and more-than-human that attracts the Sociology of Translation to narratology. Callon cites the entry on ‘*actant*’ in Greimas’ *Semiotics and Language: An Analytical Dictionary* to underscore that

the concept of actant has the advantage of replacing, especially in *literary semiotics*, the term character, as well as that of ‘*dramatis persona*’

(V. Propp), *since it applies not only to human beings but also to animals, objects, or concepts.*

(Greimas and Courtés 1982: 5, our emphasis)

The analytical symmetry of human and non-human is, then, a central tenet in the Sociology of Translation. But, as we can see from the quote above, the narrative agency of non-human actors, and hence symmetry, was already an established fact in Propp's folk tale studies (Propp 1968). Narratology, we could say, did not need a principle of generalized symmetry, since non-human and more-than-human actors were already identified as plot-driving forces in folktales—and fables. We explore the possibility of narrating the non- and more-than-human (like bacteria and spirits) in the second part of this book, 'Narrative Agency', and in Chapter 6 on formalism and agency in ANT.

Ingeniously—and as we shall show, paradoxically—a material semiotics was developed with reference to the terminology devised for studying what the narratologist C. Bremond had called the 'autonomous layer of meaning' of narratives—the part of the narrative least attached to, and dependent upon, the materiality of the signifier:

The subject of the tale may serve as an argument for a ballet, that of a novel may be carried over to the stage or to the screen, a movie may be told to those who have not seen it. It is words one reads, it is images one sees, it is gestures one deciphers, but through them it is a story one follows: and it may be the same story.

(Bremond cited in Remon-Keenan 2002: 7)

Thus, Bremond identified what he called an 'autonomous layer of meaning', that—supposedly—could be translated between different semiotic systems and material signifiers, because narrative and myth did not depend upon the materiality of the signifier to the same extent as poetry.

That narratives were translatable to a different degree than poetry, due to the latter's dependency on the material aspect of the signifier, was common-place in structuralist poetics. C. Lévi-Strauss, for instance, declared that the Italian saying about translation and treason did not apply to myth:

Myth is the part of language where the formula *traduttore, traditore* reaches its lowest truth-value. From that point of view it should be put in the whole gamut of linguistic expressions at the end opposite to that of poetry, in spite of all the claims which have been made to prove the contrary. *Poetry is a kind of speech which cannot be translated except at the cost of serious distortions; whereas the mythical value of the*

myth remains preserved, even through the worst translation. Whatever our ignorance of the language and the culture of the people where it originated, a myth is still felt as a myth by any reader throughout the world. Its substance does not lie in its style, its original music, or its syntax, but in the story which it tells. It is language, functioning on an especially high level.

(Lévi-Strauss 1955: 430–431)

As a special kind of narrative, myth will survive translation; it is the kind of text to which the Italian saying about translation and treason apply the least. This is because, Lévi-Strauss adds—arguing in the same way as Bremond—that the ‘substance’ of myth ‘does not lie in its style, its original music, or its syntax, but in the story which it tells’.

In the structuralist scheme of things, this was so because poetry was governed by what R. Jakobson called the ‘poetic function’, that is, the linguistic function that foregrounded the materiality and productivity of the signifier, and thus produced meaning by means of linguistic resemblances (Jakobsen 1988: 38ff). Thus, ‘story’ is the least materialistic part of language, whereas poetry is the most—dependent as it is upon the ‘poetic code’ and the materiality of the sign.

Why bother with structuralist narratologies? Clearly, they are a thing of the past? Poststructuralism became ‘post’ precisely because it did not believe in such erasure of the material inscription and the productivity of the signifier. On the contrary, poststructuralism maintained that the ‘poetic function’ constituted philosophy and science as well as literature (see Chapter 1 on ‘inscription’ and Chapter 6 on formalism and the politics of sustainability). In anthropology, folklore, and ethnolinguistics, performance studies, and the ethnography of speaking also emphasized that the narrated events formed the *fabula* of the tale; Bremond and Lévi-Strauss’s ‘autonomous layer’ was always in a dialectic relation to the event—and context—where the narration was produced and performed, the living performance of storytelling (e.g. Bauman 1986). The Sociology of Translation, however, returned to the analytical concepts and language devised to study the signified and the *fabula*. Concepts like ‘actant’, then, had been mobilized to analyze the most abstract and ideal part of the narrative, the narrative signified abstracted from the signifier. Hence, it was the language devised to study the ideal part of the sign that was used to construct a material semiotics and a symmetrical relating of human and non-human agents.

Drawing upon the idealist genealogy of the Sociology of Translation and material semiotics, we maintain that the Sociology of Translation still lacks an elaborate theory of meaning and politics that includes an existential and political semantics. Textuality is rarely studied as productive, and as tokens of meaning and identity formation, nor are the worlds created and sustained

by verbal and visual texts adequately dealt with. As we show in Chapter 1 on the cosmological history of the notion of sustainability and in Chapter 8 on the religious narrativity in discourse about Amazonia, many of these worlds have long religious and cultural histories. Such textual and cultural productions are extremely important in the politics of sustainability. Who speaks, who inscribes and narrates (apparently) global knowledge of the earth and climate system, for humanity and the globe? Who speaks for humankind? Our contention is that we need to add a concern with representation, poetics, and meaning to the Sociology of Translation.

A salient case in point of this is the incipit of the UN report *Our Common Future* (1987). This furnishes an example of a complex inter-semiotic translation that evokes both technology and the *longue durée* of variously layered world views (see also Chapter 2). We also believe that this text illustrates the difficulty in dealing with the human that it shares with the Sociology of Translation.

Famously, this founding text of the sustainability discourse begins with the earth seen from space:

In the middle of the 20th century, we saw our planet from space for the first time. Historians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century, which upset the human self-image by revealing that the Earth is not the centre of the universe. From space, we see a small and fragile ball dominated not by human activity and edifice but by a pattern of clouds, oceans, greenery, and soils. Humanity's inability to fit its activities into that pattern is changing planetary systems, fundamentally. Many such changes are accompanied by life-threatening hazards. This new reality, from which there is no escape, must be recognized—and managed.

(WCED 1987: 1)

The Copernican revolution 'upset the human self-image' and the report implies that the new 'vision' of earth from space will have a similar impact on human self-understanding, even if the new self-perception 'hurts' human pride and anthropocentrism by somehow demonstrating that earth is not the centre of the cosmos. Despite the de-centring and man's planetary invisibility, however, *Our Common Future* almost immediately—anthropocentrically—reinserts humanity into the centre of cosmology, as the collective actor who needs to 'manage' the crises. There is also a paradoxical relationship here between the cosmological role given to humanity in the reading of the image's message and the role of human culture and technology in its production.

S. Gal has said that the 'potential to reframe utterances—expressions, typified genres, and registers—is a design feature of communicative form

that has been variously dubbed citationality, interdiscursivity, and intertextuality’, and she adds, ‘[t]ranslation is a mode of this potential’ (Gal 2015: 227). The image of an earth, *without human culture* cited and inscribed at the border of the UN text, clearly forms a part of comprehensive networks of translations, involving both linguistic and intersemiotic translations (verbal and visual texts), as well as visual technologies and a range of scientific inscriptions. Indeed, the *invisibility* of culture from space is itself a product of the very human and cultural construction of a particular ‘point of view’ by means of visual technology, which sees the earth as a figure against a ground (the surrounding universe), and which must remain hidden to make the point of human invisibility. It is almost like Kant’s version of the Copernican turn—the epistemological fable transforming the world into a product of the human cognitive apparatus—must be forgotten to convey the message of human dependency upon nature (see Chapters 1 and 2 for a further analysis of inscription and translation in ANT and OCF).

As we will show in the first and second parts of this book, ‘Inscriptions’ and ‘Narrative Agency’, the suppression of the human inscription and the narrating subject is also constitutive of the scholarly genre we will call the ANT account; the standardized poetics for making human and non-human entities into actors in the sociology of knowledge, which in turn also inspired the environmental humanities. Inspired by structuralist linguistics, narratology, and semiotics, ANT effaced the divide between language and materiality, and studied entities, relations, and networks with tools taken from semiotics and narrative poetics—developing a so-called material semiotics. The poststructuralist focus on the productivity of the signifier was influenced by the Marxist and materialist notion that value is the product of human labour—and the signifier is to the signified as labour to value. Paradoxically, however, ANT used concepts designed to study the *ideal* part of the sign, and the *ideational* part of narratives—the signified and not the signifier, the fabula/story and not the narration—to construct a so-called material semiotics. This choice of signified at the expense of the signifier, and of fabula at the expense of narration—in the name of symmetry and a flat ontology—makes the Sociology of Translation ill-equipped to tackle the textual production of meaning, which, we maintain, is also necessary if we want to tackle issues of sustainability in an adequate way.

III

Translation, Culture, and Politics

The Sociology of Translation was conceived as an alternative to the dominant textual models and cultural turns in the humanities in the latter part

of the twentieth century. In line with this, ANT also rejected research designs using abstract categories like ‘society’ or ‘culture’ as analytical vantage points, since such concepts tended to take attention away from the observations of actual, empirical relations (actors and their networking), and reproduce the premise of the inquiry rather than produce new knowledge. The idea was that the explanatory power of general categories was analytically and empirically void, and that their deployment just subsumed the objects of investigation under broad and general categories, dissolving empirical relations and networks in abstract concepts, and making the premise of an inquiry into its conclusion. Therefore, the phenomena under consideration should not be treated as aspects or instances of the categories of the social sciences (like ‘society’, ‘culture’, ‘modernity’, or ‘capitalism’) that defined the phenomena already at the outset, as instances of a certain culture or a particular political system. Such macro-categories should be avoided unless they formed a part of the actors’ own construal of the situation, were emic concepts, and thus part of the empirical material (see Chapter 1 on ‘emic’ and ‘etic’).

The notion of translation had a central role in this dismantling of sociological totalities and cultural ‘holisms’ (Tsing 2010). Simply put, translation enrolls different kinds of actors in networks, and society is a product of translations that align actors in, and with, networks comprising human and non-human *actants*. The Sociology of Translation, then, does (purportedly) not insert translation into a preformed model of the social, or a certain cultural or political order, but traces how societies are produced and sustained by translation.

As observed above, the Sociology of Translation radicalized the Strong Program of the Edinburgh School in science and technology studies, by adding the generalized principle of symmetry to the idea of a symmetry of explanation. Both these principles of symmetry are based upon a refusal to devise a different *explanans* to apparently separate domains and phenomena (nature and culture, truth and falsehood), and thus an apparent reduction of difference to ontological ‘sameness’. In particular, the generalized principle of symmetry introduced a contentious relation to the humanities, because different programmes for legitimizing the humanities and cultural studies presuppose a separation between explanation and understanding, and for dealing with causes and meaning (e.g. Geertz 1973; Ricoeur 1991). The third section of the book, ‘Worlding Culture and Politics’, deals with interpretation and culture in relation to sustainability and translation.

Strands of STS and the ontological turn in anthropology have, moreover, regarded the notion of ‘culture’ as a Eurocentric instrument of mistranslation, often invoking philosophical criticism of the scheme/content dualism.¹ This is in line with the critique of representation in anthropology in

postcolonial and poststructuralist theory (see Clifford and Marcus 1986). The concern with *representations* that characterized these positions, has, however, been seen reproducing the idea that there is one, universal nature, described by the modern natural sciences, and that other cultures just offer divergent representations of the nature accessed by Western science. In such a scheme, then, nature offers the ultimate (and ethnocentric) yardstick for all cross-cultural translation.² Hence, for Latour, it is the exportation of the Modern division of the world into nature and culture that creates ‘cultural others’, that is, people who do not obey the nature-culture distinction. The problem of cross-cultural translation and understanding in anthropology and comparative cultural studies is thus ultimately a function of the nature-culture division:

In order to understand the Great Divide between Us and Them, we have to go back to that other Great Divide, between humans and non-humans ... In effect, *the first is the exportation of the second*. We Westerners cannot be one culture among others, since we also mobilize Nature. We do not mobilize an image or symbolic representation of Nature, the way other societies do, but Nature as it is, or at least as it is known to the sciences.

(Latour 1993: 97, italics in the original)

In this view, the nature-culture distinctions translate into a distinction between cultures; or rather between ‘scientific moderns’ and (all) other cultures with mere symbolic access to nature (‘they have symbols, we have science’). The ‘great Divide between Us and Them’, then, is really the transposition of the asymmetrical relation between ‘humans and non-humans’, culture and nature. *Naturvölker*, we could say, does not have nature as a separate domain, only culture, religion and an environment full of animistic and anthropocentric projections: living close to nature equals not having nature. Chapter 4 on ‘animism’ and Chapter 8 on indigenous Amazonia in the climate discourse explore this relation between nature and culture in translation further.

These trends in STS and the ontological turn in anthropology certainly represent a valid critique of the ontological debunking of ‘others’; for instance, by turning what appears to be literal statements into symbolic expressions of social and psychological realities (causal factors ‘we’ or ‘science’ accept as real). However, we also maintain that it threatens to purify cultural inquiry of its past. Disregarding categories such as ‘culture’, ‘society’ or ‘race’ threatens to purify our studies of their political and cultural past by erasing the *traces* of prior translations that have become *actants* in the world through their effective history—as Chapter 7 on the translation of global into planetary health demonstrates.

Our aim with this book, then, is to supplement the Sociology of Translation with a semantic dimension based upon key concepts used when the Sociology of Translation became paradigmatic. The examination of these intellectual genealogies becomes particularly salient in a situation where ANT and the Sociology of Translation is cited as a model for a sustainable humanity, able to construct non-anthropocentric stories and perspectives upon nature to counter Kantian and other anthropocentric fables.

Notes

- 1 E.g. Davidson (1984). For an argument for partial untranslatability pace Davidson cf. McIntyre (2010), and Forster (1998).
- 2 The problem is still frequently phrased, however, as one of cultural translation. See for instance Willerslev (2016).

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Part I

Inscriptions



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1 Symmetry, Inscriptions, and the Epistemological Residue of Writing

A Deconstructive Reading of *Laboratory Life*

Eivind Engebretsen, Trine Krigsvoll Haagenen, and John Ødemark

Introduction: Citing Derrida in The Laboratory

In one of his latest books, *Down to Earth: Politics in the New Climatic Regime* (2018), Latour sees the Anthropocene as a fundamental crisis of modernity and a culmination of modernist ‘abstract assumptions’ and emphasis on ‘human detachment from material constraints’ (Latour 2018). In this chapter, we argue that the same privileged dream of geo-escapism that Latour considers characteristic of the Anthropocene is constitutive of the narrative structure of *Laboratory Life*. It is, moreover, our contention that the idea of symmetry risks marginalizing the power of human interpretation as a knowledge constituting political force in local and geopolitical struggles over sustainability. As a case in point of such marginalization, we will present a deconstructive close reading of the introductory chapter of Latour and Woolgar’s classic work *Laboratory Life*; a book often understood as an early draft of actor–network theory (ANT). We consider that this text represents a decisive point in the history of the social and human sciences, by challenging the dichotomous understanding of the nature/culture and social/scientific divide, while at the same time undermining its own project by marginalizing the role of human interpretation in deconstructing this distinction.

On the one hand, *Laboratory Life* emphasizes the role of mediation and interpretation in scientific processes, and further insists on the social as an integral part of the domain of science and nature. Compliant with this is a particular emphasis on the role of inscription and so-called inscription devices. On the other hand, the text actually marginalizes the role of mediation, and particularly the various inscriptions and inscription devices involved, in the production of Latour and Woolgar’s own text. To tease out this ironic suppression of the material act of writing, and the materiality of the traces and inscriptions in this founding text of ANT, we will relate the notion of ‘inscription’ in Woolgar and Latour to ‘grammatology’ and ‘arche-writing’ in Derrida. Like Woolgar and Latour, Derrida also aimed

to deconstruct the polarity of nature and culture—as well as the civilizational hierarchy between people with and without writing—by construing inscriptions and writing as conditions of possibility for knowledge. In fact, there is an intriguing textual presence of Derrida and his notion of inscription in Woolgar and Latour’s text. Hidden in a footnote in *Laboratory Life*, we find that Derrida is cited to define ‘inscription’, and that ‘inscription’ is what Woolgar and Latour’s informants are most concerned with, since these scientist-informants have, the authors of *Laboratory Life* state, a ‘strange mania for inscription’ (Latour and Woolgar 1986: 40).

Latour and Woolgar assert that

the value and status of any text (construction, fact, claim, story, this account) depend on more than its supposedly ‘inherent’ qualities [...] the degree of accuracy (or fiction) of an account depends on what is subsequently made of the story, not on the story itself.

(Ibid.: 284)

True to this claim, we need to understand ‘what is made of the story’ in *Laboratory Life*, on more than an individual level. This implies, moreover, that the text is more than its physical, material qualities; that the arrangement of, and the choices made in, the text matters. In the same way as Latour and Woolgar ‘wish to show that the process of construction involves the uses of certain devices whereby all traces of production are made extremely difficult to detect’ (ibid.: 176–177), *we* wish to show, not only that they are *also* ‘compulsive and almost manic writers’, but how they apply narratological and rhetorical devices in the production of their own text erasing the traces of its production. So ‘what is made of the story’ in *Laboratory Life*?

This chapter starts with an analysis of Latour and Woolgar’s deconstruction of the distinction implicit in social studies of science between ‘the social’ and ‘the technical’, which they also link to the classic anthropological and sociological distinction between so-called ‘etic’ and ‘emic’ concepts. The next section focuses on one of the methodological and narrative tools used by Latour and Woolgar to deconstruct the opposition between the social and the technical, namely the introduction of the anthropologist observer as part of the narrative. Our examination demonstrates, however, that this attempt deconstructs itself by creating what we will call an *epistemological residue*, that is, an invisible omniscient narrator that observes both the scientists and the observer, a gaze that resists any act of reification. By reifying the observer, Latour and Woolgar fail to account for the epistemological residue in the interval between the observer (which is part of the narrative) and the narrator observing the observer. Finally, we return to the footnote and the concept of ‘inscription’ and show that Latour and

Woolgar operate with two conflicting notions of inscription that partly undermine their own argument of the social as part of the technical.

The Social as a 'Slowness'/'Deferral' within the Technical

In the first chapter of *Laboratory Life*, Latour and Woolgar challenge the distinction between the social and the technical, often implicit and taken for granted in social studies of science. They insist that the social is not an exception that only occasionally interferes with the scientific agenda from the 'outside', as when political interests aim to harness scientific processes, nor is it a problem to be solved or a barrier to be overcome to reestablish the purity of some kind of 'autonomous' science external to society and politics. The social then, is not exterior to science, but *intrinsically* linked to the process through which technical and scientific knowledge comes into being. On the contrary, the social is an internal part of how technical knowledge operates.

Here, Latour and Woolgar situate themselves within the context of the sociology of science, which, in the period before the publication of *Laboratory Life*, had expanded their field of investigation. Rather than limiting the notion of the social to the occasional or accidental influence of socio-political factors on science as a production and a product, social scientists—such as M. Mulkey in his study of the social process of innovation (Mulkey 1972)—had started to take an interest in the technical and intellectual aspects of science (Latour and Woolgar 1986: 24). But Latour and Woolgar went further than the existing scholarship in the history and sociology of science did in 1979. In their own wording:

Although our knowledge of the *external* effects and reception of science has increased, our understanding of the complex activities which constitute the *internal* workings of scientific activity remains undeveloped.

(Ibid.: 17, our emphasis)

Hence, the aim is to move from the 'external' to the 'internal'. Rather than accepting and taking *the products of science* for granted, Latour and Woolgar attempt to account for *their internal production*. To do this, they build their argument on a specific notion of *social construction*:

As a working definition, therefore, it could be said that we are concerned with the *social construction* of scientific knowledge in so far as this draws attention to the process by which scientists make sense of their observations.

(Ibid.: 32, our emphasis)

In the second edition of *Laboratory Life*, ‘social construction’ was changed to ‘construction’ in the title of the book. By erasing the ‘social’, Latour and Woolgar aimed to emphasize that the social is not outside or distinct from the scientific production. The construction is not more social than technical; rather the social and the technical are parts of the same process of construction. Hence, ‘social’ was erased from the phrase ‘social construction’. Moreover, by erasing the link between construction and social, Latour and Woolgar also emphasize that constructions are not *merely* social, and that their own account, therefore, is not concerned with what we in another context have called ‘soft supplements’ outside the technical realm of science, but with the hard facts of science (Kristeva et al. 2018).

As part of this argument for both the social and the technical as nature-culture hybrids, Latour and Woolgar problematize the classic anthropological and sociological distinction between ‘etic’ and ‘emic’ concepts, devised originally by K. Pike, and built upon the distinction between the *phonetic*¹ and the *phonemic*. In Pike’s wording:

Descriptions of analyses from the etic standpoint are alien with criteria external to the system. Emic descriptions provide an internal view ... with criteria chosen from within the system. They represent to us the view of one familiar with this system and who knows how to function within it himself.

(Pike in Turner 1982: 65)

While ‘etic’ concepts are thus external to the culture under study, and the audience who will ultimately assess the validity of the definition is the scholarly community of fellow observers, ‘emic’ concepts are internal to and meaningful for the community studied: the ‘ultimate decision about the adequacy of description rests with participants themselves’ and is ‘based on the categorical system of the participants’ (Latour and Woolgar 1986: 38). This methodological distinction accordingly assumes that informants and researchers operate in different languages or linguistic registers: those of informants/actors and those of researchers/scientists. But what happens when the emic register is also the language of science?

In an anthropological study of the laboratory, the problem with ‘etic’ concepts is, however, that they fail to describe the technical or scientific aspects of science, since they are brought into and applied onto science from the outside, from a different epistemic culture, that is, social science. Science in the laboratory is defined by the everyday discourse and emic terminology of scientists. But merely using emic concepts (in this case, the lingo of the scientist) entails the danger of ‘going native’, which is particularly marked in the study of science, because of the ‘widespread acceptance

of the methods and achievements of science in the culture of which we are part' (ibid.: 38–39). Hence, the social success of science makes it even harder to resist the temptation to 'go native' by deploying the language of the informants themselves, and thus writing an ethnography of laboratory life as *the scientists* would have written it. Latour and Woolgar's ambition, however, is to explain how the informants (the scientists) 'use these concepts as a social phenomenon' (ibid.: 38–39). More precisely, Latour and Woolgar define what we—deploying a term taken from H. Bhabha (1994)—could call a *third space* between etic concepts (which, we remember, would be foreign to the technical side of science) and emic ones (which run the risk of 'going native' by mimicking the natural sciences) by exploring the process through which both these two sets of concepts come to make sense, that is, as social phenomena:

By paying more attention to the way in which we, as *observers*, produce the account you are now reading, *we hope to gain an insight into some of the techniques used by scientists* in their attempts to produce ordered accounts.

(Latour and Woolgar 1986: 36, our emphasis)

Moreover, to deconstruct the distinction between etic/outside (social) and emic/inside (technical) views and concepts, Latour and Woolgar use the methodological and literary device of including the 'observer' in the story: The observer is not to be understood as external to the narrative description of the laboratory but as external to science, he/she is a stranger to the laboratory, like an anthropologist was supposed to be a stranger to the culture he/she sets out to study, and thus translates the local, emic language of the 'natives' into the etic categories of cross-culturally valid anthropology.

Latour and Woolgar, then, attempt to focus their attention on the way the 'observer', as a narratively constructed stand-in for themselves, in their own account produces his descriptions as a comparative lens for understanding how the scientists build their accounts. Hence, they here facilitate for and promise a certain reflexivity; the authors' text production will mirror the informants-scientists' text production, which suffers from 'a strange mania for inscription'.

In other words, both the scientists observed and the social scientist observing them use specific techniques and methods to produce their concepts and descriptions. From Latour and Woolgar's ethnomethodological view, these methods and techniques constitute the *social* sides of science and social science. The social is thus not an external intruder to science, but part and parcel of the *process* through which science is constituted. According to Latour and Woolgar, the social aspect of science is not merely its contextual backdrop but rather the collective, everyday

practices that individuals in laboratories employ, both consciously and unconsciously, to generate scientific findings. These practices encompass a wide range of activities, such as scribbling notes, exchanging papers and illustrations, and reading and synthesizing texts, among others. The concept of a singular scientific ‘finding’ does not exist; instead, findings emerge through a gradual social process involving the drafting, sharing, and discussion of texts. As such, the social is a kind of *slowness* or *deferral* within the technical; it is the procedures unfolding in time through which technical practices come into being—both in the laboratory and in the social science observer’s account of what happens in the laboratory. The concept of the ‘social’, as a kind of deferral, strikingly resembles Derrida’s concept of *différance* (1982). *Différance* is a neologism that incorporates both the noun *différence* and the verb *différer*; in present participle: *différant* implies ‘differing’ or ‘postponing’. Through his concept, Derrida emphasizes that any act of creating meaning is an ongoing process, rather than a singular moment in time, and can only be examined as a dynamic emergence (Ibid. 1982).

There are some temporal similarities between Derrida’s concept and the notion of the social as a deferral in *Laboratory Life*. Like Latour and Woolgar’s understanding of the social, *différance* does not *precede* the elements of the opposition it makes possible: ‘What we note as *différance* will thus be the movement of play that “produces” (and not by something that is simply an activity) these differences, these effects of difference’ (Ibid. 1982: 141). In his deconstruction of the opposition between speech and writing (and in the criticism of the continuous privileging of writing within Western metaphysics), Derrida understands *différance* as the condition of possibility for speech and writing, rather than something that comes before speech and writing. Speech and writing exist as *différance* in that their existence is one of differing and deferring in relation to themselves and to each other. Without speech, writing would not exist, but the converse is also true: without writing, there would be no speech. As previously discussed, the gradual nature of meaning production, inherent to written language, serves as a prerequisite for all knowledge generation. Consequently, writing is intrinsically embedded within spoken language. Similarly, the social in Latour and Woolgar’s vocabulary is not prior to science but the differing or postponing that produces the social/technical practice called science. Latour and Woolgar explore this differing by focusing on how textual and intertextual practices are involved in the construction of scientific facts. More specifically, they draw ‘attention to the (mere) processes of literary inscription which make the fact possible. With this in mind, our observer decided to look carefully at the different kind of statements to be found in the papers’ (Latour and Woolgar 1986: 76).

Epistemological Residue

As noted, Latour and Woolgar describe how

the value and status of any text (construction, fact, claim, story, this account) depend on more than its supposedly 'inherent' qualities ... the degree of accuracy (or fiction) of an account depends on what is subsequently made of the story, not on the story itself.

(Ibid.: 284)

Using this claim as our methodological guideline, we need to understand 'what is made of the story' in *Laboratory Life*.

To deconstruct the distinction between etic/outside (social) and emic/inside (technical) views and concepts, Latour and Woolgar use the methodological and literary device of including the 'observer' in the story:

In order to emphasize the *fictional* nature of the account-generating process, we place the burden of *this anthropological investigation on the shoulders of a fictional character*: the visit to the laboratory is made by '*the observer*'.

(Ibid.: 41, our emphasis)

The observer is thus not to be understood as external to the story but as external to science; he/she is a stranger to the laboratory, a non-scientist analyzing the social production of science from a place outside the events that are studied. He/she is thus figured as an anthropologist, a participant observer; the observer and the observed are interacting agents and part of the same narrated story world. This narrative device then, is turned into a methodological tool by Woolgar and Latour: 'By using this approach we hope to shed some light on the process of production within the laboratory and on the similarities with the approach of the observer' (ibid.: 33).

It is, however, our contention that a possible flaw of Latour and Woolgar's method is to be found here. For while Latour and Woolgar are explicit about the fictional mode of the observer, they do not explicitly account for the potential epistemological implications of the use of this fictional and narrative device.

The chapter opens with an account of how an arbitrary 'ideal observer' anthropologist might experience the first visit, as a newcomer to the laboratory. The exaggerated naivety of the anthropologist ('Perhaps these animals are being processed for eating'; 'Perhaps the individuals spending hours discussing scribbled notes and figures are lawyers'; 'Perhaps the occupants of the laboratory are hunters of some kind ...') (ibid. 1986: 44) serves to demonstrate that the notion of a 'total newcomer is unrealisable in practice' (ibid.: 44). However, in contrast with the laboratory visited,

which is described in somewhat more detail, the male anthropologist is more unmarked. There is seemingly no experienced body present, no scholarly or disciplinary belonging (except from the very general ‘anthropology’), and no epistemological convictions (structuralism or hermeneutic anthropology?). This underlines the fictionality of the ‘observer’ and leaves it to the reader to fill in the blanks—simultaneously, the authors can do whatever they want with this fictive instance without cultural or epistemological qualities.

The observing social scientist and the scientists observed are assumed to have the same mode of existence in the narrated universe of the laboratory, the diegesis of the unfolded story. By identifying the fictive observer as an instance, a participating observer, in a story world shared with the informants, Latour and Woolgar enable themselves to observe both the observer and the observed on the same level, as equal, or symmetrical actors in the field of study.

However, to accomplish this trick, Latour and Woolgar must collapse the distinction between what G. Genette called *story* (the acts and events narrated) and *narration* (the act of narration, producing and performing the narrated events) (Genette 1983: 168). We may ask with Barthes: ‘Who is speaking thus? Is it the hero of the story?’ (Barthes 1995: 15). As readers, we are presented with the story of the observer in the laboratory, as told by the implicit author ‘Latour and Woolgar’. Using the terminology of Genette, we can say that the observer is a homodiegetic character, existing within the story world, presented by the heterodiegetic narrator, narrating the story of the laboratory from outside. As heterodiegetic narrators, ‘Latour and Woolgar’ are assigned a particular position in the story world. They see and know everything in the narrated universe, while the focalization of the observer is restricted to the internal story world, the laboratory into which the observer is inserted to perform his epistemological function as a homodiegetic anthropologist.

Opposed to the scientists in the lab, the observer is not aware that he is observed by the omniscient narrators, and thus cannot talk back, critique, correct, supplement, or substitute the account given to him. His ‘naivety’, his lack of formal traits and disciplinary background (except for his being an anthropologist), makes him easy to discipline, and instates him as a partly blank slate, where the readers are invited to fill in or imagine themselves in the field. Moreover, this literary device invites the readers to ‘a mutual imagining’ (Hobbs 1990: 40). As the observed anthropologist doing fieldwork in the laboratory is fictive, it is fair to claim that the observer in the story is on a mission for the authors and/or the omniscient heterodiegetic narrator. Accordingly, the observer cannot be read as a mere persona *representing* Latour and Woolgar, but serves as a rhetorical and narratological device in the construction of the story,

and thus also establishes the universe in which the methodological drama plays out.

On the level of the narrated, in the narrated world, the strategy of introducing the observer into the story serves to reify him and make him and his observations symmetrical, in the sense that he now shares the narrated world with the observed scientist. Latour and Woolgar, however, fail to account for the epistemological residue in the space between the narrative and the narration, between the observer (who is part of the narrated world) and the omniscient narrator observing the observer. As the observer works as a narratological prop in the storytelling, the authors' reflexiveness collapses, and reduces them to 'Gods' in their own narrative universe, partly inventing, partly describing, 'with a view from above, from nowhere' the world of the laboratory (Haraway 1988: 589).

The whole idea of shedding light on 'the process of production within the laboratory and on the similarities with the approach of the observer' actually assumes that there is an observer beyond the story of the laboratory and the anthropological observer, accounting for what happens in the laboratory, who observes both sets of protagonists (the observer and the observed). This is, we contend, the epistemological presupposition behind the literary deployment of the fictive anthropologist que observer inserted into the laboratory. The comparisons and oscillations between these different levels and languages or linguistic register (emic, etic) would not be possible without an external, omniscient narrator with an observing gaze, who can collect and account for the similarities and differences by textualizing them. Despite intentions to the contrary, reflections on this narrative and the observing gaze, as well as its inscription and textualization, are not incorporated into Latour and Woolgar's 'methodological reflexivity'. If the scientists who serve as the informants for the (fictive) anthropological observer have a mania for inscription, the authors of *Laboratory Life* do not suffer from such an inscription mania. For while Latour and Woolgar emphasize the mediating practices involved in both the observer's and the observed scientists' production of knowledge, they fail to account for the mediating practices involved in *the description* of both these practices.

The deconstruction of the emic/etic is thus possible because of 'Latour Woolgar's' *a priori* knowledge of the laboratory and their all-encompassing knowledge of the epistemologically restricted figure of their fictive observer.

Through the inscription of the chapter text, Latour and Woolgar inscribe themselves as 'Latour and Woolgar', initiators and founding fathers of a new discourse, where *a priori* theoretical terms and assumptions about symmetry substitute the difference inherent in the deferral of the outsider's gaze. A similar ambiguous approach to mediation is visible in their concept of inscription.

Inscriptions

As soon as the anthropological observer enters the laboratory, he is struck by what he observed to be a ‘strange mania for inscription’ among the scientists: ‘Our anthropological observer is thus confronted with a strange tribe who spend the greatest part of their day coding, marking, altering, correcting, reading, and writing’ (Latour and Woolgar 1986: 40).

The observer can tell that the informants have a ‘strange mania for inscription’ (ibid.: 40). Even though no right-minded anthropologist would have described his informants as ‘maniacs’ in 1979 (when *Laboratory Life* was published), Woolgar and Latour attribute this specific notion of ‘inscription’ to an ‘anthropological observer’, whom (as we now know) they construct as a fictive position of observation inside the narrated world of their own text. Possibly, the authors here aim at a kind of literary defamiliarization of science and the laboratory, but—puzzlingly—they do this by mimicking a kind of ‘exotism of the other’ (Boon 1982: 3–26) that was fought against as colonial and racist in contemporary anthropology.

The concept of ‘inscription’ is never defined comprehensively, but the following short definition appears in a footnote to the second chapter: ‘The notion of inscription as taken from Derrida (1976) designates an operation that is more basic than writing (Dagognet 1973). It is used here to summarize all traces, spots, points, histograms, recorded numbers, spectra, peaks, and so on’ (Latour and Woolgar 1986: 88, fn2).

Let’s now attend to the ‘slowness’ (*différance*) of the footnote in a manner similar to how Latour and Woolgar attend to the ‘slowness’ that scientific facts are inscribed into various traces, codes, definitions, and descriptions in the context of the laboratory, where, we remember, their informants have a certain ‘mania’ for inscriptions.

What strikes us is that the footnote tells an ambiguous story. First, there is a *deferral* between the reference to Dagognet and the reference to Derrida. Dagognet emphasized the inscription’s *non-representational* properties and its material embodiment; the most important function of writing is not to create meaning, but what ANT will call networks, that is, to bring actants into contact with each other:

To me, it is incomparably important that *on* which and that *by which* one writes. One is to underestimate it, if not to forget it. Nothing but the meaning would count, but the meaning does not really break free from that which conditions it, or in any case carries it. In short, the substrate deserves our attention; it ends up deciding the rest.

(Dagognet 1979: 70, emphasis in original)

In contrast, Derrida maintains the Saussurean understanding of writing and inscription as primarily defined in relation to meaning. But while

Saussure sees writing as an imperfect mirror of meaning primarily formed in oral language, Derrida insists that this so-called imperfection, the distancing inherent in writing, is the basic principle of all production of meaning. In G. Spivak's words:

A careful reading of the *Grammatology* shows quickly that Derrida points out, rather, that speech too—grafted within an empirical context, within the structure of speaker-listener, within the general context of the language, and the possibility of the absence of the speaker-listener—is *structured as writing*, that in this general sense, there is 'writing in speech'.

(Spivak 1976: XCII, our emphasis)

To signify is to represent something in its absence through a different medium. As such, signification can only happen from the outside and at a distance from what is signified and will always imply an element of validation in an external, etc language. In Latour and Woolgar's own words, to signify is to 'resist the temptation to go native'. It follows from this that the attempt to treat the observer and the observed scientists as actors on the same level is deemed to deconstruct itself because observing can only happen through a different medium, that is, by operating on a different diegetic level.

Understanding is only possible with the help of a difference, an act of distancing, a validation from an external perspective and position. I represent, by making myself different, splitting myself up into an 'I' talking about 'me', a narrator performing the story about my-self. In this sense, what is fundamental to—and criticized about—writing, namely distance and distancing, is fundamental to all meaning-making.

Hence, in the same footnote, Latour and Woolgar are both reifying the inscription, by insisting on materiality being its most fundamental feature, and metaphorizing it, by describing it in epistemological terms and as an act of deferral common to every process of signification. Through the reference to Dagognet, Latour and Woolgar insist on the *material and non-semiotic function* of inscriptions, as boundary objects of which the most important characteristics are the ability to bring actants together, creating new networks, and by so doing, stabilizing some inscriptions by making them relevant to new networks (and erasing others). In the textual architecture of *Laboratory Life*, this notion of writing is visible in Latour and Woolgar's analysis of how research results come about by circulating texts. Through this process, some facts are stabilized by being carried across networks, while other fact-candidates are neglected, perceived as noise, in processes where some inscriptions are erased and moved to the paper bin. The reference to Derrida, on the other hand, points in the

opposite direction, by emphasizing the *abstract and representational* characteristic of writing, that is, that of being a secondary interpretation, a re-articulation of a message in a different medium, a proxy. In this latter sense, writing is a *metaphor* for a necessary deferral that is inherent in any process of meaning-making. The concept of the ‘social’, on which Latour and Woolgar’s argument is based, incorporates this idea of a process of interpretation through which facts emerge, but also ‘forgets’ or ‘erases’ it in the construction of a narrative of life in the laboratory.

Besides this, there is a deferral in the footnote and further in Latour and Woolgar’s text between inscription defined as ‘an operation’ and as a product such as ‘traces, spots, points, and so on’. On the one hand, writing is the process through which meaning is created, on the other hand, it is the material manifestation of meaning. This ambiguity is reinforced by Latour’s differentiation between inscription and writing: ‘more basic than writing’ (see citation above). Derrida does not draw such a distinction but operates with an extended concept of writing (‘*arche-writing*’). Included in this concept of writing are both inscriptions of various kinds, and on various kinds of surfaces, but also, and that is crucial here, the fundamental act of differentiation (spacing, slowness, *différance*) that serves as the precondition for meaning—beyond empirical differences between various semiotic systems and writing technologies. For Derrida, inscriptions are thus *not more fundamental than writing, but one of the expressions of writing*. By distinguishing between inscription and writing, Latour and Woolgar reify writing; they reduce what they first refer to as an operation to a thing in the world. This reduction of writing to materiality, to things in the world—not the processes of difference and differentiation that constitute things and worlds—is symptomatic for the treatment of writing and textuality in *Laboratory Life*, and much later, ANT. A case in point is the failure to account for the different diegetic levels on which the scientists observed, the anthropologist observer and the narrator making sense of the scientist, and the observations of the anthropologist after the fact, operate as a textual chain of interpretations.

We recall that Latour and Woolgar’s objective was to grasp the social dimension of technical knowledge by exploring the process through which technical practices come into being. The social, moreover, was understood as a *deferral* within the technical, as the procedures, methods, and techniques through which technical knowledge is produced, and in which writing and mediation play an important but often underestimated part. However, their concept of inscription only partly supports this analysis. By reducing writing to material inscriptions, they also reduce them to certain kinds of ontological entities, ‘material things’, and the intertextual interplay and the different layers of signification *within* texts thus risk being marginalized in their own practice of inscription, textualization, and

narration. This is particularly visible in their lack of awareness about the difference between the observer and the narrator, the story and narration, in *Laboratory Life*.

Concluding Remarks

The epistemological residue is what remains when all the world is reified; it is the translating and interpreting gaze that carries out the reification. A symmetrical approach—even one that pays attention to processes of mediation—tends to overlook the fact that someone is holding the yardstick, someone with a particular embodied gaze and perspective is doing the comparison, using particular instruments of commensuration. Importantly, the inherent asymmetry of this epistemological residue cannot be reduced without marginalizing the power and politics of interpretation. By introducing the unnamed anthropologist as a fictional character in the story, the deferral between this character and the implied authors, ‘Latour and Woolgar’ becomes blurred. Hence, the *human presence* that makes the ontological symmetry possible is marginalized.

As noted in the introduction, Latour sees the Anthropocene as a fundamental crisis of modernity and a culmination of modernist ‘abstract assumptions’ and emphasis on ‘human detachment from material constraints’ (Latour 2018). Ironically, despite their efforts to achieve the opposite, the authors of *Laboratory Life* inadvertently create a new asymmetry through their symmetrical approach. By introducing the anthropologist as a fictional character, they establish an abstract concept of ‘Latour and Woolgar’ as a comprehensive, all-seeing perspective—a Cosmotheros—that transcends the material constraints of the narrative. The implied authors thus escape the symmetry imposed upon the narrated events. In this sense, the authors repeat the same privileged dream of geo-escapism that Latour considers characteristic of the Anthropocene; the implied authors escape the local dwelling-place of the story and take on a totalizing and global perspective—outside and beyond the local constraints of the story. By situating a fictional version of themselves on a *local* level, within the story (as the anthropologist), the implied author can operate freely on an extra-diegetic level—as a transcendent *globalized* gaze. These translations between a local and global level, similar to the processes that, according to Latour himself, have made humans into a harmful geopolitical force, establish ‘Latour and Woolgar’ as a potentially harmful narrative force in their story. This power of translation cannot be reduced without overlooking the epistemological asymmetry on which the Anthropocene is built.

Note

- 1 Thus, ‘etic’ has nothing to do with ethics.

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2 These Images Will Not Save Us

Cosmology and the Visual Genealogy of *Our Common Future*

Trine Krigsvoll Haagensen

Whatever pictures are, we ourselves are in them.

W.J.T. Mitchell

We must not take a nominalistic view of thought as if it were something a man had in his consciousness ... it is we that are in it, rather than it in any of us.

C.S. Peirce

It has been said that 'he who controls the moon controls the earth'. Our planners must carefully evaluate this statement for, if true—and I, for one, think it is—then the U.S. must control the moon.

Brigadier General Homer A. Boushey, 1958

Welcome to Our Common Future

Our Common Future (OCF) (1987), also known as *The Brundtland Report*, sums up the work and recommendations from the World Commission on Environment and Development (WCED). The overarching goal of the commission was to devise plans for safeguarding the progress and prosperity of humanity, without destroying future generations' access to resources; to critically investigate the relationship between the environment and the economic development on the planet; and to formulate realistic suggestions on to how to overcome the tension between these objectives. The mandate of the commission was no less than to formulate 'a global agenda for change' (WCED 1987: 5).

In this chapter, I depart from the opening paragraph of the first chapter of the report, where we can read the following:

In the middle of the 20th century, we saw our planet from space for the first time. Historians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century, which upset the human self-image by revealing that the Earth is not the center of the universe. From space, we see a small and fragile ball dominated not by human activity and edifice but by

a pattern of clouds, oceans, greenery and soils. Humanity's inability to fit its activities into that pattern is changing planetary systems, fundamentally. Many such changes are accompanied by life-threatening hazards. This new reality, from which there is no escape, must be recognized—and managed.

(Ibid: 1)

As readers of this opening paragraph, we are called upon and interpellated into a certain mode of seeing and being in our environments. The term interpellation is borrowed from Louis Althusser (1971) and is originally used to describe and understand how individuals are addressed and assigned to particular subject positions in relation to the state apparatus.¹ In this context, I use the term to accentuate language as a performative act. The paragraph points at us, invokes us, and constitutes a specific understanding of ourselves and others in the world. 'This new reality, from which there is no escape—must be recognized—and managed' is one such speech act that requires a reaction on the part of the reader. As they appear in different contexts and hierarchies, words and language will contribute to divide and organize bodies and identities in society, such as gender, class, sexuality, ethnicity, and so on. Our quote here calls its readers into action, as a transnational, transhistorical 'we' who need to act in *common* for a *common* future, or even for a future at all. This 'we' saw, and sees, visions which historically have upset the human self-image, and which now, in contemporary times, reveals how life on Earth, our planet, is threatened by human activities that do not take the planetary systems into account, unless we act.

As the opening of the report, the paragraph serves as a rhetorical act of establishing a precarious situation, and a starting point for the commission to produce a site for knowing and acting. Earth, humanity, astronomical history, Space photography, as well as contemporary environmental research and terminology are put in place; induced into coexisting and enrolled by the commission through an actor network, as a unified, meaningful proposal, a means for establishing *sustainability* as a term, a sensibility and way of life, and as a *modus operandi* for policy and action.

The act of seeing and the power of images are inscribed as discrete, but efficacious as the core of the quote. The strengths of the visions and the potentialities of seeing are clearly expected to be remarkable: they shackle our self-esteem, and will potentially impact our thoughts, change our self-understandings, and (hopefully) mobilize us to action, in order to save our planet through the concept and politics of sustainability.

It is the visions, images, models, and ways of seeing induced in the translation that I aim to explore in this chapter. My first step is to establish which images are invoked and called upon in the quote. Second, I want to

investigate how these images *work* in their environments, as well as in this assigned mission to establish sustainability as a common human objective. Third, and finally, I will discuss why the images in question did not have a stronger and more lasting effect on us, even though as claimed in the quote from the WCED, that '[h]istorians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century ...'.

The overarching aim of this discursive triptych is thus not only to discuss the claim of the commission, but also why these images did not have a lasting effect on us. In line with the ambition of this book and as a follow-up to Chapter 1, I want to discuss, challenge, and stretch the potentials and limitations of the Sociology of Translation, more precisely through the notion of inscription. *Inscription*, a central term within the discourse of Sociology of Translation, has its siblings in neighbouring discourses and disciplines, pertaining to perspectives of semiotics, to film studies, and to perspectives regarding the technical and chemical dimensions of photography. In this chapter, I will draw on the Sociology of Translation definition of inscriptions, both as it was introduced by Bruno Latour and Steve Woolgar (and discussed in Chapter 1), as well as the broader definition later presented by Latour. In the first reference Latour and Woolgar describes, the 'notion of inscription as taken from Derrida (1977) [and] designates an operation that is more basic than writing (Dagognet 1973). It is used here to summarize all traces, spots, points, histograms, recorded numbers, spectra, peaks and so on' (Latour and Woolgar 1986: 88, fn2). Later, in his article 'Visualization and Cognition', Latour describes inscription in its broadness as objects that are 'immutable, presentable, readable and combinable' (Latour 1990: 26). Entities then, may be defined as inscriptions as far as "they are translated into a fixed form that is combinable and comparable with other inscriptions, and because they are then able to be carried from their original contexts to other applications' (Chua 1995: 116).

Inscription, as a theoretical and analytical term, may be seen as a part of the linguistic turn, in the twentieth century, wherein the concepts, theories, and methods of linguistics became a kind of prototype in humanistic research. It may also be argued, as done by Andrea Bachner, 'that inscription is not just a sub-phenomenon of the linguistic turn that seeks to decode reality as if it was a linguistic system' (Bachner 2018: 3). According to Bachner, thinking in terms of inscription would be unthinkable without the linguistic turn, but simultaneously, it can be seen as a turn away from it, as the proponents of inscription use the term to address the interconnection of meaning and matter (ibid.). Linguistics, semiotics, rhetoric, and other textual models have dominated approaches to images for a long time, as 'the lingua franca for critical reflections on the arts, the media, and cultural forms' (Mitchell 1994: 11). Linguistics and semiotics serve as fruitful

models for understanding knowledge production. These models may, however, be saturated with a post-Cartesian notion of representation, as a distinct understanding of subject and object, described by Richard Rorty as pseudo-problems, based on a poor understanding of human knowledge (Rorty 1992: 372). Inscription, also in the context of visualizations, may thus be understood as a strategy to approach and understand visualizations and writings outside dichotomous and subject-centred perspectives.

When I ask how the images *work*, I am concerned about something which may elude from the optics of inscriptions, as developed by Sociology of Translation, namely as the labour the images are expected to do, and does, both in this translation from visual to verbal, but also in the work these images have already accomplished, which granted them the spot in the light of the OCF quote. Seeing the images *as working* implies that I see them as *put to work*, expected to perform something (Daston and Galison 2010: 19). But also, that they *do things*. As *working*, these images cannot be reduced to passive visual illustrations, as inactive carriers of work performed by others (the photographers). While the images may be seen as ‘immutable, presentable, and combinable’, as they are fixed, permanent, and distributable, their readabilities, meanings and effects are not given. The images and their pertaining technologies contribute, carry, amplify, neglect, co-create, and shape the imaged, those who produce, see, and use images, both individually and collectively. However, images do not necessarily do exactly what is expected of them, and most often they do several things at once.

So, what happened with the distribution of *images of Earth seen from Space*? How did they *work*; affect and effect? Expectations towards the work of such images were both concrete and high long before they existed. Several proponents expected such photos to transform our understanding of Earth as a planet and our place on it. One of them, the British cosmologist Fred Hoyle predicted in 1948 that photography of Earth from Space would amend humanity’s relationship with the planet:

Once a photograph of the Earth, taken from outside, is available, we shall, in an emotional sense, acquire an additional dimension ... Once let the sheer isolation of earth become plain to every man, whatever his nationality or creed; and a new idea as powerful as any history will be let loose.

(Hoyle in Goldberg 1991: 52)

Counterculture writer and creator Stewart Brand shared this sentiment. After a revelation he had on an acid trip in 1966, he produced and sold buttons with the text ‘Why haven’t we seen a photograph of the whole Earth yet?’ Brand was convinced that such photographs would contribute

to an awareness of the global environment, just like he expected technology to serve us in securing this environment. ‘We are as gods’, he wrote in the opening of his first issue of *The Whole Earth Catalogue* in 1968, ‘and we might as well get used to it’ (Brand in Lazier 2011: 617).² According to Brand, it was no accident that the first Earth Day took place one year after the first dissemination of pictures of Earth seen from Space (Becher and Richey 2018: 102).³

Locating Images as Pictures

In the introductory quote from OCF, we are introduced to three verbal renderings of visual phenomena, translations of something already seen or experienced *as visual phenomena in the world*, which may or may not exist as concrete, particular images.⁴ The first image which may be located is referred to both as ‘we saw our planet from space for the first time’ and then as ‘[f]rom space, we see a small and fragile ball dominated not by human activity and edifice but by a pattern of clouds, oceans, greenery, and soils’. The second image we are introduced to is the heliocentric model, here articulated as ‘the Copernican revolution of the 16th century’. Finally, the third image in the quote is articulated as ‘the human self-image’.

These three images are clearly images of radically different mediums, materials, and formats. But still, as I will argue in this chapter, they are interconnected, as views of the world, as world views, and have implications for the understanding of ourselves in the world, however not necessarily as suggested by the commission, or graspable by the Sociology of Translation notion of inscriptions. To get there, we need to start with some preliminary notions of images and visualizations which surpass the idea of these as merely put in place. I will turn to image theorist W.J.T. Mitchell for aidance, as he has developed a theory of images which can be fruitful in this frame of reference, and in my overall approach.

Mitchell is concerned with establishing a new approach to images, to grasp a surplus which we do not necessarily reach through more traditional, textual-based approaches to images. Mitchell is thus oriented towards the relationships *between* images, and how they travel across disciplines, media, and material support. The main questions are thus not what images are or necessarily what they mean or carry, but what they *do* and *how* they mean and make sense in different relations and situations. This volition to transgress images’ genres, disciplinary belongings, and material support is (among other things) inspired by Ludwig Wittgenstein’s notion of ‘family resemblance’: We see something *as something* and in relation to other similar objects (Mitchell 1986: 9–40) (Figure 2.1).

Mitchell structures his notion of images as a continuum, organized under the primary categories, from left to right: graphical, optical,

Image				
likeness				
resemblance				
similitude				
Graphic	Optical	Perceptual	Mental	Verbal
pictures	mirrors	sense data	dreams	metaphors
statues	projections	“species”	memories	descriptions
designs		appearances	ideas	
			phantasmata	

Figure 2.1 The family of images (Mitchell 1986: 10).

perceptual, mental, and verbal images (ibid.: 10). With this model we see how concepts and verbal accounts both comply with and invoke actual, concrete images, as well as mental images, myths, and metaphors. This continuum allows for another operation, which is already in play here, namely the distinction between *image* and *picture*. The distinctions refer to the concreteness of the visual phenomenon, as you can hang a picture on the wall, but you cannot hang an image.⁵

The materiality of the image is thus defining the working conditions for the images; how they are articulated, how they appear, how they may be shared or distributed, as well as with which expectations the viewers meet the medium. The work of the image is, however, never delimited to its materiality or technologies, as it also makes sense through an eternal semiosis of similar images, of myths and logics, and of cultural and personal connotations. The continuum of the image exerts exchange, transmission, and residual support in the relationship between words and the images, as well as a continuous production and surplus of meaning and truth. The verbal rendering in OCF of a small and fragile ball, of the heliocentric model and the human self-image can thus, in accordance with this model, all be located on the continuum, as verbal descriptions of images—but they are invoked as and from something previously seen, based in and shaped by technologies and matter. The two first can be traced back to concrete pictures, while the latter, the human self-image, as we will return to, is a bit more complicated.

The act of tracing the images in the text back to concrete pictures presupposes a reading and at a previous point, seeing active human beings who takes part in an ongoing play of semiosis and knowledge production. If images are to be termed as something like surfaces with meaning,

then anything could be an image. A horse gnawing on a wooden door, or even a growing tree could produce a significant surface. However, whatever materials, technologies, and applied techniques that contribute to the production and meaning of the image, the images must be *experienced* as image, seen and shared in order to take part in common or shared knowledge. If, as implied by the quote from OCF, the visions of our planet from Space should have an effect, then they must have been seen and shared by a broad international audience.

The complexity of the image and its work means that if we are to understand its work, it must be treated as more than a surface or a mental projection. A sole focus on the technical dimensions would risk neglecting important dimensions of the work of the image, both as technical processes, as material object, and its semantic aspects; as a suggestion to how we can perceive the world and potentially act upon it. Images are more than mirrors of the world; they are ways of *worldmaking*.⁶ In the words of W.J.T. Mitchell:

Images are not just a particular kind of sign, but something like an actor on the historical stage, a presence or character endowed with legendary status, a history that parallels and participates in the stories we tell ourselves about our own evolution from creatures ‘made in the image’ of a creator, to creatures who make themselves and their world in their own image.

(Ibid.: 9)

To understand images then, we need to see them in action, on stage, in their specific historical circumstances and relations.

Get the Picture!

The first image in the quote is the description of something we see from Space, as ‘a small and fragile ball dominated not by human activity and edifice but by a pattern of clouds, oceans, greenery, and soils’. The verbal description of the experience of seeing here turns our attention to the works of the picture in a double operation. First, in how we see something *as something*, as a small fragile ball. Through a discrete operation of similarity, Planet Earth is described in a scale of the tiny and the palpable. Located and situated on Earth, our visual senses are only capable of seeing and being within a limited range. Yet, when we read the quote, we invoke a mental image of Earth as seen from above and outside, because we already know and have experienced this vision. The image is already there, as *a mental inscription*, inscribed into our experience and knowledge as a previous vision. However, it is fair to claim that few of ‘us’ have seen Earth from Space. Reportedly as few as twenty-four people have ever

seen Earth as a small and fragile ball with their own eyes (Cristoforetti 2018). Yet, we all get the same images to mind when we read the quote, namely *Earthrise* (1968) and *The Blue Marble* (1972). The vision in the quote then, works as a *delegated* vision. However, the delegated vision conceals and hides its artificial origin, derived from concrete technical pictures, articulated with photography as a technical and chemical device and distributed as photographic or photocopied surfaces. (Figure 2.2).

Let us start with the origin and labour of the first photograph in our discussion, *Earthrise*. *Earthrise* was captured in 1968, on Apollo 8, the first manned mission to the Moon. The overall goal of the Apollo mission was to ‘land Americans on the Moon by the end of the decade, bring them back safe, and do so before the Russians’ (Watkins 2007: 68). The Apollo 8 orbit around the Moon was a strategic step in this race, performed on the world stage to display a technical and economical ascendancy. After all, seminal Soviet achievements such as the Luna 3 Spacecraft, which returned with pictures of the far side of the Moon in 1959, and cosmonaut Yuri Gagarin, who returned from Space as the first human witness in 1961,



Figure 2.2 ‘Oh my God, look at that picture over there! There’s the Earth comin’ up. Wow, is that pretty!’ *Earthrise*, original shot orientation. Instrument: Apollo 70 mm Hasselblad camera. Image credit: NASA. <https://earthobservatory.nasa.gov/images/144427/all-of-you-on-the-good-earth>.

had given the Russians an upper hand. The Americans seemed inferior on the world stage of the Space Race, as the targeted audience of the mission was not only the Americans, but also emerging post-war nations who had not yet picked a side in the Cold War. For the Americans, the Apollo programme represented a ‘feel-good triumph for the nation and its people’ (Launius 2017: 1221).

In this Cold War stand-off, the crew on board Apollo 8 were the first people to ever see Earth *as a small and fragile ball*, on 24 December 1968, as they were completing their fourth orbit of the Moon (Zimmerman 1998: 16). The crew was told that on Christmas Eve, they ‘would have the largest audience that had ever listened to a human voice’, and the only instructions they got from NASA was ‘to do something appropriate’ (Nasa 2019). When the Spacecraft entered lunar orbit that evening, the astronauts held a planned live broadcast to the American people, where they distributed a live photo of the Moon in grainy black and white. Command Module Pilot Jim Lovell expressed in the live broadcast that ‘[t]he vast loneliness is awe-inspiring, and it makes you realize just what you have back there on Earth’ (ibid.). The broadcast ended with the crew reading from the *Book of Genesis*—an act which encapsulates the grandiosity of the United States Space Programme and American Christianity.⁷ One in four people on Earth, approximately 1 billion people, in sixty-four countries, heard the readings. Within the next twenty-four hours, another thirty countries had access to the broadcasts, made possible through a recently launched satellite (Muir-Harmony 2020).

It is photography’s ability to produce measurable data which made it an obvious device to bring to Space. NASA was, strangely enough, never concerned with spectacular shared views from Space, but wanted verifiable data for their scientific project. In fact, the crew never discussed taking an earthrise picture before or during the flight. The mission was to document the surface of the Moon (NASA 2019). The situation where the photo was captured tells us more about how photography works as a technical device and as a way of seeing.

Bill Anders, crew member and photographer of *Earthrise*, describes how he was ‘the guy stuck with the camera’ (ibid.). His job was ‘to take pictures of those craters’. The job was not to be concerned about the aesthetic qualities of the photos, but to ‘take the goddam crater and move on to the next one’. Anders explains: ‘I started at setting up the cameras and taking the pictures according to my photographic flight point. No matter how closely you looked, it was crater upon crater. It was interesting, but after about an hour, I’m thinking, oh, it’s kind of boring’ (ibid.). One of the other crew members recalls: ‘The Moon is a vast, lonely forbidding-type existence or expanse of nothing. It looks rather like clouds and clouds of pumice stone, and it certainly would not be a very inviting place to work

or live'. And yet, as he continues, when they came back over the Moon from this flight, 'we looked up and from there was this beautiful, blue ball in the back. It all struck us immediately: Get that picture. This is the best picture we've got on the whole flight!' (ibid.).

Get the picture? Just like photography wants to be seen, so does the camera want to be used. The camera interpellates us, calls for our eyes and bodies to enframe the visual, commodify the seen, and turn it into something shareable. Through interpellation, the photographing subject participates in an already initiated defined and defining 'game' which requires specific competences and actions. For the crew members, the view already existed as a photograph before it was taken. Through the window of the Spacecraft, *The Blue Marble* was *already* framed, as a view waiting to be captured by the process of the camera, to be distributed and shared as an object—or rather a Cold War trophy—with the people back home.

Inscribing a World View

Photos of Earth from Space, obtained through Space exploration, were accessible to a public audience already in the 1950s (Marien 2010: 365). However, these were mostly in black and white, displayed only excerpts of the planet, were of lower photographic quality and were less disseminated publicly. In 1968, *Earthrise* was disseminated to an international audience. *Earthrise* was to be followed by *The Blue Marble* in 1972, as the first photography taken of the entire planet, perfectly illuminated from above by the Sun (Petsko 2011; Figure 2.3).

Now, let us return to the notion of the visions of Earth from Space as inscriptions. What is inscribed and how? 'What should be brought into the picture is how the picture is brought back', writes Latour in 'Visuality and Cognition' (1990: 21). The essential characteristic of inscription, according to Latour, is that:

The 'things' you gathered and displaced have to be presentable all at once to those you want to convince and who did not go there. In sum, you have to invent objects which have the properties of being mobile but also immutable, presentable, readable and combinable with one another.

(Ibid.: 21)

Latour's main concern is local studies in the laboratory, on how data is translated into 'diagrams, blots, bands, columns' (ibid.: 21–22). The analytical term is fruitful for understanding 'the transformation of rats and chemicals into paper' (ibid.: 21–22). The vision described in the opening paragraph of OCF may be viewed as a product from a laboratory in Space,



Figure 2.3 Apollo 17 Blue Marble original orientation, from which *The Blue Marble* was cropped. Instrument: Apollo—70 mm Camera. Image credit: NASA/Lunar and Planetary Institute. <https://www.lpi.usra.edu/resources/apollo/frame/?AS17-148-22727>.

but they are not scientific images. The following discussion has some reservations due to the status of these images as inscriptions in this Latourian sense, but the point here is to demonstrate how that which is not present on the surface is also present in the semiosis and work of the picture.

Earthrise is definitely ‘brought back’, displayed, and demonstrates a shared ‘mobile’ and ‘immutable’ image of ‘that which is’. The spectra of light are arranged, distributed, stored, and inscribed as traces according to the optical laws of the camera and its lens. The optical laws of geometry were described by Leon Battista Alberti in his book *De Pictura* in 1435. Alberti is thus of course not describing photography but formulates a requirement for the application of the geometric perspective in painting. A well-painted picture should give the viewer the same feeling as if he were looking at a scene from a fixed point, *out through a window*, and also to be able to compare it to a mirror image (Alberti 2004: 54).⁸ The optical theories baked into the photographic apparatus emphasize the inscribed views as materialized theory which facilitates a specific experience of time and place, and invokes the subjects into specific perspectival positions. Alina Payne argues how the development and naturalization of the central perspective

becomes a paradigmatic perspective and epistemologically superior. The image is presented as if it were congruent with the viewer's gaze. The optical apparatus, as materialized theory, turned the visible into an act, where the visual rays are turned into a palpable object. Perspective thus became a means of representing, where reality is created 'correctly'; and accordingly, as a means of exploring nature by means of representation (Payne 2015: 2).

But while the photographic apparatus is a physical and material entity which incorporates and technically materializes perspective, perspective *thinking* is invisible, non-material, and internalized. Perspective thinking and seeing cannot be held in the hands, and it also erases notions of the creation of the image, through the naturalization of its own perspective.⁹ Photography in the form of visual, iconic representations, plays a central role in our understanding of Earth in Space and of Cosmos, albeit not in the way that the WCED hopes for, as in constituting a common, sustainable future. Let us take a closer look at the displayed.

Among other things, *Earthrise* is described as 'the photo that turned us green' (Hampton 2018/2019). According to photographer Galen Rowell, *Earthrise* is the 'the most influential environmental photograph ever taken' (Rowell 2003). Confronted with *Earthrise*, as it was disseminated in 1968, we see in front of us the surface of the Moon, a vast landscape in icy greyscales contrasting an eternal blackness which encompasses Space from where we see. Amid the darkness, partly illuminated by the Sun, we see the upper half of a blue planet coated in white clouds. The white and blue stand out in remarkable contrast to the cold and dark Space. We look at Earth from Space (while located on Earth) and are thus presented to our home as the place where we live our lives, and as the possibility conditions for our existence and experience.

Gregory A. Petsko similarly describes *The Blue Marble* as 'one of the most iconic images—not just of our time, but of all time' (Petsko 2011). As with *Earthrise*, *The Blue Marble* displays the earth as tiny and marble-like. But unlike *Earthrise*, which contrasts Earth to the vast surface of the Moon, *The Blue Marble* displays Earth as a singular and seemingly lonely body in Space, engulfed by the vast darkness of Space. Seen from Space, Earth is land and sea, enveloped by clouds. In contrast to its black surroundings, Earth stands out as a living and self-regulated organism.

Photography's ability to display such an enormous object as tiny and flat, without losing a sense of scale when we see it, invokes yet another experience of something sublime, prompting reflections on both the individual's and humanity's place in this system. The photographic representation of Earth erases the boundaries and hierarchies that define our existence. The individual becomes insignificant and invisible, as do man-made borders and conflicts.

As originally captured in Space by weightless astronauts, the photograph displays the surface of the Moon vertically, with Earth as a new

Moon on its left side. By adjusting the photography horizontally, the seen is aligned with the visual experience of the Earthbound human body, so that Earth rises on the horizon, like the sunrise we are accustomed to when seen from Earth. Both photos were reorientated before dissemination and corrected according to an experienced idea of a globus Earth as the boundary and location for our spatial experiences. Good thing it was this side of Earth, and not the Pacific Ocean which was captured in the photo. The marble would still be blue, but all blue, all ocean, removing humanity completely from the image.

Earthrise and *The Blue Marble* operate as what has been coined as the quintessence of photography, as a complex play of pseudo-presence and tokens of absence (Sontag 1977: 16; Clarke 1997: 25). Our Earthbound, bodily situated gaze is allowed to see something in front of us which is there but not there. The visual impression facilitates a perception that intervenes with the experience of being in the world, by serving an external vision of something that is, albeit not physically and materially present. The photos work as visual evidence of our planet in Space. Through the viewer's *autopsia* the demonstrative truths of the images are internalized and potentially create new ways of looking, knowing, and being. The photos demonstrate the immutable fact that Earth floats in black, vast Space.

The photos do not, however, display their pictorial form, their artificiality, as photography 'annihilates itself as a medium, to be no longer a sign but the thing itself' (Barthes 2010: 45). The transparency of photography tends to efface the technical and material possibility of the conditions of the medium, which allows it to work in its own ways, according to its particular relation to the photographed, namely its indexicality; 'the that-has-been' (ibid.). The notion of indexicality is based on the understanding of photography as physical traces or imprints of the photographic referent, 'written' with light, or *inscribed* as immutable, presentable, readable, and combinable facts. It is exactly this understanding that feeds the notion of photography as mechanically objective, with its (assumed) superior capacity as evidence (Hoel 2016: 50).

The Copernican Paradigm as a Picture

The second image we are introduced to in the opening paragraph of OCF refers to the Copernican revolution. Here we find the somewhat wishful thinking that '[h]istorians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century, which upset the human self-image by revealing that the Earth is not the centre of the universe'. A more profound understanding of Copernicus' achievements, and the circumstances in which he gained such prominence, may help us understand why the visions of Earth from Space never achieved

such a lasting impact on humanity—why sustainability never became the new standard.

It is fair to claim, as Thomas S. Kuhn did, that the publication of Copernicus' *De Revolutionibus Orbium Coelestium* in 1543 represented a paradigm shift within astronomy (Kuhn 2012: 117). Kuhn refers to works such as Aristotle's *Physica*, Ptolemy's *Almagest*, and Newton's *Principia and Opticks* as works that have at times served as defining paradigms (ibid.: 10).¹⁰ These texts defined what could be considered legitimate problems and methods for generations within their fields. This, according to Kuhn, was possible because of two basic characteristics of these texts: first, the achievements were without precedent, and capable of drowning out competing scientific activities. Second, the works are sufficiently open, so that they leave other problems to other scientists (ibid.: 10). Achievements that share these two characteristics are defined by Kuhn as paradigms, or thus as 'universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners' (ibid.: xlii).

Kuhn describes how the term 'paradigm' in his work acts as a substitute for related concepts. When Kuhn uses this concept, he uses it as a concept of a worldview, a way of thinking shared by a community of researchers within normal scientific periods, and as a normative exemplum, a disciplining matrix (Kuhn 2012: 11). Kuhn describes how:

Again and again complex special apparatus has been designed for such purposes, and the invention, construction, and deployment of that apparatus have demanded first-rate talent, much time, and considerable financial backing. Synchrotrons and radiotelescopes are only the most recent examples of the lengths to which research workers will go if a paradigm assures them that the facts they seek are important.

(Ibid.: 25–26)

Kuhn here uses 'apparatus' as a term for the technical apparatus, which must be understood to include technology, instruments, and images. The relationships between the technical apparatus and the theoretical apparatus thus seem to blend into each other, if we follow Kuhn, as 'the conceptual and instrumental tools the paradigm supplies' (ibid.: 37).

Copernicus made observations and calculations which could not be incorporated into hegemonic Aristotelian-Ptolemaic cosmology. On the first page of *De Revolutionibus Orbium Coelestium* we can read that:

It is the job of the astronomer to use painstaking and skilled observation in gathering together the history of the celestial movements,

and then—since he cannot by any line of reasoning reach the true causes of these movements—to think up or construct whatever causes or hypotheses he pleases such that, by the assumptions of these causes, those same movements can be calculated from the principles of geometry for the past and the future too.

(Copernicus 1995: 3).¹¹

Copernicus' observations, his mathematical and geometric calculations, *contradict* Ptolemy's worldview because it is the Sun, or a *Nodus Mundi* close to the Sun, that centres the universe and not the Earth. Interestingly, however, Copernicus' models are strikingly *similar* to Ptolemy's models. The Copernican model is being developed *because* Copernicus has done 'painstaking and skilled observation', which cannot be incorporated into the hegemonic hypothesis. The astronomer's responsibility is, accordingly, as stated in the quote above: 'to think up or construct whatever causes or hypotheses he pleases such that, by the assumptions of these causes, those same movements can be calculated from the principles of geometry for the past and the future too'. As can be seen in the quote, Copernicus is completely left to the hypotheses *within* a tradition, but at the same time chooses to indulge in the principles of geometry, calculations which may predict and explain the motions of celestial bodies. Copernicus can thus be understood to be *within the prevailing programme* (or paradigm) but actuates a turn towards a new faithfulness to the observations, rather than to the overall model (Figure 2.4).

Michael Hoskin describes *De Revolutionibus* as the pinnacle of the Greek programme to save phenomena using geometric models and uniform movements (Hoskin 2003: 41). Nevertheless, the new observations demonstrated that the astronomers had been employing the wrong theories all along, and that the conceptual scheme had to be abandoned and replaced. That, writes Kuhn, is the logical structure of a scientific revolution:

A conceptual scheme, believed because it is economical, fruitful, and *cosmologically satisfying*, finally leads to results that are incompatible with observation; belief must then be surrendered and a new theory adopted; after this the process starts again.

(Kuhn 1999: 76, my emphasis)

Accordingly, within the first half-century after the publication of *De Revolutionibus*, Western astronomers looked differently at, and saw different phenomena in, the previously immutable heavens. Kuhn writes how '[t]he very ease and rapidity with which astronomers saw new things ... may make us wish to say that, after Copernicus, astronomers lived in a different world' (Kuhn 2012: 117).

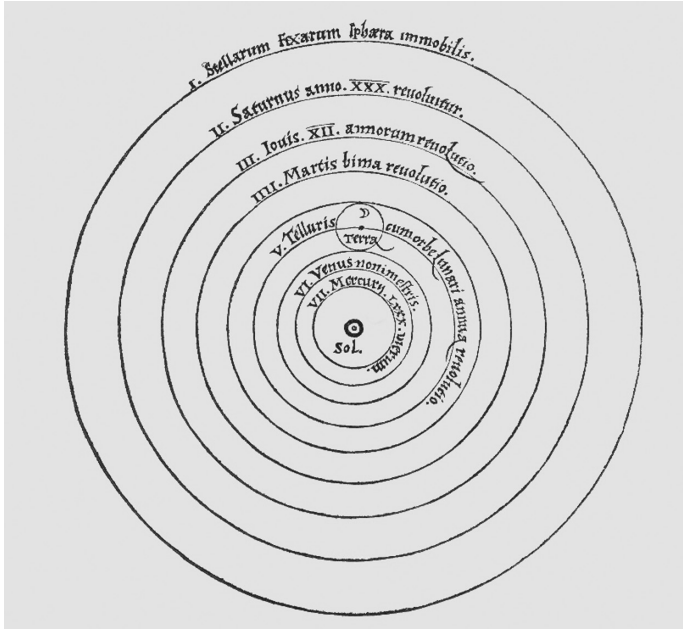


Figure 2.4 The Copernican model. Nicolaus Copernicus, Printed by Johannes Petrejus. Published in Norimbergæ, apud Ioh. Petreium, 1543. https://commons.wikimedia.org/wiki/File:Copernican_heliocentrism_diagram-2.jpg.

Upsetting the Human Self-Image

That a conceptual scheme must be ‘cosmologically satisfying’ to work paradigmatically (as Kuhn writes in the quote above) is a great cue to understand why it is legitimate to claim that the Copernican revolution had such a great impact on thought, and that it ‘upset the human self-image’, as we read in the opening quote from OCF. Cosmology is a special field of astronomical science, but cosmology also includes (historically and contemporarily) a common understanding of the creation and limits of the universe, and our place in the cosmos. Astronomers can therefore, with their observations and specialist knowledge, change the worldview that makes sense for an entire civilization (Kuhn 1999: 7).

According to Kuhn, paradigms constitute and dominate normal sciences. ‘Cosmologically satisfying’ can thus point to a local cosmos, as a specific way of seeing and knowing within a discipline or field. However, as the Copernican, or heliocentric model comprises our cosmology, it constitutes a worldview, including the third image included in the opening quote from OCF, *the human self-image*. Nineteenth-century German physician

and physiologist Emil du Bois-Reymond described how ‘Copernicus put an end to the anthropocentric theory by doing away with the Ptolemaic spheres and bringing our Earth down to the rank of an insignificant planet’ (du Bois-Reymond 1883: 249). Needless to say, this theory is more than a scientific theory or model but amounts to a worldview for a civilization. By this de-centring of Earth, the God-created cosmos is destabilized, and with this the notion that this world was created *for us*, according to God’s plan. At the same time, humanity becomes in charge of its own destiny, and science substitutes God’s laws as a compass for governing and living.

When the authors of OCF predicted that ‘[h]istorians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century’, it is a similar kind of decen-tring the commission might have hoped for. Seeing our planet from Space would ideally re-position our sentiments of who we are, our place in Space and on Earth, in between ‘pattern of clouds, oceans, greenery, and soils’, and furthermore discipline or encourage us to fit ‘our activity into that pattern is changing planetary systems’. But how upset was the human self-image, and why did these images not save us?

We may remember from the beginning of this chapter how cosmologist Fred Hoyle predicted in 1948 that photography of Earth from Space would ameliorate humanity’s relationship with the Earth. Twenty-two years later, at the Apollo II Lunar Science Conference in Houston, 1970, two years after *Earthrise* and two years before *The Blue Marble*, Hoyle followed up his predictions:

Well, now we have such a photograph ... Has any new idea in fact been let loose? It certainly has. You will notice how quite suddenly everybody has become seriously concerned to protect the natural environment. Where has this idea come from? You could say from biologists, conservationists and ecologists. But they have been saying the same things as they’re saying now for many years. Previously they never got any base. Something new has happened to create a world-wide awareness of our planet as a unique and precarious place. It seems more than a coincidence that this awareness should have happened at exactly the moment man took his first step into space.

(Hoyle in Goldberg 1991: 52)

Hoyle was right in some sense. The timing of the photos was immaculate for the environmental movement. These photos are commonly referred to as some of the most important and well-known photos in history. They offered a view of Earth as it had never been seen before, that could work to consolidate the growing environmentalist movement. The publication of *Silent Spring* by Rachel Carson in 1962 had amassed critical opinion,

researchers from a diversity of fields had turned their interests towards environmental questions, and sustainability and environmentalism grew in importance on the political agenda. The visions—or rather photos—of Earth from Space may thus be claimed to have had a uniting and mobilizing effect, as visual artefacts which incorporate, synthesize, and materialize the diverse elements of the environmental and sustainability discourses, as icons and symbols strengthened by the indexicality of photography. But the effect on the human self-image might be other than hoped for by the WCED.

When the commission so hopefully predicted that the vision from Space will have ‘a greater impact on thought than did the Copernican revolution of the sixteenth century, which upset the human self-image by revealing that the Earth is not the centre of the universe’, they implied that seeing these images would have a universal, immediate, and lasting effect, like a paradigm shift, where humanity is decentred in our relationship to Earth, and governed by an ecological awareness. But what we see and how we see is neither universal nor individual. Seeing is never neutral, but an ‘active perceptual system, building on translations and specific ways of seeing, that is, ways of life’ (Haraway 1988: 583).¹² Sight is social and historical, as ‘the mechanism of sight and its historical techniques, between the datum of vision and its discursive determinations—a difference, many differences, among how we see, how we are able, allowed, or made to see, and how we see this seeing or the unseen herein’ (Foster 1988: ix).

This means that we biologically, culturally, and technically are given particular conditions of possibility for seeing. Technological translations of the visual position the seer in a particular relationship to the seen as image, imaged and imagined, which includes positions from where to know, what to know, the status of the seen, relationships to other seers, how the visual is framed, our expectations of the material and technical conditions, and so on.

Seeing Earth from Space as a photograph is not the same as seeing it with your own eyes. It may seem that proponents such as Hoyle and Brand expected photography to articulate a latent knowledge and consolidate a specific sustainable sensibility. Their expectation reminds us of ‘the over-view effect’, a term coined by Frank White in 1987. This refers to:

The experience of seeing first-hand the reality that the Earth is in space, a tiny, fragile ball of life, ‘hanging in the void’, shielded and nourished by a paper-thin atmosphere. The experience often transforms astronauts’ perspective on the planet and humanity’s place in the universe. Some common aspects of it are a feeling of awe for the planet, a profound understanding of the interconnection of all life.

(White 2014: 2)

One of the lucky ones to see ‘the real thing’, US astronaut Tracy Caldwell Dyson, born in 1969, describes how it almost grieved her ‘to think about how in the world’ she was going to describe the vision of Earth from Space (ScienceAtNasa 2023). It is however difficult to imagine someone grieving about the difficulties of how to describe these images to others. Seeing photos of Earth from Space, is not the same as seeing the real thing, but the work of the photos is not without reverberation.

What happens to Earth then, what does it become, when it is no longer predominantly defined by our weightless or Earthbound senses, but translated to technical images, as visual photographic inscriptions and distributed by television, photography, newspapers, and magazines? According to Wolfgang Sachs, there were two reactions visible:

On the one hand, people talk about the earth in a language of sentimental trivialization: Look how tiny and fragile it is! It needs our care and attention! On the other, human self-aggrandizement and claims to omnipotence become apparent: Look how easily comprehensible and manageable earth is! It can be mastered and kept under control! Of course, the motives of ‘concern’ and ‘control’ may also coincide. Both ways of speaking seem to find accord in talking to the earth as a ‘patient’.

(Sachs 1999: 113)

Sachs’ quote resonates with the final sentence in the quote from OCF: ‘This new reality, from which there is no escape, must be recognized—and managed’. If we follow Sachs, this decentring may however be saturated with an even bigger paradox than the Copernican revolution. On the one hand, humanity can see with their own eyes how tiny and unpredicted the planet is, how insignificant ‘we’ are in the ‘big picture’. On the other hand, the photos centre humanity, as photographers, as spectators, as Space colonizers who are making mankind greater than ever before, like gods! To present and see the Earth as an object apart from its surroundings and relationships may be seen as ‘the ultimate illusion of the mastery of our own subjectivity, a subject so powerful and grand that it can take the whole Earth as its object’ (Oliver 2015: 23). Sheila Jasanoff and Marybeth Martello similarly sum up how this tension plays out in the quote from OCF, as it indicated how Earth, seen as ‘a small, fragile ball’, needs human stewardship, but at the same time indicates that the ‘concerns of humankind might have to be backgrounded in favour of more systemic, less human-centred understandings of environmental phenomena’ (Jasanoff and Martello 2004: 37).¹³ Ideally then, the photos centre and de-centre humanity at the same time, interpellating us to take charge

for change, without privileging humanities' interests over the ecosystem. As photography positions the viewer in relation to the object Earth, the seer becomes the knower, and thus the locus of action.

Martin Heidegger presented a somehow darker view: 'This is no longer the Earth on which man lives', was his comment to photos of Earth from Space, in the interview titled 'Only a God Can Save Us'.¹⁴ Heidegger's sentiment stands in stark contrast to the optimistic views of Stewart Brand, who believed that such images would save us, and exclaimed that we are 'as Gods'. In *The Age of the World Picture* (which is not at all about material 'pictures of the world'), Heidegger writes '[w]here the world becomes picture, what is, in its entirety, is juxtaposed as that for which man is prepared and which, correspondingly, he therefore intends to bring before himself' (Heidegger 1977: 129).¹⁵ Heidegger's student, Hannah Arendt, was no more impressed by the potentialities of the Space images and Space technology than her teacher. For Arendt, despite Earth being 'the quintessence of the human condition', we 'have started to act as we were dwellers of the universe' (Arendt 2018: 3). If, writes Arendt:

[I]t should turn out to be true that knowledge (in the modern sense of know-how) and thought have parted company for good, then we would indeed become the helpless slaves, not so much of our machines as of our know-how, thoughtless creatures at the mercy of every gadget which is technically possible, no matter how murderous it is.

(Ibid.: 3)

Technology then alters how we relate to and engage with our surroundings; how we sense, mean and make sense of the the world. Furthermore, technology transforms hierarchies; what counts and what is valued. Through our engagement with technology we ourselves are changed.

'Seeing the earth from space was not as great a revolution as has been claimed', writes Arturo Escobar (1996). If we follow Escobar, this vision re-enacted a gaze already established, that of clinical medicine: 'As with the gaze of the clinician at an earlier time, environmental sciences today challenge the earth to reveal its secrets to the positive gaze of scientists' (Escobar 1996: 328). This movement entails a continuing capitalization of nature, through propagating an understanding of not only nature, but also society, in terms of production and efficiency (ibid.: 328).

What is medicine for some may be lethal for others. The 'we' who, according to OCF, saw these visions and need to act upon 'this new reality' is not a united 'we' with common realities, interests, or futures. In contrast, it can be argued that there is a 'we' who have appointed themselves to determine what is best for the world. Arturo Escobar describes how the Scientific American's September 1989 special issue on *Managing Planet*

Earth carries the ‘baton from Brundtland’ and reveals ‘the essence of the managerial attitude’ through texts *and images* (ibid.: 329). According to Escobar, this special issue reveals a particular ‘we’, distinct from the ‘we’ in the human self-image described by OCF. All the scientists represented are male academics and businessmen, while the visual representations in the issue seemingly tell another story:

A full-page picture of a young Nepalese woman ‘planting a tree as part of a reforestation project’ is exemplary of the mindset of this ‘we’. Not portrayed are the women of the Chipko movement in India, with their militancy, their radically different forms of knowledge and practice of forestry, defending their trees politically and not through carefully managed ‘reforestation’ projects. Instead there is a picture of an a-historical young dark woman, whose control by masculinist and colonialist sciences, ... is assured in the very act of representation. This regime of representation assumes that it is up to the benevolent hand of the West to save the earth; it is the fathers of the World Bank, mediated by Gro Harlem Brundtland, the matriarch-scientist and the few cosmopolitan Third Worlders who made it to the World Commission, who will reconcile ‘humankind’ with ‘nature’. It is still the Western scientist that speaks for the earth.

(Ibid.: 329)

One Picture—Different Meanings

I started this chapter by pointing to W.J.T. Mitchell’s distinction of the image-picture to argue why and how the words in the introductory quote of OCF should be treated as images. Analytical terms are not just mere terms. They are productive, as lenses that guide our visions and knowledge production by emphasizing some distinctions and neglecting others.

If we acknowledge photography as not only material pictures, but as images, we may add a layer to the understanding of how these photos of Earth from Space work differently on different people. The picture is the material phenomenon—in this case the concrete photos. When we see the picture, however, the magic starts, as the picture also distributes other, material and non-material images, including prior images, sense data, metaphors, dreams, and so on. This includes not only similar images, stories, and notions, such as the *Book of Genesis* and the context of the Cold War also counter images and counter pictures, such as the photography of ‘the mushroom cloud’ after the bombing of Hiroshima in 1945.

Inscription, as discussed in the previous chapter of this book, is described by Latour and Woolgar ‘as taken from Derrida (1977) [and] designates an operation that is more basic than writing (Dagognet 1973). It is used here to summarize all traces, spots, points, histograms, recorded

numbers, spectra, peaks, and so on' (Latour and Woolgar 1986: 88, fn2).¹⁶ Now, to be kind and generous, we may bend the footnote to refer to Derrida *and* Dagonnet, and arrive at a definition more similar to that of Mitchell: the materiality is defining for what can be articulated and distributed and how, but the meaning of the inscribed is not closed off or restricted to the materiality. Photography then works through the materiality on which it is presented, style, contexts, expectations, and experiences of the photographic medium as well as to the motif (Mitchell 1994, 2005).

The distinction may remind us of the semiotic distinction of denotation and connotation.¹⁷ As Roland Barthes developed a particular semiotics for photography, he stressed photography as a language without a code (Barthes 2003). What he meant by this, is that as photography is mimetic, displaying phenomena in the world 'as we see them', our understanding and knowledge of the photographed is formed 'naturally', parallel to how we see and know in the world. To access the potential readings of the meanings in photography, Barthes used the analytical distinction of denotation and connotation. While a denotative analysis of the image can tell us that which is photographically represented in the picture, our immediate and concrete understanding, a connotative analysis will help us understand the signification of the displayed, and a diversity of cultural associations of the photographed. Such an analysis may, within the frame of the reader, bring forth different potential meanings of the photography, and thus, in our case, help us understand how and why some associate these photos with environmental awareness, while others are concerned with the arms race of the Cold War or an alienation of our being in this world.

Like this distinction, the analytic distinction of image-picture is like the two sides of a sheet of paper—inseparable. To think (and see) with these distinctions is a strategy to investigate the cultural suppositions of how an image is read and understood. A strategy not so beloved in the tradition of Actor-Network Theory which is foremost concerned with an idea of 'that which is', as a quest for ontological purity. While Barthes' semiotic analysis is foremost concerned with understanding the photographic motif, Mitchell's distinction takes us closer to an understanding of the photographic medium, and the work of the apparatus of photography: as singular material objects, as well as through providing specific, paradigmatic, ways of seeing.

Photography as Paradigm

Seeing our Space photos through the concept of the paradigm may help us deepen our understanding of their limited powers, since the term was fruitful in understanding how the Copernican model shackled human self-esteem.

The way one sees *within* a paradigm, such as the Copernican, is anchored in the same way as when a new paradigm is established, namely by means of a familiar construction, an artefact (such as the Copernican model), which becomes a nave for knowledge and research. If this works, the artefact, the model, will be established as a new paradigm.

The familiar construction, or artefact A, is an image of B, and if it works, it becomes a concrete image, organizing a new way of seeing B. The paradigm thus has not only one way of being concrete, but two: the concreteness which it brought with it through being a 'picture' of A, and the second concreteness which it has now acquired, through becoming applied to B (Masterman 1970: 78). For an image to actually be a paradigm, it must have the characteristics of being concrete and raw, such as a picture, model, or a sequence of words that draw up an analogy, or a combination of these (ibid.: 79). A paradigm can thus be thought of as an unpolished, crude analogy, where B (seen via A) leaks back to A. A particular paradigm, or 'a particular way of seeing', works self-reinforcingly, through new corresponding analogies and images.

As I have demonstrated through the discussions of the Copernican revolution, the effects on 'humanity' were possible because the Copernican model, as inscription, an immutable and mobile hub, gathered astronomers to discuss and examine, and to solve puzzles within the scientific community. The inscription as a material model becomes a locus in quo for cosmological conflict and consolidation. The Copernican model, as a diagram, is thus not only a materialized exemplum of a cosmology, but also the model through which the cognition goes to identify and sort new sensory impressions. When the model becomes a hegemonic astronomical model, it rubs off, leaks out, and becomes common knowledge, as a common understanding of the creation and limits of the universe, and our place in the cosmos, as a shared worldview. A picture can achieve paradigmatic status—or shackle the self-esteem of humanity—*when* and *if* it works in a network of relatively frictionless relationships of theories, practices, and ways of experiencing.

Pictures work according to how they distribute the visual, and as visual representations in the sense of being examples, guiding, and organizing what we see and how. In this way, the images also contribute to a worldview, as Thomas S. Kuhn describes the paradigm's effects.

Kuhn's thinking style is related to and influenced by Ludwik Wittgenstein. In 1969 Wittgenstein described the relationship between images and knowledge as follows:

We form the picture of the earth as a ball floating freely in space and not altering essentially in a hundred years. I said 'We form the picture etc.' and this picture now helps us in the judgment of various situations.
(Wittgenstein 1969: §146)

The picture of the earth as a ball is a good picture, it provides itself everywhere, it is also a simple picture—in short, we work with it without doubting it.

(Ibid.: §147)

Pictures then can be seen as didactic units: organizing, teaching us, and reinforcing not foremost the knowledge of that which is displayed on the surface as motif but *as ways of seeing* (Wartofsky 1979: 215). Pictures train the gaze on what we should see and how—how meaning is legitimized and given status. The pictures are ‘heuristic and didactic artifacts. They teach us to see: they guide our vision in such a way that the seen world becomes the world scene’ (ibid.: 282).

As we can understand from Kuhn’s and Masterman’s discussions on how the paradigm works, we understand that the paradigmatic works more easily when the viewer can make the necessary inferences from the singular paradigmatic picture to the plurality of objects in the world. Our photos of Earth from Space—while having a privileged relation to ‘reality’ through their iconic, mirroring qualities, and their indexicality, as physical inscriptions of light—are still not able to shackle the self-esteem of humanity or change how humanity acts upon this world. *Earthrise* and *The Blue Marble* are, as we remember, not *at work* in a scientific way, not a formal part of the astronauts’ mission. The picture is thus neither part of, nor a starting point for the kind of problem-solving, or puzzle-solving, which, according to Thomas Kuhn, characterizes normal science, the established paradigmatic scientific practice (Kuhn 1999: 35–42).

No matter how ‘true’ or spectacular the photos are, their motifs are always particular in their indexical relationship to the photographed. As argued by Susan Sontag, ‘in a world ruled by photographic images, all borders (“framing”) seem arbitrary. Anything can be separated, can be made discontinuous from everything else: all that is necessary is to frame the subject differently’ (Sontag 1977: 22). For photography to work paradigmatically, it needs a broader relationship of companions and tools. A paradigmatic photography must be the *nave as* and *in* a technical apparatus in a broader apparatus, consisting of what Foucault has described as ‘a thoroughly heterogenous ensemble consisting of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, philosophical, moral and philanthropic propositions’ (Foucault 1980: 194). The technological and material qualities of the photos, as well as their surfaces and motifs, are not in a privileged relationship to *sustainability* as a term, a sensibility and way of life, and as a *modus operandi* for policy and action. The lasting work of these photos may thus be understood as that of the photographic medium: the way it positions the seers to the seen, as internalized perspective, as objects for the subject, separated from its connections, with the illusion of truth.

Concluding Remarks

What the commission hoped for was for the photographs *as motifs*, as meaningful surfaces, to change the way ‘we’ experienced the world. There is no doubt that the visions had an immediate effect and worked to consolidate an already growing environmental movement. As new visions of something never hitherto seen, the photos were stunning, and were put to work by several actors in different discourses. Through time, these photos have however become so ubiquitous that we hardly care anymore. Among other things, pictures of Earth from Space are used by companies in commercials who want to signal their global impact and outreach. Earth is visualized in movies, as motifs on cups and T-shirts, to mention a few. Thus, it may seem like even environmentalism and sustainability, through the symbol of Earth from Space, has become yet another product. It is estimated that by 1930, one billion photographs were taken worldwide. In 2014 the number was up to the unimaginable number of one trillion (Mirzoeff 2015: 6). A global contemporary lifestyle is marked by the urge to take, share, and consume photos.

As I have demonstrated in the discussions of the Copernican revolution, the ‘heliocentric effects’ on ‘humanity’ were possible because the Copernican model, as inscription, an immutable and mobile hub, gathered astronomers to solve puzzles. The inscription as a material model becomes a locus in quo for conflict and consolidation. The Copernican model, as a diagram, is thus not only a consequence of the perceptible access one has to the phenomenon *Cosmos*, but also a materialized exemplum of cosmology, and the models through which the cognition goes to identify and sort sensory impressions. When the model becomes a hegemonic astronomical model, it rubs off, leaks out, and becomes common knowledge as a common understanding of the creation and limits of the universe, and our place in the cosmos, as a shared worldview.

A premise for my way of understanding the work of these photos is that there is no direct access to the phenomena. We always see something like/in/with/through something. We see as/with/through concepts/instruments/theory as well as through bodily situated eyes/experiences, and so on. The more of these elements that interact in a larger apparatus, the more ‘natural’, consolidating, and paradigmatic the particular way of seeing (and representing) appears. In other words, we do not depict the world as we see it, we see it as we depict it (Wartofsky 1979: 273).

Photos of Earth from Space do not work in or for a unified apparatus, like the Copernican model. The labour of these photos is performed in the material as well as the non-material, connected both to the verbal and the non-verbal. While being immutable and mobile as physical inscriptions, their work is not performed alone, or as singular photography, but through presenting a suggestion of *how* to see the world, in a particular

relation between seer and seen, as didactic entities in a broader hegemonic apparatus: framed, disconnected, objectified, and consumable.

The main lasting decentring, produced by the work of these images, may then be the illusion of the substitution of the photos with the real thing: reducing Earth to ‘that for which man is prepared and which, correspondingly, he therefore intends to bring before himself’ (see citation above). This act does not put humanity in a radically new position with Earth in and as an ecological system, but turns the Earth into yet another standardized good, a commodity. *These images cannot save us!*

Notes

- 1 Althusser’s understanding of the relationship between language and subject should be nuanced. The concept of interpellation highlights the moment in which the subject is called upon to perform a certain type of action. Judith Butler criticizes this structuralist conception of interpellation, in which the subject is initiated by authorities. According to Butler, the subject does not *have to* perform this action to be interpellated. The interpellation can also happen when the subject refuses. Furthermore, interpellation does not depend on a speaking subject according to Butler. The operation also takes place through other practices and institutions. The main point of Butler, as I read it, is that subjects are invoked and constituted through rituals and conventions (Butler 1997: 24; Lloyd 2007: 117).
- 2 *The Whole Earth Catalogue* was a counterculture magazine and product catalogue, published by Brand from 1968 to 1998.
- 3 In the words of earthday.org: ‘Every year on April 22, Earth Day marks the anniversary of the birth of the modern environmental movement in 1970’.
- 4 For a review on various disciplinary applications of the term translation, see Gal (2015).
- 5 This distinction may seem a bit outdated in the digital era, but the principle should be clear enough for a friendly reader.
- 6 See Goodman (1978) *Ways of Worldmaking*. Indianapolis: Hackett Publishing Co.
- 7 Billy Watkins describes the struggle to find something appropriate to read during the broadcast. The discussions centred around something about peace on Earth, but the ongoing war in Vietnam made this inappropriate (Watkins 2007: 70).
- 8 ‘First of all, on the surface which I am going to paint, I draw a rectangle of whatever size I want, which I regard as an open window through which the subject to be painted is seen’ (Alberti 2004: 1.19).
- 9 Samuel J. Edgerton argues that Alberti’s ‘window’ must be understood primarily as a secular alternative to the divine image. The image was thus not to be understood as a metaphysical reflection, but as a direct and physical ‘here’ (Edgerton 2009: 127).
- 10 The full list of publications named by Kuhn is: Aristotle’s *Physica*, Ptolemy’s *Almagest* and Newton’s *Principia* and *Opticks*, Benjamin Franklin’s *Electricity*, Antoine Lavoisier’s *Traité élémentaire de Chimie* and Lyell’s *Principles of Geology*.
- 11 Although it was long believed that Copernicus had written this preface himself, it was probably written by the Lutheran theologian Andreas Osiander, who was also a close friend of Copernicus.

- 12 One of the main points of Haraway's critique in the article 'Situated Knowledge' (1988) is that there are no innocent positions from where to see or know, with or without technologies. Neither the technical image nor the seeming neutrality implied by perspectives of symmetry or reflexivity can afford neutral knowledge. Knowledge is always situated.
- 13 See also Jasanoff 2022.
- 14 Martin Heidegger, 'Nur noch ein Gott kann uns retten', *Der Spiegel* 30 (May 1976: 193–219). Trans. by W. Richardson as 'Only a God Can Save Us' in Heidegger: *The Man and the Thinker* (1981), ed. T. Sheehan, 45–67.
- 15 It is worth noting here that the photos Heidegger had at his disposal were two pictures from Lunar Orbiter 1, captured and distributed in 1966. 'They are stark and austere. They are vertiginous in a way that the iconic "Earthrise" is not' (Lazier 2011: 610).
- 16 See discussion in Chapter 1.
- 17 The distinction originates from Louis Hjelmslev who noted the necessity of understanding this as an analytical distinction, and not something we experience 'Connotative semiotic' serves as the headline under which Hjelmslev develops the identifying function of style, social dialect, language, idiolect, and the like; as non-linguistic cultural fact associated with language (Garvin 1954: 88).

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Part II

Narrative Agency



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3 Narrating Non-Human Agency

The ‘ANT Account’ and the Literary Prehistory of the Actant

*Åmund Norum Resløyken
and John Ødemark*

Introduction: Sociology and the Narration of Agency

This chapter examines the construction of agency in the Sociology of Translation. We will particularly be concerned with how a place for non-human agency was forged by a turn to semiotics, narratology, and literary poetics. We argue that the symmetric notion of agency is dependent on a specific genre, which we call the ‘ANT account’, a narrative genre devised to capture the agency of non-human actors—the trademark of the Sociology of Translation. To account for the formation of a specific notion of agency operating within the Sociology of Translation, we will do a close reading of one of the seminal texts within the genre, Michel Callon’s *Some Elements of a Sociology of Translation: Domestication of the Scallops and Fishermen of St. Brieuc Bay* (1986). Moreover, we will follow the intertextual links behind Callon’s development of a generalized symmetry of ‘actors’, and the specific construal of agency it works with—as well as Latour’s later reconfiguration of the *actant*.

To be sure, questions concerning different kinds of action and agency have long been central to the social sciences. M. Weber, for instance, famously discriminated between four ideal types of social action: rational-purposeful, value-rational, affective, and traditional (Weber 1978: 24–26). While Weber underscored the need to understand the actors’ own concepts and be attuned to meaning in the explanation of action,¹ sociologists in the Durkheimian tradition pinpointed that society was a reality *sui generis* that should be studied with recourse to social facts; sociology should begin with society, not individuals. Hence, philosophical and methodological questions about the relation between action and social structure have been central in modern sociology since its foundation (see, for example, Hollis 1994). Should we begin with the social and explain action as a function of a social whole—or do we see society as an aggregate of individual action, a mere ‘name’ or ‘analytical concept’ used as a shorthand to reference all the actions and interactions that take place? What is the role of ‘actor’ meanings and intentions in relation to the various social and

structural constraints upon action? Around such issues, the epistemology of the social sciences meets with politics and political values and orientations. The incorporation of non-human actors in a sociology of action is surely a non-anthropocentric expansion of politics towards nature—and possibly towards ecology and sustainability. Emphasizing what someone or something *does* (the action performed), rather than what the actors *are* (essences, characters, human, non-human, abstract, concrete) avoids the necessity of making epistemological and ontological distinctions between humans, animals, and things. It is precisely with this perspectival shift that Actor-Network Theory (ANT) has managed to pinpoint relations important for the constitution of environmental problems, as well as producing a new way of describing nature–culture interactions (Callon and Latour 1981; Latour 2017; Haraway 2016; Tsing et al. 2020; Clark and Szerszynski 2021). Arguably, this new poetics of describing, which we call the ANT account, has had more impact as a critique of ‘common sense’ epistemology and ontology, and (perhaps paradoxically, but surely not surprisingly) on the human sciences, than on policy or the natural sciences.

To expand the human-centred notion of agency and action developed in the social sciences, the Sociology of Translation turned away from sociology and towards the humanities, more precisely to literary poetics and narratology—a field with a long history of conceptualizing and analyzing actors and actions. To be sure, the sociological term ‘actor’ is itself imported to the social and human sciences from the language of the stage and the language of poetics and literary criticism. Moreover, drama and text analogies became increasingly popular in sociology (for example, Goffman 1986) and social anthropology in the 1980s (see, for example, Geertz 1980 on drama metaphors). In hindsight, then, the reemployment of structuralist narratology in ANT and the Sociology of Translation can be seen as a part of a broader turn to text and drama metaphors in anthropology and the human sciences more generally.

The choice of semiotics and narratology as a source domain for conceptual and interdisciplinary translation in the Sociology of Translation has everything to do with the ambition of capturing non-human agency. Central to this project was the notion of the ‘actant’ in semiotics and literary poetics. As observed in the introduction to this book, achieving forms of analytical symmetry between human and non-human actors is a central objective for the Sociology of Translation. As we will show in this chapter, non-human actors were already well-established in narratology and literary poetics. We shall demonstrate that the translation of terms from narratology and structural linguistics was central in the establishment of the symmetrical approach, and its concept of agency and actors. Central to this symmetry of actors is the concept of the actant, which Callon and Latour take from the narratologist Julien Algirdas Greimas.

In the following, we will first examine the construction of the notion of ‘actor’ in one of the classic formulations of the Sociology of Translation. We will follow the construction of the concept of ‘actor’ in Callon’s *Some Elements of a Sociology of Translation* (1986). Attentive to the fact that Callon’s ‘actor’ and notion of agency has been seminal in Actor-Network Theory, we will secondly follow the genealogy of the concept of ‘actant’. By following the genealogy of the concept, we will draw attention to its conceptual history in narratology, semiotics and linguistics, and the consequences the translation from these disciplinary domains has for the narrative style of ANT. We examine two sources Callon cites to warrant his new understanding of the actant: Greimas and Courtés’s *Semiotics and Language: An Analytic Dictionary*, and Latour’s *The Pasteurization of France*. By paying attention to Callon and Latour’s dependence on Greimas’ conceptualization of actant, we will argue that the actor of ANT is dependent upon the formation of what Greimas called a ‘genre’. This, we claim, is important for how agency is provided for non-human actors. Greimas had claimed that differences between genres can be reduced to differences in functional relations, that is, different actants, ‘an articulation of actors constitute a particular *tale*, a structure of actants constitute a *genre*’ (Greimas 1983: 200, emphasis in original). When Latour and Callon use human and non-human actors to explain—or as examples of—different functional relations, they also produce a narrative genre. This genre we can call the ANT account.

As we shall see, the ANT account has provided a method for describing the agency of non-human actors on par with that of humans. At the same time Greimas’ concepts, as they came to be deployed in the ANT account, opened up for investing the same actors with *a priori* expectations of how they are to behave. In this regard, we can see a kind of agency in the ANT account that is invested with certain expectations as to how humans and non-humans relate to one another. It is with these expectations, as to how the accounts should be understood, that they form a narrative genre, and in this way the ANT account also poses certain problems as a framework for exploring possibilities for forming a politics of sustainability. As we will argue, these problems are problems of translation, or more to the point, of disregarding the work of translation between the various levels of narration.

Symmetry and the Narration of Natural Agency

Some Elements of a Sociology of Translation: Domestication of the Scallops and Fishermen of St. Brieuc Bay is the canonical formulation of translation as a method for a nature–culture crossing sociology. Callon wanted to show the precarious nature of translations with his article, in his own words, that ‘translation is a process’ (Callon 1986: 196).

Empirically, the text examines a group of three French scientists who aimed to increase the production of scallops in the Bay of St Brieuc by importing a Japanese technique for breeding them. Significantly, the scallops of St Brieuc (*Pecten Maximus*) belong to a different species than those the Japanese scientists had worked with. Following the Japanese research, where larvae of scallops anchor to collectors on the seabed, the French scientists seek to implement this same technique in St Brieuc. According to Callon, the entire project thus revolves around one single question; will *Pecten Maximus* anchor? In addition to the three scientists and their colleagues, the local fishermen and the scallops are key agents in this project. The fishermen were supposed to be the beneficiaries of the research, whereas the success of the project hinged upon the scallops and their ability to procreate in a new environment. Callon describes the three scientists' work of 'translating' the Japanese scientific results to the social and natural realities of the Bay of St Brieuc. Callon's article addresses the formation of the scallop project, the involvement of the actors, and the subsequent failure of the project, through what he terms four moments of translation: 'problematization', 'interessement', 'enrolment', and 'mobilization'. It is the description of these four 'moments' (in addition to the critique of the principle of symmetry) that lies behind the article's fame, as these stages give a framework for the analysis of implementations of scientific projects.

Actors and Translators

The scientist, the scientific colleagues, the fishermen, and the scallops, then, are the actors evoked in the text, but how does Callon frame these actors? First, by a combined epistemological and ontological move. At the beginning of the text, he draws attention to the 'asymmetry' of sociological accounts of actors and actions:

When it comes to acknowledging the right of the scientists and engineers that they study to debate, sociologists' tolerance knows no limits. The sociologists act impartially and refer to the different protagonists in the same terms, even if one among them succeeds in imposing his will. The sociologists attribute the actors with neither reason, scientific method, truth, nor efficiency because these terms denote the actor's success without explaining the reasons for it. This perspective has been at the basis of very lively and detailed descriptions of the shaping of science. However, the liberalism of these sociologists does not extend to allow the actors studied to discuss society and its constituents in an open manner. For once they have taken the scientific and technical aspects of the controversies into account, the sociologists faithfully

restore the existing points of view to their places and, in addition, they rightly abstain from taking sides.

(Callon 1986: 197)

Callon here critiques the so-called principle of symmetry in the Sociology of Scientific Knowledge (SSK). This principle asserted that the same type of explanation must be used on both successful and unsuccessful, true and false, knowledge claims.² In principle, then, statements (for example, about witchcraft and quantum physics) should be tackled with the same explanatory protocols. Most radically, perhaps, true beliefs are not self-explanatory, but require the same sociological treatment as false beliefs. Hence, both true and false beliefs require the same sociological attention. However, as Callon observes, SSK still *leaves human and non-human actors in an asymmetrical relation*. The explanatory sameness does nothing with ontological difference, we could say, for the nature–culture distinction is not questioned. It is this (purported) shortcoming Callon draws attention to when he writes that ‘the liberalism of these sociologists does not extend to allow the actors studied to discuss society and its constituents in an open manner’ (see citation above: Callon 1986: 197). Scientists are only allowed to speak about nature, leaving the social explanation of science to the sociologists. Moreover, the actors studied in SSK were always scientists discussing nature, not ‘nature’ itself, that is, non-human actors. Hence, we could say, that the events that took place in the Bay of St Brieuc are mobilized as a contrast to SSK, and how this school construed symmetry. Callon’s revision of SSK is based upon a new conceptualization of ‘translation’; it hinges on translation doing the work of mediating the divide between nature and culture, and thus creating a new kind of symmetry.

The Forgotten Storytelling Practices of ANT

How does Callon deploy the term ‘actor’ to produce symmetrical accounts? As we saw, in the very beginning of *Some Elements of a Sociology of Translation*, we find the object of investigation designated as the ‘actors studied’, the three scientists who generated the documents Callon is studying, though they are now allowed to also discuss social concerns. These actors, Callon maintains, should be studied in accordance with the principle of a generalized symmetry. Later in the text, however, Callon adds another kind of actor, also important in the creation of the Sociology of Translation. While describing how the scientists translate other actors into their field of concern, he writes that:

[t]he questions formed by the three researchers and the commentaries that they provide bring *three other actors directly into the story*:²¹ the

scallops (*Pecten maximus*), the fishermen of St. Brieuc Bay, and the scientific colleagues.

(Callon 1986: 204, our emphasis)

We will return to footnote 21 at the end of the first sentence, which explains Callon's notion of 'actor'. But first, let us focus on the levels on which Callon's different actors occur. On the one hand, the three scientists are referred to as the 'actors studied', as we saw in the quote above ('However, the liberalism of these sociologists does not extend to allow the actors studied to discuss society and its constituents in an open manner' (see citation above: *ibid.* 1986: 197)). The scientists' actions are followed through inscriptions and documents that they themselves have produced. But on the other hand, we have the actors discussed *in the documents* produced by the scientists. These actors, then, are actors in the scientists' narrative about the events they studied—and found in documents and articles. Importantly, Callon refers to both groups (scientists and scallops) with the same name, they are both 'actors'. Consequently, we also have two sets of actors: the scientists, who relate to another set of actors (scallops, but also fishermen). The expansion of the notion of 'actor' beyond the human has come to define the style of description and storytelling that we know as ANT. However, as we saw above, Callon said that scallops, fishermen, and scientific colleagues were brought into 'the story' (*ibid.* 1986: 204). The non-human (the scallops) and human collectives (the fishermen, the scientific colleagues) are thus brought into Callon's account as *narrative characters or actors* already framed, or in Callon's words *translated*, in the scientific texts written by the 'actors studied'. Both non-humans and human collectives contribute to the story of the event that took place in St Brieuc. Let us now examine how the (purported) symmetrical expansion of translation takes on a narrative form.

As observed above, Callon's goal for the symmetrical approach to the study of science is to allow every actor to explain scientific controversies both in a natural and cultural causal framework. In order to reach this goal, Callon says:

[w]e require the observer to use a single repertoire when they [scientific controversies] are described. The vocabulary chosen for these descriptions and explanations can be left to the discretion of the observer. He cannot simply repeat the analysis suggested by the actors he is studying. However, an infinite number of repertoires is possible. It is up to the sociologist to choose the one that seems the best adapted to his task and then to convince his colleagues that he made the right choice. *Having opted in this text for a vocabulary of translation we know that our narrative is no more, but no less valid, than any other.* But

given the principle of generalized symmetry, the rule which we must respect is not to change registers when we move from the technical to the social aspects of the problem studied. *Our hope is that the translation repertoire, which is not that of the actors studied, will convince the reader.*

(Ibid. 1986: 200, our emphasis)

Callon argues for symmetry in the form of a narration that does not change register when moving from the technical to the social. In Callon's metanarrative, part of which is cited above, there are two different kinds of actors, the observer who chooses the language of description, and the 'actors' who are described. Callon's vocabulary of translation belongs to the observer, it is a language used to describe 'the actors studied'. The vocabulary of translation, Callon states, is not in the 'repertoire' of the actors studied. However, while Callon's metanarrative in this way forms two levels of narration, one in the voice of the observer and one from the point of view of the actors studied, there are in fact three levels of narration. A little later in the text we find the statement quoted above, which says that the three researchers (the 'actors studied') 'bring three other actors directly into the story' (ibid. 1986: 204). It is thus clear that Callon's narrative works on three levels of narration, namely the level of

1. The 'observer', where the vocabulary of translation belongs;
2. 'The actors studied', which are social (and human) actors in the sense that they are the subjects which are observed by the 'observer'; and
3. The 'other actors [brought] directly into the story', which are actors described by the 'actors studied', and as such are 'narrative actors'.

Hence, Callon is the 'translator' of narrative events about 'the actors studied'. These actors studied, or social, and human actors, bring a set of humans and non-humans, 'into the story'. These human and non-human actors, which are treated symmetrically and are identified by the role they have in the unfolding of events in St Brieuc, are characters or actors in a story, and as such are narrative actors. This is why their agency can be collective, like the fishermen and scientists, and non-human (and collective), like the scallops. This figuration of actors is taken from Greimas' conception of actants. But Callon describes all these, both the social 'actors studied' and the narrative actors treated symmetrically as humans and non-humans, as 'actors'. However, although he conflates the actors in the levels of narration, he does not necessarily conflate the narrative sequence in the same way. The 'narrative' the observer controls through the vocabulary of translation can on one level be opposed to 'the story' of the events in St Brieuc (level 1), though on another level (levels 2 and 3) 'the story'

involves *all* actors as narrative actors, with a role in the story, and translation not as vocabulary for description, but as models for acts. Symmetry is applied on the second and third levels of narration, and on the vocabulary of translation on the first. There is, however, no consideration of symmetry, or explanation in the same register, between the first and the second and third levels of narration.

‘The Story’

Callon’s conception of symmetry and translation has significant consequences for establishing a narrative genre, and how this genre deals with non-human actors. We will revisit this point below, but first, we need to examine Callon’s main storyline, namely the ‘narrative’ of the observer or ‘the story’.

‘The story’ is a narrative of Callon’s own making, consisting of

- (i) The events that he himself as an author-ethnographer observes and describes, and
- (ii) The stories in which the scientist whom he studies organizes *other* actors (like the scallops and the fishermen) that produce the events in *their* story about the events.

Callon provides us with a list of actors (scallops, fishermen, scientists) and describes them as being ‘a whole series of actors’ involved in the scientists’ initial question ‘does *Pecten Maximus* anchor?’ (ibid. 1986: 205). It is the scientists, through their relation to this question, who decide how other actors shall be brought into the story. Moreover, it is Callon, the observer, who extracts these descriptions and decides how they are ‘synthesized’ (ibid. 1986: 204). By only creating one narrative world for the readers, ‘the story’, as opposed to ‘my story’ or ‘their story’ and populating this story with actors that are attributed with the same kind of agency, Callon paves the way for the epistemological move the Sociology of Translation, and later ANT, is so famous for making, namely the—purported—symmetry between human and non-human actors.

The Actant

Having identified Callon’s narrated world, and how actors are brought into it, let us now turn to his conceptualization of ‘actor’. Significant for this is a particular intertextual and interdisciplinary reference; in the footnote directly following the sentence quoted above (where Callon identifies the actors brought into the story), he relates the concept of ‘actor’ to semiotics and narratology:

The term actor *is used in the way that semioticians use the notion of the actant* (Greimas and Courtés 1979; Latour 1984). For the implication of external actors in the construction of scientific knowledge or artefacts see the way in which Pinch and Bijker (1984) make use of the notion of a social group. The approach proposed here differs from this in various ways: first, as will be suggested below, the list of actors is not restricted to social entities; but second, and most important, because the definition of groups, their identities and their wishes are all constantly negotiated during the process of translations. Therefore, these are not pre-given data, but take the form of a hypothesis (a problematization) that is introduced by certain actors and is subsequently weakened, confirmed or transformed.

(Ibid. 1986: 227–228, fn21, our emphasis)

For Callon—as we also will see below in Latour—semiotics and narratology are model sciences, precisely because they deal with signs, events, and actions in both nature and culture. Callon’s reason for choosing the ‘semioticians usage’ of the ‘notion of the actant’, is, accordingly, that it widens the ‘list of actors’ to the non-human domain (like the scallops). Moreover, he uses ‘actant’ to highlight *the formation of groups* in the ‘process of translation’. Callon’s group-actant is defined according to the meaning particular groups are given by ‘the actors studied’, that is, they are emic categories. As such, the group-actant is always the result of a *prior* denomination and translation made by other actors internal to the story world of the ANT account (like the scientists talking about *the fishermen* and *the scallops* as groups other than themselves). Such actant-groups enter the story as a result of what Callon calls a translation.

Callon’s story, we could say, is about how these translated actors (like the scallops) fulfil or defy the meanings and functions given to them by ‘the scientists’. On the one hand, the names of the collective agencies are emic categories, that is, they reflect the categorizations made by the characters Callon tells us about; the scientists talk about scallops and fishermen. On the other hand, the talk of translation and translated actors is external to the world that Callon talks about—in narratological terms it is extradiegetic, the language of the social sciences, it is ‘etic’—‘the translation repertoire ... is not that of the actors studied’ (ibid. 1986: 200). As Callon adds, ‘the vocabulary chosen for these descriptions and explanations can be left to the discretion of the observer. He cannot simply repeat the analysis suggested by the actors he is studying’ (ibid.: 200). This choice, however, is followed by an obligation. ‘Having opted in this text for a vocabulary of translation we know that our narrative is no more, but no less valid, than any other’ (ibid.: 200). Hence, one vocabulary is apparently as good or bad as another. The ‘freedom’ to choose vocabularies is, however, soon

connected to an obligation, for ‘given the principle of generalized symmetry, the rule which we must respect is not to change registers when we move from the technical to the social aspects of the problem studied’ (ibid.: 200). So, if the language of translation seems to be contingent, one of many possible languages of description, it is also used to fulfil the obligation of generalized symmetry, ‘the rule which we must respect’.

Translations then, in Callon’s Sociology of Translation, turn out to presuppose *translators* of two very different types: first, the author/writer (the observer), who is the *translator* of the ‘actors studied’ and the acts they describe (that is, makes a group and a collective ‘force’ out of the scientists). Secondly, the scientists who are the translators of the other actors enrolled by ‘the actors studied’. Hence, translation occurs on two different narrative or textual levels, one internal to the story world, where scientists, scallops, and fishermen coexist, and one external to this story world, where the observer and author are not partaking in the narrated world, but narrating it, dwells. Callon’s symmetry between human and non-human actors is thus, in the last instance based upon what we could call an asymmetry of *translators*, investing different meanings in ‘actors’ depending on whether the translator is on what narratologists have called the diegetic or extradiegetic level (Rimmon-Keenan 2002: 95) (see Chapter 1) Callon inadvertently *reestablishes an asymmetry* between the actors in *his* story, the scientists who *he* as the author constructs as a group, and the actors that are formed in the texts of the scientists.

The Actor and the Actant—A Conceptual History

To further examine Callon’s construal of ‘actant’ and ‘translation’, we need to take a closer look at the two other references he cites to warrant his new understanding of the ‘notion of the actant’: Greimas and Courtés’s *Semiotics and Language: An Analytic Dictionary*, and Latour’s *The Pasteurization of France*. These are texts with far-reaching consequences for the understanding of human and non-human actors in ANT, and for the style of narration characterizing the ANT account, the way of describing and narrating that Callon refers to with his offhand designation of his account as ‘the story’. First, we will examine the reference to Greimas and Courtés, and the genealogy it forms a part of. Second, we will visit Latour’s text, to see what it adds to the concept of ‘actant’.

‘The term actor is used in the way that semioticians use the notion of the actant’, Callon claimed (see citation above: 1986: 227–228). However, if we turn to the source for this equivalence, namely Greimas and Courtés’ dictionary, we see that the semiologists actually made *two distinct dictionary entries* for ‘actant’ and ‘actor’. Although the two terms are conceptually linked, there are also distinct conceptual differences in the source text (the dictionary). Callon’s gloss erases these differences. Greimas and

Courtés' entries on these terms are late elaborations of a concept Greimas had struggled with throughout his career, *actant*. In French, *actant* is the present participle of the verb *acter*, meaning to operate or act. Let us examine the conceptual and disciplinary history hidden by the postulated sameness of 'actant' and 'actor'.

Linguistics: A Drama Metaphor

Greimas took this term from the French linguist Lucien Tesnière (1893–1954), who used it to examine verb valency. In Tesnière's model, verbs attach to actants to create clauses, that is, verbs have valency according to how the actants relate subjects and objects. Thus, actants are relations between actions (designated by verbs) and subjects and objects (designated by nouns). Tesnière is interested in how different verbs have different valency according to how they—with grammatical necessity—require a fixed number of subjects and objects depending upon the type of actions the verb describes. Take for instance, 'to give'. In the sentence 'The old woman gives the princess a magical sword', the verb demands one subject (the old woman) and two objects, one direct (the magical sword) and one indirect (the princess) (Tesnière 2015; Makaryk 1993: 505). Thus, the verb in this sentence 'demands' the enrolment of a subject doing the action, a direct object being acted upon, and an indirect object benefitting from the action. But for Tesnière the seemingly passive position of the two objects is already—because they are seen as actants—invested with a certain agency.

Tesnière's sentence analysis is based upon a drama analogue; the actants are actors, or *dramatis personae*, that relate actions to subjects and objects. In Tesnière's own phrasing:

- §1 The verbal node, found at the center of the majority of European languages ... is a theatrical performance. *Like a drama, it obligatorily involves a process and most often actors and circumstances.*
- §2 Transferred from the theatre to structural syntax, *the process, the actors, and the circumstances become respectively the verb, the actants, and the circumstantants.*
- §3 The verb expresses the process. Thus, in the sentence Alfred hits Bernard ... the process is expressed by the verb hit.
- §4 *The actants are the beings or things, of whatever sort these might be, that participate in the process, even as simple extras or in the most passive way.*
- §5 Thus in the sentences Alfred gives the book to Charles (Stemma 77), *Charles and the book are no less actants than Alfred (64), although they do not actually act* (Chapter 64, §15).

(Tesnière 2015: 96, our emphasis)

Hence, the main work of actants in Tesnière is to enable relations and structures, not to drive action in the drama sense, which is the function of the verb. Nevertheless, as grammatically required instances, direct and indirect objects are still considered as semantically and syntactically active; there can be no gifts and gift giving without objects and receivers and givers, even though these, in Tesnière's slightly ambivalent language, 'do not actually act'.

Translation: From Sentence to Narrative

In *Sémantique Structurale* (1966),³ Greimas expanded Tesnière's concept of 'actant' by applying it on the level above the sentence, to literary structure. Here, he describes actants as 'classifications of actors', that is, as a classification of the kind of action performed by a class of actors—or literary characters. Here, then, an interdisciplinary move—or translation—is made. To be sure, this is the quintessential move Structuralism makes when it establishes itself as a science of culture, namely transferring the language of linguistic explanation to texts and discourses, as when C. Lévi-Strauss used the notion of minimal pair (cat/bat) to explore myth (Ricoeur 1991). The Sociology of Translation, then, repeats this move to constitute itself as a language of symmetry. But whereas the shift that constitutes Structuralism as a science of culture (discourse, narrative, myth can be analyzed in the same manner as sentences) is one of scale, the shift that constitutes the Sociology of Translation is one between domains (nature = culture), which also erases the structuralist opposition between signifier and signified (see Introduction and Chapter 5).

Genre and Narrative Structure

The notion of actant is also intertextually linked to the Russian folklorist Vladimir Propp and his formal analysis of the Russian fairy tale genre.⁴ Greimas and Courtés assert that:

The concept of actant has the advantage of replacing, especially in literary semiotics, the term character, as well as that of 'dramatis persona' (V. Propp), since it applies not only to human beings but also to animals, objects, or concepts. Furthermore, the term character remains ambiguous since it also corresponds in part to the concept of actor (where syncretism of actants may occur), which is defined as the figure and/or the empty locus wherein are invested syntactic and semantic forms.
(Greimas and Courtés 1982: 5)

'Actant' thus replaces in literary poetics and narratology what Greimas and Courtés saw as the analytically vague concepts of 'character' and

‘dramatis persona’. Propp is cited as a reference for the idea that narrative characters can form spheres of action. This is because the *dramatis personae* in narratives *come into being because of the actions they perform*, and not the other way around (X is villainous because he/she acts as a villain in relation to the protagonist’s project).⁵ Action thus has primacy over character. Characters do not perform certain kinds of actions because they are certain kinds of characters with stable personality traits, they become certain kinds of characters because they perform certain actions: givers by giving, helpers by helping, and so on.

Propp identified thirty-one functions of action in the Russian folktales he examines.⁶ Most important in our context is that these functions can be carried out by different characters in various ways: the function ‘the villain is punished’, for instance, can be fulfilled by different characters. Moreover, the same character can also perform different functions. Hence, the characters or *dramatis personae* thus become subservient to the overall logic of the plot, and what role they play in hindering or advancing the protagonists’ project (for example, marrying the princess). Moreover, the functions identified by Propp are present in the whole corpus of folktales he examined, and thus characterizes a particular narrative genre (Propp 1968; Puckett 2016: 183; Rimón-Keenan 2002: 20–22). Thus, two important traits characterize the actant in its prehistory:

- (i) It is found in a particular kind of tale, a genre, like Propp’s folktales;
- (ii) It is teleologically defined with regard to its function in the plot, that is, you can’t be certain about who the villain is before you know how the tale ends.

What happens if we read Callon’s ‘story’ and the constitution of the Sociology of Translation with these narratological ideas in mind? In the following, we will use the narratological ‘repertoire’ to examine the construction of the Sociology of Translation.

Narratological Analysis of Callon’s ‘Actor’

As we saw, Propp’s ‘functions’ were from what the readers encounter at the surface of the narrative text. Hence, much like grammar, this kind of narratology is concerned with the immanent forces, or ‘deep structures’ supposed to serve as the underlying laws that regulate individual tales and tale-telling. For Greimas, the actant played an essential part in his method of ‘reduction’ of semantic structures. Here the meaning of lexemes was drawn out by reducing an actantial function to its core meaning by way of opposition, based on the dichotomy of subject vs. object, or sender vs. receiver (Greimas and Courtés 1982: 258; Greimas 1983: 199). This

methodological operation was intended to reduce the number of *actantial* functions in a corpus of narratives, and with this, also reduce the characters and actions on the surface of a particular tale or tale type into its core units of meaning, their constituent binary oppositions (*ibid.*; Trifonas 2015: 1104).

According to Greimas, narrative actors become meaningful according to two roles. One is its actantial role, which is defined by the narrative's genre. But in addition, we also have the actor's thematic role (Greimas and Courtés 1982: 8). Greimas notes that while actors can occur in particular tales, actants are metalinguistic and specific to particular genres. He also notes that the identification of actants requires a functional analysis of the genre in question, though other procedures are necessary to analyze the thematic role of actors (Greimas 1983: 200, 209). Characters and actors can be organized, through a functional analysis, according to their actantial functions such as 'sender' and 'receiver', the hero and the object of the quest (the grail, the princess, knowledge). In Greimas' view, the relationship between subject and object is that of a 'desire', the hero's desire, for example, for love, knowledge, escape, peace, and so on. Greimas calls this the 'thematic investment' of actors, their reason for doing what they do (*ibid.*: 207). For Greimas, the thematic investment can also have a negative aspect. The desire of the subject can also be to avoid the object. This thematic investment, Greimas maintains, cannot be found by identifying functions in the plot (Greimas and Courtés 1982: 8). Nevertheless, 'force' found in the thematic investment, the subject's desire for the object, is what instigates the narrative motion, and thus marks the beginning of a 'quest'. In this way, the will, desire, or force that drives the subject towards or away from the object determines how the actants relate to each other. In Callon's story, for example, the fishermen *want* scallops to sell them in order to make money, and the scientists *want* recognition for the scientific success of their project. Moreover, the thematic investment is negotiated in the process of translation (Callon 1986: 227–228, fn21). As we remember, the translation repertoire belongs to the vocabulary of the observer (*ibid.*: 200). However, the meaning that Callon *invests* in the term *actor* (in note 21: 'in the way that semioticians use the notion of the actant') is both defining:

1. 'Actors' identities by their actantial roles (they *are* what they *do*), and
2. The thematic role through which they are translated (they are what the observer identifies them as: fishermen, scallops, scientists, and so on.)

Given that the power of translating in the metanarrative is given to the observer, and his or her repertoire, and that the actors' 'identities and their wishes are all constantly negotiated during the process of translations'

(ibid.: 227–228, fn21), we are actually left with two translators, the observer and the actors, whose translations are understood differently. In the first instance, actants are defined by their thematic role, in the second instance, the thematic role defines the actors.

Our aim is not merely to show that Callon actually uses the term ‘actant’ differently than Greimas. More interestingly, Callon invests *his* term ‘actor’ with Greimas’ genre-constituting meaning of ‘actant’. Because of this, the genre-constituting roles, the human and non-human actors, are also *synonymous* with scallops, fishermen, and scientists. They act out the actantial roles as formed by Callon’s moments of translation. The extra-linguistic thematic role, on the other hand, is part of what and how Callon understands his term ‘translation’. Both the actor as actant and the thematic investment as translation come to define Callon’s narrative, ‘the story’. It is by this move that Callon’s model of translation becomes genre-defining. It invests *his notion of actor* with the actantial role which, according to Greimas’ model, inadvertently will define a genre, and a genre which draws thematic investments for its actants, *by the choice to name them ‘actors’*. With this, notions such as human and non-human actors become qualifications or thematic investments for the already defined role of actants pertaining to the genre of the ANT account. How each actor acts is already defined by the methodological apparatus, the observer’s translations, which ‘the story’ is an *instance of*.

Reading Callon and his Sociology of Translation through Greimas’ theory enables us to describe several aspects of the ANT account that are important for how the agency of non-human actors is constructed through translation. First is the fact that Callon’s symmetrical agency of actors is built on the theoretical framework of Greimas. Second, we can see how the theoretical premises that uphold the notion of agency of non-human actors are built on different narrative framings of translations, but still, the agency of the translators doing these translations is hidden within a framework of storytelling that, at the same time, serves as an ontological description of the events that take place *and* a theoretical explanation of the same events.

Narratological Analysis of Latour’s Actant

We saw that Callon also cited *Microbes: guerre et paix, suivi de Irréductions*, the French original of *The Pasteurization of France* (Latour 1984, 1988) as an example of the semiotician’s use of the actant. Greimas is the point of departure for Latour as well. In the first part of the book, Latour cites Greimas and Courtés:

I use ‘actor’, ‘agent’, or ‘actant’ without making any assumptions about who they may be and what properties they are endowed with.

Much more general than ‘character’ or ‘dramatis persona’, they have the key feature of being autonomous figures. Apart from this, they can be anything—individual (‘Peter’) or collective (‘the crowd’), figurative (anthropomorphic or zoomorphic) or non-figurative (‘fate’).

(Latour 1988: 252, fn11)

Here, then, Latour paraphrases Greimas’ and Courtés’ entry on ‘actor’ in the dictionary. We see this clearly if we collate the texts:

<i>Greimas and Courtés</i>	<i>Latour</i>
An actor may be <i>individual</i> (for example, Peter), or <i>collective</i> (for example, a crowd), <i>figurative</i> (anthropomorphic or zoomorphic), or <i>non-figurative</i> (for example, faith) (Greimas and Courtés 1982: 7, emphasis in original)	I use ‘actor’, ‘agent’, or ‘actant’ without making any assumptions about who they may be and what properties they are endowed with. Much more general than ‘character’ or ‘dramatis persona’, they have the key feature of being autonomous figures. Apart from this, they can be anything—individual (‘Peter’) or collective (‘the crowd’), figurative (anthropomorphic or zoomorphic), or non-figurative (‘fate’) (Greimas and Courtés 1979/1983). See also Part II (Latour 1988: 252, fn11)

For Latour, then, ‘actor’, ‘agent’, or ‘actant’ is as ontologically inclusive as for Greimas, and this inclusiveness results from a specific methodological choice, namely tracing *effects* without assuming anything about the ontological status of their causes. But unlike Greimas, ‘they have the key feature of being autonomous figures’. Thus, the actor or actant is not a result of the semantic properties of the narrative text, as it was for Greimas, but is defined by Latour’s (postulated) lack of assumptions about the actors he includes—in his texts. This methodology tries to avoid describing the extra-linguistic meaning of actors, what Greimas and Courtés called the actor’s ‘thematic role’ (Greimas and Courtés 1982: 8, 344). Latour redefines much of Greimas’ narratology by rejecting the deep structure where actants operate in the structuralist scheme of things. We believe that this translation of Greimas’ concept of actor is important for the conflation of external and internal translators that we above identified in Callon (the scientists’ translations internal to the narrated world, and Callon’s translations). We also believe it is important for the restructuring of the deep structure to genre-defining traits that comes to constitute the ANT account, and the narrative agency it invests its actors with.

Latour’s book has two parts: the first is a study of Pasteur’s influence on popular discourse in France; the second, called ‘Irreductions’, presents the

philosophy behind Latour's method. Central to the last part is—as the title indicates—the premise that ‘nothing is, by itself, either reducible or irreducible to anything else’ (Latour 1988: 158). Latour's irreducible ‘unit’ or ‘being’ of analysis is what he alternately refers to as ‘entelechie’ (Aristotle), ‘monad’ (Leibniz)—or employing the term he most often uses, ‘actant’. All these terms, Latour says, can substitute for ‘force’, referencing a being or unit that is only perceptible through its effect upon other things (Latour 1988: 159). Latour suggests that people value different ‘materials’, texts, objects, other persons, and so on, in the same way, they ‘do the same things with them’ (ibid.: 156). As such, the force with which we engage with materials is comparable, though the materials themselves are not comparable, or reducible to any other material. In Callon's definition of actor in note 21, Latour's *Irreductions* serves as an intertextual strengthening of his use of actant as actor. It also serves to buttress his oscillation between the emic and etic perspectives in the text, because Latour's fundamental claim, that nothing is reducible to anything else, serves to flatten the difference between the layers of the narrative, because fundamentally, it does not matter who intends the force, only the force itself, thus eradicating the difference between what the actors and the observer ‘wants’. In this context, it is important that Latour in *Irreductions* argues against the structuralist methods of reduction. Latour explicitly rejects the structuralist notion of deep structure. These structures only exist, Latour says, ‘among the filing cards of Lévi-Strauss's office’ (ibid.: 179).

In contrast to Greimas, Latour defines the actant as an *a priori* unit, a force, that is already fundamental to any action before it even comes to define actors. From this premise, abstractions like ‘actant’, and concrete narrative and social actors, all act on the same level, as examples of the core units: forces. But where is this force to be found? For Greimas, they are visible in the narrative deep structure. The force that binds actants together, agency of actants, is only present in the deep structure which constitutes the expectations of readers. On the level of the story, there are no forces, because we only follow the traces of forces in inscribed acts.

Latour's statement on the deep structure is a result of his insistence on ‘irreductions’. But they also take away the basic properties of Greimas' inevitably structuralist term ‘actant’.

In Callon's text, we saw how ‘translation’ slides from being the methodological categories of the observer to being the analytical categories of the ‘actors studied’. For Greimas, the actants are the very target of his method, the goal of his actantial analysis. For Latour, Greimas' target analytical category becomes the ontological foundation for his analysis, the source from which the actors themselves act, indeed, what allows them agency. From this ontological standpoint, actor and actant indeed become one, but in doing so, the genre which actants constitute becomes the starting point

of the ANT analysis. Thus, actors are given agency not by an individual ‘observer’, but by a narrative frame, a genre, which they are allowed to act in. It is with the insistence that there is a force unifying actors/actants, though refusing that those actors/actants are organized by a narrative structure based on the teleological drive towards a goal, that Latour reinstates the deep structure in ANT analysis, and through this also constructs a narrative frame for the actors. Greimas had argued that the teleological drive in narratives, his ‘desire’ or ‘force’, comes from the thematic investments or ‘thematic forces’ invested in actors (Greimas 1983: 209). Latour instead connects the ‘force’ to the actant’s ability to act, or in other words, makes the actantial role the narrative drive. The desire, that in Greimas’ narrative structure is expected of the story, and thus present in the deep structure which makes the narrative meaningful, and which manifests in the story as a narrative drive, is for Latour already part of the actor/actant, and as such exists in the world that is to be observed, and described with the methodology of ANT. Because of this, the narrative ‘deep structure’ is already present in the events described, according to Latour. And even though Latour rejects the deep structure, it is reinstated by the methodological apparatus with which the world is observed. The naming and selection of actors/actants will, in accord with this, produce the narrative drive of the story, and the deep structure will be carried by the methodological apparatus. The translation of ‘actant’ to ‘force’, while insisting that there is no inherent deep structure involved, lifts the deep structure of genre into the story, by making ‘forces’ (that is, actants) a thematic investment of actors (that is, an extra-linguistic expectation of an actor’s ‘drive’). Here, we finally can see the agency provided for human and non-human actors. Far from being mere description, naming human and non-human actors in a story invests expectations of meaning into the narrative characters that are named by these terms, and thus also how they are expected to act.

Conclusion: The Narrative Agency of Non-Human Actors

In this chapter, we have read Callon and Latour using the narratological ‘repertoire’ as our analytical language. In doing this, we have also historicized the Sociology of Translation by returning to the disciplinary language it took key concepts from. In conclusion, we can say that the translation of the structuralist conceptualization of ‘actant’, with which Callon and Latour produce human and non-human actors:

- a. Produce a genre, ‘the ANT account’, by *a priori* providing ‘force’ to the actors (by regarding them as actants);
- b. Give some actors, those that are translated by other actors in the story, the actantial function of being human and non-human actors, where

- their actions are restricted to what can be symmetrically postulated to their non-human and human counterparts;
- c. Provide a thematic investment or thematic role to actors by the very designation of the concepts of *human and non-human actors*. This signals to the reader the ‘desire’ or ‘force’ by which the subject seeks the object. It provides the interpretive framework in which actors and actants can be conflated, both as a mark of a genre, and as actantial functions in the particular text.

The ontological status of non-human actors is one of the most important theoretical legacies of Callon’s Sociology of Translation. Concepts such as ‘non-human’ and ‘more-than human’ have in academia today become commonplace, and a way to study relations beyond subject-object dichotomies. In this, Callon’s and Latour’s conceptualizations of actors and translations play an important role (see Selg 2016; Sage and Vitry 2018; West et al. 2020). We have seen in this chapter that relational conceptualizations of actors are construed by constant shifts in who is perceived as the translator of these relations. When Greimas’ semiotic theory is used as a lens on the early works of the Sociology of Translation, we can see not only how the story of the ANT account moves between narrative levels, but also how who is perceived as the translator of social reality changes between author and actor studied throughout the account. The concepts ‘human actor’ and ‘non-human actor’ are crucial in making the shifts of translator possible, but they also collapse the distinction between actors in narrated story worlds and the beings and things that populate the world.

Notes

- 1 See the notion of ‘emic’ concepts in chapter 1.
- 2 The four tenets of the Strong Program are as follows: ‘Causality’, (scientific knowledge must be explained as caused by social conditions); ‘impartiality’, (both successful and unsuccessful scientific claims must be studied); ‘symmetry’, (the same type of explanation must extended both to successful and unsuccessful claims of knowledge); and, finally, ‘reflexivity’, (explanations given by the Sociology of Knowledge should also apply to itself) (see Golinski 2005: 22)
- 3 Translated to English as *Structural Semantics* (1983).
- 4 Greimas also cites Étienne Souriau’s analysis of dramatic functions in theatre, as well as Levi-Strauss’ then recent structural studies on myth, and the psycho-analytical critique of Charles Mauron (Greimas 1983: 197–221).
- 5 As already in the *Poetics* of Aristotle, the character’s psychology, then, is a ‘textual’ aftereffect of the narrative action.
- 6 Not all functions are present in all instances of the folktale type, but some of them are, and they are always mobilized in the same order.

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4 Nature Spirits and Non-humans

Symmetry and Translations of Genres in New Animism

Åmund Norum Resløyken

Introduction

In earlier chapters of this book, we have seen how the translator in Sociology of Translation and Actor-Network Theory (ANT) is erased from the translational practice of and between scientific texts. Translation is instead refigured as a transformation occurring between two or more ‘actors’, which can be faithfully described by the author, without bringing attention to the textual work that makes the relationship visible. We have also seen how Latour, in *The Pasteurization of France*, understands the power relation of these transformations as essentially equal to one another, ‘a force’, regardless of what concepts they are described with (Latour 1988: 156–159). Actors, both of a social and a narrative kind, are conceptualized as characters which relate to other characters through the *a priori* characterized ‘force’ of power relations, what we in Chapter 3 have shown to be the ANT actant.

The theories and methodologies of ANT/Sociology of Translation have also had an impact in the field of anthropology. Although the theoretical framework is somewhat different, the same sensibility to the relational constitution of actors can also be seen here. At the same time, anthropological discourse confronts us with a twofold problem. Disciplinary traditions in anthropology, and how they contextualize their material, suggest that group formations also amount to shared beliefs. However, taking relational and symmetrical frameworks seriously in the field of anthropology suggests that mutually excluding beliefs must be considered true if the symmetrical perspective is to be upheld. In other words, if a symmetry of actors is going to be upheld in the context of group formations and their meaning-making practices, not only must people, animals, and things have the same agency, but also beings which cannot be pointed out at all, for example, all the actors conventionally named ‘gods’, ‘spirits’, and ‘souls’.

The category of non-human actors—where for example Michel Callon had put the non-articulate, but highly material, scallops (Callon 1986)—in anthropology must include actors conventionally understood as not acting

at all, just legitimizing human acts or explaining nature's acts. With regard to the questions we have set out to explore in this book, the genre produced by the proponents of early ANT (the ANT account we discussed in Chapter 3), invests the narratives of scholarly texts with the same epistemological framework as the texts which are studied. The actor of ANT is thus both narrative construction and object of study. To us, this highlights the importance of also paying keen attention to what kinds of texts are used to inscribe non-human actors, and the ontological properties of such texts and the characters or actors within them.

With regard to the concept of non-human actors, the actors we encounter in texts on New Animism are interesting, because they challenge the empirical focus of ANT analyses. Non-material beings (such as gods, spirits, and souls) have no 'body' with which to leave traces, if the cultural frameworks in which these same beings occur are not considered as an integral part of them, and thus draw negotiations of 'beliefs' and their contexts into the descriptions of actors. Traces of beings that have no material body cannot provide meaning if that meaning is not transferred from narratives of some kind, be they myths, legends, fictions, rumours, narrated memories, or written ethnographies. Non-material beings thus challenge the call to 'follow the actors themselves ... in order to learn from them what the collective existence has become in their hands' (Latour 2005: 12) because there is no 'themselves' to follow, only traces ascribed to them by the already mentioned narrative forms.

The challenge of reframing characters with a disputed agency as non-human actors is taken on in the so-called 'New Animism'. New Animism is, as explained by Isabel Laack, a cluster of theories, or a movement, closely related to New Materialism and the ontological turn of culture studies and anthropology (Laack 2020). Its main objective is to 'liberate' the concept of animism from its colonial ideology and, to a degree, also show an alternative to the unsustainable lifestyle of Western civilization (ibid.: 116). The concepts of New Animism, or the relations they construct, have in recent years been taken up in wider environmental discourse, as a proposed solution to the unsustainable lifestyle of contemporary society (Helkkula and Arnould 2022; Mikaelis 2019; West et al. 2020). It is significant, however, that when the insights of perspectives such as New Animism are used as a model for sustainable practices, the critique of anthropocentrism it expresses serves to differentiate the concept of *nature* (Helkkula and Arnould 2022: 865) or connect *stories* to places (Mikaelis 2019: 88). These models do not, however, challenge concepts of nature or genres of stories. Thus, while New Animism challenges deep-seated premises of knowledge production, epistemological frameworks based on these premises continue to be important concepts when the theory is operationalized. The non-human actor seemingly conserves the same categories of nature and culture it is supposed to challenge.

In this chapter, I argue that the problem of using New Animism's concepts to challenge categories of nature and culture in contemporary society is a consequence of the theoretical framing of non-material beings as non-human actors, and disregarding their role as narrative actors in various genres. I will discuss what happens when non-material beings are translated into non-human actors in the discourse of New Animism. I will focus on the intertextual connections between narrative genres which are erased when animism is reframed as a relationship with the natural environment, and how this, at the same time, reframes non-material beings. Thus, I will ask: What is lost in translation, when evocations of non-material beings are reframed as relationships between human and non-human actors?

The Intertextual Links of Animist Relationship—A Case Study of Translation

'Animism' is a term that comes from Edward Burnett Tylor's *Primitive Culture* from 1871. In this chapter, I will begin with Tylor's concept of animism, and explain the notion of 'spirits' and 'souls' that is so central to it. Then, I will do a close reading of two seminal texts of New Animism, the anthropologist Nurit Bird-David's article "'Animism" Revisited: Personhood, Environment, and Relational Epistemology' (1999), and the first two chapters of historian of religion Graham Harvey's book *Animism: Respecting the Living World* (2005). I will compare these two to the text they both refer back to as the origin of central concerns within the theoretic cluster of New Animism, namely the American anthropologist Alfred Irving Hallowell's article 'Ojibwa Ontology, Behavior, and World View' from 1960.

Hallowell explores the linguistic class of 'person' of the Ojibwe people in the lake district on the border of the United States and Canada. 'Personhood', or what the concept of person means in Ojibwe language and culture, Hallowell argued, is distinctly different from how the concept is understood in European languages, where it connotes human persons. The Ojibwe, in contrast, also understood a range of objects, animals, and natural features as persons in certain contexts. Bird-David is the one who reopened the debate on the classic concept of animism in anthropology, while Harvey's book has had a large impact on the popular understanding of the same concept. Bird-David's and Harvey's animism are both grounded in Hallowell's new reading of the concept of personhood, and in different ways relate it to non-human, or other-than-human *actors*. With this revisiting of animism, Tylor's old concept is reimagined as a relationship between human and non-human actors. To show the erasure of intertextual links, and how animism is reframed as a relation between humans and their environment, between human and non-human actors, I will pay special attention to how one anecdote from Hallowell's article is translated

into Bird-David's and Harvey's texts. The archetypal inanimate object 'stone', and how it counterintuitively is animated, serves as an example of how an 'animistic' relationship to the environment functions in certain cultures. As an extension, Hollowell's anecdote also becomes an example of a different kind of relationship between man and the environment. But, as I will show, the same translation sidesteps the narrative genres in and with which 'stones' are understood as animate.

In the translation of concepts that occur between the texts of Tylor, Hollowell, Bird-David, and Harvey, I will in this chapter use the framework of textual and conceptual grids, as presented by translation theorist A. Lefevre. Lefevre states that 'problems in translating are caused at least as much by discrepancies in conceptual and textual grids as by discrepancies in language' (Lefevre 1999: 76). Translation of texts is not just the transfer of utterances from one language structure to another, but equally a remapping of the meaning projected onto genres of text and text artefacts, and connotations of concepts in a source and target community. The conceptual grid refers to the meanings of words and phrases. The textual grid refers to the reader's expectations of texts and genres. The two grids, Lefevre says, are inseparable.

Following Lefevre, we thus must pay attention to the *texts* that are translated and the grids in which the translation occurs. The tendency to translate concepts from other cultures *as if* they were texts, though not by paying attention to particular texts and their genres, I argue, detaches us from the possibility of learning from other people's concepts. We thus need to pay closer attention to the texts that translate foreign concepts, in order to utilize their potential for conceptual change. This I will attempt to do here. In my reading, I will pay attention to two kinds of translation that occur simultaneously. On the one hand, utterances are given new meaning by being inscribed into new genres. On the other hand, concepts are translated as other concepts in an attempt to change their connotations. As we shall see, however, these two mappings are not handled symmetrically within the literature of New Animism.

Animism and New Animism

Edward Burnett Tylor was one of the central characters in the development of modern anthropology (Stocking 1987: 300–302; Larsen 2013). His two-volume *Primitive Culture*, originally published in 1871, developed his evolutionary study of religion, underscoring the idea that at the root of all modern religions is 'the belief in Spiritual Beings', which also served as his very definition of religion (Tylor 1920: 424). Animism, Tylor held, formed the 'groundwork of the Philosophy of Religion, from that of savages up to that of civilized men' and could be considered a theory which:

Divides into two great dogmas, forming part of one consistent doctrine; first concerning souls of individual creatures, capable of continued existence after death or destruction of the body; second, concerning other spirits, upward to the rank of powerful deities.

(Ibid.: 426)

All religious beliefs, Tylor argued, were based on primitive man's inference from observations of the distinction between living and dead bodies, as well as the further observation of how one can leave the body and meet dead relatives in dreams (ibid.: 428). These inferences led to the conclusion that there must exist an animating principle, a soul, in all living beings, and that when this soul was released from a material body, the animating principle, so to speak in immaterial form, were spirits. The social institutionalization of this idea is what Tylor called 'animism'.

For Tylor, animism was based on an initial separation: the assertion that the animating principle was separated from biological bodies. Tylor saw this dualistic principle, what later has been called the mind/body dichotomy, as the origin of all religions, including Christianity and Christian ideas of the soul. Tylor's evolutionist idea has since been heavily criticized because of its racist underpinnings and his lack of first-hand sources. Tylor had relied on early missionary descriptions and ethnographic surveys as the sources from which he inferred the 'belief in Spiritual Beings'. He argued that these sources showed a thorough knowledge of the cultures they documented, so much so that:

Some missionaries, no doubt, thoroughly understand the minds of the savages they have to deal with, and indeed it is from men like Cranz, Dobrizhoffer, Charlevoix, Ellis, Hardy, Callaway, J.L. Wilson, T. Williams, that we have obtained our best knowledge of the lower phases of religious belief.

(Ibid.: 420)

Understanding 'the minds of the savages' also meant giving faithful descriptions of their beliefs and practices and understanding the categories of mind they projected onto their environment. Tylor, however, did not consider the extent to which beliefs were also projected into the same descriptions by the authors of these texts, nor the intertextual network they were part of. For example, I have demonstrated elsewhere how David Cranz's description of Inuit beliefs or religion in Greenland, from 1765, actually documents remnant ideas from what Cranz had considered the original religion or relationship to God (Resløyken 2021). Thus, Cranz actively sought to describe remnant ideas of Christian doctrine in Inuit religion or customs. Among these remains from the original relationship to God,

ideas about the ‘soul’ could be found (Cranz 1765: 253–277; Resløyken 2021). As a consequence, the Christian soul, and the trinity of soul, body, and spirit, were inserted back into Tylor’s sources for the origin of the same concept.

In *Primitive Culture*, Tylor writes the following to define animism:

I propose here, under the name of animism, to investigate the deep-lying doctrine of Spiritual beings, which embodies the very essence of Spiritualistic as opposed to Materialistic philosophy.

(Tylor 1920: 425)

Tylor wanted to separate ‘materialistic’ and ‘spiritual’ philosophies. He considered the materialistic philosophy as the proper way forward for science, while the spiritualistic philosophy comprised of ‘survivals’ from bygone times, that is, the category mistakes that had produced religions. Spiritualistic and materialistic philosophies are here presented as two opposing understandings or interpretations of nature.

For Tylor, the spiritualistic philosophy was based on two related concepts. First, that there is an animating principle in people and animals (an immaterial *soul*), and second that an animating principle could also act independently of the body (immaterial *spirits*). In Tylor’s concept of animism, *soul* and *spirit* thus form an interrelated couple; they are of the same essence, because they both stem from observations of how the mind works (in dreams), and when it is and is not present (as in life/death).

We have then, at the heart of the concept of animism, the division of mind and body, of which the mind is what Tylor argued is projected *as* soul or spirit onto nature in ‘primitive’ cultures. When animism is used as a description of a certain relation to nature, or indeed, as in the discourse on sustainability, a role model for such a relationship, the role of the projected mind, is occupied by the term ‘non-human actors’. In New Animism, which I will discuss later, it is the ‘spirit’ or ‘soul’ that has the role of non-human actor. Thus, in one sense we could speak of a translation of the older animist notion of soul or spirit to the ‘new’, and less culturally marked term, non-human actor. What I want to emphasize here, however, is that even if soul and spirit occur as a pair with the same origin in Tylor’s text, when mapped onto the framework of human and non-human actors, soul and spirit become distinctly different. As we explained in Chapter 3, human and non-human actors in ANT have their agency, their ability to act, by treating them as a narrative role. This is the actantial position of an actor. It is the actor in the meaning of actant that has been emphasized in ANT. In addition, though, an actor, according to Julien Algirdas Greimas, also entails a ‘thematic investment’, the expectations of the role a reader invests in a certain narrative actor (Greimas 1983: 207). What I argue here is that

if we map the notion of non-human actors onto the animated objects/entities of animism, that is, if we define the actor through who manifestly leaves traces of an act, souls and spirits in the Tylorian sense are not comparable. The animating principle, which in human beings is often referred to as the mind or the soul, can without much difficulty be seen as the cause of the act that a human being does, or more to the point, what its body does. Spirits, on the other hand, act *through* bodies. Whether the body is 'human' or 'non-human' is inconsequential with regard to what makes it an actor. An act caused by a 'spirit' will always be an act by a non- or other-than-human, and as such not 'caused' by the body that manifests the act. The spirit, then, cannot be observed through actantial position, but by thematic investment alone.

Tylor's concept of animism is important with regard to non-human actors, because the idea that soul and spirit are interchangeable makes it possible to translate acts caused by souls and spirits as non-human actors, that is, not differentiating between acts *from* bodies and *through* bodies. Furthermore, the reading of acts as the empirical ground for establishing actors in New Animism *depends* on the mind/body dualism inherent in the concepts of soul and spirit, which Tylor's animism at the same time is faulted for. I will also show that non-human actors, when encountered in connection to animism, rest on a much less discussed, but equally important legacy Tylor's concept entailed, namely that he perceived animism as a *philosophy*. For Tylor, the doctrine of spirits divided materialistic and spiritualistic philosophies. The materialistic philosophy was the philosophy of modern science. The spiritualistic philosophies were the philosophy of religious traditions. But in the evolutionary frame of Tylor's theory, this was also a temporal division, between an old and new philosophy. As I will argue below, this temporal division is as much cause for the continuous popularity of the concept of animism as souls and spirits. It provides agency through a temporal placement, by pointing towards what Latour termed the non-moderns (Latour 1993), in the sense of before-the-moderns. As such, New Animism does not only give agency to non-human actors, it also gives temporal placement to a philosophy of non-human actors that can be revisited and revived.

When non-human actors are translated by the use of a framework of animism, we are faced with a double problem of interpretation. On the one hand, non-human actors are understood as having two very distinct causations for their acts. They can be interpreted as actors themselves, or in Tylor's sense, having a soul. They can also be interpreted as being acted through; the function referred to as 'spirits'. On the other hand, animism is also interpreted as a temporal placement of an idea, philosophy or ontology, an outlook on the environment that is non-modern or removed from the modern philosophy that also theorizes the mind/body duality.

This double connotation, which, in line with Greimas, can be considered a thematic investment for the word ‘animism’, affects the non-human actors that are translations of ‘spirits’ by actantial function. In the following, I want to show how these animistic non-human actors were developed in the discourse of New Animism, and how this affects the possibility of reimagining conceptions of our relationship to the environment with them.

Spirits, Non-humans, and Other-than-Human Persons

As I have noted earlier, a discussion of New Animism must begin with Nurit Bird-David’s *‘Animism’ Revisited: Personhood, Environment, and Relational Epistemology* (1999). Her article is important because she is the first to reframe the term ‘animism’ within a relational epistemology. The empirical material for Bird-David’s study is drawn from her fieldwork with the hunter-gatherer Nayaka in South India and their conception of *devaru* (ibid.: 68). Bird-David draws on two sets of theories in her exploration of the Nayaka *devaru*, as her title explains. Environment theory, in which the works of J.J. Gibson and his idea of ‘affordances’ is the most important contribution (2015), and ‘personhood-theory’, which is primarily taken from A. Irving Hallowell and his article ‘Ojibwa Ontology, Behavior, and World View’ (1960).

On Hallowell’s study, Bird-David says: ‘Hallowell’s contribution is to free the study of animistic beliefs and practices from modernist person-concepts and second from the presumption that these notions and practices are erroneous’ (Bird-David 1999: 71). Bird-David, however, does not want to use Hallowell’s term ‘other-than-human persons’, which she states is derived from the spirit/body dualism, nor does she want to use ‘supernatural being’, which she states mirrors the Western idea of nature. *Devaru*, she claims, is better conceptualized with the term ‘superpersons’. Hallowell’s term ‘other-than-human persons’, Bird-David argues, retains the ‘primary objectivist concern with classes (human and other-than-human)’ (ibid.: 71). With this shift, Bird-David sought to forge new connotations for Tylor’s concept of ‘spirit’, though keeping the groups the concept of ‘animism’ denotes. But as we shall see below, she is not concerned with how Hallowell’s classes are primarily linguistic.

Gibson, in his theory of affordances, had said that we psychologically perceive things and events, that is stories and models, which are not in themselves knowledge, but the ground on which to build knowledge. Bird-David evokes Gibson’s affordance theory for explaining the in the world properties of superpersons. Her point is that *devaru* (her Nayaka ‘superpersons’) are seen in the world by ‘educating’ attention to them (ibid.: 68–69). Animism, thus, must be learned within a cultural framework. Bird-David uses Gibson’s contrasting pair of things and events to distinguish the animistic notion of reality from the ‘modern’. As animists, she

argues, the Nayaka mostly perceive the environment in terms of ‘events’, while Western moderns perceive nature as ‘things’ (ibid.: 74). Bird-David gives us several examples of how the *devaru* are perceived in the world, in events, by paying attention to individual Nayaka, and how they have contact with *devaru*.

She writes:

For example, one Nayaka woman, Devi (age 40), pointed to a particular stone—standing next to several other similar stones on a small platform among the huts—and said that she had been digging deep down for roots in the forest when suddenly ‘*this* *devaru* came towards her’. Another man, Atti-Mathen (age 70), pointed to a stone standing next to the aforementioned one and said that his sister-in-law had been sitting under a tree, resting during a foray, when suddenly ‘*this* *devaru* jumped onto her lap’. The two women had brought the stone *devaru* back to their places ‘to live’ with them. The *particular* stones were *devaru* as *they* ‘came towards’ and ‘jumped on’ Nayaka.

(Ibid.: 74)

These examples are compared to Hallowell’s anecdote of the old man, a story we shall discuss below. For now, let me just point to the fact that Bird-David’s examples are ‘events’ in the sense that they are *narrated as events*. Her first example is the story of an event her interlocutor herself had experienced, the second is a story retold by the interlocutor. Both are figured as *events*, relating particular stones to the Nayaka as a group.

The second scholar of New Animism, which I will discuss here, is the historian of religion Graham Harvey. His book *Animism—Respecting the Living World* (2005) has had a large impact on popular understanding of this new perspective on animism, and together with his later *The Handbook of Contemporary Animism* (2014), is often cited in works on animism, both within and outside of academic circles. Harvey’s interest in New Animism involves the practices of indigenous peoples, but also the self-proclaimed animists of modern paganism. In *Animism—Respecting the Living World* (2005), Harvey, like Bird-David, seeks to rehabilitate animism by reframing it as a relational perspective on human and non-human ‘persons’ and their relations. Harvey draws heavily on Bird-David and Hallowell in the book. Accordingly, he also contrasts a modern Western ‘worldview’, set on exploiting inanimate nature to the inherent respect for nature in the animist ‘worldview’. Hallowell’s person category is important also for Harvey. He devotes the entire second chapter of his book to the Ojibwe and the person category Hallowell identified:

While they do distinguish between persons and objects, the Ojibwe also challenge European notions of what a person is. To be a person does not require human-likeness, but rather humans are like persons. Persons is the wider category, beneath which there may be listed sub-groups such as ‘human persons’ ‘rock persons’ ‘bear persons’ and others. Persons are related beings constituted by their many and various interactions with others. Persons are wilful beings who gain meaning and power from their interactions. Persons are sociable beings who communicate with others. Persons need to be taught by stages (some marked by initiations) what it means to ‘act as a person’. This animism (minimally understood as the recognition of personhood in a range of human and other-than-human persons) is far from innate and instinctual. It is found more easily among elders who have thought about it than among children who still need to be taught how to do it.

(Harvey 2005: 18)

In opposition to Bird-David, Harvey argues for retaining Hallowell’s designation ‘other-than-human person’ instead of ‘superperson’. This, Harvey holds, is because the former points to an equal relationship, while the latter bears with it the connotation of an ‘ordinary person’ in opposition to the ‘superperson’ (ibid.: 20). Thus, Harvey is more concerned with ‘other-than-human persons’ as beings on equal terms with human persons. For Harvey, personhood in animism is a means to widen the category of ‘person’ to *include* Tylor’s concept of ‘spirit’.

We have now seen how the ‘person’ category of New Animism draws on Tylor’s identification of ‘spirits’, though seeking to alter the conceptual grid of which it is part. To see more clearly how the textual grid of animism is hidden, we will have to go back to Hallowell’s text, which introduced the particular concept of ‘personhood’ that Bird-David and Harvey cite.

Ojibwa Ontology and Worldview

What Hallowell sets out to explore in his article is, at its core, a linguistic problem. He had done extensive fieldwork among the Ojibwe on the southern border of Canada and the United States in the 1930s. Drawing on this fieldwork, the article discusses the Ojibwa ‘person’ category, and what it can say about the Ojibwa’s understanding of animate and inanimate beings. Hallowell notes that any such discussion must begin with acknowledging the grammatical structure of the Ojibwa (like all Algonquin) language, where there is a grammatical distinction between ‘animate’ and ‘inanimate’ nouns. Superficially, the distinction seems to approximate the distinction between animate and inanimate classes in European languages. There are, however, some subtle, but marked differences. Some (but not all)

trees, sun and moon, thunder, stones, and objects of material culture are classified as ‘animate’ in Ojibwa (Hallowell 1960: 23). It is to explain these classificatory differences that Hallowell turns his attention to the ‘beliefs, attitudes, conduct and linguistic characterization’ of the Ojibwa, in order to understand ‘their cognitive outlook’ (ibid.: 24) or what Hallowell, with a term from Robert Redfield, calls a ‘worldview’ (ibid.: 19).

The concept of ‘worldview’ is central to Hallowell’s entire argument, as well as his reason for attending to beliefs, attitudes, and conduct in order to explain the Ojibwa grammatical classification. I will therefore give a brief description of what the concept meant to Hallowell. Robert Redfield had argued that ‘worldview’ was a useful concept for describing the ‘picture the members of a society have on the properties and characters upon their stage of action’ (Redfield 1952: 30). Redfield’s term describes how a person classifies and organizes that which is not the self. He insisted that there are universal properties that are included in every worldview, though perceived differently. The distinction between self and non-self is one example, but he also mentions distinctions between men and women, old and young, people close to oneself and those far away, and also distinctions equivalent to what in ‘our’ worldview is distinguished as ‘God’ or ‘nature’. Redfield also mentions a third, supposedly universal category, ‘spirits’, that is, things neither divine nor natural (ibid.: 30–31). It is important to note that Redfield’s ‘worldview’ provides a matrix for conceptual comparison between different orientations to the world. Because there are universals—though categorized, valued, and related in culture-specific ways—it is possible to compare one worldview with another.

Hallowell ascribed to Redfield’s idea but acknowledges the problem of evidence available for examining different worldviews, especially if we aim to describe what he calls ‘ethno-metaphysics’ (Hallowell 1960: 20). Though one can find different kinds of evidence—he mentions for example myths, behaviour, and attitudes; he himself opted for ‘the action of persons’ (ibid.: 21) or what we now usually call ‘practices’. ‘Persons’, Hallowell argued, is a class in all cultures, a universal the self must be oriented towards, but it need not be confined to human persons (ibid.: 21). The ‘person’ category thus was interesting because it is a universal.

It shall be noted that Hallowell never speaks of ‘animism’ as such, neither as philosophy nor as identity, but rather of what is linguistically and/or culturally categorized as ‘animate’. Tylor is not among his references, nor is he mentioned in the text. Rather, Hallowell’s ‘animist’ category refers to a linguistic category, and as such, it:

Was imposed upon Algonkian languages by Europeans; it appeared to outsiders that the Algonkian differentiation of objects approximated the animate-inanimate dichotomy of Western thought.

(Ibid.: 23)

However, he continues, on closer inspection this is not always the case. And in an effort to understand 'the cognitive orientation' of the Ojibwa, Hollowell sets out to map a 'worldview' that fits these linguistic differences.

So far, I have shown how proponents of New Animism negotiate Tylor's concept of 'spirits' by handling them as non-human, or other-than-human, 'persons'. Nurit Bird-David and Graham Harvey both utilize Hollowell's extension of the person category as a tool for writing animistic ideas into scholarly culture studies, and also promote animism as an alternative view on nature, more in keeping with contemporary environmental concerns.

Tylor's concept 'animism' provides an alternative to contemporary views on nature, an alternative philosophy to the materialistic philosophy which Bird-David especially links to the 'modern'. As such, Hollowell's use of Redfield's 'worldview', which renders different orientations to the environment comparable to psychological relationships, allows Bird-David and Harvey to reframe Tylor's animism as a different kind of *relationship* to the environment. This relationship belongs to specific places and cultures, while at the same time serving as a feature of the human condition. Hollowell's concern had been to map out a difference, to describe to *us* where the Ojibwa worldview differs. For New Animism, however, with its emphasis on environment and sustainability, a second step is needed. The philosophy of animism must be made *transferable* to *us*, to our practices and ideas.

As I will argue next, this step is taken by a simultaneous translation and erasure. A translation of concepts, and an erasure of the texts and genres from which the concepts are taken. In other words, a translation on a conceptual grid, while erasing the traces of the textual grid the utterances are part of (Lefevre 1999). As a consequence, the complexity of the difference Hollowell tried to map out, as well as the grand narrative Tylor had constructed, is hidden from contemporary discussions on animism, although what I, with Greimas, could call the thematic investment of the concept of animism remains. Along with this, a classic conception of nature is retained, which in turn conserves the politics of nature, and the mind/body dichotomy.

'No! But *Some* Are': Translations of Animate Stones

The most famous quote from Hollowell's article, if I am to judge by the literature on New Animism, concerns the grammatical distinction of animate and inanimate in the Ojibwa language, and Hollowell's process of understanding it. He writes:

Since stones are grammatically animate, I once asked an old man: Are *all* the stones we see about us here alive? He reflected a long while and then replied 'No! But *some* are'. This qualified answer

made a lasting impression on me. And it is thoroughly consistent with other data that indicate that the Ojibwa are not animists in the sense that they dogmatically attribute living souls to inanimate objects such as stones. The hypothesis which suggests itself to me is that the allocation of stones to an animate grammatical category is part of a constituted cognitive ‘set’. It does not involve a consciously formulated theory about the nature of stones. It leaves a door open that our orientation on dogmatic grounds keeps shut tight. Whereas we should never expect a stone to manifest animate properties of any kind under any circumstances, the Ojibwa recognize, *a priori*, potentialities for animation in certain classes of objects under certain circumstances.

(Hallowell 1960: 24–25)

In both Bird-David’s and Harvey’s texts we can find references to this anecdote. But it is confined to the anecdote itself, which we can find in the first two sentences of the quote above. We should note that Hallowell deliberately removes the sentence from its larger context and makes it function as the incentive for the development of his research topic. These are not sentences meant to be a faithful restatement of linguistic use or ontological position, but rather a conversation that sparked an idea. Moreover, we must also note the complexity in the translation of aliveness conveyed in the sentences of the old man. We do not really know which language this conversation took place in, and we do not know which stones were referred to. We do not know how the two interlocutors construed ‘alive’. For Hallowell, all this is resolved because he is the only one who projects meaning into the conversation: ‘it made a lasting impression on me’. By erasing the textual grid of the anecdote, however, later translations of the anecdote has been free to utilize it as an ethnographic event.

Bird-David writes that Hallowell’s study and his observations of an ‘Ojibwa sense of personhood, which they attribute to some natural entities, animals, winds, stones, etc., is fundamentally different from the modernist one’ (Bird-David 1999: 71). Later, discussing her Nayaka interlocutors’ relationships to ‘stone devaru’ (ibid.: 74), Bird-David uses Hallowell’s anecdote for comparative purposes:

The particular stones were devaru as they ‘came towards’ and ‘jumped on’ Nayaka. The many other stones in the area were not devaru but simply stones. Ojibwa approach stones in a similar way: Hallowell recounts how he once asked an old Ojibwa man whether ‘all the stones we see about us here are alive’. Though stones are grammatically animate in Ojibwa, the man (Hallowell recalls) ‘reflected a long while and then replied, “No! But some are”’ (1960: 24). From the stories which

Hallowell provides, 'alive' stones appear to be ones which 'move' and 'open a mouth' towards Ojibwa (p. 25).

(Ibid.: 74–75)

We shall note how Hallowell's linguistic inquiry has taken on a phenomenological form. Some stones are alive *because* they have been observed to 'move' or 'open a mouth'. Furthermore, the linguistic argument of Hallowell, which discusses the grammatical categories by constructing a worldview based on how some Ojibwas act towards certain things, serves as an argument for what counts as 'alive' based on how they 'appear' and towards an entire group, 'the Ojibwa'.

Harvey's discussion of Hallowell's article is, of course, considering this is a book, more thorough than Bird-David's. Harvey states that his interest in animism directly stems from the 'growing influence' of Hallowell's article 'on recent thinking both about indigenous religions and about academic approaches to them' (Harvey 2005: 33–34). In the opening of the second chapter of the book, he writes:

In the 1930s Irving Hallowell asked an unnamed old man among the Ojibwe of Beren's river in Manitoba, 'Are *all* the stones we see about us here alive?' Hallowell continues, 'He reflected a long while and then replied, "No! But some are"'. Hallowell asked this question because in Ojibwe and other Algonquian languages rocks are grammatically 'animate' rather than grammatically 'inanimate' ... Grammatically rocks are animate. Hence the question, are they alive? The grammatical form arises from the facts that rocks 'have been seen to move, [and] manifest other animate properties', they can be spoken of and to as persons—and they can be spoken with.

(Ibid.: 33)

While Bird-David changes the textual grid of the anecdote to that of an observation, Harvey flips Hallowell's worldview hypothesis around when he states that '[t]he grammatical form *arises from* the fact that rocks have been seen to move [and] manifest other properties' (ibid.: 33, my emphasis). It is no longer the universal categories of the self that expresses itself in a culture-specific worldview, but animate properties of things reflected in grammatical forms. This also changes Hallowell's formulation of a research topic into an exploration of that topic, namely how animate properties of things are manifested in grammatical categories. Thus, the textual grid is changed from anecdote to exploration.

Furthermore, in Harvey's quote we also see how the stones that are grammatically animate are seen to move and to 'manifest' animate properties. We also saw that Bird-David translates the stones in Hallowell's

anecdote as those who ‘appear to ... “move” and “open a mouth” towards Ojibwa’. Given the slide between linguistic properties stemming from a worldview in Hollowell to the description of animate characteristics as ‘manifest’ (Harvey), or the characteristics they ‘appear’ to have (Bird-David), I will here quote Hollowell’s account of the manifest properties of stones. A bit further down the page, Hollowell writes:

The old man to whom I addressed the general question about the animate character of stones was the same informant who told me that during a Midewiwin ceremony, when his father was the leader of it, he had seen a ‘big round stone move’. He said his father got up and walked around the path once or twice. Coming back to his place he began to sing. The stone began to move ‘following the trail of the old man around the tent, rolling over and over, I saw it happen several times and others saw it also’. The animate behavior of a stone under these circumstances was considered to be a demonstration of magic power on part of the Midé. It was not a voluntary act initiated by the stone considered a living entity. Associated with the Midewiwin in the past there were other types of large boulders with animate properties. My friend Chief Berens had one of these, but it no longer possessed these attributes. It had the contours that suggested eyes and mouth. When Yellow Legs, Chief Beren’s great-grandfather, was a leader of the Midewiwin he used to tap this stone with a new knife. It would then open its mouth, Yellow Legs would insert his fingers and take out a small leather sack with medicine in it. Mixing some of this medicine with water, he would pass the decoction around. A small sip was taken by those present.

(Hollowell 1960: 25)

There are several important considerations which are left out when Hollowell’s account, as we have seen, is referred back to later. The first is the fact that Hollowell’s examples are all historical. First, there is a thirty-year gap between his fieldwork and his article. The identification of his research topic, the anecdote, and the two accounts of animate stones, are not necessarily closely connected as ethnographic events. Second, both the accounts of animate stones recall narrations of events that took place in Hollowell’s interlocutors’ pasts. The ‘stories’, as Bird-David calls them, or that stones can be spoken of, to and with as persons, as Harvey states, are narratives recalled, recontextualized, and reframed before they take on the form they have in Hollowell’s text. In addition, the accounts, as they are present in Hollowell’s text, make a narrative comprising of at least three narrative events: his enquiry on the animate qualities of stones; the memory of magic in the Midewiwin ceremony; and the narrative of Yellow

Legs' stone. For Hallowell, all these help to build his Ojibwa worldview, while for Bird-David and Harvey, they form narrated events of a narrative type (stories) or social type (the conversation between human and other-than-human), respectively.

Even if stones, conceptually and grammatically, can be animate, it is the narratives that refer back to earlier sources, which provide *authority* for the claim that it is *events* we witness in the texts (see Bauman 2004: 150–152 on authorization). The folklorist Richard Bauman has theorized that utterances are traditionalized by what he calls a 'double anchoring', where a (target) utterance is authorized by its reference to a (source) utterance (ibid.: 147–149). In the case of Bird-David's and Harvey's texts, the target utterance is Hallowell's anecdote. The source of the authorization, however, when Bird-David and Harvey utilize it, is not the sentence 'No, but some are!' which the old man utters, and which sparks an idea by confronting Hallowell's own categorizations of the world, but the claim that we, from this sentence, can read the worldview or ontology of the Ojibwe from it. With this alteration in the double anchoring, Hallowell's anecdote is invested with the genre markers of oral narratives, both experienced and inherited. It is, in other words, invested with the authority of tradition (ibid.; Bauman and Briggs 2003; Noyes 2009).

The old man in Hallowell's anecdote is thus made to speak on behalf of both the linguistic class 'alive' *and* the ontological status of animate characters. The 'some' in the sentence refers both to the grammatical class of stones and the characters that are also stones. When Bird-David uses Hallowell's anecdote to make a comparison between the Nayaka relationships to stones, it is the 'modern', or European linguistic class of stones (which has the explicit quality of not being animate) that serves as the grounds for comparison. As such, animism here serves to translate social relationships, and map their actors onto objects that are not animate (see Wilkinson 2016: 293 on this point). When Harvey writes that rocks can be spoken to, of, and with, as persons, it is the conceptual link between 'speech', 'alive', and 'animate' that translates the concept of animism. In addition, the immediate temporal connotations of speech gloss over the temporal layering of Hallowell's two narrative events.

In Bird-David's argument, Hallowell's stories reflect 'events' (in Gibson's sense) related in stories, but not narrative events *per se*. In Bird-David's examples from the Nayaka, we are confronted with 'interpretations'. The Nayaka cited here interpret the stones as jumping towards them, an elephant's unnatural behaviour is interpreted as being guided by *devaru*, thus not having a personhood status, while other elephants, in other events, are *devaru*, or interpreted as 'persons' (Bird David 1999: 75). In discussing the *pandalu* ritual event, which 'in the modernist sense, involve "spirit possession" by *devaru* but also a great deal more' (ibid.: 75), Bird-David

again limits herself to a performance-centred approach, drawing attention to what its performers do, and how they interpret these *practices*. In terms of the Tylorian animism she revisits, we can say that while her methods, or at least how she chooses to write about them in her article, can say something about ‘spirits’, that is, how superpersons sometimes animate, and sometimes act upon, human and animal bodies. She, however, never discusses the concept of ‘souls’, that is, the animating principle in ‘normal’ persons, human or non-human. In Tylorian animism, the sameness of spirits and souls lets animism describe the mind/body duality in general *and* is what makes the concept universal. So, while the transcendental, immaterial soul is faulted for its affinity with the cartesian mind/body dualism, ‘superperson’, as a version of ‘spirit’, is kept, but as a character in events. It is these ‘events’ that become the universal category for Bird-David, and in these events, things that belong to the ‘modernist’ category of nature can have, or be spoken of as having, animate qualities. For Bird-David, then, it becomes necessary to reconceptualize Hallowell’s stories, or oral narratives, as events in Gibson’s sense. It lets her compare very different kinds of stones with agency, the stone that opens its mouth to reveal medicine from Hallowell’s text, and the stone which chooses to be an object of veneration from her own fieldwork, which again can be conflated as the same kind of ‘superperson’.

‘Persons’, Characters, and Narrative Genres

From the different conceptions of ethnographic events present in the texts, I will now turn to the oral genres Hallowell also identifies in his article. This will provide a better understanding of the erasures done on the textual grid of the accounts discussed above.

On the Ojibwa body of oral narratives, Hallowell states that they distinguish between two general types:

1. *Täbätcamowin*: which Hallowell defines as “‘news or tidings’ ... i.e. anecdotes, or stories, referring to events in the lives of human beings (änicinábek)’ (1960: 26).
2. *ätíso’kanak*: ‘Myths ... i.e. sacred stories, which are not only traditional and formalized; their narration is seasonally restricted and somewhat ritualized’ (ibid.: 27).

The narratives of stones that move and open their mouths are *täbätcamowin*. They are stories or anecdotes from the lives of human beings. Hallowell translates *ätíso’kanak* as ‘our grandfathers’, and these formalized narrations can thus be understood as a retelling of events in the lives of these persons of the other-than-human class, while at the same time being

manifestations of those beings: ‘our grandfathers’. Hallowell emphasizes that *ätiso’kanak* does not refer to a body of stories (as myths do), but to the characters in the story, meaning that the ‘myths’ themselves are considered persons of an ‘other-than-human class’. While Hallowell describes this difference in the textual grid between Ojibwa and Europeans, the universals of his worldview framework nonetheless let him discuss *ätiso’kanak* as myths because of their sacred content and the ritualized nature of the narrative event (ibid.: 27). The discussion on *ätiso’kanak* draws attention to the fact that the animated ‘beings’ of Ojibwa culture, as Hallowell understood them, based on his fieldwork in the 1930s, also include what ‘we’ would consider narrative characters. According to Hallowell, *ätiso’kanak* is ‘accepted by them as a true account of events in the past lives of living “persons”’ (ibid.: 27). He thus goes on to underscore that these beings cannot be considered ‘supernatural’ (or translated as ‘supernatural’), because that would require a concept of ‘natural’ that is analogous to the Western worldview and linguistic meaning. Several concepts, for example ‘the sun’ and ‘thunder’, are not concepts of nature in the Ojibwa language, but rather ‘persons of the other-than-human class’. Hallowell also tells us that the dreaming and waking world are not distinguished in the same way as in Western thought, and entities met in dreams are seen as persons, while some animate beings, like a lot of animals, are not considered persons, as well as a range of inanimate objects (ibid.: 30–31). Within the framework of Lefevre we could say that though narrative characters share a conceptual grid (the sun in the sky or the sound of thunder can be word-for-word translated), the textual grid is vastly different (sun, thunder, and rocks are not objects of nature or personifications, but *ätiso’kanak* or ‘grandfathers’ and thus persons) (see Lefevre 1999). As such, Hallowell in his article points us to a conceptual translation of *characters*, not *objects*. It is the genres which have different truth criteria, not the objects to which the concepts also refer.

Hallowell’s discussion of the Ojibwa types of oral narratives points to the importance of what Lefevre calls textual grids, and what I above referred to as genres. It is not the relationship between humans and other-than-humans that is the most important feature for how the Ojibwa distinguish animate and inanimate, but the truth criteria with which different genres are understood. As Hallowell points out, *ätiso’kanak* could, in Western languages, be translated *both* as ‘our grandfathers’ *and* as ‘myth’. *Ätiso’kanak* are distinguished from *änicinábek* (human persons), though not distinguished from the social category of ‘person’ (which is where European languages would put both our ‘self’ and our ‘grandfathers’ or ‘ancestors’). This means that *ätiso’kanak* cannot faithfully be translated only on the conceptual grid, where it could be considered a character, without also paying heed to the textual grid, in which it is a specific form

of narrative. Though, as Hallowell also points out, *ätiso'kanak* is 'what we would call the characters of these stories' (Hallowell 1960: 27); the meaning of 'character' is already a translation, placing the concept in a Western textual grid, or genre, of 'narrative'.

The person category Hallowell had investigated is one of the universals with which one can compare worldviews. Hallowell meticulously describes how the person category he discusses cannot be understood as having human-like characteristics. One of his important points is that the capability of metamorphosis is one of the main characteristics of *ätiso'kanak*. Sometimes they have the characteristics of animals, sometimes of humans, and other times as neither. It is, according to Hallowell, the *power* to change form that constitutes the 'person' concept for the Ojibwa. And though *ätiso'kanak* can only be narrated in ritual settings in the winter months, they can be experienced in dreams, where humans can also have the ability to metamorphose. The important point for Hallowell is that the distinction between *ätiso'kanak* and *änicinábek* is one of power rather than one of characteristics. They have the same characteristics as the self, and as such could be said to have 'animate' qualities (ibid.: 43). But this also goes both ways. As *ätiso'kanak* can take on human characteristics, theoretically *änicinábek* can take on animal form or 'animate' other things, like the moving stone we saw in the quotes above. This is why Hallowell says that what is related in these stories are not about stones that are animate in the sense of being *ätiso'kanak*, but rather stories of magic, that show the power of certain *änicinábek*. It is not the stones that are animate, they are being animated (ibid.: 25).

As opposed to Bird-David, Harvey brings up Hallowell's discussion of the Ojibwe narrative categories. Harvey writes:

While the vital significance of location is not always foregrounded by Hallowell, it is always implicit in his regular reference to the particular communities in which his research took place. Similarly, Hallowell acknowledges the particularity of seasons and times, significant aspects of personal life as well as of cultural traditions, when discussing the class of narratives that might be called 'myths' or 'sacred stories'. These are also treated or encountered as living, other-than-human persons, indeed as grandfathers deserving respectful attention.

(Harvey 2005: 19)

With regard to what I have shown from Hallowell's article, there are some interesting aspects to this claim. In Harvey's book, special attention is paid to the 'sacred story' or 'myth' of Hallowell, because of their status as 'grandfathers', as persons in their own right. However, Harvey does not draw attention to the other kinds of stories, the *täbätcamowin* or 'news or

tidings' that Hallowell has most of his material from, including the stories of animate stones.

In his discussion on Hallowell, Harvey translates the genres of the Ojibwe in two significant ways. On the one hand, the 'myth' or 'sacred story', which he to some degree faults Hallowell for translating into myth in order to 'globalize' them, or make them comparable to other myths, is put forth as the quintessential animist story. This is underscored both because of the other-than-human persons that are characters within them, and because the stories themselves are other-than-human persons. These myths/persons become the model genre for all Ojibwe stories, including Hallowell's story of the animated stones. With this move, the textual grid of Hallowell's anecdotes changes. They now convey the sacred stories of the Ojibwe, which thus both demand respect and make the characters in them religious figures. However, Harvey disregards the temporal distance with which Hallowell meets these myths/persons. Hallowell was only privy to *the content* of *ätiso'kanak* second-hand and not their ritualized narrative events. He was told some of the stories, but did not witness the closely guarded form with which *ätiso'kanak* were manifested in the winter rituals. Harvey also disregards the mythical time *ätisi'kanak* portray, which is essential for how they are regarded as 'grandfathers deserving respectful attention' (ibid.: 19). Rather, the stories (all stories) are, for Harvey, understood as representations of the world in which the Ojibwe live, their 'locality'. For example, he discusses Hallowell's claim that in the Ojibwe worldview, the sun 'is not a natural object in our sense at all' (Harvey 2005: 41). While Hallowell wanted to draw attention to the idea that the sun was not part of the category 'nature' (which he claimed the Ojibwe lack) and thus is not a 'natural object', Harvey faults Hallowell for claiming that the sun is an other-than-human person because it does not 'behave' according to how 'secular scientists observe the sun to do' (ibid.: 41). And he goes on to say that the sun is not an other-than-human person because of its animist behaviour, but because it is distinct from 'human persons'. Accordingly, the sun becomes 'animate' solely by virtue of a worldview, and not because of its role as a 'character' in significant stories.

Here, Harvey is indeed animating natural objects, just as Tylor had claimed the philosophy of animism does. He does so by claiming a perfect similarity between objects deemed by Western science 'natural' and the *same* objects referred to in the Ojibwe 'worldview'. As a result, there are (Western) natural objects (stones, thunderstorms, the sun) that are animated, not the Ojibwe language categories that linguistics find 'animate'.

For Harvey, New Animism is based on 'respect' for the natural world. But as Hallowell already had noted, this entails the European category of nature, a category that in itself has large epistemological implications. The respect or relation of New Animism is a respect towards the objects

in the category of nature. An important implication of this, which also impacts the translation of animism, is that the nature category is inherently 'timeless'. Objects, such as stones, thus have no inherent temporal placement. Instead, as Harvey tells us, Animistic concepts show a 'locality', though not a history. This is problematic, for example when we consider Hallowell's account of the stone that opens its mouth. In the account it was animated in the past, though not anymore, though both Bird-David and Harvey consider this an instance of stones that are alive. As a consequence, the relation is perceived outside of historical considerations. It is a relation between natural objects and the psychological self of Redfield's 'worldview'. Thus, the animistic 'worldview' is relegated to the timeless, natural category, though placed in the unspecified spatiotemporal non- or pre-modern place-time, the 'locality' of Harvey and the non-modern state of Bird-David.

The Symmetry of Translation in New Animism

Both Bird-David and Harvey consider 'person' as equivalent to character, or indeed actor. But this entails that the actions of characters, and how they relate to human persons, *ānīcinābek*, are equivalent in both kinds of oral narratives that Hallowell defines. We have seen, for example, how Bird-David equates all Hallowell's oral narratives as 'stories' (Bird-David 1999: 74–75), and how Harvey equates them by how they 'speak' to humans (Harvey 2005: 33). In both these instances, genre placement of the personhood category is erased. Rather, the relation is mapped onto objects defined ostensibly (rocks, the sun, thunder) and thus translates these objects from one ontology to another by the use of our social categories (person, actor). It is in this sense that 'other-than-human person' or 'superperson' has meaning. It translates qualities of characters we consider persons to objects we do not consider persons.

But our concept of 'person' also entails the mind/body dichotomy, or in certain narrative framings, a soul/body dichotomy. A 'person', in other words, does not just connote relational qualities between minds (or souls), but also bodies. Personhood is what motivates the 'respect' for nature or non-humans. In these models, it is the objects, places, or nature, that is, 'bodies', that are given agency or personality. This is on par with what Hallowell argues is magic, the attribution of animate properties to non-living objects.

Animism, both old and new, is founded on the attribution of agency by way of likeness to human minds, that is, that soul and spirit are equivalent, and both are inferences from the nature of the human mind. Tylor's linking of soul and spirit was based on the view that 'primitive men' were thinking men, like us. And like us, they could perceive the marked difference between alive and dead bodies. The attribution of agency happens

when minds are understood as souls, and thus can also be independent of bodies, and act as spirits. The same model is achieved in New Animism by attributing personhood instead of souls. But while Tylor's model presumes a 'philosophy', which is a logical construction, New Animism presumes respect, which is an ethical construction. This means that the agency, and attribution of personhood, must be respected by acknowledging the agency of non-humans. The pivotal point is thus: non-humans have (so to speak, in themselves) agency, or, one could say, a soul. But this agency is only founded on the role they perform, how they act, and so, every 'mediation' of these acts is a threat to how New Animism attributes agency. This is why the textual grid of the sources for animist personhood attribution, for example, the 'myths' and 'tidings' of Hallowell, need to be reimaged as 'events' in Bird-David's handling of them, or 'the living world' in Harvey's. Both these employ non-humans as actors, and the ethical stance demands them to be respected, regardless of what individual humans have to say about the matter. In Hallowell's account of the Ojibwa, we read about the power to animate, the magic that links *änicinábek* and *ätíso'kanak*, or human and other-than-human in the category of personhood. This power to animate is not a feature of Tylor's concept of animism, which instead is concerned with a projection of the animate qualities of the mind humans already know. The personhood category of New Animism retains the projection of Tylor's animism, but instead of projecting personhood as it refers to the mind, personhood as it refers to bodies is transferred. It is thus 'respect', the ethical stance towards other living human bodies, and the assumption of agency which is demanded from this stance, that is transferred to non-humans. Rane Willerslev explains the goal of taking animism seriously, as a way to:

upset our own assumptions so as to make room for imagining the possibility of people inhabiting a multiplicity of worlds. So if, for example, the indigenous peoples tell us that there are such things as 'other-than-human persons' (Hallowell 1960: 36), the anthropological exercise is not about translating the idea of nonhuman persons into concepts we already know, but rather about challenging our own assumptions about personhood so as to make it possible for us to imagine how persons in *this* world actually include humans and nonhumans alike.
(Willerslev 2013: 42, emphasis in original)

Though it must be noted that Willerslev argues against this ethical stance on both empirical and theoretical grounds, the room relegated to translation in this quote is interesting in our context. The anthropological exercise is about ways to 'imagine' how we 'include' humans and non-humans. Translation, in contrast, is about translating ideas into already-known

concepts. As such, New Animism, according to Willerslev, presumes that languages, or ‘worlds’, are closed off from the ideas of other ‘worlds’, and it is only through imagining new models within a world that change can happen. However, this view on translation does not allow for the possibility that translating ideas is a way of imagining new ‘worlds’. Consequently, this view does not let us translate the power with which we animate non-humans, and as such, the political tools with which ‘indigenous peoples’ organize their ‘world’ are closed off from the worldmaking practices in ‘*this world*’.

This tendency to ‘imagine’ how to ‘include’ non-humans can also be seen in the relational New Animist models of sustainability practices, which I referred to at the beginning of this chapter. Helkkula and Arnould differentiate the concept of nature but do not challenge how humans relate to it (Helkkula and Arnould 2022: 865). Mikaelis connects stories to places but does not challenge how we give meaning to narratives (Mikaelis 2019: 88). All these authors, however, assert that these inclusions will challenge ‘anthropocentrism’. The perceived symmetry, however, is ethical, and so it is modelled on how humans project or respect (mentally or imaginatively) objects, animals, plants, places, or other people (human and non-human bodies). We are left with a still active mind–body dichotomy and a symmetry understood as equal respect towards all bodies, human and non-human alike. This respect is shown by more respectful translations of concepts, for example, spirits to other-than-human persons or superpersons. The Tylorian projection still stands, however, and with it, the assumption that all minds are essentially alike. The textual grids, which show that people not only categorize nature differently, but also project meaning onto categories in different ways, are evaded, because it would challenge the very assumption that conceptual translations would let us give agency to, or animate, differently.

Conclusion

As we have seen, ‘personhood’ is the main device that is used to translate the ‘spirits’ of Tylorian animism to the ‘non-human’ or ‘other-than-human’ actors of New Animism. The widened concept of ‘person’ is what allows ‘our’ social relationships to include features of the environment and regard them with the respect usually attributed to fellow humans in social settings.

But this can only be as long as personhood marks a direct relation, a ‘face to face’ relationship between human and non-human subjects. Mediated through genres, that is, when we, instead of personhood, can speak of personifications, these relations cease to exist, because the textual grids are no longer compatible, along with the truth criteria they sustain. The problem we are faced with, in making sustainable politics,

is not just the equal respect or ontological status of actors, it is also the equality of genres and how they authorize actions. It is this work that is not taken up with regard to classic concepts such as animism. Tylor's animism, as a tool, is a special way of linking, interpreting, and translating *texts*. More to the point, it is a framework for translating actors or characters *in* texts. The problem of Tylor's theory is not, first and foremost, the premise that 'spirits' is understood as a category error stemming from the faulty logic of 'primitives', although that certainly is a concern, but that he also assumes that he is able to know that logic, or the philosophy of 'primitives', because he and his sources already master, or understand, the genres in which they speak. This process of mastering on the one hand involves erasing frameworks of meaning-making, or genres, and on the other establishing new concepts that draw on the target communities' conceptual frameworks, while authorizing these same concepts with the practices of the source community. Though done with respect, the reframing of nonmaterial beings New Animism obtains, by mapping the relationship to non-human actors onto narratives of beings the target community do not *a priori* consider as having agency, achieves the same effect. Though it reframes how we read practices, practices are also a translation, which is done through the textual framework that in our case constitutes 'animism'. It is the genres of this textual framework that determine the meanings of particular acts. New Animism only gives us two options for appropriating a different set of practices: either by reviving the non-modern state and again ascribing to Tylor's philosophy of spirit or religious traditions; or by acting *as if* we animate our non-humans by ascribing others' religious traditions. Either way, we are barred from imagining new practices, and the genres with which they are made meaningful. If we are to reimagine our relationship to the environment, a better way would be to notice the flip side of Tylor's theory. Though his concern is with 'primitive' culture, he also states that the soul and spirit of animism were to be found among his contemporaries in his own society. Animism, both old and new, is one of those frameworks that supports such cultural ideas and the practices they sustain. But in order to utilize them, we need to acknowledge the techniques with which our world is animated in the first place.

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5 On Becoming Microbes and People with Texts

Moving Academic Writing Toward Responsible Agency

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Introduction

This chapter examines how the Sociology of Translation may contribute to concepts and theories for better and more sustainable worlds. If the Anthropocene marks the final human triumph over nature (Sariola and Gilbert 2020), post-humanist approaches promise to make room for non-human action, translated into stories of human and non-human interdependence (Pickering 2008). But who is to bring about sustainability in a post-human world, where humans and non-humans are acting equally? Who is the ‘we’ responsible for changing ways of being, so both human and non-human worlds may continue to exist? If things-in-themselves lack nothing (Latour 1988), who is responsible for protecting their existence?

In line with other chapters in this book, our point of departure is the argument that post-humanist decentring towards material practices misses important aspects of semiotic decentring towards language and text (Pickering 2008). The tradition of symmetrically translating the world, recognizing human agency as an open-ended becoming with non-humans, forgets the semiotic roots that broadened the notion of the ‘actor’ (Waldstein 2008), and now feeds an ethical responsibility towards the wellbeing of ‘things’. In times of uncertain futures, human responsibility is surely in need of greater thematization within the Sociology of Translation.

Yet, in this chapter, we seek to take one step further in dealing with symmetrical decentring, by bringing the practice of academic textual production—inscription—into the moment of political engagement and responsible agency. We seek to develop this line of thought into an approach to human responsibility that includes the craft of writing texts and scientific stories. If as scholars we produce texts, we might as well hope to construct a chain of events that safeguards our semiotic-material worlds. But in order to conflate textual production and responsible agency, we must take seriously the extent to which the ‘text’, as the main outcome of scholarly endeavours, is also an actor, a translator, in a constantly

emerging world (ibid.), and a product of a series of inscriptions as well as an inscription device (see Chapter 1). In line with previous reflections on actants and agency in this book (see Chapter 3), we investigate the agency ascribed to actors by textual work and inscription practices. By doing this, we want to outline a new dialogue between symmetric and asymmetric approaches to human and non-human agency.

To develop this approach, we want to talk about a topic where the stakes are enormous, namely microbes. Microbes are obvious biological entities, while at the same time they are also unavailable to humans without interaction through inscription devices, like microscopes and descriptions through texts. Moreover, microbes have recently moved from mainly acting as causes of disease, to global health preparedness debates (Kirchelle et al. 2020; Laxminarayan 2022). The production of antimicrobials on an industrial scale, from the 1940s onwards, has set in motion a cascade of events that have promoted both human and microbial change (Spagnolo et al. 2021). The debate on what to do about the development of resistance to antimicrobials often demands a human responsibility to attempt to regain control over microbes, to sustain human and animal life on the planet (WHO 2019). Such an urgency sharply contrasts with symmetrical approaches and post-human ontologies, in which humans and non-humans are understood as equally capable of acting.

A reinstating of asymmetric agency has been made: what should humans do so microbes do what humans want and need? This mode of action, created by unsustainable interpretation and textual production, that thematizes human rule over nature, shaped worlds and realities we may no longer endure (Pickering 2008). It seems that not only do we need more complex understandings of agency that allow for non-humans to act, but we also need to couple those with a more nuanced conceptualization of textual engagement.

Instead of ‘theorizing’ this argument, we aim to make it visible for the reader through our own interpretation of two texts about microbes: Nick Lane’s *The Unseen World: Reflections on Leeuwenhoek (1677) ‘Concerning Little Animals’* and Hannah Landecker’s *Antibiotic Resistance and the Biology of History*. To ‘see’ contrast, we place the two texts in relation to each other. Both texts talk about events that have happened in the past, in which microbes and people are relating to each other. Yet they thematize different types of agency, of acting in the world. Both texts are authored by scholars and tell stories about other authors, other scholars. Yet, their take on authorship is different.

Nick Lane is a renowned evolutionary biochemist who writes not only to his peers, but also to wider audiences. In the text we analyze, he is writing for the British journal *Philosophical Transactions* at the Royal Society in London, the world’s first and longest-running scientific journal, launched

in March 1665. Particularly, in a special edition celebrating 350 years of the journal, Lane writes about another author in the journal: Antoni van Leeuwenhoek and his famous ‘Letter on the Protozoa’, published in 1677, describing ‘little animals’ or ‘animalcules’.

Hannah Landecker is a sociologist and professor in the field of science and technology. Her work focuses on historical accounts of biotechnology, and she has paid particular attention to the work of non-human actors, such as microscopes and microbes. This specific text about antibiotic resistance was published in 2016 in the transdisciplinary social sciences and humanities journal, *Body and Society*. Particularly, in this text, she assembles assorted authors to create a story about the ‘biology of history’.

We read these two texts together to describe two contrasting ways in which microbes and authors are inscribed as actors in the texts.¹ At a first glance, Nick Lane’s text about Leeuwenhoek’s *discovery* of bacteria suggests a dualism between humans and nature, inscribing detachment and asymmetrical action, in which humans discover passive non-humans. By contrast, Hannah Landecker’s text focuses on microbial action inscribing symmetric interdependence between humans and nature, in which the action of humans is dependent on the action of non-humans, and vice-versa. Yet, the contrast between these two texts enables us to think about our own agency and the possibilities enabled by the *production* of our text. These two texts become an artefact of our own reading and writing. In analyzing the kinds of microbial agency created by the two texts, we are necessarily complementing and extending our own modalities of authorship and agency—following Annelise Riles’s (2006) modalities of response—in the practice of crafting our own text. Our text complements the agency of the two texts we analyze by inscribing the *proliferation* of actors elicited by them, but not accounted for in them. Our text prevents them from acting by momentarily making visible the processes of *rarefaction* of actors necessary to their agency, but not ours. Finally, we respond to the process of creativity elicited by them. We borrow from them the notion of *chimerism* to inscribe surprise and a novel way to translate agency.

Artefacts

The issue of agency in the Sociology of Translation is often connected with the tradition of considering the researcher’s position with the same analytic repertoire applied to ethnographic objects (Pels 1996). Symmetry, in this move, has meant seamlessly extending the analytic repertoire to also scrutinize non-human actors, analyzing actions carried out by humans and actions carried out by non-humans with the same framework (Callon and Law 2005). Foundational insights borrowed from semiotics enabled the translation of actors into textual functions, in which texts created by laboratory machines and texts produced by scientists had the same

function: they were all inscriptions, treated as nodes in a web of signifying relations (Latour and Woolgar 1986). This provided an opportunity to move beyond textual effects of media and representation, into the material agency and co-constitution in the relations between humans and non-humans (Waldstein 2008).

However, the move of expanding the notion of what counts as actor, by replacing the distance between documentary practices in the world, and the analysis of those practices with symmetric networks, largely ignored the issue of the ‘authorship’ of actors in the world and researchers (Biagioli 2006; Riles 2006). Overall, science studies tended to rely on overdetermined and sometimes mechanical theoretical paradigms when talking about agency, particularly when relating to the agency of the analyst (Riles 2006). By contrast, contributions from social anthropology, often occupied with the researcher’s positionality, have offered insightful takes on understanding agency and authorship. The place of the researcher within the outcome of research, named *reflexivity*, proposes that researchers explore the world, but that the knowledge they produce, the stories they tell, come about through a medium that already has a form of its own (Strathern 2004). To produce knowledge, to translate the world into written articles, documents, and book chapters, is an activity that necessarily must go through acts of interpretation carried out by the researcher, the author of the final text.

This form of agency through reflexivity, as an interpretive act, follows a tradition that links understanding to an irrational use of available schemes for sense-making, and an explanation of rational modification of schemes when assumptions about how the world works fail (Herman 2018). But there is an ambivalent strategy in this way of approaching reflexivity that we would like to avoid in order to carry out our experiment—that the agency of the researcher, naming authorship, relies solely on interpretation as a social/cultural toolkit that generates understanding and knowledge/explanation of the world (Moreira 2012). Reflexivity centred in the analyst interpretative agency conceals the interdependent agency of the researcher, the world, and texts.

Thus, we are interested in outlining new insights into how to complexify the concept of agency through *response* to and with texts; in short, human and non-human response, our own response alongside the responses of other actors in the two texts, which are triggered, pushed, contained, extended, and demanded by texts. Our attention to response draws from long-standing traditions in anthropology and philosophy that saw texts and documents as agents with authors.

Marilyn Strathern explored the concept of documents as *artefacts* to refer to texts as active participants in culture-making, mediating interactions and defining roles and responsibilities (Strathern 1988). As artefacts, documents/texts become material-semiotic entities, with dynamic and

performative features, actively participating in the production and transformation of knowledge, social relations, and practices. But in addition, this notion emphasizes the co-evolutionary relationship between authors and texts, where texts are not merely authored by analysts committed to self-reflexivity, nor absent entities for the sake of objectivity, but engage in a dynamic relationship with authors and other texts over time. As Annelise Riles remarks, analyzing texts as artefacts ‘is also necessarily to think *laterally* about the epistemological and aesthetic commitments of one’s own knowledge’ (Riles 2006: 17, our emphasis).

Finally, we want to endorse that the conscious attempt of writing academic texts describing the actions of non-humans may entail a dialogue between symmetric and asymmetric practices as a form of responsibility to contra-act the too often dominating effects of human-centred narratives of control. But we want to do more than that. As our analysis will show, we might respond to the demands of sustainable knowledge practices and human change, with attention to the modalities of response demanded, promoted, and carried out by the texts we use and encounter.

Discovery

Lane’s paper begins in the following way:

Leeuwenhoek is universally acknowledged as the father of microbiology. He discovered both protists and bacteria. More than being the first to see this unimagined world of animalcules, he was the first even to think of looking—certainly, the first with the power to see. Using his own deceptively simple, single-lensed microscopes, he did not merely observe, but conducted ingenious experiments, exploring and manipulating his microscopic universe.

(Lane 2015: 1)

We find it useful to start by disclosing that we have a particular interest in his use of the traditional scientific dualism between nature and humanity, a dualism between microbes and people, the subject observer and the object discovered. If we place his text in contrast with Landecker’s text, we can see that they deploy two different forms of inscribing agency in the relationship between the human and the non-human. The first difference has to do with detachment in opposition to dependence. Lane’s story starts centuries ago, with Leeuwenhoek and his letter to the journal. Leeuwenhoek is portrayed as being the only man in his time with the ‘power to see’ invisible animals. ‘Seeing’ is an action inscribed as human subjectivity: a human trait of having a ‘startlingly original experimental mind’. This is further exacerbated by the structure of the story as one about a great scientist, which conveys a foundational orientation towards the human subject as the main actor,

the discoverer. Words such as ‘ingenious’, ‘pioneer’, and ‘explorer’ further enhance the doings of the human subject, the genius scientist discoverer. Moreover, Leeuwenhoek literally takes up space in the text. The second page is illustrated by a painting of the man occupying more than half of the page. The third page has a picture of Leeuwenhoek’s handwritten letter to Henry Oldenburg, the founding editor of *Philosophical Transactions*.

Microbes, on the other hand, are talked about as if they were waiting to be discovered, analyzed, theorized, explained. Reading Lane’s text is to ‘see’ the *detachment* between invisible objective worlds out there, not yet completely accessed by the human subjective eye. Leeuwenhoek owns his little animals, as his history is told in the text, until he is granted a fatherhood in microbiology. He discovered bacteria. Throughout the text, he becomes the discoverer of invisible microbes that exist independently of the ones attempting to see them. The story is human-centred, in the sense that it is about people’s doings. It is asymmetric in the sense that humans do much more, and what they do is much more visible than what non-humans do.

By contrast, Landecker’s text inscribes dependence. The history she traces is not about how people discovered antibiotics, but about how microbes developed resistance to human interference. Although she starts her historical account with Alexander Fleming’s discovery, in 1928, she inscribes the action of microbes within his discovery. Fleming observed the ability of the *Penicillium* mould to inhibit bacterial growth. Moreover, microbes are not only discovered and tinkered with. They respond. Microbes ferment metabolic products valued by humans (ibid.: 25). As microbes started to be industrialized, they not only produced antibiotics, they also produced economic growth and revolutionized medicine (ibid.: 26). Their produce made farm animals grow (ibid.: 27). Agency is inscribed as symmetric, because what non-humans do is described as being as varied and valued as what humans do. In her text, resistance:

Is driven by theories of antibiosis: a human leveraging of substances microbes create in mutually antagonistic battles for space and resources. Humans make antibiotics by farming microbes, chemically tinkering with microbial metabolites, and mimicking them with synthetic antibiotics. Antibiotic resistance arises when microbes gain the capacity to evade these drugs.

(Landecker 2015: 22)

The focus of the text is not the biography of a person, but the conditions of an event, the emergence of resistance as a threat. What humans do gets entangled with what microbes do. The text is about the mutual and ongoing becoming of resistance, of a situation in which both people

and microbes take part, in the midst of humanity's attempts to control the doings of microbes.

The second difference we can observe by placing these two texts in contrast to each other has to do with the temporal depth of the actions performed by the actors presented in the text. Both texts talk about the past. But in contrast with Lane's text, Landecker's text shows how the act of discovery emerges and changes over time, in the relationship between microbes and people. First, the antibiotics act as miracle drugs that come from microbes to save people from diseases caused by microbes. Then industry discovers ways of producing antibiotics on a larger scale, by farming monocultures of microbes. Then microbes become a tool in genetic science, selecting 'a few resistant mutant individuals from a population' when low drug doses were applied (*ibid.*: 28). Agency is symmetric in the sense that both humans and non-humans are subject to change. Humanity goes from amazement with antibiotics, to industrial production, overuse, and despair. Microbes change from causing diseases, killed by antibiotics, to becoming uncontrolled and resistant. Antibiotics, once considered miracle drugs that have changed the course of human history, now represent humanity's biggest 'threat'.

Penicillin was developed as a drug by Norman Heatley, Ernest Chain and Howard Florey in wartime England. It effectively treated bacterial infections ... and its greater efficacy and relatively fewer side effects than therapeutic agents such as sulfonamides made it appear a 'miracle drug'. Today, however, fewer research articles or reviews recount the triumphal narrative; instead, they draw attention to scale.

(*Ibid.*: 23, our emphasis)

As current practices of antibiotic use affect the future, what was once known becomes unknown. The discoveries of the past, made up of the relationship between humanity and microbes, are changed. Once seen as a triumph, the discovery of antibiotics in the past is turned into a problem caused by present practices of scaling up antibiotic production, and the future prognoses of losing control over microbial action and resistance to drugs.

Antibiotic resistance confronts history of science and theories of conceptual change with a double movement in which the science of biology changes—but so does the biology of science, driven by the industrialization of bacterial metabolism. It is common to hear: 'we used to think ... but now we know', as knowledge shifts; such reaching into the unknown and constantly correcting the course of knowledge is constitutive to the dynamic of scientific practice ... In the case

of antibiotic resistance, we might rather say: ‘We used to think a certain way about antibiosis and pathogens. And then we changed the future’. What we thought we knew became the biology under study: the solution has become the problem.

(Ibid.: 23, our emphasis)

In Lane’s text, however, discovery evokes the evolving of human understanding about passive microbes waiting to be seen and studied. Only humans are subject to change. And this change is conceptualized as an increase in understanding of the microscopic world. Microbes are better understood as they are better observed, and as humans debate the veracity of Leeuwenhoek’s observations.

These two texts stand for, we argue, two different ways of telling a story about people and microbes, in which agency is inscribed by textual actors in two different ways. In Lane’s text, the moment when bacteria first became visible to humans is a significant event, configuring an anthropocentric story, a story about how people discover a passive world. In Donna Haraway’s words, “‘the story line’ that ‘man makes everything’ including himself, out of a passive world that can only be resource and potency to his project of active agency’ (1992: 297). In Landecker’s text, the moment in time when microbes act and react forms the starting point of the narration that describes the discovery and emergence of a relationship between humans and non-humans. It evokes symmetrical engagement, an emergent temporal interplay between pathogens, industrialization, science, and people, which all agency depends upon.

Production

But let us not hasten this conclusion. We must disclose that we have so far been concealing some parts of Lane’s text. Although Lane does not thematize microbial action or change over time, that does not mean it is not possible to see it. Moreover, it has been argued that these two forms of talking about agency—encouraging us to recognize either detachment or entanglement—may mislead us to understand them as two different ontological positions that oppose each other, and which we can choose from (Pickering 2008). All texts are produced from particular ontological conditions, or according to Pickering, ‘in the thick of things’ (ibid.: 4). It is just that some texts attempt to hide the conditions of their existence while others engage with the ‘basic ontological situation from which they themselves emerged’ (ibid.).

In his essay about the work of Russian-Estonian semiotician Iurri Lotman (1922–1993), Maxim Waldstein (2008) suggests Lotman’s material semiotics as a post-human framework for textual analysis, which we

find helpful at this point. According to Waldstein, Lotman and his colleagues propose a materialistic and historicist cultural concept of ‘text’ that is interchangeable with the idea of the ‘machine’ in post-humanist approaches (ibid.: 231). This means to propose to see the text as a thing, a complex material entity that translates—in the meaning of something that displaces, invents, and ‘creates links that did not exist before and that to some degree modifies’ the originals (Latour 1999: 179). For Lotman the text is ‘a heterogeneous and post-human space, or a surface of emergence, in which various human, non-human, social and material elements enter into a set of unpredictable and performative interactions’ (Waldstein 2008: 234). It allows for the play of semantic processing through signifiers and signified, and ‘asemantic’ sights and sounds of the material world (ibid.: 233). This adds a dimension of unpredictability, emergence and open-endedness, and offers an idiom shift that evokes the interdependent reflexivity we call upon in our text.

The text is more than an inscription device, it can be seen as a machine, an apparatus that enables vision. At the same time, texts are the outcome of material translations into language, as much as they take part in creating material realities. Materialities and objects of nature are made into realities by means of texts, that is, in material-semiotic versions (Asdal 2015). This means to say that microbes and other material entities are *found* in the world as much as they are a *product* of research practice and textual production. They are also artefacts.

Both authors used textual material to produce their own text. But while Landecker thematizes the material conditions of the actors in her texts, Lane draws attention to Leeuwenhoek as a discoverer. Lane’s text focuses on how it was possible for Leeuwenhoek to build his ‘power to see’ that over time granted him with primacy of discovery. Thus it might also help us to ‘see’ the invisible, the action of non-human actors in his text. We can use our own text to think laterally about the production of microbial agency, and enable new visions of the action of humans in relation, response, and reaction to non-humans.

Instead of an either/or approach—*either* asymmetric, in which humans have a different kind of agency than non-humans that produce stories of ontological detachment, *or* symmetric, in which human and non-human agency has the same function in the story—we use our own text, our *artefact* (Strathern 1988), to create a dialogue between the two analyzed texts. Helped by Landecker to see action on behalf of the microbes in human–microbial relationships, we move to Lane’s text and search for the role of other things, other non-human actors in an attempt to ‘unsee’ the detachment that is emphasized throughout his text. We find that in both texts, more-than-human characters populate their stories. We also find that Lane tells stories of becoming, of humanity in relation to microbes, particularly

through the action of lenses, microscopes, and texts. In Lane's text, we find stories about the manipulation of magnifying glasses, and texts debating the ability to actually see microscopic beings.

Leeuwenhoek lived during a time when the invisible world was starting to be observed and conceptualized. The idea of accessing things that the eyes alone cannot see was beginning to take form. And Lane does not hide the 'resistances' encountered by Leeuwenhoek and others. At that time, even the mentioning of 'animalcules' was considered indecent. Leeuwenhoek's handwritten letter to Oldenburg, which occupies space in Lane's text, is in fact his famous 'Letter of the Protozoa', the first publication mentioning Leeuwenhoek's little animals or animalcules. Placed in between the words of Lane, Leeuwenhoek's letter disturbs the focus on Leeuwenhoek's agency. The letter, not Leeuwenhoek himself, was the first actor to make microscopic worlds available to the eyes of others. We can see this because Lane tells us that the process of seeing microbes in fact took a long time and, quite literally, required translation.

Leeuwenhoek was Dutch, he wrote in Dutch, and his work was routinely published in *Philosophical Transactions* translated by Oldenburg, who was an editor in the journal.

Oldenburg published several of Leeuwenhoek's letters in 1673 and 1674, which dealt with interesting but uncontentious matters. Until this point, Oldenburg had published almost all of Leeuwenhoek's letters within a few months receipt. *Now, he drew pause.* Of the next 12 letters sent by Leeuwenhoek, only three were published, and none that touched on animalcules. The invisible world could be seen by none but Leeuwenhoek. Therefore, Oldenburg's translation is an extraordinary monument to the open-minded skepticism of science.

(Lane 2015: 3, our emphasis)

When Oldenburg translated Leeuwenhoek's letters, the scientific community was sceptical of both the idea of invisible animals and the practices, the procedures, and microscopes used by Leeuwenhoek. Thus, it was difficult to see the invisible living creatures. Here, Lane inserts Leeuwenhoek's words into his text:

Leeuwenhoek first courted controversy in a letter of September 1674. Describing a nearby lake, Berkelse Mere, he noted that its water was very clear in winter 'but at the beginning or middle of summer it becomes whitish, and there are then little green clouds floating in it'. These clouds contained wispy 'green streaks, spirally wound serpent-wise and orderly arranged'—the beautiful green alga *Spirogyra*. Then came Leeuwenhoek's first mention of little animals: 'among these

streaks there were besides very many little animalcules ... And the motions of most of these animalcules in the water was so swift, and so various upwards, downwards and round about that was wonderful to see: and I judged that some of these little creatures were above thousand times smaller than the smallest ones I have ever yet seen upon the rind of cheese’.

(Ibid., direct quotations from Leeuwenhoek)

Leeuwenhoek’s writing, says Lane, did not inspire credibility. Besides having no formal education, his texts sounded too simple, with superfluous details that conveyed irrelevant information, often censured in Oldenburg’s translations. Because Leeuwenhoek wrote too colloquially, his credibility was weak. Rhetorical prose and colloquial language hindered everyone but Leeuwenhoek from seeing bacteria. Moreover, this inability to see was also related to microscopes, a new technology still in the making, still unavailable to most.

But the natural philosophers of the Royal Society, in pioneering the methods we still use in science today, were not easily spun. Leeuwenhoek’s letter had been read aloud over several sessions and attracted great interest, verging on consternation. Oldenburg wrote to Leeuwenhoek, asking him to ‘acquaint us with his method of observing, that others may confirm such observations of these’, and to provide drawings. Leeuwenhoek declined, throughout his life, to give any description of his microscopical methods, ‘for reasons best known to himself’, said Hooke.

(Ibid.: 4–5)

Lane mentions a book published by Robert Hooke in 1665, called *Micrographia*, which describes observations of insects and plants with magnifying glasses, the word ‘cell’ being used for the first time. This book most certainly influenced Leeuwenhoek to develop his own single-lensed microscope. Hooke was a credible scientist at the time, supportive of Leeuwenhoek’s work, who succeeded after a couple of attempts to see the animalcules. Without him, ‘Leeuwenhoek might easily have been dismissed as a charlatan’ (ibid.: 5). At the same time, Hooke’s own credible descriptions of microscope construction and lens manipulation undermined Leeuwenhoek’s ‘simple’ microscope. Hooke built and used much larger instruments with two lenses, the prototypes of current microscopes.

Leeuwenhoek’s single-lensed microscope depended on the texts he produced, and the translation Oldenburg produced. Scientific artefacts and scientific texts, built over centuries after Leeuwenhoek’s death, infer

meaning to our reading of Leeuwenhoek's descriptions of 'little animals'. Lane's story of the translation of Leeuwenhoek's texts challenges us to reread the current inscriptions from scientific machines. But should it also challenge our reading of current scientific texts, or the production of our own texts? How to understand the text as enabling vision? Naturally, Lane does not focus on how the action of discovery is premised on lenses, but it is the human action that is emphasized, the human making and using of the microscope, stemming from genius and curiosity. How might it have been described differently? Could Lane say that the microscope discovered microbes?

In our own reading of Lane's text, if we emphasize the dependence of discoveries on the role of microscopes, they can easily become agents. There are many attempts in the literature that we could use to support this move. We could extend the notion of agency to also include nonintentional or half-intentional action (Ashmore 1993). Another move could be to deny intentionality to humans by describing human action as 'performed', as effects (Law 1994). Yet another, could be to simply attribute intention to non-humans. This last option has been particularly unpopular (Pickering 1995).

But we want to take another road. In order to expand the notion of agency in and through text, we want to make visible our own interpretation, our work in producing an artefact in which non-human actors can act in Lane's text because we want to allow for that. But we cannot simply say that they take part. If we want these actors to be emphasized in our text as acting in Lane's, we have to engage with a chain of texts that demand reinterpretation. The texts by which Leeuwenhoek's microscopes and microbes were *subject to change* over time. We have to allow the temporal depth in Lane's text to emerge in ours.

Callon and Law (2005) suggest that the complexity of agency emerges by means of two particular practices—rarefaction and proliferation—by which the dialogue between symmetric and asymmetric translations can become visible. We then search for these practices in our texts, to demonstrate reinterpretation as the outcome of a complex interaction between human and non-human actors by means of textual artefacts interacting over time. In the following, we explore these two practices in Lane's and Landecker's texts, making visible the reinterpretation of discovery as a long, open-ended, and interdependent task.

Proliferation

Because Landecker thematizes non-human agency, it is not a surprise that many non-human actors play a role in her story. In addition to microbes, Landecker puts a lot of focus on antibiotics. They create resistance. As in

Lane's text, microbial agency depends on humans, but in Landecker's text this agency is mediated by the action of drugs.

Antibiotics kill by selective toxicity, disrupting microbial structures or processes that do not exist in human cells. Their production is driven by theories of *antibiosis*: a human leveraging of substances microbes create in mutually antagonistic battles for space and resources. Humans make antibiotics by farming microbes, chemically tinkering with microbial metabolites, and mimicking them with synthetic antibiotics. Antibiotic resistance arises when microbes gain the capacity to evade these drugs.

(Landecker 2015: 20, emphasis in original)

But they do not do so by simply acting, nor by acting alone. In her story, first microbes act; they take part in antagonistic battles for space and resources. They actually seem to have been there, quite detached in their own unseen world. Not passive, but disputing space and resources until humans interfere. By implication of human tinkering with drugs, these natural battles also become part of biology in Landecker's account. When humans start harvesting metabolic products and mass-producing antibiotics, human and bacterial agency become connected in a fight for life; humans are threatening microbial life to save their own, and the bacteria *answer* with resistance, to antibiotics, but also to humans. Maybe Foucault would say here that with great power comes great resistance.

Mass production of antibiotics involved the industrial-scale growth of microorganisms to harvest their metabolic products. Unfortunately, the use of antibiotics selects for resistance at answering scale.

(Ibid.: 19)

Landecker thus points towards a process of agency made through an 'excess of resources that interact with and undermine one another' (Callon and Law 2005: 731). Entities that can be scaled up or down, meaning detached from one context to another, while being reworked, summed, manipulated, get mixed with entities that cannot be enumerated, listed, or ranked. Resistance emerges as an answer at scale to the scaling up of antibiotics, while at the same time, unrelated discoveries are being made in other places:

Once scientists started following plasmids carrying antibiotic resistance markers instead of pathogenic bacteria, they realized that these genetic pieces did not stay contained in species. When gentamicin was introduced in the 1970s, an intercontinental, cross-genera, cross-species

spread of resistance to that antibiotic's specific mode of action was observed, due to the spread of an 'epidemic plasmid'.

(Landecker 2015: 31)²

Her story tells that in the beginning, when antibiotics were being discovered, scientists believed resistance was a matter of microbial selection. Mutation happened spontaneously, and when exposed to deadly drugs, sometimes some selected individuals survived and continued multiplying (ibid.: 28). Microbes survived human biopower passively and by chance. Resistance emerged as a matter of fate. As clinicians observed resistance in treating diseases, new drugs were developed.

But in the 1950s, microbiologists studying microbes, in order to understand them rather than searching for new drugs that could kill them, discovered plasmids (ibid.: 29). These were understood as genetic communication between microbes, and used to move DNA in between cells, enabling the growth of bioengineering. The idea that microbes could spread genetic elements without selection, actively creating resistance through plasmids—in a way spreading the word in the community—only came later, with outbreaks of multi-resistant bacteria epidemics in the 1980s. Resistance was being discovered as a form of strategy, rather than a feature of chance. In Landecker's text, this discovery emerges out of the coexistence of two sets of stories happening at different paces:

In this case, the *intentional* engineering of bacterial genomes has been the thread that critical social science scholarship has followed. The story has been humans making life, or at least remaking it to their own ends and modelled on their own desires—nature *intentionally* modelled on culture.³ Increasingly visible, however, is another story moving at a different pace: the *unintentional* widespread mobilization of mobile DNA bringing new genetic features into chromosomes and plasmid and driving global antibiotic resistance.

(Ibid., our emphasis)

One is the story of microbiology, laid out by sociologists. This story explained how life was being remade by humans, through moving the field of microbiology into an industrial landscape—biotechnology. This move generated a continuous proliferation of new biological links and entanglements. In Landecker's text, biotechnology produced the DNA necessary that proliferates human intentional attempts to model life. The second story is her own, in which microbiology is supposed to control the proliferation of DNA and plasmids, but unintentionally enables a loss of control, and spreads at global proportions. Events happening in microbiology, which were described and categorized in sociological accounts,

recombined in the form of DNA and transformed into industrial products in microbiological accounts, created the possibility of unintended effects in a sort of overflowing process for Landecker's story of resistance. A proliferation of textual material quite literally becomes Landecker's material in the emergent process of discovering resistance.

What looked like a laboratory technique ready to remake the world can also be retold as a remade world about to remake the laboratory.
(Ibid.: 29)

Resistance becomes discovery unintentionally done by inscribing—and therefore reinterpreting—sociologists and microbiologists in asymmetric attempts to control life. There is an excess of resources—of human intention and willingness to remake the world, of technologies that tinker with other beings—enabling a nonintentional symmetrical space, a global resistance—through a process of proliferation of texts and meanings. Yet, this whole action is all intentional and asymmetric, and it is made available to us by Landecker's text and her intentional acts of symmetric reinterpretation.

Rarefaction

Oldenburg was not the only one to translate Leeuwenhoek. Lane says that Clifford Dobell, a microbiologist, translated Leeuwenhoek's letters again from the original Dutch in 1932.

Dobell reveled in the precise beauty of Leeuwenhoek's descriptions of *Euglena*, *Vorticella* and many other protists and bacteria, which *leapt off the page*, immediately recognizable to this expert kindred spirit. Leeuwenhoek had a precise and methodical mind, was acutely aware of contamination, resolutely opposed to the idea of spontaneous generation, which was only solved by Pasteur 200 years later.

(Lane 2015: 3 our emphasis)

The fact that Lane mentions these two translations plays an important role in his text. When Dobell translated the letters, microbiology had already evolved together with microscopes, so he saw the creatures *leaping out of the page*. Previously seen as superfluous, Dobell praised Leeuwenhoek's descriptions emphasizing the mismatch between his thorough descriptions and the views of the scientific community at the time: 'It never occurred to him that Truth could appear indecent' (Dobell 1958: 73). The same effect is achieved in Lane's text. The contrast between Oldenburg's translation and Dobell's translation creates new possibilities in Lane's text. Oldenburg 'would eliminate superfluous details' (Lane 2015: 4) that were revealed

in Dobell's translations. The superfluous details, removed by Oldenburg, enable the work of other material entities (lenses and water), and unexpected images can be seen in Lane's text.

Leeuwenhoek also reports experiments, adding peppercorns to water, both crushed and uncrushed (as well as ginger, cloves, nutmeg and vinegar omitted from Oldenburg's excerpts for *Philosophical Transactions*).

(Ibid.: 4)

As in Landecker's text, there are two different timeframes coexisting here that are brought together by Lane's use of two different translations of Leeuwenhoek's original texts. The first is Oldenburg's translation that removes material actors. The second is Dobell's translation nearly 300 years later, in which the same material actors confirm the observations. In the experiment with pepper water, bacteria are visible. It is important to note that this did not happen in Leeuwenhoek's original text; bacteria were not seen when he published his texts. His iconic letter, which takes space in Lane's text, was not read by the scientists of his time because they did not speak Dutch. Neither were the microbes seen. He had to write several additional texts trying to convince others of his vision. And although his descriptions were immediately reinterpreted as bacteria by Dobell more than 300 years later, it was time and electricity that enabled this vision. But in Lane's text, bacteria are unquestionably seen in many forms.

In a clarification to Constantijn Huygens and Hooke, Leeuwenhoek writes 'Let's assume that such a sand-grain is so big, that 80 of them, lying one against the other, would make up the length of one inch'. He goes on to calculate the number of animalcules in a cubic inch; for our purposes here, his calculation puts the length of his 'very wee animals' at less than 3 microm. Bacteria. He later describes bacterial mobility unequivocally.

(Ibid.: 4)

Lane's use of Dobell's translation above can be read as more than just a reinterpretation of preexisting living microscopic beings, but as a process, an open-ended experimentation with texts that keep open the becoming of interdependence between human and non-human agency, dependent on lensed and textual artefacts. A pause in time emerges by literally giving space between different translations.

Leeuwenhoek as a genius is asymmetrically created by systematically removing his 'brilliant mind' through Oldenburg's omissions of material entities that were in fact necessary for experiments carried out by

Leeuwenhoek. But in Dobell's translation, centuries later, these entities are accounted for. In Lane's text, the contrast between Dobell's bacteria that leapt out of the page, and the invisible passive animalcules in Oldenburg's translation create a physical space between past and the present, a space where Leeuwenhoek was forgotten while bacteria became more and more visible, more and more active. The simplicity of Leeuwenhoek's writing is slowly transformed in Lane's plot, giving space to several events that describe the development of microbiology as a science dependent on the development of microscopes. Leeuwenhoek's discoveries become symmetrically dependent on the agency of material entities.

Most of his discoveries were forgotten, and only rediscovered in the nineteenth century, 150 years later, being then interpreted in the context of the newly developing cell theory with little reference to Leeuwenhoek himself.

(Ibid.: 7)

By using one translation after another, one new discovery after another, Lane's text makes the invisibility of microbes visible, and the forgetting of the simple Leeuwenhoek possible. Across the text, his 'simple' one-lensed microscope also disappears, as the development of theories in microbiology are summarized and compound microscopes developed. The little animals Leeuwenhoek saw were forgotten until the early nineteenth century, when compound and high-powered single-lens microscopes, developed by Joseph Bancks and used by Charles Darwin and Robert Brown, became mainstream. The microscopes Leeuwenhoek made and donated to the Royal Society in 1723, with corresponding specimens, were iconically made available to us as photographs in Lane's text.

Only the galvanizing work of Brian J. Ford, who rediscovered some of Leeuwenhoek's samples in the library of the Royal Society in 1981, resurrected the glory of the single-lens microscope. Ford photographed Leeuwenhoek's original specimens using one of his surviving microscopes in Utrecht, and demonstrated a remarkable resolution of less than 1 μm . That left little scope for disbelief: plainly, Leeuwenhoek really did see much of what he claimed.

(Ibid.: 7)

What makes Leeuwenhoek remarkable in Lane's text is the fact that he could not be accounted for in the past while vindicated in the present. There were no means: no textual descriptions translated into English; no electricity to provide light to his observations; no developed microscopes to see; and no developed theories to believe. The lack of resources—this

process of rarefaction—makes Leeuwenhoek at the same time asymmetrically the discoverer of passive microbes, while symmetrically connected to the rediscovery of his microscopes, quite literally artefacts, and reinterpretation of his theories, enabled by the clear view of not only present, but past microbes.

Leeuwenhoek's 1677 paper, the famous 'Letter on the Protozoa', gives the first detailed description of protists and bacteria living in a range of environments. The colloquial, diaristic style conceals the workings of a startlingly original experimental mind.

(Ibid.: 1)

No matter how the discovery of bacteria is reinterpreted in light of later conceptualizations of the human relationship to bacteria, it remains that the existence, and agency of bacteria *in the world* always affect the interpretation of bacteria *in the texts*. We cannot 'unsee' the consequences of antibiotics, even when reading about Leeuwenhoek's discovery as an event firmly embedded in the past. As such, Leeuwenhoek's 'little animals' are *translated* as protists and bacteria in Lane's text, and even as an event leading up to Fleming's discovery of antibiotics in Landecker's text. But our interpretation of both texts also depends on sets of *machines*, in this case microscopes and the chain of texts, that frame the translation and inscribe meaning in our reading of them. Machine-like texts enable visions of moving actors by manipulating heterogeneous temporal frames in the single space of the text.

In our text then, the act of discovery becomes a hybrid form, a dialogue between symmetric and asymmetric translations of the co-relations between humans and non-humans, in which reinterpretation creates new material beings in the present, as well as in the past. The microscope as an inscription device continuously demands reinterpretations of discoveries that magnify, measure, and categorize forgotten and invisible artefacts of the past.

Chimerism

So what is Leeuwenhoek's legacy? asks Lane (2015: 7). This question introduces a turning point in his text. The text stops telling Leeuwenhoek's history and starts creating his legacy by connecting Leeuwenhoek's discoveries with the development of theories about endosymbiosis. In the same way that the development of microscopes enabled translating invisible unreal animalcules into acting microbes capable of reacting to antibiotics, evolutionary theories translate and interpret Leeuwenhoek into visions of the origins of life.

We also want to reinterpret these two texts into legacy. We want to expand the possibility of our text to enable new visions of translation, by allowing the material entities made available to us by the two texts challenge our take on agency. The story of non-human agency in the *Sociology of Translation* bears a striking similarity with the story of bacteria we create with these texts. From invisible and unaccounted for, to a concept that holds the promise and fear of resisting human domination, hierarchy, and control. What if the discovery of microbes, as translated by these two texts, creates a rationale for better understanding agency? Lane starts by saying that only now is microbiology beginning to answer—with ‘surprisingly uncertain answers—to Leeuwenhoek’s questions; where did this multitude of tiny animals come from, why such variety and how to classify them?’ (ibid.: 1). In a similar way, the humanities have long asked similar questions regarding the concept of agency; where does agency come from, why such a variety and how to classify it? Maybe only now we can come to find surprisingly uncertain answers.

For centuries, microbiology has connected questions about criteria for classifying organisms with concerns about the origins of life. What separates life from non-life? The organic from the inorganic? Lane tells us that although early twentieth-century pioneers proposed that life evolved as the result of symbiotic mergers of bacteria, and just like with Leeuwenhoek’s observations of animalcules, the evolution of machines and texts was necessary in order to enable this vision. Endosymbiotic theories were also difficult to see and to believe.

Leeuwenhoek’s comparison with bacteria leaves open the tantalizing possibility that he had even seen organelles such as mitochondria, which with a diameter of 0.5–1 μm would have pushed his microscopical resolution to its limits ... Another half century was to elapse before Lynn Margulis and others demonstrated that mitochondria and chloroplasts do indeed derive from bacterial endosymbionts. And even then not without a fight. I doubt that the idea of endosymbiosis would have shocked Leeuwenhoek; nor would he have been much surprised by the contemptuous disbelief of many biologists over decades.

(Ibid.: 7)

Bacteria, a prokaryotic being (with no nucleus), merged with another, making more energy available for evolution into eukaryotic beings (with nucleus) and higher degrees of cellular complexity. The establishment of this truth was dependent on biochemistry, which demonstrates that the differences among different forms of life had little to do with a nucleus and different modes of respiration, but rather with degrees of specialization and organization. The idea that at a biochemical level, all organisms are

unified, established a theoretical basis for studying chemical processes in bacteria and extrapolating those processes to higher organisms, connecting human and microbial life.

Another unifying theory. Albert Kluyver ... realized that different types of respiration are fundamentally equivalent, all invoking the transfer of electrons from a donor to an acceptor. He appreciated that all forms of respiration and fermentation are united in that they all drive growth by means of phosphorylation. This opens the way for a better appreciation of evolutionary developments which have taken place in the microbial world, since the antithesis between the aerobic and anaerobic mode of life has been largely removed.

(Ibid.: 7)

In Landecker's text, antibiotics have done the same. The unifying work of biochemical processes in Lane's text connects humans and non-human living things through natural symbiosis, evolution, and shared chemistry. The unifying work of biochemical entities in Landecker's text connects all living things through antibiotics, evolution, and shared ecology. By placing the origins of antibiotic compounds in natural existing soil, Landecker describes their excess as creating a particular chemical imbalance, in a process of changing all life in unexpected ways.

Our commensals, our pathogens, our parasites, our domestic animals and fish and their commensals, the pathogens of our parasites, the avian scavengers of our cities and the wildlife—are all now participating in an antibiotic ecology ... In this story, we have seen that lice can have epidemics of bacterial infection; bacteria have epidemics of plasmid infection; plasmids have epidemics of transposon and integron infection. Our epidemics have epidemics; our populations have populations.

(Landecker 2015: 41–42)

Biochemistry then unified Leeuwenhoek's discoveries with present research for Lane, and merged history and biology for Landecker, through the work of yet another actor, neither human nor non-human, both human and non-human—genes. Suddenly, it seems then that in both texts, the plot has been all about *phylogenesis*, the process by which some new modes of life appear as a result of transformation, change, and evolution. Lane describes how the flow of 'genetic material' became the criteria to classify organic matter. At the bottom line, it was not respiration, neither the presence nor absence of a nucleus that helped microbiology to design life, but genes. Genetic material is also the basis for recognizing the process of

resistance in Landecker’s text. At the bottom line, it was not economy or industrialization that helped biochemistry to design resistance, but genes. In both texts, studying, enumerating, isolating, classifying, and feeding the invisible world evoked genesis stories of life and interdependence between humans and non-humans, carried out by the work of genes (Figure 5.1).

Francis Crick had already advocated the use of molecular sequences as a wonderfully sensitive phylogenetic signal ... Zuckerkandl & Pauling formalized the argument with sequence data; and a mere two decades later, Carl Woese published his first ‘tree of life’. Woese was soon dismissing Stainer and van Niel as epitomising the dark ages of microbiology, when microbiologists had given up had given up any prospect of a true phylogeny ... Woese and his co-workers went so far as to argue that the term prokaryote was obsolete, being an invalid negative definition (i.e. procaryotes are defined by the absence of a nucleus). The three domains tree is still the standard text book view.

(Lane 2015: 8)

The tree of life is represented as a drawing that speaks of years of research development about the origins of life and hypothesizes that all life came from the same primordial unicellular being. The tree, based on ribosomal RNA signature sequences data, shows the genesis of bacteria, archaea and eukaryotes from a common ancestor, and organizes biodiversity by evolutionary relationships (Mina and Kumar 2014).

We were surprised to encounter this expression—tree of life—in a text about microbiology. Thus, it also seems to contain the potential for

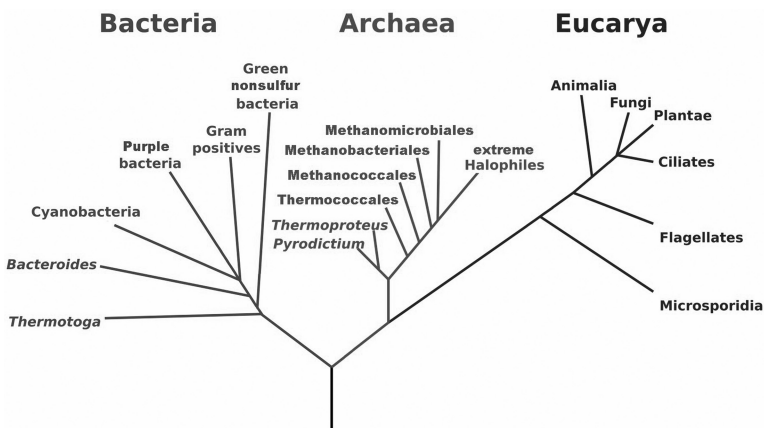


Figure 5.1 Woese’s tree of life. (Wikimedia Commons 2013). https://commons.wikimedia.org/wiki/File:PhylogeneticTree,_Woese_1990.PNG.

criteria that might help us to draw the line, categorize, and separate the human from the non-human in the concept of agency. Lane says that in the case of life, differences are not expressed in any gross features of cellular function, but in respect to the detailed organization of the cellular machinery (2015: 8). If we paraphrase this, we could try to think of agency as never expressed in gross features of functioning as human (rational) or non-human (irrational), but in the detailed organization of an acting machinery. If we take agency as being an apparatus, a processing unit, the result of a specific organization, the organization of several ‘tiny moving things’, no apparatus smaller than one actor is recognizable as the site of either rational/irrational or human/non-human action. The difference is the detailed organization of the machinery, in which non-human action stands for a ‘smaller degree of specific organization’ (Lane 2015: 8). Yet, this differentiation seems to propose a symmetric understanding of agency which, as in the ‘tree of life’ in microbiology, is misleading. In Landecker’s text, we find the argument that stories told by scientists and social scientists have material aspects, and that history-making is biological.

The story refers to a recursive structure in which knowledge is produced in and through matter that itself has been altered by previous modes of thought. At the same time that we now know more, we come to inhabit the material future produced by what we thought we knew.
(Landecker 2015: 37)

Knowledge production and textual production create material connections that enable the action of genes. Lane inserts into the paper about Leeuwenhoek his own texts, alongside Bill Martin’s seminal work on the evolutionary genome, to argue for origins of life as a chimera, a process of fusion. A genetic chimera is an organism with more than one genotype, which in Lane’s text places the origin of life in endless processes of fusion instead of shared ancestral unity.

Woese’s iconic tree is therefore profoundly misleading, and should be seen strictly as a tree of one gene only, it is not a tree of life. We cannot infer what a cell might have looked like, or how it might have lived in the past, on the basis of its ribosomal genotype. Eukaryotes are now plainly seen to be genomic chimeras.

(Lane 2015: 9)

Lane explains that the origins of current phylogenic branches are now seen as fusion brought about by lateral gene transfer, and not bifurcation. The unifying theories in biochemistry created the possibility of conceptualizing endosymbiosis, where also the main binding instruments prevent us

from seeing that ‘genes are an exchangeable currency’ (ibid.). Lateral (or horizontal) gene transfer is also a crucial event in Landecker’s text, preventing us from seeing the development of resistance. Bacterial capacity to exchange genes through transformation, transduction, and conjugation from another individual that is not its offspring enables quicker environmental adaptation by acquiring large genetic sequences. It enabled endosymbiosis, evolution, and more recently, resistance. In Lane’s story then, the tree is transformed by Bill Martin’s (1999) fusion tree, as life is transformed. The flow of genes, that generates resistance in Landecker’s text, becomes the origin of all life in Lane’s text (Figure 5.2).

A chimera in Greek mythology is a mythological creature that combines in one being the features of two distinct entities. Thus, chimerism expresses the relationship between the concept of translation and agency as chimerism and lateral gene transfer. Chimerism is the process of merging two distinct genetic materials. So instead of understanding translation as the transformation into something else, while ‘keeping something about it the same’ (Gal 2015), we have the fusion of two forms of action into a hybrid agency, combining the features of distinct symmetric and asymmetric forms of agency. Instead of understanding

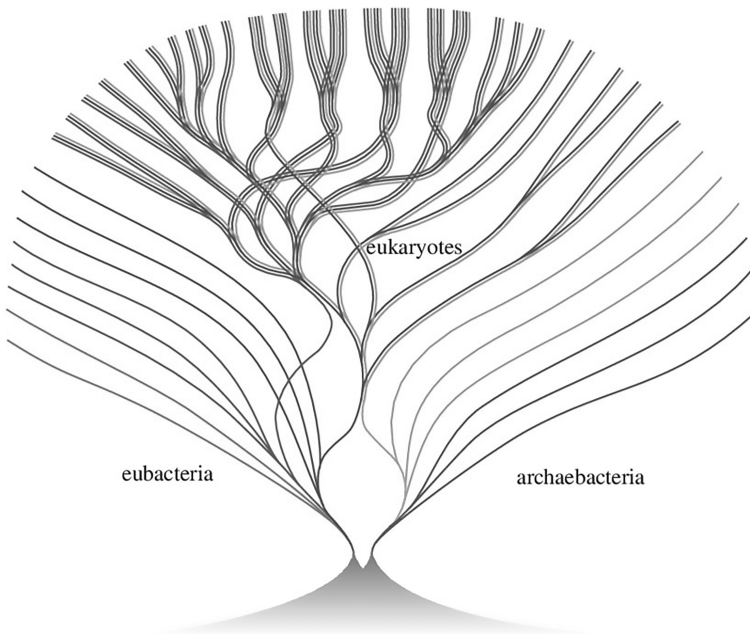


Figure 5.2 Bill Martin’s genomic tree (1999). Reproduced with permission. Copyright 1999 & John Wiley & Sons, Inc.

action as ‘something being done by someone or something’ (Mol 2002), we understand it as a process of lateral *meaning* transfer that creates new beings, new realities.

Pervasive genetic chimerism means that ‘no hierarchical universal classification can be taken as natural’.

(Lane 2015: 9)⁴

Our own text is an example of chimerism, in which symmetrical approaches dialogue with asymmetrical discoveries. Our case of how the agency of microbes is transferred to our interpretation alludes to the fact that both discoveries and machinery, both temporal organization of events and inscriptions of changing apparatuses, convey chimeras of understanding when we open up to meaning as a chimeric agent, open to new evolving forms. Such transfers draw attention to the fact that translations not only facilitate understanding, but they facilitate imagination. Therefore, a chimeric view of agency also enables new visions that potentially enact new material and concrete realities. In chimerism, there is also unpredictability.

Perhaps here we get to the ‘answer’ of how to understand and study agency. Action is a process of chimerism, always. No hierarchical universal classification can be taken as given because it is forever changing. So, it is not a matter of either asymmetry or symmetry, but how processes of lateral meaning transfer create realities that are both symmetrical and asymmetrical. Thinking laterally with a text one writes, using texts written by others, is creating reality-making artefacts.

Conclusion: Respons-Ability

One can say that a framework, a concept, a model, or an idea, is a tool that enables seeing. The metaphor of a framework as a ‘research lens’ which the researcher puts on in order to see the world in a certain way and write about it, permeates current notions of interpretative practice in research. In this metaphor, what we imagine is a human putting on a pair of glasses to see better something that is already there. The vision our work with these two texts helps us to evoke is a bit different. The microscopes invented by Leeuwenhoek not only help humans to see preexisting living beings but also creates them. But it does not do so alone and in the past. The invention of microorganisms depended on the texts published and translated by Oldenburg, the emergent living beings ‘leaping out’ of Dobell’s text, and the pictures of Ford. As artefacts these texts found in the world were used and reused over time, by Lane and by us, while becoming a product of ours and others’ acts of interpretation.

Both Lane's and Landecker's texts turned out to be stories about microbes and their relationship with humans. But through our work here, they also became partially ours. In Landecker's text, biology was made available to us in a historical form, and we observed the evolution of life forms, ours and microbial. Her text was not only about the history of microbial resistance, as we first thought. As it became an open-ended evolution, a change over time of both humans and non-humans in response to the environment, it also changed in response to Lane's text. It fused life as genes emerged as unifying actors in our text.

Lane's text was not only about the history of a genius man, as we initially thought, but about the open-ended becoming of a field, the evolution of microbiology as it responded to its environment. A man, a subject, subjected to change over time in response to the evolution of the biology of life. Ours and microbial, as the idea of chimerism, helped us to inscribe surprise and the creative features of textual work.

As for agency, we can see it take form when textual and technological machinery converge to form the chimeras we usually think of as interpretation. Actors 'leaping out' of the page calls us to evoke agency for the entities we encounter, to respond by inscribing the words in the world we all inhabit. As we have discussed with our reading of the two texts, we can 'unsee' what is already seen, we can 'unknow' what is already known as new agents, new agencies, are slowly added to our possible field of vision.

As we close this chapter, and open it to new interpretations, the proliferation of new chimeras, we will remind you, dear reader, that the actions of humans and non-humans, of scientific machines and textual artefacts, depend on a lot more than your own acts of interpretation. Responsibility rests on dependence rather than on decisions to emphasize human or non-human actors. What must be honed is thus the ability to engage in how we entangle ourselves in chimeras: allowing for unexpected actors proposed in the documents we engage with to constrain, produce, and transform us through the texts we produce. As we have shown, differences between human and non-human, symmetry and asymmetry make little sense when texts are translators. As Karen Barad formulates it, 'Responsibility is not ours alone ... Responsibility entails an ongoing responsiveness to the entanglements of self and other, here and there, now and then' (Barad 2007: 394). The central action called for is no longer an imperative of taking charge and giving reasons but, rather, an ability to respond to and depend on 'others'. Responsibility is reimagined as an ethical injunction to work on the ability to respond to 'others' by allowing ourselves to be challenged—our fields, our worlds—to take care of the entanglements of our relationalities. This implies that response-ability is tied to processes of becoming different in and through the response (Meissner 2014) as we produce documents partially ours.

Notes

- 1 Our contrast is inspired by Andrew Pickering's use of paintings by Piet Mondrian and Willem de Kooning as two contrasting philosophical objects.
- 2 Landecker quotes O'Brien et al. (1985).
- 3 Landecker refers to Rabinow (1992); Giddens (1991).
- 4 Lane is quoting Ford Doolittle (1999).

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Part III

Worlding Culture and Politics



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6 Another Story Is Possible

The Politics of Form in the ANT Account

Clemet Askheim

Introduction: How to Change Course?

When launching the *Intergovernmental Panel on Climate Change* (IPCC) adaptation report in February 2022, UN Secretary General António Guterres called the report ‘an atlas of human suffering and a damning indictment of failed climate leadership’ (Guterres 2022). He said that ‘[t]he world’s biggest polluters are guilty of arson of our only home’, and admitted that he was both anxious and angry (ibid.). The concluding remarks were an unusually strong call for changing course: ‘Now is the time to turn rage into action’ (ibid.). Guterres’ call to action is relaying the conclusions captured in both the discourse on sustainability coming out of the UN system (WCED 1987), and the discourse on the Anthropocene coming out of the Earth Systems Sciences:

Humankind will remain a major geological force for many millennia, maybe millions of years, to come. To develop a universally accepted strategy to ensure the sustainability of Earth’s life support system against human-induced stresses is one of the greatest research and policy challenges ever to confront humanity.

(Steffen et al. 2007: 618)

But how do we translate these calls into political action and societal change? While the narrative told by Earth Systems Science relates a story of how humanity got into our current environmental predicament (McNeill and Engelke 2016), the UN has been trying to promote a future of sustainable development (UN 1992, 2012, 2015; WCED 1987).

Both the concept of the ‘Anthropocene’ and of ‘sustainability’ imply fundamental interdependencies of the fates of nature and humankind (Zalasiewicz et al. 2010: 2231; Kates et al. 2001), and both discourses also tend to frame the issue of change as primarily a knowledge problem, where science and politics are seen as separated (Huber 2022; Bonneuil and Fresoz 2016). This makes these discourses seemingly perfect objects

for analysis inspired by Actor-Network Theory (ANT), which challenges these distinctions between science and politics, nature and culture, and between human and non-human actors. This generalized symmetry, including between the natural and the social sciences, has made such analysis popular (Tsing 2015; Latour 2014, 2015, 2017), and ANT is one of the dominant theoretical and methodological frameworks in a variety of environmental studies (Castree 2002; Lave 2015). Yet, as I will argue in this chapter, the inherent formalism in the methodology of ANT makes it inapt for dealing with ‘one of the greatest research and policy challenges ever to confront humanity’ (Steffen et al. 2007: 618).

Bruno Latour, the most well-known proponent of ANT, has published extensively on environmental issues, including books about political ecology (2004a), the Anthropocene (2017b) and climate politics (2018). Despite keeping parts of the vocabulary of ANT, these more recent efforts seem to largely displace the original ANT methodology, and move in a more metaphysical direction (Wainwright 2005; Wark 2017). Could this be partly due to the nature of the subject matter, departing from the paradigmatic laboratory studies and case studies of science and technology?

Building on the argument developed in the previous chapters of this book, this chapter demonstrates that there are some constraints inherent in the methodology of ANT that make it difficult to conceptualize and articulate large-scale political changes. These constraints relate to the unwillingness to make totalizations and to differentiate between types of actors and the lack of standpoint, positioning, and interpellation. They are encapsulated in what Resløyken and Ødemark called ‘the ANT account’ (see Chapter 3), which refers to a genre and a certain narrative style developed in early ANT. Inspired by Fredric Jameson, I will look for the politics of form in the ANT account and evaluate the potential implications for dealing with the Anthropocene and sustainability. How could the politics of translation, inherent in the ANT account, hamper the ability of ANT to formulate an effective politics of sustainability? And how can we bolster the framework of ANT by adding elements that would make it more suitable for producing such a politics?

Attempting to answer these questions, I will first try to show how both the discourse on sustainability and the narrative of the Anthropocene are too abstract to produce such a politics. Then I will argue that ANT suffers from some of the same limitations, resulting in an inability to formulate a theory of change, articulate concrete conflicts, and constitute a subject of politics. Next, I will turn to Fredric Jameson and his idea of a politics of form, and utilize this idea in a formal analysis of the ANT account and its semiotic formalism. The material for the analysis is two early texts by Latour, where semiotics plays a crucial role, and the goal will be to articulate the content of the form of the ANT account. Finally, I will point to

some of the political limitations of this form, and suggest some supplements and expansions for dealing with issues like sustainability and the Anthropocene.

Anthropocene and Sustainability

The Anthropocene describes the era in which the impact of human actions on the environment has become a geological force (Steffen et al. 2007). The protagonist in this story is an abstract humanity who has been causing systemic changes to its habitat on a planetary scale, without realizing it until now (Steffen et al. 2007). We are presented with an image where the historical responsibility for the current predicament is placed on humanity as a species (Chakrabarty 2009), sometimes going all the way back to when humans first started to use fire (Steffen et al. 2007: 614). Luckily, in recent times '[h]umanity is ... becoming a self-conscious, active agent in the operation of its own life support system' (Steffen et al. 2007: 619).¹

We are confronted with a similar monolithic humanity in the UN discourse on sustainability, where responsibility for the future is distributed across all people and governments. Looking towards the future, the Sustainable Development Goals (SDGs) present a list of goals that we, the people, should reach in order to sustain our development. The idea is to keep this development within 'planetary boundaries' (Rockström et al. 2009), to avoid 'compromising the ability of future generations to meet their own needs' (WCED 1987: 43). The subject who is supposed to act is both an undifferentiated humanity in the form of 'all of us' (UN 2015: 12), and all the states in the world, collectively. However:

The thirty years that have seen sustainable development establish itself as the leading transnational discourse of environmental concern have seen much less in the way of wholesale movements in policies, practices, and institutions at global, regional, national, and local levels.

(Dryzek 2013: 163)

Other scholars writing on sustainability have in various ways sought to shed light on this shortcoming, pointing towards the problem of imagining radical alternatives, challenging the status quo and actually implementing changes (Redclift 2005; Banerjee 2003; Blühdorn 2007; Swyngedouw 2010).

The Anthropocene narrative, as told by the Earth Systems Sciences, has also been criticized for obscuring its political aspects, being too deterministic, abstract, and without room for historical responsibility (Bonneuil and Fresoz 2016; Malm and Hornborg 2014; Moore 2015; Hamilton 2017; Fremaux and Barry 2019). There is a tendency to naturalize the

Anthropocene instead of historicizing and politicizing it, making it an issue for technocrats, and cementing it as a question of science and technology instead of a problem of politics, democracy, and power (Malm and Hornborg 2014; Bonneuil 2015). Even within parts of the environmental movement, this tendency has been widespread, as pointed out by Matthew Huber (2022). The result, according to Huber, is a downplaying of other aspects, such as structural positions, interests and power.

The lack of concrete analysis of power, political conflicts of interests and structural positions, in both the discourse on sustainability and the Anthropocene, have their parallel in ANT accounts (Wainwright 2005; Wark 2017). While a concrete politics of sustainability would entail a political subject and include considerations on how to achieve political changes and goals (a theory of change), both tend to be missing in ANT analysis (Malm 2018). In the following section I will present some of the conceptualizations of politics within ANT and some of their limitations, highlighting the formal similarities between ANT accounts and the discourses on sustainability and the Anthropocene.

Politics and ANT

One of the major achievements of ANT, since it first emerged in science and technology studies (STS) in the 1980s, has been to radicalize the critique of science by expanding the role of power, interests, and politics, but still analyzing both science and politics symmetrically as constructions. It should not come as a surprise that this politicization has focused on science and technology, and this is also where the ‘conceptual scrutiny’ has been the greatest, while less attention has been given to conceptualizations of politics (Brown 2015: 4). In the words of Mark Brown, many authors ‘show different ways that science is political, but *not what it means for science to be political*’ (2015: 5, my emphasis).

In early formulations of ANT, Michel Callon used the concept of problematization to account for how scientists ‘struggle to impose their own definitions and to make sure that their view of how reality should be divided up prevails’ (Callon 1980: 198). To uphold an idea of symmetry between human and non-human actors, and to avoid prejudging ongoing research, Callon combines problematization with other processual concepts like ‘enrolment’ and ‘translation’ (Callon and Law 1982). In the unfolding of the investigation, these concepts produce more stable entities, resulting from the process instead of being imposed from the outset. This also includes the actors involved.

‘Identifying a problematization postulates the existence of an actor’ (Callon 1980: 207). It is thus the ANT scholar who identifies a problematization and can postulate an actor that can be the object of the ANT

account. This actor can then enrol other actors in the account, and thereby produce interests. ‘[W]e see all social interests as temporarily stabilized outcomes of previous processes of enrolment’ (Callon and Law 1982: 622). Such accounts of research show its inherently political nature, and the resulting knowledge as contingent on a series of choices, negotiations and struggles (Latour 1987). This way of politicizing science has later been attempted in the case of Pasteur (Latour 1988a), military aircraft (Callon and Law 1988), markets (Callon 1998), atherosclerosis (Mol 2002), and countless other phenomena, but usually without much focus on politics as collective action and decision making, or on wider societal changes.

Donna Haraway has criticized Latour’s way of studying the politics of science as not only reproducing but intensifying the masculine imagery of war and ‘heroic action’ from the classic narrative of science (1997: 34). And in such a way that ‘[t]he object studied and the method of study mime each other’, and that ‘[t]he story told is told by the same story’ (ibid.: 34). In the story told, ‘[t]rials of strength decide whether a representation holds or not’ (ibid.: 34), and the same goes for Latour’s own story in relation to other possible stories about ‘science in action’ (1987). As a politics of science (and in effect, science studies), this is a *Realpolitik*, but where Clausewitz is turned upside down and politics becomes war by other means.²

Attempting to rectify the tendency to end the analysis with the conclusion that science is political, and a situation where everything becomes political (which, in practice, amounts to saying that nothing is political) (Latour 2007: 812), ANT scholars entered the field of political theory (Moore 2010: 795). Gerard de Vries enrolls Aristotle to distinguish between different ways in which the technical is political (2007), and Latour summons at various points, Gabriel Tarde (Latour 2003), Peter Sloterdijk (Latour 2004b), Carl Schmidt (Latour 2017), and the cosmopolitics of Isabelle Stengers (Latour 2007), and enrolls them in his own conceptualizations of a cosmopolitics that he believes can encapsulate all the other conceptions (2004b). In his reply to de Vries’ paper, Latour sums up his definition of cosmopolitics from *The Politics of Nature* as ‘the building of the cosmos in which everyone lives, the progressive composition of the common world’ (Latour 2007: 813), echoing his own description of science studies in *The Pasteurization of France* as ‘the building of a world’ (1988a: 166). Nevertheless, when engaging with political theory, Latour’s approach is still formalistic and abstract (Høstaker 2005: 22), rather than an engagement with concrete political situations and actual political analysis (Wark 2017; Wainwright 2005). An exception is Latour’s final publication, *On the Emergence of an Ecological Class: A Memo*, written with sociologist Nikolaj Schultz (Latour and Scultz 2022), where actual social movements figure, positions are taken, alignments made, and enemies are pinpointed.

Overall, one of the most successful efforts in adding political theory to STS, is Noortje Marres' incorporation of John Dewey and his concepts of issue and public (Marres 2007). What distinguishes Marres (2007) and Latour and Schultz (2022), is that they allow the possibility of describing the formation of a subject of politics, that is able to act collectively to effect changes. However, these later texts on politics have an unclear status in relation to ANT and its methodology.

Another question is the politics of ANT itself, famously posed by Langdon Winner in his paper 'Upon Opening the Black Box and Finding It Empty' from 1993, where he criticizes 'social constructivism' for not making normative judgements about potential consequences of the technologies they study (Winner 1993). In his interpretation, 'to announce such a position seems forbidden on methodological grounds', and '[i]n this way, the methodological bracketing of questions about interests and interpretations amounts to a political stance that regards the status quo and its ills and injustices with precision equanimity' (ibid.: 372). As I will come back to, refraining from making judgements, evaluative claims or political statements are the salient politics of translation in ANT.

Characterized in these ways, ANT does not seem like a fruitful place from which to start translating the rhetorical calls for action inherent in the concepts of the Anthropocene and sustainability, into political changes. Similar negative evaluations of the potential of ANT to effect political change have been made before (Malm 2018; Lave 2015; Noys 2012; Martin 2014). By turning to Fredric Jameson and his idea of a politics of form (1971, 1972, 1981/2002), I will point towards a less recognized meaning of the political in ANT, more specifically, the politics of form in the style and genre of the ANT account, which adds further difficulties for formulating a politics of sustainability from within the original ANT framework.

Politics of Form

Apart from Jameson's Marxism, there is a striking parallel in the influence of structuralism and semiotics on the early developments of Jameson and Latour. At least since *Laboratory Life* (Latour and Woolgar 1979/1986), Latour has utilized methods and concepts from the semiotic and structuralist tradition (see Chapters 1 and 3), which have served as the main foundation of what was to become ANT.³ Jameson began his engagement with structuralism as it was developing in France in the 1960s, and in texts such as *Metacommentary* (1971), *Marxism and Form* (1971), *The Prison-House of Language* (1972), and *The Political Unconscious* (1981/2002), he developed a thorough theoretical critique of the formalism inherent to explanations modelled on language and linguistics. He acknowledges the value of formalism in uncovering immanent tensions in texts and in

identifying actors, positions, and systematic features. Nevertheless, he also contends that interpretation requires more than formalism, and that what is lacking in structural analysis is the historical and political dimension (1972, 1981/2002).

[A] genuine transcendence of structuralism (which means a completion, rather than a repudiation, of it) is possible only on the condition that we transform the basic structuralist categories (metaphor and metonymy, the rhetorical figures, binary oppositions)—conceived by the structuralists to be ultimate and rather Kantian forms of the mind, fixed and universal modes of organizing and perceiving experience—into historical ones.

(Jameson 1971: 15)

To reemploy structuralism in this way requires ‘standing back in such a way as to apprehend the very form of the riddle itself as a literary genre, and the very categories of our understanding as reflections of a particular and determinate moment of history’ (ibid.: 15). The crucial point for Jameson is that the formal is political, or that there is *a politics of form*, but this idea has two elements. The first concerns the social and historical condition for the emergence of the form: ‘For it is axiomatic that the existence of a determinate literary form always reflects a certain possibility of experience in the moment of social development in question’ (Jameson 1971: 12). The second, which I am most concerned with here, is the political conditioning performed by and through the form, on thinking, imagining, sensing and so on (Jones 2010). As I will argue, the same formalistic problem Jameson identifies with structuralism also applies to ANT, and to approach this problem I will first start by identifying the form of ANT, as ‘the ANT account’.

The ANT Account

To account for ‘the ANT account’, I have chosen to focus primarily on Latour, since he is arguably the most influential proponent of ANT, and on two texts that utilize semiotics explicitly in the analysis. These are taken from the 1980s, when ANT was still in its formation, trying to establish a position in contrast to the then dominant forms of social analysis (such as the Strong Programme in the sociology of knowledge, class analysis *a la* Bourdieu and varieties of Marxism). However, texts from the 1990s are also utilized to supplement the analysis.

Pasteur

One of Latour’s favourite heroes of science is Louis Pasteur, and before he published his book-length study on Pasteur’s discoveries in 1984 (in

English in 1988, as *The Pasteurization of France*), he wrote the paper ‘Give Me a Laboratory and I will Raise the World’ (1983). Here Latour attempts to move laboratory studies out of the laboratory, by following how Pasteur, in search of a vaccine against anthrax, expanded his laboratory into French society in the 1880s. Again, there is a mimetic relation between the object of study and the study itself (Haraway 1997: 34): ‘He who is able to translate “others” interests into his own language carries the day’ (Latour 1983: 144). Pasteur translates the farmers’ fear of anthrax into hopes of a vaccine, and Latour translates Pasteur’s translations into semiotics and power struggles, both working to get their translations accepted.

In his early analysis of power from 1986 (‘The Powers of Association’), Latour proposes to ‘treat the exercise of power as an effect rather than as a cause’ (Latour 1986a: 266), and in this text on Pasteur he uses the same trope when talking about ‘interest’. His understanding of interests differs from that of his opponents in the sociology of science (the Edinburgh School), which he believed treated interests as something always given in advance due to belonging to a social group or category (for example, class). Concerning the increasing interest in Pasteur’s laboratory in the 1880s, he writes: ‘Their interests are a consequence and not a cause of Pasteur’s efforts to translate what they want or what he makes them want’ (Latour 1983: 144). Through a series of strategic moves, Pasteur manages to set himself, his laboratory and eventually his vaccine, up as so-called obligatory passage points—points in a network that all the actors must pass through to be able to pursue their goals (Callon 1984: 205–206)—for everyone with an interest in the health of their animals.

The main reason why Pasteur can do this is because he made his results easily readable, understandable, and translatable by creating inscription devices and inscriptions. ‘No matter the size, cost, length, and width of the instruments they build, the final end product of all these inscription devices is always a written trace that makes the perceptive judgement of the others simpler’ (Latour 1983: 161). These translations and formalizations are like chains of displacements turning everything into ‘the inscription on a flat surface written in simple forms and letters’ (ibid.: 164). This metaphor of signs on a flat surface is repeated by Latour on several occasions (Latour 1999a: 29, 38), and makes what is inscribed readable, visible and transportable, thus increasing the power of the scientists to dominate the field (Latour 1983: 164). Again, there is a parallel between what Latour claims Pasteur is doing, and what Latour himself is doing in his description of Pasteur. As we will come back to, Latour’s account of Pasteur’s account is also inscriptions on a flat surface, translating content into a transportable form.

Laboratories becomes ‘nice technological devices to invert the hierarchy of forces’ (ibid.: 164), and this is one of the places where Latour invokes

Clausewitz, stating that ‘science is politics by other means’ (ibid.: 168). Pasteur effectively ‘adds, to all the forces that composed French society at the time, a new force for which he is the only credible spokesman—the microbe’ (ibid.: 157). And by doing that he modifies society ‘by displacing some of its most important actors’ (ibid.: 156). However, an actor can never be postulated from the outset, but is a result of the effects produced that can be traced back to the actor. The actor is thus constituted through the series of trials performed in the laboratory. As Latour quips in a later text on Pasteur and lactic acid yeast: ‘Existence precedes essence’ (1993: 136), but once an essence is granted, an actor can be identified and named, as ‘a name of action’ (Latour 1987: 88). What Pasteur does, according to Latour, is to let the microbe speak for itself, but both are equally necessary: ‘Scientific facts are like trains, they do not work off their rails’ (Latour 1983: 155). This is one way of stating Latour’s constructivism, but what about his formalism?

Einstein

While Latour was doing fieldwork for what was to become *Laboratory Life* (Latour and Woolgar 1979/1986), he wrote a semiotic analysis of scientific papers. This analysis might be the first time he applied semiotic concepts and strategies in his ‘social studies of science’ (Latour 1976). From then on, semiotics has played an important role in many of his works, although increasingly supplanted from around 2000. What Latour does in the paper on scientific papers, is to ask how different textual operations are performed in the texts, and thus focusing on the form and not the content. This basic rewriting, or translation, of a subject matter into a formal and abstract semiotic language, is the mode of analysis in most early ANT accounts, and one of the most striking examples is the paper on Einstein’s relativity from 1988 (Latour 1988d).

In the process of translating Einstein into semiotics, and showing the usefulness of semiotics as a formal method for studying texts and narratives, Latour also proposes several methodological principles. For example:

[N]othing can be said of the enunciator of a narration if not in a narration where the enunciator becomes a shifted-out character. In consequence, there is no difference to be made between internal sociology—how to manage the population of actants that make up the content of a text—and external sociology—how to manage the population of actants that make up the context of a text.

(1988d: 27)

The context of the text becomes the content of the text by being thematized or expressed (in the text). In other words, ‘there is nothing outside the

text' (Derrida 1997: 159). This collapsing of text and context is but one of several distinctions that are challenged in the ANT account, along with distinctions between science and politics, and nature and culture.

The core issue in the analysis of Einstein's relativity is the question of reference and frame, and the ability to shift in and out of different frames of reference and move the enunciator freely between these frames. The uniting totality thus being the account itself: 'if it is possible to make all frames of reference equivalent (with respect to a few transformations) it is possible to accumulate all the others in the last frame' (1988d: 23). There are obvious parallels with Latour's own struggles with relativity, something which is also a persistent theme in his writing, as in a later text, where he calls semiotics 'the ethnomethodology of texts' (1993: 131):

By bracketing out the question of the referent (there exists only internal referents generated by the text itself), and by bracketing out the question of the locator (authors and readers are built into the texts, and may not relate to any authors and readers in the flesh), we let the texts deploy their own categories.

(Ibid.: 131)

The question of reference was also dealt with at length in the text *Circulating Reference* from 1995 (reprinted in *Pandora's Hope* in 1999), where a sample of soil from the Amazonian Forest is translated into a graph, and a piece of writing. 'Mobilizing its own internal referent, the scientific text carries within itself its own verification' (Latour 1999a: 56). However, for Latour, the act of referring is first and foremost 'our way of keeping something constant through a series of transformations' (ibid.: 58). This series of re-presentations can be presided over in a scientific text by the enunciator, who can shift in or out of a frame of reference and tell a true story about the object or phenomena in question. The truth of the story depends on the strength and quality of the chain of translations of internal referents contained in the story (Høstaker 2005: 14). It has nothing to do with a correspondence to any external reality outside the story.

In generalizing the lessons from the semiotic reading of Einstein, Latour formulates the general applicability of his method:

It is clear, for a start, that the various ways of shifting, the management of delegates, the question of their faithfulness, the difference between fact-writing and fiction-writing, the displacement without deformation, the building of equivalences, the keeping of metrological chains—all these problems are common to many disciplines and activities, and cut across what is abstract and what is concrete, what

is scientific and what is daily practice, what is political and what is technical.

(1988d: 20)

These problems can be seen as common precisely because they are ‘translated into another language’ (ibid.: 20), namely the formal language of semiotics. This translation is a way of rendering the problems commensurable, by abstracting and formalizing them in a new way, common to all.

There is a striking parallel between how Latour translates Einstein and how we could translate Latour’s translation of Einstein:

[T]he more meta-linguistic, the more abstract, the more theoretical is a study, the closer we are to the explicit analysis of the three characters of immutability, mobility and combinability, and the easier it is to offer an explanation of it in terms of centres of calculation.

(Ibid.: 25)

In applying concepts from semiotics, Latour’s study is both abstract and characterized by meta-language (semiotics), and thus itself explicable in terms of mobility and immutability. What he in effect is doing is setting up himself, his field (science studies) and his method (ANT) as a centre of calculation,⁴ and the concepts and categories of semiotics as immutable mobiles able to maintain the frames that the investigation comes across, as equivalent. From this point of view, no distinctions are being made between natural and social sciences, just as promised in the beginning: the programme ‘treats the natural and the social sciences symmetrically’ (ibid.: 4). This is also the main reason why ANT has become widespread in environmental humanities and social science studies of environmental issues, but what is ‘lost in translation’ when these issues are ground down through this programme and churned out in the form of the ANT account?

Formalism

Translation

In several places in his writing, Latour criticizes social explanations of science that simply re-write the explanandum in a meta-language adopted from another discipline, believing that this rewriting provides the explanans (1986a, 1988b, 1988c, 1996: 374, 2004c). Such an approach invites asymmetry, between natural and social sciences and between the explainer and the explained. Instead, he advocates attributing ‘equal status for those who explain and those who are explained’ (Latour 1988b: 175), by ‘following the actors’ and taking their own categories at face value,⁵ paying attention to the translations that the actors perform, without prejudging

what or who the actors are. This is what Callon initially called a sociology of translation, and which Latour, at various points describes as infra-language (Latour 1988c: 171), infra-reflexivity (*ibid.*: 172), critical proximity (Latour 2016: 469) and ANT (Latour 1996, 1999b). To fulfil this methodological programme, semiotics is called upon as an ‘observational language’ (Høstaker 2005: 8–9), but is there still a danger that the formalism inherent in semiotic analysis might make it into a meta-language, despite the opposite intentions? Or that the observational language influences what is observed, to the extent that the form becomes the content?

In *Give Me a Laboratory ...* Latour makes the following historical comparison:

Microbiology laboratories are one of the few places where the very composition of the social context has been metamorphosed. It is not a small endeavour to transform society so as to include microbes and microbe-watchers in its very fabric. If the reader is not convinced, then he can compare the sudden moves made at the same time by socialist politicians, talking on behalf of another crowd of new, dangerous, undisciplined and disturbing forces for whom room should be made in society: the laboring masses. The two powers are *comparable* in this essential feature: they are fresh sources of power for modifying society and cannot be explained by the state of society at the time.

(Latour 1983: 158, my emphasis)

To make such a comparison possible, Latour must perform a formal abstraction where most of the specificities of both elements in the comparison are erased. One can then ask what value the comparison has, apart from rhetorically underlining the view that Pasteur and his microbes changed French society. All the circumstances of the changes taking place in the wake of the new powers of microbes and the labouring masses are spirited away.

Later in the same paper, Latour makes a similar, but negative comparison between a politician and a scientist, based on the premise that strength is an effect of summing up mistakes:

The politician has no laboratory and the scientist has one. So the politician works on a full scale, with only one shot at a time, and is constantly in the limelight. He gets by, and wins or loses ‘out there’. The scientist works on scale models, multiplying the mistakes inside his laboratory, hidden from public scrutiny. He can try as many times as he wishes, and comes out only when he has made all the mistakes that have helped him gain ‘certainty’.

(Latour 1983: 165)

Again, the comparison is rhetorically effective and revealing, but purely formal, ignoring the goals and conditions of both scientists and politicians, as well as all their other differences. What are the lessons we could learn from this if we wanted to change society in a more sustainable direction?

In fact, the whole process of translation is purely formal, and seemingly automatic, without intervention from the translator, as in this definition from 1981, in a paper with Callon about scale, holism, and the lack of difference between micro- and macro-actors:

By translation we understand all the negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor or force takes, or causes to be conferred on itself authority to speak or act on behalf of another actor or force.

(Callon and Latour 1981: 279)

Effects are registered and described in a story, where someone or something gets the power to act. As in Callon's story of the scallops at St Brieuc Bay, this process appears to happen almost by itself, in the sense that the story apparently unfolds without reflexive interference. Following from the French scientists being the object of the study, it is their translations which bring other actors into the story, and only through means at their disposal, such as texts. Since these other actors are brought into the story as the translations of the French scientists, it is the scientists who have defined their role and possibilities for agency (see Chapter 3). Or the farmers in France in the 1880s, or the microbes in the petri dish. They are 'scripted' by the main actor (Akrich and Latour 1992), and their opportunities for resistance are limited to the telling of another story, elsewhere. There is no room for resistance, alternatives or friction *inside* the story, or within a translated actor.

This means that a politics of translation, where both translator and target audience can make judgements about the validity, meaning and effect of a translation, becomes impossible. Here, Latour's dismissal of critique or the critical gesture (2004c), makes perfect sense, given that the meaning of the Greek word *kritike*, which critique is derived from, is to discern. 'Down with Kant! Down with the Critique! Let us go back to the world, still unknown and despised' (1988b: 173). The reliance on the ANT account, of the actors' own definitions and the inability to move beyond their taken-for-granted views and motivations, also implies the inability of critique.⁶ In the ANT account, the producer of the account cannot discern between true or false, good or bad, nor discriminate between actors and their translations. The result is a form of empiricism, with little room for negativity, normativity, or speculation (Noys 2012). In including ANT

in his overview of contemporary affirmationist theory, Benjamin Noys implies that ANT is altogether unable to think of the future (*ibid.*).

Endogenization

A strong motive in a lot of structuralist writing is the hidden structures underneath the textual surface (Turner 2009; Althusser and Balibar 2009), but in the ANT account, the surface level and the underlying structures are collapsed. This is related to ‘the flat surface’ mentioned above, where levels of reality or hierarchies of actors and explanations are banned. ‘There is no way of ordering texts in layers because they are all equal. Texts, so to speak, live in a democracy, as far as semiotics is concerned’ (Latour 1988b: 169) There is nothing outside of the ANT account, and there is only one level in the account (see Chapter 3).

In the footnote where Callon redefines the concept of actant that he takes from Greimasian semiotics, he says that ‘the definition of groups, their identities and their wishes are all constantly negotiated during the process of translation’ (Callon 1984: 228, fn21).⁷ Translation is here understood as *the process internal to the story*, where the main actor(s) (the French scientists) translates other entities as actants in the story (fishermen, scallops, scientific colleagues). Continuing, Callon says ‘these are not pre-given data, but take the form of a hypothesis (a problematization) that is introduced by certain actors and is subsequently weakened, confirmed or transformed’ (*ibid.*: 228, fn21). This means that groups, identities, and their wishes or motivations or interests, are always intra-narrative, which is in line with the dismissal of context mentioned above, and the strict boundaries of the story. It also means that there is nothing outside the story, nor anything prior to the story, least of all actors, who only become actors within the story. The content of the story has no pre-history, apart from the storyline created by the story itself.

Latour’s dismissal of context means a dismissal of context as explanation, and the impossibility of knowing why an actor acts, apart from what can be deduced from the action itself, or what the actors themselves express. Instead, the actors in a story, like the French scientists in Callon’s account, connect to other actors, attribute interests, motivations and goals, and hence produce their own context, through the translations performed that becomes their story, that Callon utilizes as material in his story. This contextualization, done by the actors, is also a production of their own agency (Høstaker 2005: 18). They get the power to act through acting on and through other actors. ‘No matter how much power one appears to accumulate, it is always necessary to obtain it from the others who are doing the action—this is what I called the shift from diffusion to translation’ (Latour 1986a: 276).

By rendering social context in this way, ‘Latour manages to make the social immanent to language’ (Høstaker 2005: 18), thus keeping it within the story or the account produced. Later he develops the concept of ‘regimes of enunciation’ (Latour 2003) in an attempt to deal with the boundaries of his stories, but a regime of enunciation seems to exist independently of the account, and even conditioning the utterances recorded inside the story (Høstaker 2005: 19). In this way, regimes of enunciation imply context, but without explicating it.⁸

The general interiorization in the ANT account is further strengthened by the construction of an intra-narrative viewpoint in the form of ‘the observer’ (Latour and Woolgar 1979/1986; Latour 1987), or similar, in the ANT account.⁹ This opens up a space for non-reflexive anthropology, and a radical empiricism where the ontological status of the observer and the observed are the same. However, this symmetry, in the story told, depends on the existence of a storyteller outside of the story, which is the position from where the observer and the observed are positioned as symmetrical in the story (see Chapter 1). This position remains unmarked and unthematized, and is as such the opposite of what Haraway calls ‘situated knowledge’ (1988). Letting ‘the observer’ tell the story gives it an appearance of objectivity, and thus authorizes it as a scientific account. The absence of reflexivity turns the story into a black box in its own right, and reestablishes an asymmetry between opening the black box of scientific production in the objects of study, while creating a black box of the study itself. In effect, this strengthens the image of ANT and STS as a centre of calculation.

Representation or Construction?

When Latour and Callon constructed the ANT account, using the observer as a focal point, the observer translates elements in the story, in a diegetic or emic way, but the ANT account itself is constructed through abstract analytical terms, like translation, problematization, interest or enrolment. These concepts are abstract, formal and extrinsic to the narrated events in the story, but they give the story, or the account, a peculiar character. In Callon’s story, the scientists identify the fishermen as an actor or as actors, and they exist in the story as actors, but because of the analytical concepts employed and the nature of the story as bounded, there are no actors outside the story. It does not represent anything outside the story, but is a construction without a relation to anything outside. Taken together, these traits of the ANT account, and its style of narrating, invites an ontological reading and understanding of the narrative, and a resulting conflation of the story and the world.

This oscillation between ontology and epistemology is one of the defining features of the proper ANT account, and as we saw in chapter one of

this book, one of its roots can be traced back to the conflicting origin of the concepts of writing. In *Laboratory Life*, Woolgar and Latour refer to both François Dagognet and Jacques Derrida when they introduce the concepts of inscription and writing (Latour and Woolgar 1986: 88 fn2),¹⁰ but while Dagognet's concept of writing is related to materiality, relationality, and the non-representational, Derrida's concept of writing is more ideal, related to meaning, signification, and representation. Despite this double reference, Latour and Woolgar seem to make writing ontological *in* their story, focusing on inscriptions as products more than operations. This contributes to the conflation of story and world, and invites the question of where a politics of translation is to be found—in the story, or in the world, or both or neither.

At the same time, as the authors are engaging in a critique of previous methods for social studies of science, and trying to make better descriptions of what goes on in a laboratory, they must also hope that people will read *their* story as a more true, realistic, accurate or functional epistemological representation. A similar remark was made by Jouni-Matti Kuukkanen in a paper from 2012, concerning Latour and other ANT scholars' contributions to the historiography of science:

[A]lthough social studies of science has argued for abandoning progressivist stories of science, some recent approaches [e.g. Latour] entail a progressivist conception of history with regard to the history of historiography of science, because they imply that our understanding of the nature of science has become more accurate over the years.

(Kuukkanen 2012: 341)

Kuukkanen claims this tendency is due to a 'missing narrativist turn in the historiography of science', and that it could be rectified by extending the idea of symmetry to historical accounts of history. 'In particular, historiography of science has neglected the narrativism that highlights the role of the historian as a constructor of narratives' (*ibid.*: 341). Or, in other words, the role of the translator in the making of the ANT account.

A curious consequence is that what appear as deep structures in Lévi-Strauss, Propp, or Greimas, are brought to the surface in ANT (see Chapter 3), implying that roles and criteria for action are assigned from the start, from the viewpoint of the observer in the story. This turns the narratological enterprise on its head, where you could not know the role or the meaning until the end. Besides, in narratology the meaning of the story presupposes a genre and a deep structure of meaning underlying the genre, but this possibility is explicitly denied by the methodological rules governing the construction of the ANT account. In the semiotic theory of Greimas, as we saw in Chapter 3, the actors are endowed with a role in

the story, and connected to the role of the actor is what Greimas calls ‘the thematic investment of actors’ (see Chapter 3), in other words, their reasons for doing what they do, but these underlying structuring conditions for meaning are denied in the ANT account. In the ANT story, motivations and desires are taken for granted, without any relation to the genre of the story or the position of the actor outside the story.

Structures and Generalizations

Following from the collapsing of the deep structures of structuralism, the dismissal of context and the refusal of reflexivity is a peculiar logic of generalization in the ANT account. Or rather, an unwillingness and inability to generalize, and a similarly strong desire for formal abstractions. When Vladimir Propp wrote his *Morphology of the Folktale*, he read and analyzed 100 Russian folktales and made a morphological (or structural) typology of thirty-one functions in the stories. Similarly, when Claude Lévi-Strauss wrote his massive work on the structure of Amerindian myths (*Mythologiques*), he generalized from an empirical material. They both used an analytic language to perform their analysis, that of linguistics, but they also created some new concepts that were based on their generalizations from their analysis, such as ‘villain’ and ‘helper’, or ‘the raw’ and ‘the cooked’. With Greimas it was the same, when he reduced the number of functional possibilities, and abstracted further to narratives in general. Even though both the formal concepts used in the analysis, such as ‘binary opposition’ and ‘function’, and the generalizations produced through the analysis, such as ‘thematic investment’, end up as abstract concepts eventually, their creation, application and degree of abstraction is different. These differences disappear in the ANT account, since generalizations are not possible in the account, nor between accounts.

When Latour tells the story of Einstein’s story of relativity, he effectively translates it into formal and abstract semiotic terms that are made to be able to describe the structure of any narrative. The general statements made in Latour’s story are primarily statements about his own method and the merits of semiotics. Similarly in the analysis of Pasteur and anthrax, the general statements are either from some actor in the story, or the generalization concerns Latour’s method and the merits of semiotic analysis. On the one hand, there is a reluctance to make general claims, while on the other is a limitless generalization of the abstract. In the context of politics specifically, but also more generally (!), this combination of generalized abstractions, without abstracted generalities, implies a lack of specificity and situatedness, and might ‘tend towards a local (and paradoxically transcendentizing-ontologizing) de-specifying mimicry of a logic of generalization’ (Cunningham 2015: 99).

The Politics of Form in the ANT Account

As already noted, both the narrative of the Anthropocene (coming out of the Earth Systems Sciences) and the narrative of sustainability (coming out of the UN system) are formulated in abstract terms. These narratives tell us something about where the planet should and should not be heading: negatively and indirectly in the case of the Anthropocene; and positively and explicitly in the case of sustainability. But they don't tell us how to get there or avoid getting there, what should be done, nor who could be responsible for making it happen. Thus, neither of these narratives contain any theory of change, nor any meaningful subject of politics.

As shown in the analysis of the ANT account, ANT suffers from similar limitations and is thus not the obvious framework for translating calls for change into political action, despite its popularity in environmental studies. In the following, some of the political shortcomings in the genre and method of ANT will be addressed and supplemented by theories and methods of analysis drawn from other traditions.

The Absent Totality

The logic of explanation in the ANT account is nicely captured in this quote from Latour:

The stylistic conclusion is that we have to write stories that do not start with a framework but that end up with local and provisional variations of scale. The achievement of such stories is a new relationship between historical detail and the grand picture. Since the latter is produced by the former, the reader will always want more details, not less, and will never wish to leave details in favor of getting at the general trend.

(1988c: 174)

The empiricist tendencies in this logic are obvious, and even polemically embraced by Latour himself (2016: 469), but this rejection of totalities has wider implications. Edwin Sayes has condensed some of these implications in a comparison between Marx's concept of mediation and Latour's concept of translation (Sayes 2017). Both mediation (for Marx) and translation (for Latour) are the elements that constitute an explanation of a phenomenon, but for Marx, mediations are inserted between a phenomenon and a totality, linking the two; for Latour, translations can never extend beyond the textual account tracing the translations (Sayes 2017: 297–298). For Sayes, this gives Marxism several explanatory advantages: the investigation can be guided by a heuristic, providing guidance in what to look for and where; it can account for historicity in the form of the always already,

before and outside the investigation; and it makes the explanations concrete, in the sense that the phenomenon is placed in its proper relation to a structure which determines it and which it may in turn, determine.¹¹

In our case, this makes it possible to produce a politics of sustainability where conflicts, relevant actors, interests and responsibilities can be identified as part of a larger whole. As in this programmatic quote from Mike Davis in the introduction to his *Late Victorian Holocaust*: ‘Although equations may be more fashionable, it is necessary to pin names and faces to the human agents of such catastrophes, as well as to understand the configuration of social and natural conditions that constrains their decisions’ (2017: 11).

Politics of Translation

In *The Pasteurization of France*, Latour writes: ‘An idea [or practice] ... never moves of its own accord. It requires a force to fetch it, seize upon it for its own motives, move it, and often transform it’ (1988a: 16). However, the problem with translation in ANT is that the translations described in the account are taken at face value, without the ability to critically evaluate the content being translated, nor the translators. In the ‘democracy of texts’ that are the ANT account, symmetry reigns, which is a form of liberalism where everyone and everything are equal and with equal rights, in the account. But the translation *into* the account cannot be thematized, since nothing can exist outside of the account. This effectively eliminates the translator/author of the account, and thereby also any responsibility as translator. To think in terms of an ‘ethics of translation’ (Venuti 2010) or a ‘politics of translation’ (Gal 2015), one needs to acknowledge that some actors are more equal than others, and that structural positioning (in a totality) gives the actors in the story their ‘thematic investment’. Discerning between types of actors, and identifying the political effects of translation, requires a conceptualization of translation that extends beyond the formalism of the ANT account.

The oscillation between epistemology and ontology, and the dual view of writing as both ideal and material, results in a lack of clarity as to the status of the ANT account as representation or construction. The turn to ontology and to construction on the level of ontology,¹² seems to be an attempt at escaping representation and its problems, but implies a reductive understanding of representation.

Through a reading of Marx’s *Eighteenth Brumaire of Louis Bonaparte*, Gayatri Spivak probes the meaning of representation, and distinguishes between two different uses Marx makes of the term (Spivak 1988). Marx uses two different words, ‘*Vertreten*’ and ‘*Darstellung*’, to designate two different forms of representation. *Vertreten* is what we associate with political representation, to speak on others’ behalf, to represent someone

else, while *Darstellung* is to show something, to represent it (ibid.). In Marx, the distinction is important in relation to class, since a class is both a descriptive representation of a social position, but also a subject of politics (ibid.: 277). Both these aspects of representation are blurred in the ANT account.

The account itself (the story) is simultaneously a representation of the events, processes and objects studied, and an ontological construction. And the inability to make generalizations and the lack of context outside the story make it difficult to interpellate or to understand the formation of political subjects.

Subjects of Politics

The ANT account is generally more concerned with explaining how humans and things form assemblages through translation, enrolment, and trials of strength (Johnson 1988), than with explaining how humans form assemblies related to particular social or political struggles. Yet, the creation of such assemblies, or groups, parties, identities, or subjects, is crucial in producing social and political change.

In a critique of Latour's 'repudiation of critique' (Wainwright 2005: 121), Joel Wainwright contends that a form of 'hermeneutics of suspicion' is necessary to constitute political subjects: 'the things Latour worries over are concepts needed to build politically effective collectives' (Wainwright 2005: 122). Wainwright is especially concerned with Latour's unwillingness to acknowledge that some groups have certain interests based on their structural position, and that this might influence how they think and act. This is related both to the incapacity to make general claims, and to the absence of 'thematic investment' of the actors in the ANT account, resulting in a lack of general and non-diegetic motivations for action. A further consequence is the inability of the ANT account to account for non-diegetic conflicts that might be constitutive of the relations and translations inside the story. To be sure, roles or types of actors may produce conflicts that are registered in the story, for example between 'police' and 'thieves', but conflicts of interests based on structural positioning prior to or outside the story, cannot be articulated. This is the level of collective political agents based on conflicts of interests resulting from historical developments and structural positions, like class and class struggle.

Actors in the ANT account can have competitors and opponents in the account, produced through the account, but the account itself does not generate non-diegetic adversaries. The reason for this being that the account does not represent, as argued above. If the account is unable or unwilling to represent a situation, process, event, or condition outside itself, how can it articulate a conflict? And how can any subject of politics be constituted? In other words, if there is no representation there can be no articulation of

interests, which does not produce a conflict and thus there are no political subjects nor politics.

Conclusion

On the 20 March 2023, the Intergovernmental Panel on Climate Change launched the final part of its sixth assessment report, and again UN Secretary General António Guterres commented on the report: ‘This report is a clarion call to massively fast-track climate efforts by every country and every sector and on every timeframe. Our world needs climate action on all fronts: everything, everywhere, all at once’ (quoted in Harvey 2023). With its relational and non-essentialist approach to heterogeneous networks and assemblages, ANT can be a valuable resource in giving concrete meaning and content to ‘everything, everywhere, all at once’, but in order to translate this call into action, ANT needs supplements from other theoretical and methodological traditions. A radical, effective, and equalizing future politics of sustainability needs more than formalism, hermeticism, and uncritical symmetry.

In Latour’s final book, co-written with sociologist Nikolaj Schultz, many of these limitations are addressed, prompting Frankfurter Rundschau to call it ‘the pinnacle of recently-deceased philosopher Bruno Latour’s political-ecological project’.¹³ Actually, the whole ‘memo’ is a discussion of the conditions of possibility for ‘the emergence of an ecological class’, representing a potential majority of the population on the planet and constituting an autonomous political force organized around concrete social and ecological conflicts (Latour and Schultz 2022). In this discussion, the authors draw on Karl Marx, Carl Schmidt, and Karl Polanyi to name just the Karls, and thus expand on the original framework of ANT to accommodate ‘the new climatic regime’ (Latour 2018). They also point to actual examples of social conflicts, like the ‘yellow vests’ and the ZAD (zone à défendre) activists in France, thus giving concrete content to the discussion. As a supplement to the original framework of ANT, this is a more promising attempt at translating general calls to action into specific social and political changes.

Notes

- 1 For a critique of this waking up narrative, see Bonneuil and Fressoz (2016).
- 2 Both Donna Haraway and Bruno Latour allude to Clausewitz in their writing. See Haraway (1984) ‘Primatology is politics by other means’ and Latour (1983) ‘Give me a laboratory and I will raise the world’ (p. 168).
- 3 See also Høstaker (2005); Jones (2010).
- 4 Centres of calculation are in effect centres of power, where standardized numbers and inscriptions are collected and counted, and from where domination through standards, inscriptions and calculations are disseminated. See Latour (1986b and 1987).

- 5 See 'the ethnomethodology of texts' (1993: 130): 'we let the texts deploy their own categories' (ibid.).
- 6 See as quoted earlier: 'By bracketing out the question of the referent (there exists only internal referents generated by the text itself) and by bracketing out the question of the locator (authors and readers are built into the texts and may not relate to any authors and readers in the flesh), we let the texts deploy their own categories' (1993: 130).
- 7 See Chapter 3.
- 8 Other scholars in the ANT tradition have proposed other solutions to the problem of context, such as 'contexting' (Asdal 2012; Asdal and Moser 2012), or 'worlding' (Tsing 2010).
- 9 'In order to emphasize the fictional nature of the account-generating process, we place the burden of this anthropological investigation on the shoulders of a fictional character: the visit to the laboratory is made by "the observer"' (Latour and Woolgar 1986: 41).
- 10 See Chapter 1, p. 24.
- 11 'Men make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past' (Marx 1937).
- 12 The so-called ontological turn in anthropology (and everywhere else) is partly inspired by Latour and ANT (Heywood 2017: 4). For an overview of the STS field, see Woolgar and Lezaun (2013), and for an excellent critique, see Graeber (2015).
- 13 Quoted on amazon.com: www.amazon.com/Emergence-Ecological-Class-Memo/dp/1509555064/ref=sr_1_1?crid=XTLSLYGXCOV2&keywords=latour+schultz&qid=1687439031&srprefix=latour+schultz%2Caps%2C307&sr=8-1

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7 From Global Health to Planetary Health

Translating Registers of Human Health

Tony Sandset and Stian Brynildsen

Introduction: Planetary Health as Translation

The concept of health often figures into translation processes. Health designates a field of actions through the imperative of its promotion. In the simple case, there is the diseased individual calling for a diagnosis and treatment which has been formalized by medicine. In some instances, health also calls upon actions that go beyond the mere absence of disease, as exemplified by the WHO definition. The concept of health thus contains an implicit ‘imperative for health’, compelling the involved actors to act (Lupton 1995: 10).

At times the concept of health has been ‘scaled up’ to apply not only to individuals, but to social collectives, practices, and culture. In the eighteenth century, the *Sturm und Drang* movement in Germany began to speak of the disease and health of civilizations, which carried on into the Nazi movement that became obsessively concerned with the health of the nation (Porter 1999: 634). In the postwar European welfare states, health increasingly became an object of state management, with the establishment of social medicine and public health that directed disease preventive and health-promoting measures onto the public (Porter 1994: 195). Parallel to the establishment of public health within the nation-state, global health became the term for the health-disease field, covered by international institutions such as the United Nations. The concern of the nation’s public health was again ‘scaled up’, this time to apply to the population of the globe. The recent shift from global health to planetary health exemplifies yet another case of the ‘scalability’ of the concept of health.

This chapter will examine one of the most influential texts on planetary health, *The Rockefeller-Lancet Commission Report on Health in the Anthropocene* (RLC), published in 2015. The Rockefeller-Lancet Commission reintroduced the concept of planetary health and the text is seen as one of the most recent formulations (the term was first used in the 1980s) of the concept of health onto new domains (Prescott and Logan 2019). The Rockefeller-Lancet Commission was written by a

Lancet Commission as a way of investigating and analyzing the impact of human activity on the health of the planet, and subsequently illustrates that anthropogenic activities not only harm the planet, but that such harm also impacts human health. The Rockefeller-Lancet Commission is seen by many as a hallmark within research on the interconnections between planetary health and human health, and has been foundational in setting the stage for research on planetary health. As such, the Rockefeller-Lancet Commission made the concept of planetary health mainstream, beyond academic and health discourse. Planetary health can be understood as yet another example of ‘scaling’ of the health concept where, similar to the instances above, macro concepts like the environment, the planet, and the physical surroundings of humans are also imbued with a condition of health, and thus also the possibility of being diseased.

The report resulted from cooperation between the Rockefeller Foundation and *The Lancet*, where experts from both the fields of health science and environmentalism were solicited to inspire the creation of a new movement within public health. In this chapter, we identify global health as the preceding articulation of a dominant paradigm within public health, and claim that planetary health is a translation of this conceptualization of health. Both global health and planetary health were and are employed at similar institutional levels, most often being articulated by non-state actors and international organizations. For both planetary health and global health, there are several definitions and conceptualizations, which will be discussed for global health below. For the purposes of this chapter however, we will only analyze the Rockefeller-Lancet Commission formulation of planetary health, as this text has become one of the main sources cited in defining this concept.

We will show that there is a *translation* of the conceptualization of human health, when human health moves from the global to the planetary. We use translation to examine how meaning is transformed when it ‘crosses over’ from one register to another. Thus, translation here is an analytical perspective which we utilize to map the shift from global health to planetary health. We argue that this shift can be usefully analyzed by leveraging insights from translation studies, and in particular the concept of cultural grids (Lefevere 1999).

As the contributions in this book show, translation refers to both crossing over and going beyond some boundaries (Wintroub 2015a, 2015b). Analytically we are interested in the translations and transformations that occur when human health goes beyond the global, and into the realm of the planetary. Planetary health seeks to answer the call to think about sustainability and human health in the Anthropocene, by utilizing perspectives and epistemic thinking, that in many ways are similar to perspectives found in STS and the Sociology of Translation. Hence, in line with other

contributors to this book, we will also explore the limits and possibilities of the Sociology of Translation in relation to planetary health.

We will make the methodological case that while perspectives from STS and ANT are valuable within research on the interconnectedness of human health and the environment, ANT and STS have some important blind spots which incidentally also are found within planetary health. As such, we argue that to shed light on the blind spots of planetary health, and consequently also parts of the translational lexicon of ANT and STS, we need to return to some of the insights from literary and linguistic-orientated translation studies. Our contention is not that planetary health is a field specifically connected to STS or the Sociology of Translation, rather we want to argue that the shift from global health to planetary health can illustrate what happens when human health is ‘translated’ and inscribed within new registers. These registers, while not disciplinarily connected to STS and the Sociology of Translation, do share many fundamental epistemic similarities to STS and the Sociology of Translation, thus can serve to say something about symmetry between humans/nonhumans, between nature/culture, and of course about sustainability thinking.

We claim that the translation of global health to planetary health neglects the critical insights provided by concepts like ‘society’, ‘culture’, and ‘economy’ in explaining health issues and driving political change, insights that also were marginalized in ANT and STS. Global health has played a vital role in uncovering the ways in which categories such as gender, race, and class contribute to health disparities. As is argued in the introduction to this book, disregarding these categories risks erasing the political and cultural significance of prior translations and the insights behind them—such as those from ‘international health’ to ‘global health’, wherein the shift from international health to global health implied a greater reflexivity around concepts such as culture, class, race and gender, and their exploratory power within health. In line with the above, we might say that while translational perspectives from ANT and STS are useful, their disavowal of holism and totalizing concepts such as ‘society’ and ‘culture’ risk losing some of the historical context of texts. By leaning on perspectives from translation studies, our chapter will show that the shift from global health to planetary health must include attention to, and analysis of, the importance of concepts such as ‘culture’, ‘class’, and ‘race’, among others. We maintain that it is essential to recognize the effective history of these categories, and their impact on health. If not, the translation from global health to planetary health will be a form of treason towards the insights gained from decades of global health research on the importance of gender, race, class, and culture, moreover this might risk turning these concepts into becoming naturalized and depoliticized constructs. Accordingly, our argument is that by utilizing insights from translation

studies, we can expand the Sociology of Translation to better understand planetary health.

In the following, we will first present the theoretical implications of a translation from global health to planetary health as it relates to notions of symmetry, understood as a rejection of nature-culture dichotomies. Then we will outline this chapter's approach to translation applied in the analysis of this specific instance. Before turning to a close reading of the translation in the Rockefeller-Lancet Commission text, we will account for the network of linkages established with the notion of global health. In the close reading of the Rockefeller-Lancet Commission text, we will show how such linkages are lost in the translation from global health.

Nature, Culture, and the Question of Planetary Health

So, what is planetary health? And why is it relevant to study with reference to translation? In recent years, health sciences have been increasingly concerned with the interconnectedness of human health, animal health, and the environment. This development is behind the emergence of the concept of Planetary Health (Whitmee et al. 2015). There is thus an important shift from global health to planetary health, taking place within the discourse of health, with fundamental implications for sustainability.

The shift from global health to planetary health is an important development, akin to the earlier one from international health to global health. In line with A. Brown et al. '[w]e believe that an examination of this linguistic shift will yield important fruit, and not just information about fashions and fads in language use' (Brown et al. 2006). In the same vein, we too argue that it is important to look at the linguistic shift from global health to planetary health but do so from a perspective which focuses on the ways in which this can be seen as a form of translational move between what we will call conceptual grids.

On the face of it, planetary health seems to readily lend itself to analytical optics that utilize perspectives from STS and the Sociology of Translation. For instance, as observed in the introduction to this book, 'the Sociology of Translation, the generalized principle of symmetry, demanded that nature and culture, human and nonhuman actors should be dealt with using the same protocols of description and explanation' (see Introduction). In much the same way, planetary health stipulates a radical connectivity between humans and nonhumans, in that the health of both actors is predicated upon the wellbeing and health of the other. This radical connectivity can be reframed as a radical form for symmetry, that is, that the health of animals and ecosystems should be put on equal footing as human health. This symmetry is related to the 'generalized principle of symmetry' developed by Latour, which requires the analysis to explain the 'Nature-Society'

dichotomy instead of using them as ‘solid hooks to which we might attach our interpretation’ (Latour 1993: 95). The ‘error’ corrected by the invocation of the concept of ‘planetary health’ is the separation of health from the environment, which in turn is a result of treating nature as separate from society. The Rockefeller-Lancet Commission argues that current generations ‘leverage’ their current health against the health of future generations by failing to address environmental problems.

As a way of displaying some general tendencies within planetary health, we would like to offer a few reflections which can serve to signpost what planetary health is often said to be. One such case would be the emerging insights around gut microbiota and its impact upon both human somatic and mental health. In this case, the very health of humans is predicated upon the symbiotic relationship between microbes in the gut and human habits and lifestyles (Flux and Lowry 2020; Robinson and Breed 2020). The same can be said about microbes that inhabit human skin; human skin has long been seen as an important barrier between a dangerous world and human health. Microbes have traditionally been seen as a problem that the skin barrier seeks to protect humans from, and research has come to show that the skin microbiome is indeed a protective layer, a mix between human cells and bacterial cells (Prescott et al. 2017; Sanford and Gallo 2013). It is the equilibrium between ‘good’ and ‘bad’ bacteria which is the main difference between ill health and health in this case. However, even the categories of ‘good’ and ‘bad’ microorganisms have come under critique, as more and more research comes to show how important retroviruses have been in the very development of the species that is now called *Homo sapiens* (Van Blerkom 2003; Villarreal 2004).

Another case which is often highlighted is the connection between climate change, animals, and humans. The case of the reemergence of malaria in Peru is a good case in point. Climate change and deforestation are behind the return of malaria in the Peruvian Amazon; changing rain patterns are altering the pattern of mosquito development, leaving puddles containing the lethal larvae in areas where malaria had been nonexistent. These puddles are also connected to human timber industries, as heavy machinery enters the Amazon, leaving behind tracks where water can gather and mosquitoes can breed (Barros and Honório 2015; Olson et al. 2010). Moreover, the human timber industry and deforestation both force mosquitoes to migrate, as well as increasing the contact zones between the mosquitoes and the human loggers, as loggers are driven deeper and deeper into the Amazon in search of valuable timber to log. This provides a highly apt case for thinking about different scales, different networks, and different entanglements, all of which seem to readily be part of the STS toolbox for describing symmetry and networks.

As such, the symmetrical relationship between human health, animals, microbes, and the climate is an important one. In many ways, STS, and the Sociology of Translation, seem to be a perfect fit for planetary health. Moreover, as also noted earlier in this book, the theoretical framework of STS and Sociology of Translation has become influential within fields where the human and nonhuman interact and overlap in various ways, and where traditional social science has faced limits due to its anthropocentrism and its concomitant focus upon human agency and culture (see Chapter 3). Indeed, the dominant discourses on sustainability and sustainable development need perspectives from STS to counter anthropocentrism. This is nowhere clearer than in planetary health, hence perspectives from STS and the Sociology of Translation seem to be a perfect theoretical fit for working with planetary health.

How should we account for symmetry in planetary health when humans are cast both as the villain and the saviour? What happens in this translation of human health which now, more and more, centres around radical entanglements between actors in a planetary network, and even across time scales, such as in the case of sustainability thinking? In global health, much focus has been predicated precisely upon concepts such as ‘society’, ‘culture’, and ‘economy’ in order to provide explanatory power to human health issues, as well as providing political impetus for change. Moreover, global health has provided important insights into how categories such as ‘race’, ‘gender’, and ‘class’ come to produce health inequalities. This goes to the heart of another important insight mentioned in the introduction to this book: disregarding categories like ‘culture’, ‘society’, or ‘race’ threatens to purify our studies of their political and cultural past by ‘erasing the traces of prior translations that have become actants in the world through their effective history’ (see Introduction).

In the case of malaria in the Peruvian Amazon, we might then ask: while climate change clearly drives the spread and emergence of malaria, is it not also along circuits of capitalism that such contact zones between humans, timber and mosquitoes meet? A similar critique has been levied against the spread of other infectious diseases (avian flu and dengue amongst others), wherein the borderland between humans and animals might be affected by climate change, yet it is the drive for profit and capitalism that drives humans deeper and deeper into the wild, seeking profit and work (Hinchliffe 2017; Hinchliffe et al. 2013).

Such examples show how the uneven distribution of material wealth forces some communities to engage in various logging practices in order to carve out a living. At the same time, large international private companies also drive this process of exploitation, both of natural resources and of local communities, in the name of profit.

Approaches to Translation

As noted, we invoke translation to investigate how meaning is transferred or carried across from one domain to another—in this case, how notions of human health travel from global health to planetary health. Thus, we rely on translation as it is used by the Historian of Science M. Wintroub (Wintroub 2015a, 2015b). For Wintroub, translation means ‘to bear or carry, translation signifies movement and transference, transport and carrying over’ (Wintroub 2017: 92).

Translation in STS, and particularly ANT, is not a very clear term as it contains various nuances and has developed throughout the years (Callon 1984, 1986; Law 2004, 2006, 2009). Even within Bruno Latour’s work can we discern the development through the years, and at times the paradoxical shifts when it comes to what translation means (Latour 1987, 1996, 2005, 2012; Latour and Porter 2010; Latour and Woolgar 1986). We do not want to give an exhaustive account of translation as it figures in ANT or STS in general, as this has already become a domain in itself, with several articles on the topic (Freeman 2009; Høstaker 2005; Janicka 2022).

Complementary to this, translation in ANT and STS have come to signal (at least) three different things: first ‘political meaning, referring to the pursuit of interests or specific interpretations, frequently involving acts of persuasion, power plays, and strategic manoeuvres’ (Nicolini 2010). Second, translation also has a geometric and spatial meaning. Translation often involves a process of ‘scaling’ where concepts are expanded to apply to entities of smaller or larger scale. It encompasses the mobilization of human and nonhuman resources ‘in different directions’, the result of which is ‘a slow movement from one place to another’ (Latour 1987: 117). Finally, it has an important semiotic meaning, which concerns the transformation of meaning that occurs during the movement of the object in question. We are interested in following how human health, as a concept, changes meaning as it moves from the global to the planetary health framework: what new political interests are enacted? And how is ‘the transformation of meaning that occurs during the movement of the object (human health)’ played out?

A final guideline that we borrow from ANT in looking at the translation of human health, as it travels across from global health to planetary health, concerns the place of networks. We utilize network here as a way of analyzing how human health becomes embedded within new webs of significance as it is translated (travels across) and aligned with new actants. Conversely, we also focus upon the networks that are severed and the actants that are lost or not carried across in the translation from global to planetary health.

Our interest, then, lies in the movement of human health as it crosses over from a register of global health to the register of planetary health. By

invoking the movement from one register to another, we might also note that we invoke Lefevre and conceptual grids (Lefevre 1999). Conceptual grids have been seen as ‘constructs, that reflect patterns of expectations that have been interiorized by members of a given culture’ (Bassnett 2007: 19). As such, translation becomes as much about attending to the ‘discrepancies in conceptual and textual grids as by discrepancies in languages’ (Lefevre 1999: 75, 76–77). Thus, we will show that the translation from global health to planetary health involves a reconceptualization of human health, and indeed humanity, precisely because global health and planetary health are different contextual grids. In doing so, we are also attentive to the ways in which new associations are created. This is what we see as the strength of translation, understood as movement between grids; it allows us to see conceptual transformation and change while also being attentive to what gets ‘left behind’ from older conceptual grids. This also allows us to offer a critique of the STS and Sociology of Translation, in that we maintain the importance of attending to concepts such as culture, race, gender, and class within the planetary health paradigm. This is not to say that we are willing to leave all of the insights from STS and ANT by the wayside in our analysis.

A key issue we take from Callon is how translation involves ‘creating convergences and homologies by relating things that were previously different’ (Callon 1980: 211). This is important in as much as the crossing over from one conceptual field to another, or one domain to another, involves specifically creating convergences between domains seen as separate, for instance, human and animal health, the global and the local. Translation thus involves the creation of something new out of something ‘old’; it involves transformations produced by the crossings of domains, and in addition, it also relies upon and produces new associations and material connections. Such new associations are intrinsic to the transformation of meaning-making within translation. As Janicka states:

Translation is not only a shift of one vocabulary into another, as in a strictly linguistic sense, but also a creation of a link that was previously non-existent, and that modifies the original two elements it now connects: each translation reshuffles the connections between elements (thus creating a new space–time).

(Janicka 2022: 6)

The move from global health to planetary health is contingent upon such creations of new links between human health and previously nonexistent ‘actants’, to use a figure in this book and from ANT. Moreover, the emergence of planetary health as a domain pertaining to politics, economy, and research modifies all the different elements such as ‘human health’,

‘climate’, ‘zoonosis’, and so on, in that planetary health postulates radical connectivity between all these actors. As Janicka states, ‘through this newly established set of relations, new beings emerge and a new common realm is created’ (Janicka 2022: 6).

This, of course, has important implications for how meaning changes as it is moved and translated. If translation implies transformation and the establishment of new associations and links, then there is also the chance that, in this transformation, some old associations and links will be severed. Using the language of network, we might state that while meaning can be transferred from one network onto another one, thus creating new associations, nodes and links, there is of course also the risk of severing old ones; after all, translation is also a form of treason (Law 2006). We will come back to this, but only to note that in carrying human health from the register of global health to planetary health, some things will inevitably be transformed and some concepts will fade into the background, while new conceptualizations of human health, causation, aetiology, and disease emerge. This is perhaps our point of utility *and* critique of STS and ANT’s version of translation, and perhaps the debated principle of symmetry.

The Source Text—or What Was ‘Global Health’?

Global health has been conceived of as rather a diverse concept. There is no one founding document which has provided a definitive definition of global health, nor is there an authoritative definition to be found. Several scholars have noted the need to consolidate the conceptual meaning of the term to delineate more clearly what it means (Beaglehole and Bonita 2010; Chen et al. 2020; Koplan et al. 2009). Let us therefore first look at a few definitions, to get an overview of how the field is defined within research, before we give a brief account of how we went from international to global health in the first place.

One of the most famous and recent definitions comes from Koplan et al. who state that:

global health is an area for study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaboration; and is a synthesis of population based prevention with individual-level clinical care.

(Koplan et al. 2009)

The definition focuses on global health as a means of improving health and achieving equity in health for all people worldwide, and is transnational in

scope, in that it focuses on health issues that go beyond the borders of the nation-state. This resonates with other definitions such as the following: ‘health issues that transcend national boundaries and governments and call for actions on the global forces that determine the health of people’ (Kickbusch 2006). Finally, a very short definition comes from Beaglehole and Bonita, who state that global health is ‘collaborative international research and action for promoting health for all’ (Beaglehole and Bonita 2010). While this is not the space to go into the details of the many discussions on what global health is, it is worth mentioning that some of the controversies that have been spurred on in defining what global health means have focused on the meaning of ‘global’ in global health; how global health differentiates itself from public and international health; and finally, what types of health problems does global health tackle and on what scale.

For our purposes, it is interesting to note that in the definitions above, global health is firmly focused on humans. Moreover, it has a clear normative tendency to ensure equitable health for all people worldwide. This focus on equity is important as it opens up for analysis that focuses on social determinants of health, issues of social justice, and draws in turn on analysis of the role of gender, race, class, caste and disability in explaining health disparities globally. This will become important later, in our analysis of the translation of human health from global health to planetary health, and how equity is framed within the grid of planetary health.

The definitions cited above are perhaps not so strange if we consider how the shift from international health to global health began the translation process, which we are concerned with in this chapter. Others have written well on the development of global health, starting with its roots in colonial or tropical medicine, through international health, and then to global health (Birn 2009; Brown et al. 2006; Packard 2016), but we can summarize some of the main tendencies involved in the shift from international to global health. Indeed, what we call shifts here could be said to follow many of the same translational processes which we argue for in the change from global health to planetary health. In short, we could say that the ‘shift’ from international to global health is itself a history of translation, from one conceptual grid to another. We will leave it up to others to map this translational history, but suffice to say that we see the transformation from international to global as another instance of translation.

This can, perhaps simplistically, be summarized as a change, which was spurred on by an increased awareness of the effects of globalization. Experts argued that ‘the adjective “global” instead of “international” highlights the irrelevance of geopolitics in addressing health’ (Bunyavanich and Walkup 2001) and that ‘global health raises an expectation of health for all, for if good health is possible in one part of the world, the forces of globalization should allow it elsewhere’ (Bunyavanich and Walkup 2001). The shift was

necessary, it was argued, due to the interconnectedness between people in a globalized world. This interconnectedness brought with it a 'global interconnectedness of people, goods, habits, and pathogens [which] has an impact on the health status of individuals and populations. Movements of people and goods across borders accelerate the spread of diseases and increase the potency of bioterrorism' (Bunyavanich and Walkup 2001). This interconnectedness spurred on a focus on surveillance of pathogens and the need for a global effort to monitor and intervene in the case of infectious disease outbreaks. As such, the proponents of global health saw it as a way of signalling health in a globalized world.

This interconnection was less about human health and the health of the planet, as is the case in planetary health, than humans and nations. As such, global health draws on many of the arguments found in discourses on globalization, as with scholars such as I. Wallerstein (Wallerstein 1974). The focus on infectious diseases and the threat that these posed to the international community, for instance, led the United States to adopt the term 'global health' to describe the need for stronger collaboration in terms of epidemiological surveillance, and early warning systems. Indeed, one of the early terms that emerged was the phrase 'global infectious diseases' (Morse 2001), signalling that global health was more often than not about infectious diseases that could transverse national borders due to globalization. Other key publications from the United States which signalled the change, or translation if you will, from international health to global health, were *America's Vital Interest in Global Health: Protecting our People, Enhancing our Economy, and Advancing our International Interests* (Institute of Medicine 1997), and *Perspectives on the Department of Defense Global Emerging Infections Surveillance and Response System: A Program Review* (Miller et al. 2001). The message was clear: the international community was facing a global health threat and as such, needed a new framework to confront these threats.

The change in terminology was also linked to globalized trade and the effect that globalized trade had on human health. Key here was of course tobacco and the drug trade, but also the increase of 'lifestyle diseases' across the world, also seen as a product of globalization (Brown et al. 2006). Another important reason for going from international to global health was that within the international health paradigm, the main actors in health were the nation-states, with a few important exceptions, such as the Rockefeller Foundation. In the 1990s and early 2000s, the rise of non-state philanthropists, such as the Bill and Belinda Gates Foundation and the World Bank, signalled a shift in power wherein state actors no longer were the only 'international' actors (Brown et al. 2006). Whereas international health had predominantly been framed as a forum and field wherein nation-states could collaborate, for instance through the WHO,

the new world order saw non-state actors take on a new role, a global role, with global reach. This too spurred on a need to shift the framing of international health towards global health. Finally, an interesting, and for us in this book, a key influence for the shift from international health towards global health was, as Brown et.al state, the role that former WHO Secretary General Gro Harlem Brundtland played in this shift (Brown et al. 2006). Brundtland, who had been part of writing the report 'Our Common Future' (Commission 1987), took inspiration from the environmentalist movement and

was familiar with the global thinking of the environmental movement [and] was determined to position WHO as an important player on the global stage, move beyond ministries of health, and gain a seat at the table where decisions were being made.

(Brown et al. 2006)

Particularly, the focus on global health threats was seen as important in the translational process, going from international to global health.

To conclude, global health's main preoccupation has been the securitization of health, a focus on equity, and social determinants of health. In this refraction, concepts such as class, race, gender, and even culture have become pillars within the analysis of the malaise of global health.

Translation and Purification in the Rockefeller-Lancet Commission on Planetary Health

With the definition of global health spelt out above, we should also locate the meaning of planetary health as it figures in the Rockefeller-Lancet Commission. The Rockefeller-Lancet Commission defines 'planetary health' as follows:

Our definition of planetary health is the achievement of the highest attainable standards of health, wellbeing, and equity worldwide through judicious attention to the human systems-political, economic and social-that shape the future of humanity and the Earth's natural systems that define the safe environmental limits within which humanity can flourish. Put simply, planetary health is the health of human civilisation and the state of the natural systems on which it depends.

(Whitmee et al. 2015: 1978)

Planetary health thus includes both the health of humans (or the human civilization) and the 'state of the natural systems' which human health depends upon. This means that the nonhuman, nonanimal, and even the inorganic are included in the concept of planetary health. As we stated

in the introduction of this chapter, this focus is very much reminiscent of insights from the Sociology of Translation and certain strains of ANT, wherein nonhuman actants become *enrolled*, as perhaps Callon would have called it (Callon 1984). In the case of planetary health, nonhuman actors become enrolled into a network which provides the bedrock of human health, thus becoming indispensable as part of humanity's health. Human health is thus contingent upon, if speaking with ANT, a vast network of actants and actors. In the Rockefeller-Lancet Commission, such network-like structures are perhaps most clearly articulated through the concept of 'planetary boundaries' which illustrates the interconnectedness between various 'networks'.

Borrowing from Rockström et al (Rockström et al. 2009), the commission outlines nine parameters for planetary health called 'planetary boundaries': 'The planetary boundaries framework identifies those biological and physical processes and systems important to the maintenance of the Earth's functions that human beings rely on to grow and flourish ...' (Whitmee et al. 2015: 1979). These boundaries define a 'safe operating space' of parameters concerning 'climate change', 'novel entities', 'stratospheric ozone depletion', 'atmospheric aerosol loading', 'ocean acidification', 'biogeochemical flows', 'freshwater use', 'land-system change', and 'biosphere integrity'. Maintaining and promoting planetary health requires the parameters within these areas to exist within a 'boundary' value, and values beyond these boundaries imply higher 'risk' to planetary health. In Rockström et al., these planetary boundaries were conceived as parameters of environmental risk, whereas the Rockefeller-Lancet Commission translates these into parameters of planetary health, and the report aims to show how these are related to human health.

The commission establishes 'linkages' between these problem areas of environmentalism and human health. Detailed empirical evidence is presented to show how, for instance, global warming leads to undernutrition and increased spread of contagious diseases; deforestation leads to an increased spread of malaria; and how destruction of coastal wetlands in Louisiana made Hurricane Katrina more lethal (ibid.: 2009). The Rockefeller-Lancet Commission provides further connections, not limited to somatic diseases, by pointing out how 'healthy cities' are also environmental cities (ibid.: 2009). 'Active travel' (walking or cycling) both decreases the damage to the environment with reduced carbon emissions, and also improves health, as evidenced by epidemiological studies showing a connection between physical activity and a reduced risk of depression. Further, green space in cities can improve the local environment by reducing pollutants and increasing access to fresh water, which directly improves health, but also indirectly through 'cultural services including recreation' that may improve mental health.

The synergistic relation established between health and the environment has several implications. First, the health of the planet is related to the state of the environment. Environmentally degrading processes such as global warming, excessive resource extraction, pollution, waste, and so on, become diseases threatening the health of the planet. Issues of environmentalism and sustainability become displaced into the language of health and disease. Whereas environmentalism previously was displaced into a language of development (thereby making sustainable development the goal of environmentalism), the goal of environmentalism becomes health. Second, the displacement goes both ways, as establishing planetary and human health becomes necessary for the preservation of nature.

The interlocking of planetary health and human health in the Rockefeller-Lancet Commission effects a translation of health into the environment and vice versa. The commission expresses ‘hope’ because of the interlocked goals of both the institutional fields related to health and those related to the environment:

The interconnected nature of people and the planet means that solutions that benefit both the planet and human health lie within reach. Unparalleled opportunities now exist to improve governance, harness new knowledge, and exploit a range of technologies that can improve health and reduce environmental damage.

(Ibid.: 1979)

The promise is that measures taken towards reduction in environmental damage will simultaneously benefit human health. Such measures include governance, new knowledge and technologies that can address both issues at once. As argued above, the scaling of the concept of health to apply to the ‘planetary’ and environmental categories effects a decentring of the human subject by emphasizing the radical connectivity between the human and the nonhuman. This in turn blurs the division between society and nature through a causal connection between the two. The discourse on planetary health thus constructs a network of human and nonhuman actors, or as Latour would call it ‘hybrids networks’ which are the product of the ‘work of translation’ (Latour 1993: 11). In this sense, planetary health stays true to the ‘generalized principle of symmetry’ by collapsing the distinction between nature and society.

On the other hand, the displacement of an environmental discourse into the language of health and vice versa also effects a ‘work of purification’. According to Latour, purification and translation are two opposed but complementary processes characteristic of the so-called ‘moderns’. Latour’s hypothesis in *We Have Never Been Modern* was that a ‘the more

we forbid ourselves to conceive of hybrids, the more possible interbreeding becomes—such is the paradox of the moderns’ (Latour 1993: 12).

The turn towards planetary health could be understood in the same way. In general, it has proven difficult to mobilize effective political movements to address environmental problems. Since the publication of the Brundtland Report, the need for radical fundamental change has continuously been emphasized. The call for such change often encounters resistance on various levels. In the context of environmentalism, such resistance has often been twofold: stakeholders within developed parts of the world are reluctant to sacrifice their wealth, profit, or power for such ends, whereas representatives of the less developed part of the world have often emphasized how the burden of environmental measures are unduly passed onto developing nations. Why should they not enjoy the material wealth and profit enjoyed by Western countries for decades? There is thus a pressure on those who produce discourse intended to address environmental problems to promise solutions that avoid questions of redistribution of wealth, power, or influence. To avoid controversy and opposition for the sake of consensus, proposed solutions must somehow avoid bringing forth questions of equality and equity. The concept of ‘sustainable development’ promised to achieve this by making Western-style industrial growth of society compatible with sound environmental policy. Employing the concept of health in the context of environmentalism has a similar kind of effect in that it promises a reward, better health, as a co-effect of promoting effective environmental policy. This comes in addition to the consensus implicit in the health concept, precisely because problems originating in the social structure are thus subsumed under problems that have their origin in nature.

It is not surprising that a commission composed of two major health institutions, Rockefeller, and *The Lancet*,¹ would produce a text employing this strategy. We would not expect either to call for a general restructuring or overthrow of either capitalism or established power institutions. Enlisting a wide range of actors within the health field, with various tools of intervention focused on health, allows the commission to avoid a normative discussion on who must give up what in order to address environmental problems. The merit and prestige held by both Rockefeller and *The Lancet* within the field of health further strengthen the rhetorical impact of the commission’s text. The promise of ‘health-technocratic’ solutions to deal with environmental problems avoids the difficult debates about whether anyone is more to blame than others, or the appropriate degree of responsibility various actors should assume to effect equitable change. By ‘translating’ health promotion methods and solutions into environmental-promoting methods and solutions, the Rockefeller-Lancet Commission elicits a whole field of actors, practices, and technologies into the field of

environmentalism. In this sense, the Rockefeller-Lancet Commission does not have to invent a new environmental policy, but can instead present old solutions with strengthened justification. We already know that biking both promotes health due to the physical activity, while also reducing carbon emissions, and thus promoting the environment, but through the concept of planetary health such measures are made to appear further justified due to the translation by the Rockefeller-Lancet Commission.

Translating Health into Environmentalism

The above analysis has shown how the imperatives of health are mobilized into the field of environmentalism. The Rockefeller-Lancet Commission also effects a translation of ‘imperatives of environmentalism’ into the field of health. According to the Rockefeller-Lancet Commission, ‘the environment has been the foundation for human flourishing’

(Whitmee et al. 2015: 1974). ‘Flourishing’ in this case refers to the fact that ‘human health is better today than at any time in history’. The report cites increase in life expectancy, reduced child mortality, reduction of extreme poverty, as well as improvements in ‘public health, health-care, education, human rights legislation, and technological development’. Overall, ‘[h]uman beings have been supremely successful, staging a “great escape” from extreme deprivation in the past 250 years’. The report thus reproduces the old familiar narrative of civilization’s advancement from a Hobbesian state of nature into a modernistic utopian condition. While this narrative construction of the past centuries of history is usually accompanied by a hubristic optimism for the future, the report quickly deviates from this standard narrative by noting how this development has relied on a ‘leveraging’ of Earth’s supportive systems:

Throughout history, humanity has advanced by exploiting the environment to provide essential services and resources, but there is growing awareness that humanity’s historical patterns of development cannot be a guide for the future. At first sight, the fact that humanity is experiencing substantial and sustained improvements in life expectancy at a time when many ecosystems worldwide are degrading at unprecedented rates might seem contradictory.

(Ibid.: 1976)

This is called the ‘paradox of improved health and natural system deterioration’. The report cites a paper by Raudsepp-Hearne and colleagues (Raudsepp-Hearne et al. 2010) that attempts to explain this apparent contradiction. The first explanation given is that the majority of improved health stems from increased food services as opposed to other ‘ecosystem

services' that are diminishing. In other words, 'increased productivity of food systems has probably outweighed the adverse effects from the deterioration of other ecosystem services' (Whitmee et al. 2015: 1978). The second possible explanation is that technology has 'decoupled' human wellbeing from nature. The third possible explanation is that there is a 'time lag' between the deterioration of ecosystems and the health effects, which implies that numbers, such as life expectancy, give a false sense of improvement as it does not accurately track the future. Connected to this explanation is the possibility that rich nations might be able to increase their health despite the deterioration of the environment, by exploiting distant ecosystems. The report concludes that it has to end:

Humanity has undoubtedly benefited greatly, if inequitably, from the harnessing of the environment to human needs and demands, but the pace and extent of recent changes suggest that we cannot continue to exploit nature in the same way to provide for a world population that might continue to grow to the end of the century or beyond.

(Ibid.: 1979)

There is a recognition of an inequitable distribution of the benefits from this exploitation of the environment, but the text still refers to a 'humanity' that has, overall, benefitted greatly. The inequity generated by the exploitation of the environment is not framed as the central problem, and instead the supposed common 'humanity' is called upon to collectively realize the pressing need to improve planetary health, thereby also improving humanity's health. In translating environmentalism into health, issues of inequity or inequality are thus subordinated to the general problem of planetary health, and the Rockefeller-Lancet Commission promises that solving this problem will realize benefits for all without requiring a specific focus on issues such as race, gender or class. Meanwhile, the translation 'imperative of environmentalism' into health displaces other imperatives, such as reduction in health inequity.

'What Gets Lost in Translation': Class, Capitalism, Politics, and Culture

The translation from global health to planetary health can be understood as a process that both depoliticizes and naturalizes political antagonism in several ways, that is, in critical insights forged in the articulation(s) of global health are 'lost' in translation. They contain different conceptualizations of the world as well as human health, and indeed of humankind's place in the world. Moreover, the two concepts establish different disease aetiologies based on their conceptualization of disease causation. Finally, they also contain different conceptual grids in relation to how markers

such as 'class', 'economy', 'race', and 'gender' are placed within disease aetiologies. The avoidance of these 'holistic' or totalizing concepts can be somewhat paralleled in some avenues of Sociology of Translation and ANT and their approach to translation. As such, this creates blind spots both within planetary health and within some strains of Actor-Network Theory and Sociology of Translation, since they eschew the notion of totalizing concepts such as 'society' and 'culture'. By turning to the epistemologies of translation studies 'proper', for a lack of a better word, we argue that translation studies in the vein of Lefevere, Bassnett, and to a certain degree, Wintroub include a focus on precisely the importance of context and holism, a focus on the importance of attending to cultural grids and their influences on conceptual meaning-making. In this epistemology, categories such as 'race', 'gender', and 'class' are important to attend to in understanding processes of translation and meaning-making.

In terms of what gets 'lost in translation' from global health to planetary health in the Rockefeller-Lancet Commission, we want to note the following issues.

First, the text conceptualizes planetary health through a framework of parameters and boundaries, which presents planetary health issues as having quantifiable and measurable risks to human health. This framing of the environment and health as interlinked and manageable within certain boundaries can lead to a depoliticization of environmental issues. In other words, by couching environmental concerns within a discourse of health, these issues are effectively reframed as scientific or medical matters rather than political or social ones. This can neutralize or suppress potentially contentious political debates around these issues, as the conversation shifts from a question of a political or ideological stance to one of managing risk and improving health outcomes.

The translation of health into environmentalism, and vice versa, also involves a work of purification. This process further depoliticizes the subject matter by simplifying complex sociopolitical phenomena into more straightforward health or environmental problems. The issue of health is inherently neutral and universally relevant, and its deployment in discussions about the environment can therefore serve to reduce political antagonism. Moreover, the concept of planetary health also naturalizes political antagonism. By placing humans and the environment within the same health framework, the dichotomy between society and nature is blurred. This dissolution of boundaries reflects a naturalization process, where social phenomena (including political conflicts and power relations) are recast in terms of natural or biological processes.

Our analysis also points out how the discourse on planetary health bypasses some of the political and economic debates around environmental problems by promising that solutions which are beneficial for the planet will

also improve human health. This approach sidesteps controversial discussions around wealth and power redistribution, or the relative responsibilities of developed and developing nations in addressing environmental issues. By suggesting that everybody will benefit from the promotion of planetary health, political differences are downplayed or ignored. Finally, the above analysis pointed out how imperatives of environmentalism are translated into the field of health, effectively displacing other potential imperatives like the reduction of health inequities. This further naturalizes political antagonism, as it places environmental concerns within a health framework and downplays the sociopolitical factors that contribute to health inequities. In essence, the translation of global health into planetary health both depoliticizes and naturalizes political antagonism by framing environmental concerns within the language of health and risk management, and sidelines contentious political debates in favour of universally beneficial solutions.

As has been argued in Chapter 6 of this book, the ANT approach to questions of sustainability suffers from a limitation in its ability to conceptualize large-scale political changes. In parallel, planetary health, while being in line with the central tenets of ANT and the Sociology of Translation, also suffers from similar limitations in being unable to conceptualize political change. Planetary health loses the potency that could be found in global health's formulation of health problems, from perspectives sensitive to issues of race, gender, and class, by construing environmental and health problems as primarily problems of scientific and medical knowledge, and seeking universally beneficial solutions. In this context, it is also important to note who the translation from planetary health to global health is done by, and who benefits from it. As noted above, we would not expect Rockefeller and *The Lancet* to call for a general restructuring of society, given the vested interest these institutions represent. The conceptual grid of planetary health is devoid of certain 'totalizing' categories, such as race, gender, class, which were integral to the global health grid. This is partly in line with STS and ANT's 'grid' or conceptualization of 'totalizing' categories. Our argument is that by returning to an 'older' understanding of translation, one which focuses on how meaning moves between epistemic and cultural systems, we are better equipped to see what gets lost in translation, and subsequently also offer a critique of processes of meaning-making in the shift from global health to planetary health. In this refraction of translation, translation becomes the tool that allows us to precisely investigate how totalizing categories are effaced in planetary health and around topics of sustainability.

Note

- 1 Rockefeller has a history of focusing on zoonotic diseases. *The Lancet* is among the oldest and most well-known medical journals. *The Lancet* is published by

Elsevier, which is owned by RELEX, a British–Dutch multinational information company listed on the London Stock exchange (among top 100 companies in terms of market capitalization), the Amsterdam Stock Exchange and the New York Stock Exchange. The Rockefeller Foundation is a private charity established by the Rockefeller family in 1913 and is one of the most well-known entities of this kind.

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8 Indigenous Eschatology and Global Sustainability

Translating a Juruna Tale from Xingu

John Ødemark

Introduction: Ethnocide, Climate Change, and the Falling Sky

In 2012, the MYOO team, a group of artists and ecological activists, presenting themselves as a ‘community that believes in the power of stories and adventure to drive social and environmental change ... and to give nature a voice’, raised what they called a forked totem pole to oppose the construction of Belo Monte, a hydroelectric dam in the Xingu River in Brazil (Yahoo Lifestyle 2023). The Xingu is one of the most important rivers in southern Amazonia, and opponents of the hydroelectric dam warned of devastating effects for local communities, and global humanity. Deforestation and flooding would threaten local biodiversity and local modes of production, while the emissions of methane (a greenhouse gas far more potent than CO₂) would accelerate global warming. Moreover, the Belo Monte dam would lead to the forced displacement of around 20,000 people, many of them indigenous communities (Hall and Branford 2012).¹

In a text about the art performance published on YAHOO, the MYOO team explains why they chose to construct a forked totem pole by referring to what they call a ‘local legend’:

Introduced to the Juruna and Arara tribes who live in this area they learnt of the local legend of the Juruna tribe. Juruna legend purports that Sinaa will bring about the end of the world when he finally decides to pull down the enormous forked stick that supports the sky. ‘The day our people die out entirely, I will pull this down and the sky will collapse, and all people will disappear. That will be the end of everything’.

(Yahoo Lifestyle 2023)

Thus, a story attributed to a ‘tribal’ storyteller, the Juruna or Yudjá,² a riverine people living in the lower and middle Xingu, explains the symbol of the art protest. We also note that the tale contains a prophecy: the fall

of the forked stick that supports the sky will have fatal consequences for the world.

‘The falling sky’ is a motif in indigenous Brazilian thought and politics (see Kopenawa 2013; Krenak 2020). By citing the Juruna ‘legend’ about the end and the falling sky, the MYOO team apparently contributes to the deprovincialization of this motif as a message about planetary sustainability, but as we shall see, they also convert the tale into a ‘symbol’ of the end. In this context, it must therefore also be noted that the population of the Juruna has been so small that extinction has been a literal possibility; it has been estimated that the Juruna population has been as low as around 100 (Andrade and Santos 1990: 141).

In this chapter, I examine the intertwined chains of material and textual translations that lie behind the conversion of the Juruna tale into a ‘forked totem pole’ to oppose the Belo Monte dam. I show how a global discourse on humanity’s dependence on the Amazon rainforest and its indigenous peoples emerges through a translation that shifts the scale from the national to the planetary, and through reworking an image of cross-cultural dependency in Brazilian indigenist discourse. This image of inter-cultural dependency is articulated with the geographical materialization of a space for pre-colonial, indigenous nature and culture in the Xingu National Park in Matto Grosso, which was to serve as a memory of the original and pre-colonial Brazil in the national discourse.

I will relate the translation of the Juruna tale to ideas about translation and culture in Actor-Network Theory (ANT), the ontological turn and so-called Amerindian perspectivism in anthropology (see the Introduction to this book). Cultural theory has recently looked to the Amazonian and wider Amerindian perspectivism to challenge modernity’s understanding of categories such as ‘nature’ and ‘culture’. A salient case in point is the notion of Amazonian perspectivism developed by E. Viveiros de Castro (2002). This refers to the idea of an indigenous cosmology where all living beings are said to have the same kind of soul, but different bodies. This bodily difference explains why we see other species as different from humans, while fundamentally, all living beings are concerned with the same things, like marriage, war, and feasting. In contrast to the cosmology of Western cultural inquiry, it is claimed nature (bodies) is the *variable* here, not culture. In Western multiculturalism nature is the constant that is perceived differently from various culture-bound perspectives (for example, there is an Aztec and an ancient Greek worldview that construes things in the world and the relations between them differently).

As this book demonstrates, the sociology of translation played a significant role in the construction of ANT as a scholarly approach. Moreover, the notion of translation had a central role in this dismantling of sociological totalities and cultural ‘holisms’ (Tsing 2010). Simply put, translation

enrols different kinds of actors in networks, and society is a product of translations that align actors in, and with, networks comprising human and nonhuman *actants*. The sociology of translation, then, (purportedly) does not insert translation into a preformed model of the social, or a certain cultural or political order, but traces how societies or cultures are produced and sustained by translation (see Introduction and Chapter 6). Surprisingly, B. Latour views Amazonian perspectivism as a ‘bomb’ undermining the cleavage he associates with the modern demarcation of the relation between nature and culture, regardless of the holistic framing (of the ‘Amazonian’ and even ‘Amerindian mind’) and the absence of a concern with translations, networks, and histories in perspectivism (2009: 2; see also Chapter 4).

In the following, I will critique the lack of concern with such historical traces of cultural contact and translations in Amazonian perspectivism, the ontological turn, and ANT. The notion of ‘worlding’ is central to my historical and critical project. A. Tsing introduced the term to balance the urge to ‘flip back between claiming and refusing context’ (2010: 48; see also Chapter 6), and thus to find a middle ground between ANT, and its avoidance of context, and anthropology—a discipline that is based upon a holistic premise, in the sense that its founding heuristic is to find the meaning of actions or sentences by putting them in the right cultural context, to save informants from universalist misinterpretation (Argyrou 2002). Citing G. Spivak, Tsing defines ‘worlding’ as ‘the always experimental and partial, and often quite wrong, attribution of world-like characteristics to scenes of social encounter’ (ibid.). The notion of the ‘Third World’—which Spivak uses to begin a reflection on ‘worlding’ (Spivak 1990: 1)—is a good case in point. In Spivak, this constructs a political geography based upon relations between different ‘worlds’: the first, the third—and the second. In the process, this usage also constructs epistemic objects, the Third World, investigated in disciplines like ‘area studies’—and divides the world into geopolitical zones associated with different values and ‘key words’ (like ‘liberty’, ‘oppression’, ‘development’).

While ANT is right, Tsing asserts, ‘that it would be a mistake to imagine worlds as rigid containers into which we can pour our empirical material’ (Tsing 2010: 50), contextualization and/as world projection or world-making has to happen, ‘even when it is downplayed or denied in lavish descriptions of formal methods’, and actants in stories/networks can only be understood as forming parts of relationships in ‘semiotic worlds’, that is, as narrative figures against a meaningful ground (ibid., my emphasis). The missing theorizing of the (inevitable) context in ANT ‘has the result of limiting the networks to the social assemblages closest to his [Latour’s] informants’ (ibid.). In sum, ‘worlding’ is an inevitable aspect of all understanding; much like ‘prejudice’ and ‘horizon of expectation’ in

hermeneutics, ‘worlding’ furnishes perceptions and data with a meaningful ground against which they can become meaningful figures, ‘relevant webs of relationality’ and a ‘world, in which the data form a pattern’ (ibid.), but also become figures relevant for a research project or for political purposes. Worlding thus also has a translational aspect, ‘when we can’t identify figures, we grasp at the worlding projects of our informants and start making up our own in translation of theirs’ (ibid.).

Bearing this in mind, Tsing argues for an analysis of worldings that ‘ask how informants as well as analysts imagine the *relationality of worlds* that are self-consciously unfamiliar—whether across cultures or continents or across kinds of being and forms of data’ (ibid., my emphasis). Worlding has, however, also an explicit textual aspect in the text construction and texting that creates objects and concomitant worldings. As Tsing says, her source for the concept is Spivak, who ‘writes of Orientalist worldings in which Western thinkers impose their own logic of relationality on an imagined East ... this worlding actually is also a texting, textualizing, a making into art, making into an object to be understood’ (Tsing 2010; see Spivak 1990: 1).

I will show how material and textual aspects and traces of a national discourse enable translations of the Juruna tale that create new eco-cultural ‘worldings’ based upon epistemic objects produced in national ethnography and folklore, but also by articulating intertextual references to the structure of Scripture. In the first section, I examine the Juruna tale, relating it both to its Brazilian colonial and disciplinary history and a wider eco-cultural discourse on Xingu, the Amazon and climate change (I). Next, I engage with some salient ideas about translation in recent cultural theory and translation studies by focusing upon the ontological turn, Amazonian perspectivism, and the idea of the ‘modern constitution’, and I confront these with more text-orientated approaches (II). Finally, I revisit the Juruna considering the theoretical inquiry in the previous section, and demonstrating the overlapping translations that are behind the ‘forked totem pole’ (III).

I

The Story World

The central character of the tale cited by the MYOO team, Sinaá, is not further identified in the web text where the art performance is presented. Here it is just taken for granted that Sinaá (and other indigenous gods?) can foretell the end of the world. I will return to the translation history of the tale in detail below. For the time being, I am only concerned with the thin ethnographic description of the tale and its characters provided for the (casual) reader of the text on the YAHOO web portal, and how the

‘logic of relations’ in the story world offers itself to certain worldings. Let me therefore first unpack the internal narrative logic of the cited tale, what narratology would call its *fabula*, that is, the causal and chronological chain of events depicted in the narrated world (Bal 2009: 181ff.). A set of events and human relationships in the *fabula* seemingly explain the significance of ‘the forked stick that supports the sky’:

- If the Juruna die ‘entirely’;
- The character called Sinaá will pull down the stick that sustains the sky;
- This leads to the final event, ‘the end of everything’.

Thus, the collective death of the Juruna will cause Sinaá to destroy the world—such is the logic of the story world. In this chain of narrated events, the Juruna are firmly placed at the centre of a cosmology; *their* survival *sustains* the world. The crucial cosmological role of this people is a function of two interwoven relationships:

- Between the Juruna and Sinaá (who has the power both to destroy the world and maintain it), and
- The Juruna and all other people.

Perhaps we see traces of a Juruna worlding here: a fear of collective destruction articulated with a pattern of relationships between the Juruna and other people. However, this (possible) internal patterning of relations between a chosen people, a god, and the world, is also resembling other (ethnocentric) cosmologies, like Judeo-Christian, and the relations between God (Sinaá), Israel (the Juruna) and the world. Overlapping eschatological horizons, or worldings, we could say, form around the tale about the end, and make it accessible to the reader visiting the YAHOO website.

Human Survival and ‘Traditional’ Tales—A Global Discourse

It appears to be both the narrative content and the assertion that the tale was told by a ‘tribal people’ that authorize and explain the paper art. Thus, a relationship between the teller and the tale, the mediator or translator (that is, the MYOO team), and the global, English reading target audience, is also formed *around* the tale and the world depicted in its *fabula*. The story world comes from a particular cultural world, a particular worlding of indigenous tales, which has both a semantic and a material history.

The MYOO group followed in the footsteps of other artists and celebrities, like Sting and James Cameron, to the Xingu, to oppose the construction of the Belo Monte dam. *Avatar* director Cameron made a documentary

about the struggle against Belo Monte, *A Message from Pandora* (Cameron 2010). Here he asserts that the fictive movie (Cameron 2009) *becomes real* in the indigenous struggle against Belo Monte: ‘*Avatar* happens here’, he maintains. Further, the film shows how the director, along with the leading actor, joins indigenous leaders and ‘lives *Avatar*’. For instance, we see how Sheyla Juruna, a leader of the Juruna people, paints Cameron’s face and greets him as ‘our new warrior’—a sign of alliance and cross-cultural collaboration eminently readable in Western public culture (*ibid.*). Moreover, Cameron introduces the story of the struggle against the hydroelectric dam with images connoting global destruction—atomic mushrooms, the iconic apocalyptic sign from the Cold War—and global environmental collapse. Indeed, on planet Pandora (the fictive planet where the action in *Avatar* is played out) it is the survival of a whole planetary nature–culture, not a ‘mere’ local, indigenous life-world that is at stake.³

A similar fusion of intercultural and planetary relationships is evoked by Sting and the Rain Forest Foundation. On the webpage of the Rain Forest Foundation, an NGO which Sting helped to start in 1989, we find the following origin tale:

Twenty years ago, Sting went into the Xingu region of Brazil for the first time. He observed the deforestation of the Amazon first-hand, seeing vast stretches of barren land that had once been forest. He had the intuition then that the forest was important, and that those who lived there would best protect it. Today, scientists are recognizing that intuition as true, especially in the context of global warming.

(Rainforest Foundation)⁴

Here a bond between people living ‘there’ and global humanity is formed: The survival of local cultures in the rainforest safeguards the forest, and ultimately, humanity, against ‘barrenness’. As forest keepers for global humanity, indigenous peoples—‘those who lived *there*’—will protect not only the local environment, but the planet, against global warming.

Similarly, the NGO Amazon Watch configures indigenous culture, ecology and planetary health and survival in the context of climate change:

The Amazon is home to hundreds of indigenous communities with traditions of stewardship dating back thousands of years. And yet the Amazon serves an even greater purpose for all life on Earth: it is the living heart of *our* planet and the heat pump of *our* global weather system. Without it, our chances of stopping global climate chaos are zero. *For no reason less than the survival of our species*, we need your support to protect the Amazon today.

(Amazon Watch 2014, my emphasis)⁵

The translation of the Juruna tale in the MYOO team's art performance thus forms a part of a broader paradigm or pattern of relating worlds, where nature and culture in Xingu (and the wider Amazonia) and planetary survival are linked.

The rhetorical force of this planetary message also hinges on associating the Juruna tale and indigenous speech with a traditional authority. This source of authority can be related to the textual 'function' that R. Barthes called the 'cultural code'.⁶ Taking a proverb-like phrase inserted in a literary text as his example, Barthes groups statements 'made in a collective and anonymous voice originating in traditional human experience' in this code (Barthes 1990: 19). Such statements

has been formed by a gnomic code ... one of the numerous codes of knowledge or wisdom to which the text continually refers; we shall call them in a very general way cultural codes (even though, of course, all codes are cultural) ... since they afford the discourse a basis in scientific or moral authority.

(Ibid.)

Accordingly, citations of anonymous and collective statements, like the Juruna tale, could be grouped in the gnomic or cultural code. In terms of content, the code expresses 'traditional human experience'. Hence, it also has a temporal aspect; it refers to statements that belong to the past that represent a deeper historical time layer than the statements made in the 'ethnographic present' of the text. But the statements cited above also fuse a localized and ancient indigenous wisdom with a concern for 'our' planetary future. And according to this pattern of narrative, cultural, and epistemological relations, a mutual bond of dependency is created between 'us' and a range of indigenous groups with ancient ecological traditions that are vital to sustain 'the living heart of *our* planet and the heat pump of *our* global weather system'. In the language of Barthes, this discourse has a basis both in *tradition* and *science*, the two different forms of knowledge that Barthes subsumes under the cultural/gnomic code. Hence, both indigenous knowledge/tradition and science here express the same view on nature and human destiny.

Erasing the Book—and National Colonization

A certain chain of translation appears to be *backgrounded* by the MYOO team, perhaps to strengthen the image of a traditional, oral storyteller, behind the tale about the end. The cited Juruna tale, however, is taken from a book; it is thus not a direct citation of oral tradition—although that appears to be implied in the web text accounting for the art performance (Yahoo Lifestyle 2023). Sinaá's forewarning can be traced to translation in global print culture, more precisely a collection of Xingu myths published

by Orlando and Claudio Villas Boas, first issued in Brazil as *Xingu—os índios, seus mitos* in 1970, and then translated into English, as *Xingu—The Indians, Their Myths* in 1973. Hence, there is a hidden or backgrounded (Briggs 1993) mediator or translator, writing and print culture, between the MYOO team and the oral tale from Juruna tradition. Orlando and Claudio Villas Boas, moreover, also cleared a path to Xingu for famous, artistic visitors, and hence also served as mediators and enablers for travelers to Xingu who calibrated the image of the planetary role of the place.

The Villas Boas brothers were explorers and *sertanistas* who became national heroes in Brazil. In the 1940s they led the Roncador–Xingu expedition that mapped the unexplored parts of Central Brazil, and thus opened the interior for further colonization. ‘In taking possession of its immense territory’, writes A. Ramos,

Brazil did not produce a Custer. Instead, it created icons of benevolent paternalism. The Villas-Boas brothers are the most famous sertanistas ... since the founder of modern Brazilian Indigenism, Marshall Cândido Rodon ... Turning Custer upside down, men like the Villas-Boas brothers, officially charged with the benevolent conquest of the Indians in Brazil, used seduction rather than weaponry to tame entire populations that had resisted contact with Euro-Brazilians ... Using trinkets as a strategy for ‘attraction’, ‘savage’ populations were contacted and ‘pacified’.

(Ramos 1998: 150, 149–154)

This colonization also led to the establishment of the Xingu Indigenous Park in 1961, an area of approximately 8,530 square miles reserved for ‘pristine’ Brazil nature and indigenous cultures, where the four major language families in Brazil—Tupi, Arawak, Carib, and Gê—were represented (Garfield 2004: 139; Villas Boas 1973: 3–53). The Villas Boas brothers served as the first directors of the park, and it was there that they collected the material to *Xingu—os índios, seus mitos*. The directors of the park underscored that the thirty-one myths in the volume were collected from ‘the best informants’ in the Xingu (Davis 1972: 42). As a result of the brothers’ translation and inscription of a tale from one of these informants—presumably speaking Juruna, a language in the Tupi family—Portuguese and English readers can now partake in the message about humanity’s dependency upon the Juruna.

On the back cover of the English 1973 edition, a relation between local, indigenous cultures and what appears to be ecological issues of world-historical importance is established. In the paratextual space of the cover, the book is presented as ‘[t]he classic account of the Xingu Indians and their culture, the greatest ecological challenge of the Twentieth century’

(Villas Boâs 1973: n.p.). There is no further explanation of the collocation of these themes (indigenous culture, global ecological challenges) here—but the relationship is so important that it is pinpointed in the English translation’s paratextual rewrapping of the Brazilian text. Hence, the fused cultural and ecological horizon, that we identified above, seems to be at work already here. The Villas Boâs brothers, then, furnished international travellers to the Xingu with both material and textual paths to follow.

To be sure, we also find the tale about Sinaá in the book. In both the Portuguese and the English versions, the book fittingly ends with the Juruna tale and the ‘end of everything’. We now easily observe that the English translation is the source of the MYOO team:

<i>Villas Boâs</i>	MYOO
Finally, Sinaá showed the Juruna visitor an enormous forked stick that supported the sky and said, <i>‘The day our people die out entirely, I will pull this down, and the sky will collapse, and all people will disappear. That will be the end of everything’</i> (Villas Boâs 1973: 249, my emphasis).	Juruna legend purports that Sinaá will bring about the end of the world when he finally decides to pull down the enormous forked stick that supports the sky, <i>‘The day our people die out entirely, I will pull this down and the sky will collapse, and all people will disappear. That will be the end of everything’</i> (Yahoo Lifestyle 2023, my emphasis).

These literary sources texts are, however, erased in the explanation of paper art performance. Moreover, by adding ‘totem pole’ to the expression ‘forked stick’ the MYOO team associates the Juruna with an iconic item of North American Indians in popular culture, thus inscribing the Juruna in the general category of indigenous Americans.

How should we relate to such essentializing worldings of the indigenous and the environmental? Not using the term ‘worlding’, but thematizing the same kind of framing of otherness, Tsing states that fear of ‘simplistic representations of tribal culture’ (Tsing 2008: 409, 392) may lead to the dismissal of ‘the most promising social moments of our times’, namely alliances between ‘tribal’ peoples and environmentalists. However, she also recognizes that empowering ‘green development fantasies [worldings]’ (ibid.: 393) are articulated in Western language and based upon stereotypical conceptions: ‘[O]ne must have a distinctive culture worth studying and saving’ to enter international eco-cultural alliances (ibid.: 409; see also Ødemark 2015). Hence, a certain ideology of culture and purity comes into play in development policies and NGOs. C. Geertz distinction between “model of” and a “model for” (1973—could be added to the idea of worlding as a depiction of something (the Third World, authentic ‘tribal culture’) inevitably implicating a relation to the depicted thing (like

development aid). We could now say that specific notions of cultural distinctness and authenticity serve as both a model *of* the real (there *are* tribal cultures more authentic and traditional than others) as well as a model *for* the formation of eco-cultural alliances between indigenous peoples and NGOs (alliances *should be* formed with ‘pure cultures’ living close to nature and thus worthy of ‘salvation’).

Having or representing a ‘distinct culture’, however, also implies translating into the worldmaking language and semantics of the ‘West’ (Tsing 2008). Or, as M. Carneiro da Cunha asserts, deploying Hegelian and Marxist language, it implies passing from being ‘culture *in itself*’ (in the text of anthropology, for instance) to having ‘culture *for themselves*’, that is, turning ‘culture’ into a category of self-identification and using it to map one’s own identity and world (Carneiro da Cunha 2009: 3). However, building alliances founded upon such preconceptions regularly implies conforming to ‘simplistic representations of tribal culture’ (see Tsing above)—to a logic of non-relationships, that is, erasing or backgrounding histories of contact and prior translation—like the book on Xingu myth as a written source text for the art performance.

II

Theories of Nature, Culture—and Translation

My aim in this chapter is not to criticize the artists behind the ‘forked totem pole’. It is to use their translation (and the backgrounding of translation and contact) as a case to explore a wider problem at the interfaces of translation, cultural inquiry, and the imagery of sustainability. Many philosophical and cultural theoretical inquiries into the commensurability and translatability of knowledge claims from different cultures and historical periods have taken purified and bounded notions of cultures—or some adjacent notion such as ‘paradigm’ or ‘episteme’—as the point of departure for reflection upon cross-cultural and inter-epistemic translatability and commensurability (Hacking 1981). Accordingly, the tale about the artist ‘introduced to the Juruna and Arara tribes’ who ‘learnt of the local legend of the Juruna tribe’, could also be related to this paradigm of cultural purity. Likewise, more recent theorizing about culture and translation could be said to erase such prior ‘travel and translation’—much like Callon’s erasure of the cross-cultural translation between French and Japanese scientists from his story of the scallops. In Tsing’s wording,

Through worlding Japanese scientists, science, and scallops have left the arena of action, dismissed as irrelevant to the alliances that matter. Someone’s judgement of appropriate ‘wholes’ has blocked our vision.

(Tsing 2010: 48)

Arguably, a similar construction of ‘wholes’ is at work in perspectival and ontological anthropology. A case in point is R. Willerslev who identifies the difference between the so-called ‘Writing Culture paradigm’ (which focused upon representation, what Spivak called ‘texting’ and the world constructs created by texting, and the implication of anthropology in colonial history) and the ontological turn by pointing to ‘their disparate take on the recurrent problem of “cultural translation”’ (Willerslev 2016: vi; cf. Clifford and Marcus 1986):

The Writing Culture paradigm sees the problem as one of ‘representation’—that is, people impose different schemes of meanings upon the same reality, which is considered exterior to cultural representation ... In this sense, it is presumed that there is a basic level of univocity—one that underlies what others and we are saying. The anthropology of ontology, in contrast, presupposes that an enormous gap divides indigenous ontologies from that of Euro-America. Hence, there is no common baseline that would work as a mutual referent for transcultural dialogue, since ‘we and they are never talking about the same things’.
(Ibid.)

Here, then, ‘culturalist’ approaches are denounced for reproducing what we could call a worlding based upon a fundamental epistemological and ontological asymmetry—the idea of a plurality of cultures with divergent representations of the same natural world. If we and they are *never* (not sometimes or often, but never) talking about the ‘same things’, things will never provide a cross-cultural warrant for translation (cf. Assmann 1997). This celebration of incommensurability and radical otherness, however, often also implies backgrounding the travel, translation, and hybridity that both Writing Culture and postcolonial cultural studies foregrounded.

The ontological turn is also highly sceptical of the epistemological orientation of the Writing Culture movement, which analyzed prior anthropology—reflexively—as a discipline with a long history of *misrepresenting* ‘others’, that is, turned the method of cultural analysis against itself but never left epistemology and representation. M. Holbraad, an influential advocate of the ontological turn, can serve as an example. The notion of ‘culture’, he asserts,

instantiates a particular ontological position, i.e. a particular set of assumptions about what kinds of things exist. There exists a *world*, whose main property is to be *single and uniform*. And there exist *representations of the world*, whose main property is to be *plural and multifarious* depending on who holds them. Ontologically speaking, this is of course a ‘dualist’ position, related to a whole field of

interlinking dualities: body and mind, practice and theory, noumenon and phenomenon ...

(Holbraad 2010: 181–182, my emphasis)

Hence, the worlding created by ‘culture’ is a product of a philosophical tradition, and essentially, far older than the discovery of culture in the early modern period, or with the emergence of modern cultural anthropology in the late nineteenth century. History and empirical networks appear to be irrelevant. We could contrast that with Z. Bauman, for whom the discovery of ‘culture’ leads to an intellectual revolution, a new paradigm that creates a new object of inquiry within the horizon of a new ‘world view’—or worlding—of social life.

The concept of ‘culture’ was not coined until the eighteenth century. There was nothing before in the learned language, not to mention everyday language, which even remotely resembled the complex worldview which the word ‘culture’ attempts to capture. This fact is shocking; it is also puzzling and intriguing to a contemporary reader, to whom the ‘fashioning’ of humans by their societies is one of the trivialities of existence. Today’s triviality, nevertheless, was once a discovery, and one which truly revolutionized the way human life was perceived.

(Bauman 1987: 81, my emphasis)

The ‘complex worldview’ which the concept of ‘culture’ aims to capture—that humans are shaped by the local communities in which they are born and live is thus a total novelty, which had no equivalents or predecessors in prior scientific and erudite discourses. But for Holbraad, ‘culture’ and the event of its discovery would merely be a part of a broader logic of metaphysical relations. This pattern of relations is pervasive, it organizes ‘a whole field of interlinking dualities: body and mind, practice and theory, noumenon and phenomenon’. When this pervasive and almost timeless pattern of thought is used to *world* culture, the discovery of the concept becomes a non-event; it is a function of an ancient system of dual classification and its underlying ontology—separating, we could say, fact from fiction, and *Sein* from *Schein*.

Holbraad further translates these polarities into visual metaphors:

I for one know of no theoretical positions in anthropology that depart from the basic assumption that the differences in which anthropologists are interested (‘alterity’) are differences in the way people ‘*see the world*’—no position, that is, other than the ontological one ...

(Holbraad 2010: 181–182, my emphasis).

The hidden assumption underpinning the ‘cultural worldview’—to use Z. Bauman’s term for the new worlding accomplished by the discovery of the

concept—is that (cultural) alterity consists of shared symbolic representations, which serve as optical lenses between different groups (cultures) and the real world. The entailment of this metaphysical—and metaphorical—premise is that different cultures constitute different perspectives on the same world, on an invariable nature. The plurality of culture is a variation over the unity of nature, which in the last instance serves as the universal yardstick for all cross-cultural translation. As we shall see, this notion is also central in Viveiros de Castro and Latour.

Nature as Cultural Difference

The nature–culture distinction is also central in Amazonian perspectivism, which has been a major influence behind the ‘so-called ontological turns’ (Halbmayer 2012: 9). According to Viveiros de Castro, Western multiculturalism—that is, the assumption that the world consists of different cultures that construe the same nature differently—is reversed in Amazonian cosmology. Here the original state of all beings is culture, not nature. All beings have a soul and share the same cultural project, values, and categories; they just perceive their external bodily shape (nature) differently. While the Jaguar may seem (to us) to be sipping the blood of his prey, he is ‘really’, from his own perspective, drinking manioc beer. Thus, multiculturalism is turned into multi-naturalism.

O. Starn has observed that the worlding of Amazonian perspectivism is based upon ‘the idea of discrete and bounded cultures’, along with ‘the treatment of “other” cultures as a kind of laboratory’ and ‘the complete absence of any reference to history’ (Starn 2012: 193–194). Moreover, A. Ramos has attributed this ahistorical essentialism to a heritage from structuralism: ‘perspectivism replicates structuralism ... without the latter’s ambitious quest to arrive at a universal human mind frame’ (Ramos 2012: 483). Not least, this is due to the fact that perspectivism is based upon a structural comparison of distinct cultural wholes, a cross-cultural topology, that turn out to be perfect inversions of each other in respect to how they construe the nature/culture-relation, the key distinction in Lévi-Strauss and later ‘high-structuralism’ (see Turner 2009).

Despite the absence of a concern with the translations and history behind the perspectivist worlding, Latour views Amazonian perspectivism as a ‘bomb’ undermining the cleavage he associates with the modern demarcation of the relation between nature and culture. Moreover, he praises perspectivism as the beginning of ‘a bright new period of flourishing ... for ... anthropology’, and relates this to a situation of ecological peril: the bomb is about to go off ‘now that nature has shifted from being a resource to become a highly contested topic, just at the time ... when ecological crisis ... has reopened the debate that “naturalism” had tried prematurely to close’ (Latour 2009: 2). In a time of ecological crisis, then, there is an Amazonian

foreshadowing of a rupture with ‘the modern constitution’ (parallel to the one taking place in theory). In this ‘constitution’, science is deemed not to be a social product but to be derived from a sphere of nature that existed apart from humans. This demarcation, however, is merely a fact of theory. If we turn to socio-cultural practice, we find processes of translation and meditation that constantly interlink the two domains: all objects are essentially nature/culture-hybrids. These mediations/translations are balanced, however, by processes of purification that aim to clean up categorical confusions by reestablishing the borders between nature and culture.

In the context of cross-cultural translation, it is highly relevant that the modern dichotomy of nature and culture lies behind the cultural distinction between ‘us’ and ‘them’. Thus, while I shall be critical to the clearcut topology that enables Latour to prioritize the ‘hybrid’, he also furnishes me with a workable description of the indigenous as a worlding of a double relationship, between nature and culture and between tradition and modernity:

In order to understand the Great Divide between Us and Them, we have to go back to that other Great Divide, between humans and non-humans ... In effect, *the first is the exportation of the second*. We Westerners cannot be one culture among others, since we also mobilize Nature. We do not mobilize an image or symbolic representation of Nature, the way other societies do, but Nature as it is ...

(Latour 1993: 97)

It is this ‘export/import system’ that creates the anthropological object, cultures that do not uphold the division between nature and culture. Incidentally, we should also note that it also creates the need for the importation of cultural wholeness and ecological salvation, or ‘bombs’, imported from other places.

R. Bauman and C. Briggs have critiqued Latour for disregarding the texting, textual work, and linguistic ideology behind modernity.

Latour’s formulation ... left out two of the key constructs that make modernity work and make it precarious! We can refer to them in shorthand as language and tradition.

(Bauman and Briggs 2003: 5)

Bauman and Briggs thus underscore that textualization of oral culture and tradition played a key role in the construction of modernity—as its other. This textualization of ‘others’ through the ‘poetics of otherness’, however, they explain with reference to Latour’s notion of mediation and purification. Texts accounting for ‘pure, traditional cultures’ (like the Juruna tale in the MYOO teams version) had to be cleansed for traces of the

cross-cultural contact that were their empirical enabling condition, so that a pure ‘other’ could be represented:

The process by which oral tradition became the foundation of a poetics of Otherness, a means of identifying the premodern Others both within modern society (uneducated, rural, poor, female) and outside it (savage, primitive, ‘pre-literate’), is a vital part of the story we have to tell. This *poetics of Otherness*, at the same time that it provides for oppositional contrast between Others and moderns, also lays the ground for two broadly hybridizing processes, one founded on cultural relativism, the other on vernacularization. Cultural relativism comes into play as a hermeneutic orientation to the literature of the exotic Other, the Homeric Greeks, the ancient Hebrews, the Amerindian Indians. Relativism, in Latour’s suggestive formulation, renders alien words commensurable.

(Bauman and Briggs 2003: 14–15)

Bearing the ‘poetics of otherness’ in mind, we could say that perspectivism and the ontological approach appear to purify cultural investigations, not only by erasing the traces of past translations and implicit worldings (similar to those involved in the transformations of the Juruna tale), but also by downplaying the disciplinary directionality of translation in the academic and anthropological context. Consider the following framing of ethnographic data:

So what makes the ontological approach to alterity not only pretty different from the culturalist one, but also rather better, is that it gets us out of the absurd position of thinking that what makes ethnographic subjects most interesting is that they get stuff wrong. Rather, on this account, the fact that the people we study may say or do things that to us appear as wrong just indicates that we have reached the limits of our own conceptual repertoire. When even our best description of what others think is something as blatantly absurd as ‘twins are birds’ then we have grounds to suspect that there is something wrong with our ability to describe what others are saying, rather than with what they are actually saying, about which we a fortiori know nothing other than our own misunderstanding. The anthropological task, then, is not to account for why ethnographic data are as they are, but rather to understand what they are—instead of explanation or interpretation, what is called for is conceptualization.

(Holbraad 2010: 184)

Referencing basic hermeneutics and the notion that ‘data are theory laden’—along with Tsing’s notion of worlding—we could claim that any new conceptualizations of ‘data’ like ‘twins are birds’ will be indebted to,

and bear traces of, past notions of framing and conceptualizations. What counts as data is a result of prior calibrations of objects and assumptions in theoretical worldings, and disciplinary accepted ways of inscribing data in texts. Holbraad disregards the disciplinary history of ‘twins are birds’ as a shorthand for the problems of cross-cultural translation. It is indeed this status that allows ‘twins are birds’ to be invoked to illustrate a (purportedly) unprecedented approach to something familiar, so that we *can* talk about the same thing; the common complaint in anthropology is that previous approaches to (cultural) otherness have failed—precisely because they have failed to convey the radical otherness of the other (see Argyrou 2002).

To be sure, the cultural theories presented above represent a valid critique of the ontological debunking of the worldings and world views of ‘others’; for instance, by turning what appears to be literal statements into symbolic expressions of social and psychological realities (causal factors ‘we’ accept as real)—or treating the eschatology of others as mere fiction, symbol, legend, or myth. Searching for other people’s ontological autonomy could, in our case, imply stripping away external framings like ‘legend’, ‘myth’, and ‘symbol’, and let Sinaá speak *literally*, for himself about the end, but that would also imply a certain purification of history, and asking people to *remain outside history—and refrain from translation*.

For indigenous activists have now imported the export/import system and reemployed it for their own purposes—to export an image that can be calibrated with ‘Western worldings’. Through such importation and the concomitant exportation of an image of ‘distinct cultures’, indigenous peoples have in practice also moved out of the binary structure of the ‘modern constitution’, as well as the binary that grounds the discourse on perspectivism. In this shift, ‘culture’ has become a category of self-identification, as well as a vital rhetorical resource. S. Oakdale relates an anecdote that can serve as an example: In a bus, on the way to the Earth Summit a leader of the Kayabi people from the Xingu Indigenous Park advised his compatriots to take off all Western clothing and don garments that would indicate authenticity. By presenting themselves in traditional gear, he proclaimed, they would also be received as carriers of a distinct indigenous ‘*cultura*’. Thus, the Portuguese word was imported to reconceptualize Kayabi heritage from a culturalist perspective through an act of ‘self-purification’ (Oakdale 2004).

III

Translation and Coloniality

There are other networks of translation impacting the tale cited by the MYOO team. The teller of the Juruna text is implicated in a long, cross-cultural, and colonial history. The ethnonym ‘Juruna’ means ‘black

mouth' in *língua geral*, a Tupi-based creole from the colonial period. Consequently, the Juruna protagonists in the tale—and the people who sustain the world—form a part of a history of colonial identities, ethnonyms, and languages (Instituto Socioambiental, n.d.).⁷

The Villas Boás brother's collection of myths, moreover, is associated with a particular geo-cultural area already demarcated as a national park, and thus inscribed in the symbolic geography of the Brazilian nation. As the title of the book indicates, the tale, and the corpus of myths it belongs to, is an expression of that geo-cultural space, and an ethnic super-category (*índio*) that only is meaningful in the inter-ethnic world of colonialism and the nation, which opposes 'índios' as a totality to other 'ethnic' groups: *Xingu—os índios, seus mitos*.

Moreover, the category 'myth' in the title of the book is also translational in the sense that it implicitly transcends the local ethnological space—and adds a transcultural 'mental world' to the ethnic identity and geographical locality of the teller: 'Myth' as a genre or form of thought is already a deprovincialization, already found elsewhere—and in a certain anthropology and cultural theory, myth is also a universal 'function' of the human mind. The category is used to gather tales from diverse cultural contexts in collections that are made comparable, with reference to a cross-cultural yardstick, a genre, that makes widely different worlds and times comparable in the study of mythology—like ancient Greece and the Amazon in the era of C. Lévi-Strauss and the Villas Boás (e.g. Kirk 1970).

'Cultural relativism', Bauman and Briggs asserted, 'comes into play as a hermeneutic orientation to the literature of the exotic Other, the Homeric Greeks, the ancient Hebrews, the Amerindian Indians' (2003: 14–15; see above). They add that such relativism, 'in Latour's suggestive formulation, renders alien words commensurable' (2003: 14–15). The category 'myth' in the title of *Xingu—os índios, seus mitos* already serves as a 'measuring measure' in such relating (Latour 1993: 113). Latour asserts that cultures and natures have always been translated, and that the activity of relating/translating is undertaken with reference to measures that do not belong to the 'nature' of the things related (like tales from Xingu)—but to the metrics used in the commensuration ('myth' when it relates contemporary Amazonian and ancient Greek tales). Thus, instruments of commensuration/translation are always produced, and in analytical practice the problems of relativism are also solved:

Worlds appear commensurable or incommensurable only to those who cling to measured measures. Yet all measures, in hard and soft science alike, are also measuring measures, and they construct a commensurability that did not exist before their own calibration.

(Latour 1993: 113)

As instruments of translation, ‘culture’, ‘myth’, or even ‘ontology’, do not exist as (transcultural) essences, but are constructed and calibrated in disciplines such as anthropology—and as we shall see, in the ambivalent ‘poetics of otherness’ of folkloristics, *which simultaneously creates identity and alterity*. Latour’s point also implies that all entities are relational, products of translation and commensuration. This does not help us in assessing whether specific acts of translating and relating are better than others, or just and justified. It tells us that translation will happen, and it implies that even the purest entity is a relational construct, a hybrid. Such a translational epistemology cum ontology simply gives us no criteria for assessing different translations.

Moreover, Latour’s phrasing in the citation above—strangely—seems to assume that ‘worlds’ exist as a *background* for the work of translation and commensuration—before the ethnographers worlding of the ‘foreign’ culture: Worlds ‘appear’ and seemingly have a kind of existence before the philosophizing about translatability starts: ‘Worlds appear commensurable or incommensurable only to those who cling to measured measures’ (see quote above). Postcolonial theory and the Writing Culture movement maintained that such *worlds*—and the texting and worlding that compared them—were asymmetrical and unfair; that the ‘measures’ were taken from the West, and, for instance, attributed myth to ‘them’ and philosophy and science to ‘us’ (as the modern constitution also implies) (Asad 1986). This critique of asymmetrical—and unfair—translation of others in the language of the colonizers also lies behind Spivak’s idea of ‘orientalist worldings’ created by texting that ‘impose their own logic of relationality on an imagined East’ (Spivak 1990: 1; Tsing 2010). Here, then, worlds (the Orient, the Third World) are created by texting and worlding, not found and then translated.

In translation studies ‘proper’, A. Lefevere also asserts that translations conducted with Western measuring measures are problematic. Lefevere maintains that translators ‘do not, first and foremost, think on the linguistic level, the level of individual words and phrases’. According to him, they ‘think in terms’ of what he calls ‘conceptual’ and ‘textual grids’ that frame texts (Lefevere 1999: 75 and 76–77). The formulaic ‘once upon a time’, for instance, introduces both a textual grid (a genre) *and* an ontological commitment towards the narrated content (‘this is a fairy tale’) (Ødemark and Engebretsen 2018; see also Chapters 3 and 7). The knowledge of the nature of the reality posits that follows such a formulaic incipit is not ‘coded’ in the linguistic data itself; it is learnt through habitual encounters with similar tales in a particular text-culture.⁸ Before the fairies begin to fly, there is simply no pure linguistic data in the sentence *er war einmal* that in itself will tell German learners from a ‘non-fairy-tale culture’ that the statements following the formulaic incipit are fictional (ibid.). However,

according to Lefevere, the textual and conceptual grids also constitute ethnocentric instruments of translation:

My contention is that Western cultures constructed (and construct) non-Western cultures in terms of the two grids whose ‘existence’ I have postulated earlier. In short, Western cultures ‘translated’ (and ‘translates’) non-Western culture into Western categories to be able to come to an understanding of them and, therefore, to come to terms with them. This brings us, of course, straight to the most important problem in all translating and in all attempts at cross-cultural understanding: can culture A ever really understand culture B on that culture’s (i.e. B’s) own terms? Are the grids, to put it in terms that may well be too strong, the prerequisite for all understanding or not? My answer is that they need not be, but that a great deal of work has to be done if they are not to be. The most pressing task ahead, as I see it, is the gradual elimination, in translating between cultures of the category of analogy, as pernicious as it is, initially, necessary.

(Lefevere 1999: 77–78)

Lefevere’s aim is thus to criticize the composition of the ‘other’ and the use of analogies from the culture of the self to describe him or her. But how could translation and comparison operate without ‘instruments of translation’ or ‘grids’ crafted in a particular cultural, conceptual, or textual place?

Divergent Grids, Contrasting Worldings

If we now return to the web text that presents the art performance of the MYOO team bearing the idea of translational ‘grids’ and instruments in mind, we find that the significance of the forked totem pole is explained in the following way:

With help from local children the team built a forked totem pole that depicts visually what will be lost through the flooding of this area. The team also created sculptures of a jaguar and toucan, which sit on the site to celebrate local biodiversity. In the event that the dam goes ahead and the forked stick is taken down it will be the realization of the Juruna legend and a powerful symbol of the end of the world *for the Juruna people*.

(Yahoo Lifestyle 2023, my emphasis)

On the one hand, the ‘forked totem pole’ is a representation of a local world threatened with imminent destruction—symbolizing the end ‘for the Juruna’. It serves as a visual metonymy for all the elements that the

waterfall will sweep away; like the 'local biodiversity, also represented by other pieces of paper art (the jaguar and toucan). The 'forked totem pole' is spoken of as a representation of all that which the Belo Monte dam will destroy; it 'depicts visually what will be lost'. On the other hand, inside the fabula of the 'local legend', the 'forked stick' is similar to something like the axis mundi or the Amazon rainforest in the text from Amazon Watch discussed above; it sustains everything, and in the world of the *fabula*, Sinaá is quoted saying, '[t]he day our people die out entirely ... the sky will collapse, and all people will disappear'.

The translation of the tale into paper art is thus sifted through a vocabulary of representation. The text speaks about erecting a *symbol* of the end of the world 'for the Juruna', and it classifies the story about the end as a certain kind of narrative, a 'legend'. This aspect of translation concerns the 'conceptual' and 'textual grid' (Lefevre 1999: 75 and 76–77). The grids applied to the forked stick (symbol), and the tale it is taken from (legend), moreover, appear to provincialize the tale, and turn it into a symbol of the end of one particular people, the Juruna—as 'just' another depressing episode in the destruction of indigenous life worlds. These worldings, along with the designation 'myth' in the title of the book from which the tale of the end was exported, strongly implicate that a 'mere' symbolic truth is expressed. Is the tale about a 'mere' local destruction—as seems to be implied by the phrase 'for the Juruna'—or is it a forewarning of the global 'end of everything', for 'us' as well as 'them', as perhaps also was implied in the eco-cultural discourse on the Xingu that I examined above?

The brief text cited to explain the art, however, also contains an embedded citation, where Sinaá—in direct speech—posits the singular cosmological role for the Juruna: 'The day our people die out entirely, "I will pull this down and the sky will collapse, and all people will disappear. That will be the end of everything"'. Sinaá thus asserts that the destruction of the Juruna will be more than a 'symbol' of the end of a local form of life. If we believe him, the end of the Juruna will serve as the initial event in a chain that *literally* will lead to extinction for us all. Thus, the Juruna worlding—in the fabula, as this is expressed by Sinaá, and as this has been inscribed in the Villas Boas brothers' text—contradicts the provincializing of the Juruna world through designating the tale as a 'legend' or 'myth', and the 'forked totem pole' as a 'symbol'. This kind of provincializing obviously also moves the tale to the traditional side of the modern constitution, where there—in Latour's construal of the logic of relation underpinning the opposition between the moderns and the non-moderns—is only symbolic access to nature. However, we have also seen that the gist of the tale can be rendered in the *gnomic* code as a simultaneous literal, scientific truth about the planetary environment, and as traditional and 'tribal' wisdom: 'The Amazon is home to hundreds of indigenous communities with

traditions of stewardship dating back thousands of years ... it is the living heart of *our* planet and the heat pump of *our* global weather system' (see citation above).

The Juruna Source Text (As Printed)

In the Villas Boás brothers' book, moreover, we can perhaps also see traces of a Juruna worlding 'behind' the Western grid of 'myth'. We are told that Sinaá 'lived with the Juruna ... was a Juruna himself' (1973: 232). He is half human and half jaguar, and a 'medical specialist' who instructs human healers, and, as we already know, he has special eschatological insights (*ibid.*: 232–248). He has eyes in the back of his head, which is ominous, for 'if he were to see, the other Indians would come and kill the Juruna'. This relation, then, between Sinaá, 'other Indians', and the life and death of the Juruna is similar to the logic of relations that were played out in the story about the forked stick, although there is no mention of the end of the world here.

At a time when there is only day, Sinaá is the only being who knows where to find the darkness of the night (*ibid.*: 232–233). He is thus associated with the night and a lethal gaze. Sinaá offers a Juruna who comes to visit him, just called 'the Juruna', a bird's eye view of the Juruna people: 'They climb to the top of a large rock. From there the Juruna could be seen down below, while they were fishing in their canoes' (*ibid.*: 249). The narrative creates a place for 'focalizing', a verbal depiction of the Juruna way of life (Bal 2009: 145ff.). This narrated sight is immediately followed by the statement about the end:

Finally Sinaá showed the Juruna visitor an enormous forked stick that supported the sky and said, 'The day our people die out entirely, I will pull this down, and the sky will collapse, and all people will disappear. That will be the end of everything'.

(Villas Boás 1973: 249)

Let us assume that the oral tale was—in some similar form—told to the Juruna people by Juruna storytellers before it was inscribed in the Villas Boás brothers' text. If so, the target audience (the Juruna) would also form a part of the 'object' shown (the Juruna community seen from the top of the rock) to 'the Juruna' by Sinaá. The tale thus presents a Juruna view on the connections between everyday life (fishing in canoes) and its deeper cosmological significance (sustaining the world), but it also splits 'the Juruna' into a position of a subject and object, and into a reflexive play where the self can be perceived as 'other'. It is the disappearance of apparently prosaic activities ('fishing in their canoes') that starts the chain of events leading towards the end: If the Juruna perishes, 'Sinaá will tear down the forked stick that keeps the sky in place'. The everyday life of the

Juruna is thus invested with a hidden significance revealed on the top of the rock—sustaining the world. Surely, this is both ethnocentric—a threat to other people, ‘killing us is suicide’—and an opening of the culture of the self to the other: ‘See us as we see ourselves’. It must be noted again that complete extinction has been a literal possibility. The Juruna population has been down to around 100 (Andrade and Santos 1990: 141).

T.S. Lima asserts that ‘[i]n their mythology, the Yudjá [Juruna] portray themselves as the *prototype of humanity*, that is, as canoeists and beer makers’ (Lima 2001).⁹ The Juruna distinguishes this ‘prototypical humanity’ from two other classes of humans:

- (i) *Abi*: ‘all indigenous peoples who do not speak Juruna, do not make manioc beer, and did not traditionally navigate the waters of the Xingu basin’, that is, people who do not partake in the way of life shown by Sinaá from the top of the large rock.
- (ii) *Karai*: ‘white men’ (ibid.).

If we relate this intercultural worlding to the tale, it would be the ‘prototypical humanity’—as seen from the rock—that must be kept alive to sustain the world.

The tale is cited and remediated in print, and socially reframed for new target audiences in the Villas Boas brothers’ book, where it is inscribed at the end, as its ‘epilogue’. This recontextualization also transfers the perspective—on ‘us’ from ‘there’—to new audiences. Now a place *in* the tale (‘from *there*, the top of a large rock’) is also offered as a perspective *on* the Juruna ‘down below, fishing in their canoes’ to new readers, first in Portuguese then English.

We also observe that the relationship of dependency between the Juruna and ‘all other people’ in the oral source text (as this is represented in the book) depicts a relation of dependency on a particular group of people in the Xingu. The relationship between peoples and the world is formally similar to the one I examined in the discourse on planetary sustainability above; for instance, ‘indigenous communities’ sustain ‘the living heart of our planet and the heat pump of our global weather system’ (cf. Amazon Watch 2014). The semantics of Juruna anthropology and its concomitant theory of inter-ethnic relations is lost in translation, but the idea that the destiny of the world hinges upon a particular relationship to a particular people is replicated on a planetary scale.

Alterity as Temporalized Identity—the Folkloric Grid

The book on Xingu myths could be seen as a cross-cultural relating using oral tales like myth, and the idea of a certain indexical relation between a

corpus of tales and land (myths from /belonging to Xingu) as the instruments of translation. This alignment of land, tales and people also forms a part of what Bauman and Briggs referred to as a ‘poetics of Otherness’. However, in our context the tales from Xingu are not only expressive of cultural *alterity* but also serve as a foundation for a cultural *identity*. The ‘poetics of otherness’ is also, I would add, a means for producing identification and identity—through furnishing the cultural self with roots in deep time, and an authentic origin. From the emergence of folkloristics in the nineteenth century, collections of oral tales had been mobilized as narrative markers of territories. As in the case of the Xingu, ‘the best informants’ were often found at geopolitical margins, and in places where time supposedly had stood still. Collected and inscribed in works directed to national elites, these ‘ancient’ voices also came to express the origin and essence of their cultural identity. This ‘poetics of Otherness’ as identity across time thus also alerts us to the fact that there is a place for ‘internal others’—identity as well as alterity—in the knowledge practice behind the book on Xingu myth.

The Xingu National Park was conceived as a sign of intercultural dependency in a national discourse on Brazilian ‘índios’. The purpose of the park was to preserve nature and culture in its pre-colonial state, that is, to represent Brazil on the eve of the European discovery (Oakedal 2004: 63). In fact, *Xingu—os índios, seus mitos* begins with an account of the establishment of the park. Timing this space is important for the authors. Evidence of the cultural deep time of Xingu was that in 1946, when the brothers first arrived, the customs were the same as those reported by the German traveller Karl von Steinen in 1877 (Villas Boas 1973: 17). All agency causing change is attributed to forces outside this space, like the infectious diseases that had decimated the population in the area (ibid.; cf. Davis 1977: 49).

Referred to as a part of Brazil’s ‘national exhibition complex’ (Garfield 2004), the park was placed under the custody of various institutions, among them the *Indian Protection Service* but also the *National Museum* in Rio (Davis 1977: 50). The role of indigenous populations in the exhibition complex was, as set out in the *Bill for Xingu Indian Park*, to ‘showcase the conditions in “which the first society of European tradition was successfully implanted in the tropics: Brazilian society”’ (Garfield 2004: 156, *Bill for Xingu Indian Park* [1954] quoted in ibid.).¹⁰ In this memorial environment, it has been said that the ‘Indians became metaphors of themselves’ (Viveiros de Castro cited in Ramos 1998: 150). However, indigenous peoples also appear to have been established as metonyms for the national self as well—even before the establishment of the park.

The marriage between Ayres Câmara Cumha, a *sertanista*, and Diacuí Canualo Aiute, a young Kalapalo woman from Xingu, in the 1950s, is a

case in point. Indians were legally wards of the state (until 1988), and at first the marriage was denied by the Indian Protection Service (Guzmán 2013: 133–145). When popular media supported a romance that resonated with Latin-American ‘founding fictions’—where indigenous women were courted by men of European offspring, and gave birth to the Mestizo nation (ibid., Sommer 1991)—the authorities gave in. Ayres and Diacuí were married in Rio in 1952, with more than 10,000 onlookers. Female attendees are reported to have shouted ‘Diacuí is precious!’ and added ‘She is Brazilian, more Brazilian than we are’ (Cruziero, 12 December 1952 [quoted in Guzmán 2013: 140]).

Global Imagery and Material Path Dependency

Two chains of translation, then, converge around worldings produced in the history of the park. One is textual and semantic, and the other material and infrastructural. First, we have the logic of relationship that inscribes indigenous peoples at origin, and as something the nation or humankind is dependent upon—the alterity that furnish ‘us’ with identity in cultural deep time, and through this also sustains worlds. Second, there are the material and infrastructural translations that cleared a path through the jungle, and to supposedly timeless rainforest culture, for famous visitors. The national park, its demarcation and administration thus form a part of the material and infrastructural conditions making travel possible. A certain path dependency also contributes to the eco-cultural worldings evoked by the ‘forked totem pole’ and similar statements about a bond between humanity and the Amazon/Xingu.

Before Sting, Cameron, and the MYOO team, albums with art photography documenting the Xingu had been produced for the international market. S. Nugent has described how visual culture has constructed ‘iconic forest Indians’, Amazonians who ‘embody the anti-history of the ancient tribal isolate yet also exemplify the survivor of a crushing set of historical transformations’ (Nugent 2007: 16). A short, genealogy of foreign travelers and visual presentations of *Xinguanos* as metonymic Amazonians—before, Sting, Cameron, and the MYOO team could look like this:

King Leopold of Belgium, who had accompanied the Villas Boas brothers on expeditions, published *Indian Enchantment, Memories of a Sojourn among the Indians of the Upper-Xingu* in 1974, the year after the English translation of *Xingu—os índios, seus mitos* (Diplomat Magazine 2015). The English-Brazilian art photographer M. Bissiliat produced *Xingu* in 1979. This was prefaced by Orlando and Claudio Villas Boas, and in the author’s introductory note it is underscored that the work is ‘the product of a relationship’ with the brothers, who are praised for their ‘constant endeavor to restore the Brazilian Indians’ rights to exist within a culture rooted in the distant past’ (Bissilliat 1979: 7).

J. Boorman was accompanied to the Xingu by M. Bissilliat (Boorman 1985: e.g. 116–117). There he filmed *The Emerald Forest*, which ends with a closing text stating that the indigenous peoples of the Amazon ‘still know what we have forgotten’. Protected by the rain forest, ‘they’ have retained wisdom that ‘we’ have forgotten (Boorman 1985b). Cameron cites J. Boorman’s *The Emerald Forest* as an inspiration for *Avatar*. There is, he says,

some heritage linking it [*Avatar*] to *Dances with Wolves*, most importantly the motif of ‘a battered military man who finds something pure in an endangered tribal culture’. Moreover, he goes on, ‘You see the same theme in ... *The Emerald Forest*, which maybe thematically isn’t that connected but it did have that clash of civilizations or of cultures. That was another reference point for me’

(*Los Angeles Times* 2009)

As mentioned in the introduction to this chapter, Cameron made a documentary about the Xingu, in which he asserts that *Avatar* ‘becomes real’ and ‘happens here’ in the struggle against Belo Monte. The move between the literal and the symbolic is reminiscent of the oscillation between the literal and the figurative in the MYOO team’s art performance, where the Juruna tale is cited as a ‘symbol for them’. In *A Message from Pandora*, the literalization of the metaphor hinges upon the assimilation of the indigenous peoples on Pandora, the Na’vi, with the indigenous peoples of the Xingu (Cameron 2010). As a collective actor in the plot, the Na’vi have a number of positive, but also stereotypical, traits associated with indigenous cultures: They live close to nature, which they treat with animistic respect; they become the victim of ‘history’ and ruthless regimes of extraction that destroy the complex eco-cultural whole in which traditional forms of life are embedded. Moreover, Cameron also relates the story of an ‘endangered culture’ to the story of planetary destruction. He introduces the film about the ‘local’ struggle against Belo Monte with images of ‘global’ destruction (like atomic mushrooms). Hence, the message is that more than local indigenous worlds are threatened—the very survival of the planet is at stake (see Ødemark 2015).

Another famous visitor to the Xingu, Sting, exemplifies this well:

We are paying homage to our primeval history. We have stepped back to the Stone Age ... In some ways Western man is in reverse evolution, we’ve forgotten our real potential. The Xingu can remind us of what *we* really are.

(quoted in Oakedal 2005: 25, my emphasis)

The claim is that (a lost) human essence can be found in the Xingu (and perhaps similar places), which serves as a reminder of ‘what *we* really are’. Thus, alterity is transformed—through temporalization and a *memento*—into identity. Sting reemploys and scales up the pattern of relations associated with Xingu in the Brazilian discourse. Now, however, ‘the Xingu’ serves as a sign of an all-embracing humanity, not a national community with a pre-colonial nature–culture defined in contrast to colonizing Europe, as in the charter for the Xingu Indian Park as a memorial space.

To conceptualize the temporal aspects of these worldings of Xingu, we can turn to A. Dundes (1969). Commenting upon the tacit assumptions of folklore studies, he identified what he called a devolutionary premise. Thus, he referred to the notion that the present state of traditional cultural items, and in some cases whole cultures, is but a mere fragment of the authentic, past versions.¹¹ Moreover, he related this temporal assumption to purifying and de-translating cultures: in searching for “‘pure” pre-contact cultural data, [s]tudents of the American Indian’, Dundes states, ‘would often write up their field data as if the Indians had never been exposed to or affected by acculturative European influences’ (1969: 8).

This idea of devolution assumes that certain cultural items and types of culture are doomed to ‘decay through time’ (ibid.: 6). Figures such as ‘[t]he noble savage’ and ‘the equally noble peasant’ were destined to lose their authentic culture ‘as they marched ineluctably towards civilization’ (ibid.: 12). Devolution and evolution are thus co-dependent historical temporalities. Moreover, the struggle between them is also played out inside ‘moderns’, when ‘we’ lose contact with ‘our’ fundamental humanity: ‘Western man is in reverse evolution’, but ‘the Xingu can remind *us* of what we really are’, Sting asserts. We observe that this structure of identification and its constituent relationships is a scaled-up version of the indigenist discourse on Xingu in Brazil (‘she’s more Brazilian than us!’) on a global or even planetary level.

Epilogue—Texting, Scripture, and the Sense of an Ending

The translation of the Juruna tale about the end into an eco-cultural statement about a looming planetary disaster is also facilitated by the inscription of the Juruna tale at the end of the book on Xingu myth. The relationship between the Juruna and humanity also mirrors the Biblical bond between Israel and God, where the fate of the world depends on the bond—or covenant—between a people and a god (Neusner 2006: 10). If we read the citation of the Juruna story by the MYOO team as communicating a warning to us all, this prophetic register can also be said to be prepared in the intertextual practices of the Villas Boas brothers, and the inscription of the tale in a Biblical plot structure moving from creation to the end of the world.

The story of Sinaá and the world-sustaining stick is placed in the last section of the book, called ‘Sinaá, the Flood and the End of the World’. Besides, the story is subsumed under the heading ‘Epilogue’ (Villas Boás 1973: 232–248). The Xingu myths are thus inscribed in a framework loosely modelled on a Biblical text grid. Part I, ‘[t]he Indians’, deals with the park and its indigenous inhabitants, the tellers. The book then restarts in a second part containing ‘[t]he myths’, and thus also moves from the tellers and their landscape to the tales. It is this part that has a Biblical structure; it begins with a story about the first man, and a series of origin stories marked with titles containing the expressions ‘the first (o primeiro)’ and ‘the origin (a origem)’ (Villas Boás 1970: 5, 1973). And as we know, it ends with a story about the ‘end of everything’, in the epilogue to the book.

Epilogues, then, are liminal texts. The *epi-logos* both form a part of the previous work and serve as its extension. Thus, Sinaá’s admonition on the top of the rock, looking down upon the Juruna fishing in the Xingu River, is the last text the reader reads—it is the hinge, so to speak, between the book and the world beyond the text. The address from Sinaá is thus inserted at a particularly charged place in the text seen as a cultural system; the end is a place where a text according to Western textual and conceptual grids should achieve closure. F. Kermode has studied ‘the sense of an ending’ as a literary and cultural phenomenon. At the end of a story, we expect the narrative equivalent to the *tock* of the clock that gives shape to the unit of time that began with the initial *tick* (1967). The end, then, is charged with a particular cultural function; it is the place for resolution of narrative conflicts or the conclusion of an argument. Moreover, Kermode underscores that expectations of endings are deeply informed by Judeo-Christian cosmology and the apocalyptic notions of a final closure that gives narrative form to Biblical history. Thus, there seems to be a kind of cross-cultural *iconicity*; the tale is originally about the end, it is inserted at the position of the end. Tense, as A. Becker says,

is seen as iconic: that is, past, present, and future are taken as facts about the world rather than facts about language. Tense is not iconic in all language-cultures and hence temporal-causal linearity is not the major constraint on textual coherence in all languages.

(Becker 2000: 33)

Transported into this tense and book system, with the Bible as the textual grid, the tale is inscribed in a European and Biblical text world—and also made ready for a re-worlding in the eco-cultural discourse on Xingu as a planetary memento for humankind. This, then, was not the context for the Villas Boás brothers, whose aim was to protect the indigenous people in

Xingu Indians against extinction and cultural disintegration—and to forge a relation to indigenous peoples in the imagery of the Brazilian nation.

We could see this inscribing and texting as activities that produce overlapping, cross-cultural *worldings*—and the overlapping as akin to the translational shifts that L. Venuti associated with the ‘remainder’. These shifts are ‘textual effects that signify only in the history of the domestic language and culture’ and thus inevitably supplement the source text with meanings—or worldings—originating in the target culture (Venuti 2009: 471). First, a shift occurs when the Juruna tale about the ‘end’ is grafted onto a national, Brazilian discourse about indigenous survival that underscores the nation’s cultural dependency upon its native inhabitants as a sign of its new world autochthony: The aim of the park was to protect indigenous peoples against cultural disintegration and the very literal danger of physical extinction, a real possibility for the Juruna and many other indigenous peoples in Brazil. Second, it occurs when the tale is articulated with eco-cultural discourses about the survival of humanity and a planetary dependency upon tribal forest keepers in the Amazon, which repeats the ‘logic of relationships’ in the national discourse on a global and anthropological scale. Such shifts, then, are produced by long histories of cultural contact and translation.

As we have seen, there is an ambivalence in the art performance of the MYOO team—between an ethnological limitation (‘a symbol for the Juruna’) and a planetary danger, literally threatening ‘us all’. Is the tale and totem pole a message about the end of a local people—or ‘our’ end? To begin answering this question, we must examine the translation chain of things, signs, and forms of knowledge behind the ‘forked stick’.

Notes

- 1 The construction of the dam has been completed. While the dam is not constructed directly upon indigenous land it affects eleven adjacent indigenous territories (Tauli-Corpuz 2016). www.ohchr.org/EN/Issues/IPeoples/SRIndigenousPeoples/Pages/SRIPeoplesIndex.aspx Accessed 16 January 2017; and United Nations <https://digitallibrary.un.org/record/847079?ln=en> (Accessed 26 June 2023).
- 2 I will return to the ethnonym ‘Juruna’ below.
- 3 The following analysis of Cameron, Sting, and Amazon Watch is based upon Ødemark (2015).
- 4 *Rainforest Foundation*. “Sting reunites with Raoni”. www.rainforestfoundation.org/article/sting-reunites-raoni-twenty-years-later Accessed 17 November 2012, see also Ødemark (2015).
- 5 Amazon Watch (2014). <http://us1.campaign-archive1.com/?u=9a44dab15339533e574167469&cid=502fca5127&e=6e4269f7ba> (Accessed 28 June 2023).
- 6 In *S/Z*, Barthes analytically separated five textual codes in Balzac’s *Sarrasine*.
- 7 ‘The Yudjá (Juruna) speak a Tupian language that is classified as part of the Juruna linguistic family, which includes the now extinct languages once spo-

- ken by the Arupaia, Xipaia, Peapaia, Aoku (not identified), and Maritsawá peoples. Culturally, they are closely related to groups that speak languages of the Tupi-Guarani family. Yudjá oral traditions mention the substitution of some words in the Juruna language with ones used by the Shadí people (not identified). Nimuendajú considered the languages of the Juruna family (as they were later classified) as an impure form of Tupi that had been subjected to influences from Arawak and Carib languages (besides borrowing words from the *Língua Geral*). *Instituto socioambiental. Povos indígenas no Brasil. Yudja/Juruna*. <http://pib.socioambiental.org/pt/povo/yudja/643> (Accessed 5 July 2023).
- 8 Cf. '[C]ertain texts are supposed to contain certain markers designed to elicit reactions on the reader's part, and ... the success of communication depends on both the writer and reader of the text agreeing to play their assigned parts in connection with these markers. The writer is supposed to put them in, the reader is supposed to recognize them. Texts that start with "Once upon a time", for instance, will elicit quite different expectations in the reader than texts that start with "Leave Barcelona 8:15 a.m.; Arrive Amsterdam 11.30 a.m."' (Lefevere 1999: 76).
 - 9 Lima 2001. <https://pib.socioambiental.org/en/povo/yudja/print> (Accessed: 7 July 2023).
 - 10 E. Viveiros de Castro has called the park 'a smoke screen', due to the media attention it has received at the expense of less fortunate areas 'where indigenous people live less well' (Garfield 2004; Oakedale 2005: 22).
 - 11 The most salient case in point is perhaps the Brothers Grimm who regarded folktales as fragments of ancient Germanic myths.

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