

## Introduction

Ground that was once the floor of the sea; sea rising up and snatching away ground. Folding hills, coastlines shaped and reshaped. There is nothing static about the terrain upon which we live and on which we depend.

This book seeks to understand human life in relation to these deep-time movements. It sets out to explore the way in which social rhythms interact with ecological and geological rhythms. Yet in the course of such a task, dislocations become apparent – the tension between the short-term orientation of contemporary life and the vast span of the physical processes on which that present draws. What are the horizons of a society's sense of time? This is a question of enormous significance for anthropological analysis, as I intend to show.

The term 'deep time' appears to have been coined by the journalist John McPhee in his book *Basin and Range*:

Numbers do not seem to work well with regard to deep time. Any number above a couple of thousand years – fifty thousand, fifty million – will with nearly equal effect awe the imagination. (McPhee 1981: 21)

In seeking to understand time on the scale required to comprehend the processes at work in planetary history, we are reaching towards quantities that stretch beyond human experience and that seem to defy comprehension. Yet at the same time, the narrative from which his depiction

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of deep time emerges is not an account of abstraction but of *encounter* of people coming face-to-face with time as it manifests itself in the landscape. Indeed, from a certain perspective, McPhee's book is not only a history and popularisation of earth science but also an ethnography of interstate freeways as geologists race up and down chasing roadcuts. He quotes,

Roadcuts can be a godsend. There's a series of roadcuts near Pikeville, Kentucky – very big ones – where you can see distributary channels in a riverdelta system ... It's the face-on view of the fingers of a delta, coming at you.

McPhee then goes on to remark that “[g]eologists on the whole are inconsistent drivers. When a roadcut presents itself, they tend to lurch and weave. To them, the roadcut is a portal” (1981: 10).

What is striking here is that deep time is not purely an abstraction to be calculated but also a phenomenal experience to be encountered in the field. Yet McPhee's companions are geologists, who are professionals in the study of the earth; they constitute a somewhat particular ethnographic grouping. The question remains: to what extent does this sense of temporal depth figure in the practical daily lives and the imaginations of the different groups of people we work with? To what extent is anthropology open to deep time, and why might it matter? How do we encounter deep time in our field(s)?

What this book insists is that ethnographic field sites are manifestations of processes unfolding over the expanse of geological formation. Social life is part of these processes. Why do I think it is important to insist upon this? My central argument is that the material conditions of human existence can be understood only as the product of processes occurring over deep time. To isolate life from these geological flows is to distort our understanding of society and of humanity. Yet all too often the focus upon an inflated present abducts contemporary activity from

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the geological duration needed to fully understand its significance – a extraction of the contemporary moment from deep time that threatens rupture.

In this book, I want to draw our attention back towards a classic anthropological topic: time and the relationship between temporality and social life. The anthropological debates surrounding this topic, reviewed by Gell (1992) and Munn (1992), focus on a set of interrelated fundamental themes: the source of the rhythms around which social life is organised, how people reckon time, and the extent to which time concepts can be understood as socially determined. In the chapters that follow, I explore a great deal of this rich literature, taking inspiration from Evans-Pritchard, Bloch, Gell, Bear, and others, who brought temporality to life as a central dimension of anthropological enquiry. Yet I have a particular goal, which is to foreground the significance of *time depth*, arguing that the extent to which the horizons of time are experienced (and acted upon) as close or as distant is a crucial dimension of human social life.

I take my cue here from Michel Panoff's remark, in his investigation of the notion of time among the Maenge of New Britain, that the most relevant question to be asked about people's concept of time is not "[h]ow alien is it from our own way of thinking?" but rather "[w]hat is its depth?" (Panoff 1969: 161). This question has become especially pertinent to me in the course of ethnographic work in the United Kingdom exploring how people understand their environments changing in time. We see not only dramatic differences in the time depth of people's understanding but also different registers of time at play ranging from the time needed to achieve short-term economic goals, through biography and genealogy, all the way through to the invocation of timescales of geological formation. These varied registers, each calling to mind a particular sense of where the horizon of time lies, not only are rhetorical devices but also have significance in our understanding of human

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resource use, capacity to respond to change over time, and the nature of the relationship between people and the piece of planet under their feet.

At the heart of the book, then, is a fundamental challenge: anthropology needs to confront the place of humanity in deep time (see also Shryock et al. 2011). Yet, though my initial interest was in the ways in which people might encounter deep time in everyday life – ethnographic instances where we might come face-to-face with the earth’s history and with evidence of long-term environmental variation (Irvine 2014a, 2014b) – an account of the contemporary effects of human activity within time also needs to recognise *disjuncture* (Irvine 2018): the abstraction of human life from the ecological and geological rhythms within which that life occurs. In this sense, the book explores two sides of the human relationship with time: encounter and evasion – acts of attention and inattention towards time depth.

In Chapter 1, I begin by asking how well anthropology is equipped to deal with the challenge that the recognition of human geological agency presents to our time perspectives. I offer two theoretical starting points to initiate the conversation between anthropological theory and the history of the encounter with deep time within Britain: the anthropologist E.E. Evans-Pritchard and the geologist James Hutton. This discussion introduces three key questions for an anthropology of deep time: what is the relationship between human rhythms and the rhythms of the more-than-human world within which humans live? What is the significance of our time horizons, their proximity, or their distance? And whose time is deep time anyway?

In Chapters 2 and 3, I explore the way social lives delve into the underlying strata, primarily with an ethnographic focus on two East Anglian field sites: the chalk hills of South Cambridgeshire and the drained peat of the fenlands. Here we see lived encounters with time depth that consist not of consonance with the landscape but rather bring us face-to-face with temporal disjuncture: in particular, we see how the fenlands today find themselves locked-in to a present from which variation becomes unthinkable.

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This becomes the ground upon which, in Chapter 4, I explore the significance of the present and the ways in which anthropology has approached ‘presentism’ as a metaphysical claim, a sociological description, and a means of analysis. While recognising that an analysis of the conditions of presentism is crucial for understanding contemporary social life, I argue that any attempt to embrace presentism as a methodological tool or even metaphysical truth risks distorting human activity in a disastrous way by abstracting it from the material environment that makes such activity possible. I conclude this chapter by reflecting upon Maurice Bloch’s analysis of the relationship between time and mystification in order to understand temporal disjuncture: conditions of life that obscure – and at the same time are violently dissonant with – the temporality of the ecologies and geologies that make that life possible. The task for anthropology, I argue, is to analyse the conditions of this extraction from deep time and not to replicate it.

Yet returning to the history of Britain’s encounter with deep time, we see that the work of mapping the processes of geological formation – a conquest figured in relation to the coal measures – is entangled with this process of extraction from deep time. In Chapter 5, I return to the question ‘whose time is deep time?’ through a consideration of the work of marking the boundaries of time in nineteenth-century imperial Britain, with a particular focus on the Cambridge geologist Adam Sedgwick.

Recognising, then, that our maps of deep time are themselves products of the entangled relationship between the biographical and the geological, in Chapter 6, I take inspiration from what I term the ‘biographical geology’ of the Scottish stonemason and geologist Hugh Miller. Here, I turn my ethnographic focus to the islands of Orkney, off the north coast of Scotland, exploring the ways in which deep time protrudes into the present. I embrace the historian Fernand Braudel’s warning against a myopic focus on the short time span of the present

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moment while at the same time arguing that actions in the present need to be understood as a negotiation with a geology that is in motion.

Chapter 7 focuses on the role of catastrophe as a rupture in time, confronting us with the transformative potential of events that render planetary history radically discontinuous. This has a particular contemporary significance, as we increasingly recognise our own extractive relationship with time as catastrophe: vectors of a mass extinction event, the likes of which have occurred only five times in the past 540 million years or so (Barnosky et al. 2011). The fossil record of the deep future may recognise our present as a surface of mass death. To attempt to isolate the study of humans from this context would be a disingenuous act of historical evasion. I therefore conclude, in Chapter 8, by locating this geological moment politically and economically, arguing that the major ecological degradation that has been made visible at the level of geological time is a result of the Lockean designation of ‘unused’ land as waste to be made productive. And crucially, this designation of land as waste goes hand in hand with the extraction from deep time: it involves bracketing out the long-term history of the landscape and its ecological future for the (presentist) work of extracting economic value in the now. To expand our time horizons is, in fact, to recognise the contemporary relationship with deep time as wastage.

## ONE

**Time Depth****As Slow as Possible**

On Saturday, 5 October 2013, a group of onlookers gathered in a side chapel at the Sankt Burchardi Church in Halberstadt, Germany, to see the thirteenth note change in a performance of John Cage's *Organ<sup>2</sup>/ASLSP*. Having watched the performers shift the weights that held down the pedals, and having heard the new chord, the crowd applauded and left. The next note change won't take place until 5 September 2020. The title of the piece refers to the intention that the piece should be played *as slow as possible*, an extension of John Cage's experiments with indeterminacy<sup>1</sup> into the question of how long a piece should last. This performance of the piece is scheduled to end in 2640.<sup>2</sup>

It's tempting (though perhaps impractical) to suggest that 639 years constitute something of a rushed performance. In asking how long any

<sup>1</sup> The original piece, *ASLSP* (Cage 1985), was written for piano, with Cage choosing to omit any details of how slowly the piece should be played. In 1987 the piece was adapted for organ as *Organ<sup>2</sup>/ASLSP*; given that, unlike piano notes, organ notes sound for as long as the key is held, this generates a whole new set of questions as to how slow is 'possible'.

<sup>2</sup> The initiative of the John Cage Organ Foundation emerged from a 1997 Organ Symposium in Trossingen, Germany, where participants discussed the possibilities for a 'hyper-durational' realisation of the work. The planned length of performance, 639 years, commemorates the fact that the first documented organ was built in Halberstadt 639 years before the planned start date.

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given note within the piece should be held, are we actually asking how long it takes for an organ to decompose? Nevertheless, the performance is a challenge to our experience of time: no individual listening now will ever hear the whole of the piece being played. We become conscious of our own finitude as the sound stretches beyond us. As a cultural artefact, the performance is interesting as an expression of a desire to stretch the bounds of time. It takes its place alongside a number of similar initiatives that protrude even further. See, for example, Jem Finer's *Longplayer*, housed at Trinity Bouy Wharf in East London, an infinite composition (based on the programmed interaction of six short pieces of music) that will not repeat itself for 1,000 years and that has as its explicit goal the intention that we should confront deep time (Finer 2003), and deep in a mountain in Texas, the project to build a 'Clock of the Long Now' that will keep time for 10,000 years, encouraging long-term thinking (Brand 1999).

What are we to make of such undertakings? Are they attempts to assure audiences of continuity in the face of an expanse of time that dwarfs the one that we occupy? In a different context, Maurice Bloch (1968, 1986) has argued that our ritual efforts can serve to offer up the impression of an enduring reality that transcends the present. He describes, for example, the tombs of the Merina in Madagascar with their walls of stone and cement, the top "usually capped by a huge stone slab covered in concrete" (1968: 100). Bloch argues that they "demonstrate ... the victory over time and also over movement. Tombs are emphatically placed in a particular highly significant place and they are there for ever" (1986: 169). In doing so, they give material form to a social order that "remains still amidst the vicissitudes of time", holding fast even as generations come and go. (Such an interpretation of the Halberstadt performance of *Organ<sup>2</sup>/ASLSP* is hinted at by Byrd and Fritch [2012: 8]: "The optimism of the Cage Organ Project is compelling. The use of a temporal medium to create a monumental multigenerational experience is grounded with the hope that



someone will be there to hear the end of the song”). Or, to read things in a rather different way, is the imagination of an expanse stretching out beyond us a way of opening up the possibility of a timescale in which we, and the order in which we live, cease to be – what the philosopher Eugene Thacker (2011) describes as the horror (and one might also add the titillation) of confronting an unthinkable world, a ‘world without us’?

These are but infinitesimal spans of time in relation to the timescale of geological formation. Ellsworth and Kruse (2013), cataloguing examples of how and where art, architecture, and design are drawing increasing attention to incursions of geologic forces into human lives, have suggested that we are seeing what they term a ‘geologic turn’ in cultural awareness, “in which we no longer see time only or primarily in relation to humanity’s place in it” (2013: 24).

As a fan of Liverpool Football Club, watching my team play S.C. Braga in the Europa League in 2011, I was transfixed by a particularly blatant example of what such a ‘turn’ might look like. S.C. Braga won; Liverpool were knocked out – but what I remember from the television coverage of the game was the setting. In 2003, the Estádio Municipal de Braga, Portugal was built within a disused quarry. The design by Eduardo Souto de Moura is unconventional in featuring only two stands, one on either side of the pitch, and incorporating the rock face of the quarry as one end of the stadium. Where most teams have humans seated behind the goal, S.C. Braga have granite rock as a spectator.

This could easily be interpreted simply as the transformation of geology into spectacle, yet the architect’s words emphasise the intention that the rock is an active presence, not simply a passive backdrop:

It is this encounter, this meeting between the natural and the man-made that I find interesting to deal with. You can see the cables pulling and you can see the concrete working against the forces to transfer the load to the stone. The manmade structure is dependent on the natural rock for its stability and its make-up. Thus having the stone wall of

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the mountain terminate the southeast end of the stadium instead of the usual seating is a fitting reminder that the stadium owes its existence to the mountain.<sup>3</sup>

Again, this is understood as an interface with the temporality of the stone, where “[t]he final goal is for the work to be anonymous and serene in relation to time” (quoted in Dernie 2003: 118).

So if granite rock is a spectator at a football match, what does it chant? “Stone would call you transient, sporadic”, writes Jeffrey Cohen (2015: 30) in an account of what he calls his ‘geophilia’. Stone provokes us<sup>4</sup> – even humiliates us. Geology as a presence in our life challenges us with its “vast duration, slow movement, and inhuman scale” (Cohen 2015: 27). The granite face towers over our short lives, our finitude stark against its long history.

The conviction at the heart of this book is that this sense of encounter with geology, as well as the temporal challenge that it presents, is a crucial one for anthropology – indeed, this encounter has the potential to reveal dimensions of human life that might otherwise remain hidden, such as the place of our life cycle in relation to the expansive cycles of the terrain upon which we move, or the temporal disjuncture inherent in our extraction of resources. From this perspective, anthropology appears as geology in motion.

This sense that the motion of geology through deep time – which in one respect can only read in the stratigraphic record of the rocks as *slow motion* – might nevertheless be vividly apparent in ethnographies of everyday life might appear paradoxical. Surely, if we are to adopt a temporal resolution that allows us to view human activity, the geology underneath us appears effectively static? Yet I argue that this underestimates the extent to which we probe time spans of vast magnitude, living in relationship (recognised or unrecognised) with distant points

<sup>3</sup> Quoted in a profile of the project in C+A issue 2, published by Cement Concrete and Aggregates Australia. [www.ccaa.com.au/iMIS\\_Prod/CCAA/Public\\_Content/PUBLICATIONS/C\\_A/Issue\\_2](http://www.ccaa.com.au/iMIS_Prod/CCAA/Public_Content/PUBLICATIONS/C_A/Issue_2).

<sup>4</sup> On the capacity of stone to provoke, see also Raffles (2012) and Reinert (2016).