Stone Exposures:

A Cultural Geology of the Jurassic Coast

Submitted by Rose Ferraby to the University of Exeter

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STONE EXPOSURES
A CULTURAL GEOLOGY
OF THE JURASSIC COAST
WORLD HERITAGE SITE

ROSE FERRABY
Abstract

People have varied and complex relationships with stone, in its raw geology and in its altered forms. Often, however, in cultural contexts, stone remains in the background, as a taken for granted and unremarkable element of the material world. In this thesis, stone moves into the foreground. The research presented here explores how close attention to those who work intimately with stone can disclose unexpected and absorbing stories. The cultural geologies extracted and presented in this thesis cast light on the diversity of ways in which people relate to, and with, the land; and experiment with a range of different ways in which these relations can be narrated.

Set on the Jurassic Coast, in the south west of England, the stone exposures that emerge along the margin between land and sea offer a productive site for developing a cultural geological approach. The limestones, shales and clays are framed, in this work, by the narratives of quarrymen and geologists. The work explores how their particular knowledges are formed, and how they exist within wider historical and ecological understandings. Their narratives bring the stratigraphy to life, and draw attention to the hidden worlds within it. The different priorities and perspectives of quarrymen and geologists are shown to lead in different directions, interweave, or run parallel. The very specific languages and descriptions they employ reveal a level of complexity and richness of detail that is mirrored in the stone.

Using an approach that combines close observation and creative practice, this study examines stone at a variety of scales, and in different contexts. The work engages with specific stone types, landscapes, voids, buildings and objects. Processes of working stone through practices of lettering, sculpture and masonry elicit understandings of the material that reach far beneath its surface. The absent spaces of quarries are then explored, showing how voids can be animated with knowledge, and how destructive processes can generate creative potential, when sensitively worked and considered. Lastly, the study draws all these ideas together in a discussion of stone assemblages in buildings, to see how voices from geology and quarrying can foster greater understanding of how buildings were constructed in the past, and how we conserve them into the future.
List of Accompanying Materials

Attached to this thesis is one memory stick.

You will find the memory stick attached with a cable tie to the spine of the thesis. The tie can be cut.

The files includes film and timelapses that form an integral part of the research. The files link to signposts in the text, which mark when each film is suggested to be watched. They are in slightly different formats, but will work with all basic software. More details about the films can be found in Chapter Three (Methodology), including details on their integration with the text.
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CHAPTER ONE
INTRODUCTION
1.1 Stone Exposures

“The stone book… had in it all the stories of the world”
(Garner 1992:51)

This thesis presents a cultural geology of the Jurassic Coast, by which I mean that it is an exploration of the narratives and connections that can be drawn between culture, geology, and people in one particular landscape. The research is rooted in the material geological realities of stone. It is based on the premise that by delving under the surface of stone we can begin to draw out different aspects of our relationship with it, and with the earth more broadly. The research draws out just some of the stories that stone has to tell, and gives voice to those who can tell them.

In distinguishing *stone* from *rock*, it is recognised that where rock refers to a raw, mineral state, stone conjures up associations of a cultural and mineral mix. Stone is “thought-thickened” (Ferguson 2009:183). On the face of it, stone may appear to be a hard and unyielding subject (Edensor 2011). This thesis explores, however, how a growing familiarity with stone allows this material to come to life. As it does so, some of the subtleties of our understanding of the land and our relationship to it, begin to be exposed. By employing imaginative approaches to the study of stone, narratives can be drawn out that ebb and flow across temporal and spatial boundaries. Connections between geology and people can be found that weave join across the fractured temporalities of deep time (McKay 2013). Delicate fronds of history can be drawn into constellation with one another in ways that bring new light to our past, and provide alterative perspectives on the future.

To bring stone to life requires knowledge of it. The focus of this thesis is on the very particular understandings of stone generated by quarrymen and geologists working on, and inland from, the Jurassic Coast. These two communities were chosen because of their deep knowledge of stone, both as it is located in the earth and through its properties as a material. To really get under the surface of the material requires a period of acquaintance that lasts for many years, and remains ongoing (Ingold 2013; Paton 2013). In their practical
and observed engagement with stone, these individuals have a relationship with stone that is sustained and involved. Their knowledge and observations cannot be learned from a book or in a brief visit.

The research also exposes interesting confluences in the ways in which geologists and quarrymen work with stone, and the different kinds of understanding that these ways of working can generate. Using a range of ethnographic approaches, this thesis excavates these stone worlds in order to reflect upon the knowledge that these perspectives can bring to our understanding of the material. What becomes apparent in the course of the thesis is that with this growing familiarity with the foibles and fascinations of stone, comes a new perspective on our perception of the land. Here, I refer to land as opposed to landscape, since the emphasis lies strongly with the matter and material of the earth. For myself, learning about different ways of engaging with stone gave me understanding of the material at a variety of scales. Where before, my understanding of landscape was rooted in the archaeological layers and surfaces, it has been opened up by the range of possibilities that lie deeper with the geological. This work is also concerned with the multi-vocality of landscape (Bender 2001), and the importance of encouraging these voices to be heard (Edmonds 2006, Harvey 2010). Taking the time to listen to those with expertise can reveal elements of the landscape that otherwise hide in plain sight.

To draw in the subtle elements of this cultural geology has required imagination, and a light touch. Landscape as a concept becomes more complex when we realise that it is not static. The landscape is in a constant state of change, and as such, the narratives that frame it are only ever snapshots of a particular moment (Massey 2006). In order to weave together these different elements across such vast timeframes and throughout the stratigraphic exposures, it is necessary to story them creatively (DeSilvey 2012a; Lorimer 2006). The mutability of the land – and our perception of it – is particularly apparent when dealing with material that is primarily ingrained in the interpretation of processes and biographies that occurred in the past, and their influence and connection in the present.

To have the creative space that allows one to navigate and narrate the nuances of stone is vital. Geography has developed these hybrid approaches, giving fertile space for multi-disciplinary approaches. It is within geography that I have been able to build on the
foundation of my background in archaeology and creative practice to dig down into the layers of the geological. Without having to worry about maintaining a particular disciplinary approach, this work has followed the vein of the stone and the stories and knowledge it yields. Elements of visual practice are an integral part of this thesis, both in terms of the process of research and in the communication of it. Having the freedom to explore these stone worlds visually has been essential. Likewise, having the space to allow archaeological epistemologies and methods to creep into the work has created new perspectives on this geological matter.

What the work can offer back to geography is a way of thinking about the earth and our changing relationship with it, as explored through the specific stones of the Jurassic Coast. Understandings of landscape have long been a focus of interest across disciplines including geography and archaeology (Bender 1992, 1993, 2001; Cosgrove 1985; Daniels 1993; Daniels and Lorimer 2012; Hoskins 1977; Johnson 2007; Massey 2006; Matless 1998, 2014; Wylie 2006b, 2007). What this research offers is a way of dealing with interwoven elements of the relationship between land and people, with imagination and humility. The thesis takes strength from a growing body of research within and beyond the discipline of geography interested in finding imaginative ways of narrating the world (for example Berger, 1979, 2012; Berger and Mohr 1982; DeSilvey 2007b, 2012c; DeSilvey et al. 2014; Edmonds 1999, 2004; Edmonds and Ferraby 2013; Garner 1992; Harrison et al. 2004; Harvey 2010; Hawkes 2012; Ingold 2000, 2013; Jamie 2012; Leitch 2007; Lorimer 2006, 2013, 2014; Paton 2013; Pearson 2006; Parr and Stevenson 2014; Ryan 2013; Shepherd 2011; Thomas 2014; Wylie 2006a). By navigating the human and geological, this work can potentially add to the current debates around the Anthropocene (Crutzen 2002; Edgeworth 2014; Latour 2014; Yusoff 2013). However, this research illustrates how problematic it is attempting to separate the geological from human with a neat temporal line. Rather, it shows that though archaeological layers cease above bedrock, our subtle relationship with the earth trickles much further down.
1.2 The Jurassic Coast

The south coast of East Devon and West Dorset was designated a World Heritage Site by UNESCO in 2001, and as such was branded the ‘Jurassic Coast’. The stone exposures of the cliffs on this coastline present a cross section of deposits laid down throughout the Mesozoic period: Triassic, Jurassic and Cretaceous. At the west end the stones are around 250 million years old. In the east they present a much younger face, at 65 million years old. Along this length of coast, during this 185 million year period of time, the layers of stone have tilted and eroded. This has left them displayed as a ‘journey through time’ along the coast, rather than in vertical exposures. The geology is complex, altered by processes of formation, tectonics, erosion and deposition. In the cliffs we see a series of layered and mangled narratives stretched over time. Reflected in them, traces of ourselves can be
glimpsed: fragmentary stories of our own efforts to make sense of the world and our influence upon it.

The stretch of coastline available to work on, therefore, is expansive, variable and rich with possibilities. Although the focus of the thesis lies with a few key parts of the coastal and inland areas, it is important to be able to understand these as part of a wider landscape. We will take a brief journey along its length:

We’ve come down to the mouth of the River Exe at Exmouth. Here the tides race and swirl in eddies that shift sandbanks, the sound of birds rises from the mud as they pick and flock at the shoreline. The beach is filled with the figures of dog walkers. Beyond it are the red cliffs of the Triassic deserts. These catch the light as we pass around headlands, past holiday camps and farmland. The town of Budleigh Salterton stands back from the sea. Here the pebbles are smooth and oval, formed in an ancient river bed that is now marooned on the heath above. Hopping over the River Otter, we come to the stacks before Sidmouth. To either side of this Regency town, with its proud promenade, the red cliffs are slumping, tired of the pressures weighing down on them. Houses hover close to the cliff line, left to their fate.
The Jurassic Coast, with notable places from the text and research
We climb the steep woodland out of Sidmouth and from the higher ground we can see the rise and fall of the cliff curving along the coast. Towards Branscombe, an Iron Age hillfort is dissected by erosion, and at the foot of the cliff winter storms have excavated gypsum bands. At Branscombe, beach huts teeter on the storm cut beach and caravans cling to the hillside as we begin to see a change in the stone. The flint littered chalk of the Cretaceous appears over Triassic sandstones, where geological shifts have eroded the Jurassic stones. We can take the path through the undercliff to Beer, where a landslide now shelters abandoned farming plots. Listen to the birds high up in the pale cliffs, the insects in the thick undergrowth, the sigh of waves on the pebble beach below.

In Beer the fishermen still buzz to and fro sorting their catch amidst the summer crowds. Further on is Seaton, with its flat flood plain entry and faded seaside town. As the cliffs rise towards Lyme, they change once more: they are grey now, with clays and silts banded with limestone, thick with fossil relics of the Jurassic. At Lyme Regis the Cobb arches out, and in its wake the promenade and town. It is animated by streams of visitors keen to try their luck on the beaches hunting for the famous fossils. It is here that Devon becomes Dorset, but these distinctions are little noticed on the coast. If we hurry we can walk to Charmouth before the tide comes in.

Rising up after the hollowed out valley at Charmouth is the great crest of Golden Cap, its grey-yellow bulk visible in mist and haze, or shining in bright hues in evening light. High up now we pass Seatown and Eype, seeing the green fields flow away inland. At West Bay we find a busy town with concrete harbour, the sound of rigging pinging on masts fills the air. From here yellow banded Jurassic cliffs of Inferior Oolite rise and fall, shadowed by the scattered remains of rockfalls. We drop down to the beach and crunch on the pebbles past the caravan park. At Hive Beach, the cliffs descend and disappear. The beach turns its head towards the Isle of Portland, sticking wedge-like out into the Channel. The long pebbled length of Chesil Bank precedes it, and the town of Weymouth nestles up to its thin causeway.
On the seafront at Sidmouth, looking back through winter sunset towards Budleigh Salterton

Climbing out of Sidmouth towards Branscombe, you can see the pale chalk at Beer Head
Up on Beer head, the undercliff can be seen looking west back to Branscombe

Fishing boats on the beach at Beer
The Cobb at Lyme Regis, rebuffing winter waves

On Church beach at Lyme Regis, looking east to the dip of Charmouth and bulky rise of Golden Cap. On clear days like this the Oolitic cliffs towards Eype can be seen in the distance.
At Portland we see the start of the Jurassic limestones, from which so many buildings have risen in places far away. These stones rise and fall, in places topped by chalk, through bays and cliffs. We begin to encounter scenes from postcards: the arch at Durdle Door framing turquoise sea, the perfect curve of Lulworth and the vertical rise of the ‘Crumple’. When the MOD range allows, we can walk through the fossil forest with its stone dead stumps of trees. After the chalk cliffs, we come to Kimmeridge with its thick beds of grey clay flecked with fossils from a long gone marine world. As we ascend the cliff beyond the village, we can see the big band of chalk sweeping around inland, enclosing us into the Isle of Purbeck. We pass by the scooped out bay of Chapman’s Pool and see the fishing huts below the huge comforting bulk of St Aldhelm’s Head. Visible atop of it are the remains of the radar station side by side with the twelfth century chapel of St Aldhelm: monuments of very different times.

Nearing the end of our patch, we find limestone cliffs hollowed with the neat, square mouths of quarries, the dip of the limestone beds echoing the Cretaceous swamps, rich with fossils. At Swanage, beyond the town, a great race of chalk from inland spurts out to sea, dipping to resurface as the Isle of Wight. As the sea has worked on the chalk, its cliffs, arches and stacks have come and go. Although the official end of the Jurassic Coast is Studland, for me it is the punctuated stacks of Old Harry’s Rocks, as they gaze out to sea. It is in this final sweep of the coast that much of this work is set, the dipping limestone hillsides and enclosing chalk ridge will become familiar as we head on through the thesis.
The clear stratigraphy of the Inferior Oolite at Hive Beach near Burton Bradstock. Looking back west we can see Golden Cap and Lyme Regis beyond.

On the road down to Abbotsbury, St Catherine’s Chapel can be seen, framed by the water of the Fleet, the sweep of Chesil Bank and Portland.
The Fossil Forest at Lulworth

Looking west over Chapman’s Pool from St Aldhelm’s Head
Peveril Point hides Swanage in the bay. Beyond, the white of the chalk ridge emerges.

Old Harry’s Rocks
1.2.1 The ‘Creative Coast’

This PhD forms one of three collaborative doctoral studentships funded by the Arts and Humanities Research Council and sponsored by the University of Exeter and the Jurassic Coast World Heritage Site. The trio was designed to focus each doctoral project on a different aspect of the Jurassic Coast WHS ‘Creative Coast’ Art Programme (Jurassic Coast 2009). The first studentship project, by Jon Croose, looked at aspects of carnival and community arts (Croose 2014). Frances Rylands, taking up the third, has been looking at aspects of arts policy in understanding landscape. My own project was originally designed to trace ideas of landscape change through photography. Although early on I shifted the focus of my work to consider stone worlds and stone stories, aspects of photography and issues of change and heritage have nonetheless found their way into the work in other ways.

During 2011 and 2012, when a wave of arts funding became available in advance of the ‘Cultural Olympiad’ associated with the 2012 Olympics, the Jurassic Coast World Heritage Site Team connected with and hosted a number of projects. I became particularly involved in the ‘Exploratory Laboratory’ Project (Black 2012). This project commissioned five artists to work alongside scientists at various locations on the coast to produce work that engaged with and communicated geological concepts. Initially, I spent time talking and exploring with stone sculptor Mat Chivers, digital artist Zachary Eastwood-Bloom, Simon Ryder and the arts collective Proboscis.

However, I soon found that the focus and direction of ExLab was limiting. Instead, my interest lay in the working communities of stone. I saw more potential to learn and develop my work through seeking out the embedded knowledge of the geologists and quarrymen. Rather than analysing the artistic endeavours of others, it seemed more interesting to use my own creative practice to research stone.
My drawings from West Bay: part of our collaboration with Proboscis during ExLab
1.3 Setting out

The structure of the thesis is designed to explore stone facets, and the different perspectives they can offer to help us understand the cultural geologies of different varieties of stone on the Jurassic Coast. In this chapter the focus of the thesis has been outlined and the setting of the Jurassic Coast introduced. Chapters Two and Three provide a background to the ideas and methods behind the work more generally, to put the chapters that follow into context. Chapter Four, ‘Stone Knowledge’, acts as an overview and introduction to the specific places, stones and forms of knowledge that I encountered. It introduces some of the ways in which we might think through and narrate the geological, providing historical and geological context for discussions that build throughout the whole thesis. To do this, it foregrounds the specific, nuanced knowledge of quarrymen and geologists.

Chapter Five draws on a range of observations and personal experiences of making with stone, to explore how knowledge is formed through engagement with materials. It forms a close study of three different types of stone, which were worked using different skills and techniques. From this close view of the stone, Chapter Six zooms out to look at the spaces created in the landscape as a result of stone excavation. Thinking through ideas of negative space rather than constructed objects, it details the ways in which we are able to narrate different kinds of ‘empty’ spaces and to extract forms of knowledge from them. Looking firstly at open cast spaces, then underground quarries, it explores some of the extraordinary landscapes created by the extraction of stone on the coast. Chapter Seven follows on from this, as we follow stone from the absences created by quarrying to the buildings it was sourced to construct. The chapter explores Exeter Cathedral as a building through which stories of stone and the knowledge linked to it can be traced. The narrative strings pull together from various quarries on the Jurassic Coast to collect in this single structure, mixing with the myriad other voices and histories that make up a building with such longevity. Chapter Eight concludes this thesis, drawing together the main arguments and contributions of the work.
2.1 Introduction

“I see a land as much affected by the creations of its poets and painters as by changes of climate and vegetation”


This chapter will look at the different facets of the block of ideas at the heart of this work. The research marks an accumulation of a range of influences and practices that have become drawn into my sphere of interests over the years. In this way, this chapter is less about presenting a specifically theoretical stance, than about the range of ideas and practices that have been pulled together from across a range of disciplines to form this specific study.

The term cultural geology has been around for sometime. Previously, it has been applied loosely to approaches that in some way try to combine the science of geology with cultural elements. Some of these have levelled at more theoretical debates, such as those around ideas of the anthropocene (for instance McGurl 2011), using the geological as a backdrop for broader ideas. Others are rooted more deeply with the geological and the wealth of stories that can be drawn from it (such as Thorson 2002). My cultural geology draws on current work within cultural geography (DeSilvey 2012c; Edensor 2012; Lorimer 2006, 2012; Matless 2014; Paton 2013; Paton and DeSilvey 2014), geology (Nield 2014) and indeed archaeology (Edmonds 2004; Massey 2006), to find interesting ways of drawing human narratives from the land. In many ways then, this is an extension of work in landscape: plunging under the surface to consider these ideas within the deeper stratigraphy of the earth. The spirit of this study has been particularly influenced by Jacquetta Hawkes ‘A Land’. Published in 1951, it has long stood out as a work that combines imagination and a poetic approach with an interest and curiosity about the earth and stone. Hawkes weaves a narrative through an array of foci, including the sculptures of Henry Moore, Norman buildings and fossils, to give an impression of the land that flows between natural processes and human endeavours. It is a similar vein of rich material that I have followed here in this work.
What my own work does is show how a cultural geology can use hybrid approaches to narrate the earth and our relationship with it. To form an imaginative and deep account, it draws on some quite different ideas and practices. This chapter will explore these. The following section will explore how we think through landscape, as influenced by work in geography and archaeology. The discussion will then move on to how forms of creative practice and making can be used as a process of researching and communicating these ideas about the land. Ways of narrating landscapes and ideas about telling stories are the considered, before the chapter ends with a discussion of cultural geology.
2.2 Thinking Through Landscape

In this section I want to explore some of the very particular ways of approaching and learning landscapes that have been relevant to this work. Landscape has received much attention across disciplines. In archaeology and geography specifically it has become a growing area of interest for research, perhaps because it offers such a versatile framework for thinking about the world. The focus here draws in ways of thinking about landscape that have developed for me through academic study in geography and archaeology, but also in my practical experience of working in the field. Although on one hand this mix of influences sometimes renders expression more difficult, I hope that it has also brought a sort of richness to my work.

In our ongoing, reflexive and subjective relationship with landscape, we simultaneously learn and forget, tell and ignore, absorb and reflect. But it is our ability to know the land that brings it alive. Through our different engagements with the land we are able to draw out new perspectives and alternate narratives. In this way, the landscape takes on meaning through practice (Edmonds 1999; Ingold 1993, Tilley 1994, 2004). To work in this world, between people and the land, to begin to draw out aspects of this knowledge, requires a sensitivity of approach and an open mind. There must be an honesty and awareness of the emotions and personal attachments that in many ways form our own individual approaches and the aspects of the work that attract us:

“What more there is lies within the mountain. Something moves between me and it. Place and mind may interpenetrate till the nature of both is altered. I cannot tell what this movement is except by recounting it”
(Shepherd 2011:8).

Nan Shepherd is a writer who seems particularly adept at writing about landscape with modesty and depth. Her attentive descriptions of water and stone, plants and birds, seasons and weather, combine to make the reader feel absorbed into the landscape of the Cairngorm mountains. This idea of ‘something moving’ between yourself and a place comes of being open, allowing the landscape in. But it is something which is very difficult to verbalise: a
delicate thing to describe. Finding the form and substance of the particular relationship we each have with the land requires a particular lightness of touch (Wilkes 2014). Sometimes there is the risk that the self can swamp all else (Jamie 2008), and the landscape can be at risk of fading into the background once more. As Shepherd remarks, it is the ways in which we work and narrate through landscape that we learn more about it, knowledge emerging through ways of telling.

For me, it has been important to write and tell stories through the material – in this case stone – in order to draw out the hidden knowledge and narratives that exist in relation to it. In her discussion of memory-work on a Montana homestead DeSilvey (2007b:404) has referred to this as “writing through the grain of things”. The work grows out of the material and “Off the story goes…” (DeSilvey ibid.:408). Walter Benjamin has referred to this way of working in terms of ‘immanent criticism’ (Davies et al. 2009; McCole 1993). Benjamin was interested in how the character of an object can be unfolded in our working of it. This idea of unfolding “underscores the work’s inner dynamic and the production of new stages from within it…. making its potential qualities actual, its implicit features explicit” (McCole 1993:89).

In his discussion of reindeer herding in the Cairngorms, Lorimer (2006:499) also draws out the importance of allowing work to grow up from the material through intimate attention to the people (and in this case animals) and landscape. He refers to this as an ‘earthbound’ geography, a certain kind of “knowledge-in-practice and knowledge-on-the-ground that most faithfully animates the lived culture of the herd” where “individual understandings of geography emerge from repeated motion over a local terrain” (ibid.). Lorimer’s work explores the sometimes indescribable, tacit connection and pull that some landscapes and their communities hold, due in part to the specific knowledge and histories which exist there. He suggests a way of getting beneath the surface to unravel and explore some of these complex relationships with landscape, and find another perspective through which to understand the world. Such an approach:

“represents an attempt to discover how landscape can be reanimated by intimacy in conduct and encounter. Here, conceptual insights – however modest – into the formulation of landscape as something knowable,
meaningful, or recoverable take their shape through a conscious effort to turn inwards, to make repeated visits to things found on the ground or recounted in the act. This is an exercise that gathers its momentum from actions, ideas, and companionships already internal to the human [and animal] lives under investigation, or bound up – albeit sometimes loosely – in their shared experience” (Lorimer 2006:515).

This idea of a shared experience is an important one. It recognises that any piece of work that seeks to make a close study of a landscape – including human or natural elements of it – must give space to the wider community involved with it (Harvey 2010). This engagement has been addressed to an extent in areas such as public or community archaeology, where writing through and on landscapes of the past is recognised as multi-authored (Edwards-Ingram 1997; Greer et al. 2002; Moser et al. 2002.). However, these approaches can sometimes be overly laboured, and still run the risk of imposing on people rather than working with them. It is a more subtle sharing of landscape - and the knowledge that travels with it – that I am interested in here:

“There are companionships – ways of being there and sharing in landscapes – still only seldom articulated as phenomena actually formative of our inquiries” (Lorimer 2006:516).

I said earlier that knowing a landscape can bring it alive. Well, knowledge is something that is shared and passed on, and as such it does not sit with a single individual. To draw out some of the intricacies of landscape, therefore, requires the active recognition of these communities of knowledge. In this way, we are better able to appreciate the myriad perspectives of even one aspect of the landscape, such as stone on this one stretch of coastline. Acknowledging these other spheres of influence also opens up alternative ways of talking through the landscape; other languages to describe, or voices to hear (Matless 2014).

These subtle, multi-authored geobiographies and stories which interweave to build ways of knowing, seeing and acting in landscapes, need to be drawn together in a way that is open and sensitive. John Berger has attended to people in a way which naturally and sensitively
tells their story. As both artist and writer, Berger brings his slow, mindful looking to the ways in which he explores the world around him, and his expression of this in his writing (see, for example Berger 1972, 2002, 2005). Through his close observations, he allows the stories and descriptions to speak for themselves, giving them space to grow and develop in the imagination of the reader. Through these narratives, we are able to learn unconsciously, led by details of the environment, observations on behaviour and snippets of conversation:

“After a while the goat stepped off the ice and the pair of them continued on their way. The very desolation of the scene made them look like accomplices. The rockface rose up above them, sheer as a wall for three hundred and fifty metres. The massive pine trees at the top were just visible in the falling dusk, as small as sprigs of herbs.”
(Berger 1979:26)

Berger recognises the value of people allowing him to observe, of what they tell him, and of what he sees. In this way, his work remains focused on the people themselves, rather than his own presence on the scene. It builds knowledge delicately through them and the landscape around them:

“The way Pepe told me this story made me think he had never told it to anybody else. His telling me was a privilege.”
(Berger 1979:46, my emph.)

What Berger’s work also shows is how this vernacular knowledge is developed through everyday activities and embedded practices (Lorimer 2006:503). As a result it creates a strong link to and identity with place and specific landscapes. Ingold (2000) has used the term ‘taskscape’ to refer to an understanding of landscape that is rooted in the activities of dwelling. In this way, we could understand that someone sourcing stone for an axe in the Neolithic might perceive the landscape in a very different way to someone trying to grow crops. Our focus in the landscape is often drawn in by very practical concerns. This can be drawn out further, to consider how our physical and practical engagements with the land “is a way of knowing from the inside” (Ingold 2013:11). It is these ways of knowing that are
rooted in practical experience – and how they can be narrated - that I am particularly interested in here.

The landscape is woven by interactions between the earth and our narratives, meanings and memories. They are rich with multi-vocality, and different ways of seeing (Edmonds 2004). As such, time and space must be given to listen, even if the resultant narratives are sometimes untidy, non-linear or variously charged (Bender 2001, 2002). Ingold (1993:152) states that, “the landscape tells – or rather is – a story”. I would say that it is many stories; stories that weave and jump. What is important is our ability to recognise them as such, and find ways of retelling them that pursue different scales and visibilities. In this way, it is hoped that we can go on into the future with a greater awareness of, and humility towards, the physical and social worlds around us, so that we might “tread more carefully” (Edmonds 2004:8).

2.2.1 Scales and Time

Made up of multiple on-going events and processes, landscapes are places of rhythm. The seasons, weather, and daily and momentary changes come together to form a feeling of place. This is something I see reflected in the archive of photographs accrued during the research, as you will see in the following chapters. The coast itself is particularly rhythmic (Jones 2010; Ryan 2012). The sounds and sights tied up with the tides create a rhythm that is the background to life on this coast: a cadence of land meeting sea. Early in the research it struck me that the coast was like an orchestra, full of multiple, interweaving events and processes. Sometimes a regular beat emerges, only to break down and form again. The landscape breaks down into pieces: season, tide, wave, cry of gull, erasure by wind and emergence again. This comparison is by no means an original idea (see for instance Harrison et. al. 2004), but it feels a natural way of thinking of the ability for different elements to fall into step, and out again; to be regular and beautiful, or arrhythmic, asymmetrical and sometimes ugly (Thomas 1996).
The landscape is keeping time in these small moments, that build to form layers, then cliffs, then whole environments. It is “time materializing” (Bender 2002:103). Landscape is never finished, static or formed; rather it is always in formation, coming into being (Bender 2001,2002; DeSilvey 2012a; Edmonds 2004, 2006; Ferraby 2015; Harvey 2010; Ingold 1993, 2000; Massey 2006; Merrimen et. al. 2008; Morris 2013; Thomas 2006; Tilley 1994, 2004, 2006; Wylie 2005). Nowhere is this more obvious than the coast, where time is visible as a cut section. The cliff stratigraphy is an edgeland of formation, reflecting millions of years in the making. And that solid, timely mass can be just as easily pulled back into beachy mixings and underwater eddies in one storm. Being by the coast allows us to see landscape processes in action, and the results of environments been and gone. It also gives us a different perspective of the land as we travel inland, bringing that coastal imagination with us.

Being aware of the temporality of landscape (Ingold 1993, 2000; Tilley 2006) and the multiple narratives flexing through them, allows a greater consideration of the complexities we can pull out of them and the stories we can tell. This also relies on certain ways of seeing (Berger 1972; Edmonds 2006). It is easier for us now to see spatial and temporal links between landscape features thanks to the emergence of certain technologies that grant the opportunity to dissect the landscape in a way previously unknown. With the advent of aerial photography at the beginning of the twentieth century, it became clear how many archaeological and natural features connected over huge areas, and more importantly, over previously unanticipated timescales (Hauser 2007, 2008). Since then, remote sensing has developed so that now we are able to map whole landscape histories without disturbing the earth (see for instance De Smedt et al. 2014; Powlesland et al. 2006). The multi-layered images that result show the ebbs and flows of activity in a wealth of varied forms, allowing us to reconstruct past activity and change on a landscape scale. These methods, along with widely available satellite imagery, have changed our way of seeing and understanding landscapes. It is more visible than ever before just how much our lives are wrapped into on-going, extensive and multiple temporalities of landscape (Ingold 1993). We can now play with timespans, “differential effectivities of contrasting temporalities – between, for example, the temporalities of the taskspace and the temporalities of techtonics” (Massey 2006:33). In this way, it is possible to create narratives that can flow and fold more seamlessly between natural and cultural elements. It is by taking this long view across past
and present, and by having an archaeological imagination (Hauser 2007; Shanks 2012) that can stretch into the geological, that we gain a much greater sense of our relationship with the land.

As well as going deep into landscape, into its layers and fissures, we also need to look at its scale more generally. When imagining what counts as a landscape, we may think of rolling hills, a coastal range, a desert, or urban sprawl. But looking at certain representations, within archaeology particularly, a new way of seeing emerged for me. In the detailed abstractions of soil thin sections, the close up study of a fragment of worked stone or ceramic, a new type of landscape emerged: tiny yet huge worlds that challenged any sense of scale, a whole topographic existence caught in miniature. It came to me that our exploration of landscape can take place on any scale, something echoed by Kathleen Jamie (2012) in her exploration of pathology or some of Robert Smithson’s telescoping art works (Yusoff and Gabrys 2006). And if we extend this to stone specifically, it takes on another dimension. Looking close in at a piece of Purbeck limestone for instance, we might see not only the vision of a landscape in miniature, but also the actual components of a real environment on a much larger scale. Sections of particular shells can be opened out to imagine a landscape of 130 million years ago, the collection of sediment reflecting movements of water, or the speed of accumulation. So to think through landscape is not just a matter of walking, of looking out, it is also a matter of looking in, peering at small things, observing the minute details that make up the world around us in all its complexity.

2.3 Creative Process

I slide the heavy paper out of its bed in the middle shelf: a Somerset Grey, cotton rag with deckle edges. It’s a neutral surface on which to begin. Paper divided down thick tear lines, it is stacked neatly to one side, ready. I can imagine the placement of layers upon the paper, the balance of colour and tone that will be needed. My positives, long in the making from the scraping
clear of thick black acrylic on mark resist, have been exposed on the screens. I fiddle with the screen bed, slotting in the screen, tightening screws stiff with age. Four neat intersections of masking tape mark the registration on the bed where each piece of paper will be slotted, images repeated. I mix the colour for the first layer, all the time imagining the other layers, the other parts of the image that will build to form this landscape. When the perfect tone and transparency are found, I apply it to the screen. Vacuum on, hum begins, squeegee settled, pushed evenly back to spread the ink, bed down, and finally pulled back firmly towards me. The first component of the landscape is down. The screen is washed and dried, the next colour mixed and prepared.

All the time as I work my mind is drawn into these green, building landscapes, and out into the landscapes that I work in. As the vacuum turns on and off, I think about aerial photographs, successions of soils and gravels deep down holes, textures felt by trowel and mattock: the thin traces of forms of what once was. Whilst building the landscape on the paper, my mind is simultaneously peeling back those landscapes out in the earth. The textures and marks that I have so long meditated upon are gradually translated and rearranged, replaced upon the paper. Ways of seeing in the earth are concreted and recreated. These two ways of working – physically out in the landscape doing archaeology, and in the print workshop - are my way of taking off and putting back layers of the earth, one by one in crisp, well trained order. They are ways of getting to know the physical realities of the landscape along with my own visions and interpretations of them.
Thwing (an archaeological landscape)
Screenprint 2010
Screenprinting is one way I have found to think through landscape. To be able to layer varying tones, colours and opacities on paper lends itself to the stratigraphic imagination I employ as an archaeologist. It is a way of thinking that has influenced this research in its focus on narrating the deeper layers of the earth. This demonstrates how the complex knowledge and meaning that form our understandings of landscape can benefit from creative approaches. By engaging with a range of techniques and ideas that span disciplines, these subtleties can be absorbed and communicated in different ways.

Both archaeology and geography have now recognised that there is more to art than a finished product: that it is a process rich with possibilities (Hawkins 2011, 2013; Russell and Cochrane 2014; Smiles and Moser 2005; Thomas 2014). Much has changed since Meinig wrote that “that Geography is an art as well as a science is an old and common assertion with precious little substantiation” (1983:314). In both disciplines there has been a broadening of approach more generally, and a push to collaborate with artists (Callery 2007; Lorimer and Foster 2007; Merrimen and Webster 2009; Renfrew 2003) in order to better understand how creative practice might inform more academic work, to see where things might lead. Artists have long engaged with landscapes and our relationship with them (Cardinal 1987; Smiles 2007). Increased collaboration has brought insight into other ways of seeing the work being done, as well as a reflection of how we as archaeologists or geographers can carry it out. Discussions about art seem to have been particularly prominent in work that has explored landscapes and materials. In archaeology, discussions of art have moved beyond the realms of just reconstruction illustrations, art in the past, or the product of representation, to thoughts about how arts processes can reflect what it is we do as archaeologists and how we construct different understandings of the past (Edmonds pers. comm; Russell and Cochrane 2014, Shanks et al. 2012). In particular, there has been attention to how certain artworks or artists can draw out the sense of being engaged with landscape and materials (DeMarrais et al. 2004; Renfrew 2003).

It is for this reason, perhaps, that the work of sculptors and land artists – those making interventions in the landscape – is so popular with archaeologists since they are also “engaging with the Earth’s surface at a fundamentally human level” (Wightman 2004:114). These particular arts practices offer a way of understanding materials, and a process of learning to experience them in different ways (Renfrew 2003). It is also the development of
another way of seeing: one that can be brought back to focus on our different areas of research in new and refreshing ways. Richard Long, for example, is an artist whose work seems to slot particularly well into archaeological modes of thought, and has proved an interesting intersection for reflection. In ‘Figuring it Out’ (2003:34) Renfrew’s defining book on archaeology and art, he takes this passage from Long’s *Five, Six, Pick up Sticks*:

“I like common materials, whatever is to hand, but especially stones. I like the idea that stones are what the world is made of.”

However, there is still much to be done to develop this relationship between art and subjects such as geography and archaeology. There is still a perceived boundary, whereas often the best work is produced where the subjects naturally glaze into one another. Space should be allowed for these approaches to blossom (Cresswell 2014), to find the ones that suits us best; ones that “function(s) like a key that unlocks a part of ourselves that we never knew was there” (Pullman 2014).

In many ways, the combination of art with more earthy subjects is not new. Like drawing, painting, and sculpture, geography and archaeology require close engagement, observation and recording of the world around us. For a long time, an aptitude for the visual was vital for recording the details of the world: James Hutton’s strata of the south coast, archaeological drawings of trench stratigraphy, watercolours of finds (Nurse et al. 2007), or Darwin’s drawings of creatures (Donald and Munro 2009). It is this natural affinity between these subjects that we are re-discovering now. The value of working with a visual approach is not just the resultant artwork, it is mainly in the close attention that it requires. This careful observation of the world is also a way of thinking through ideas, and settling that thing amidst a larger interpretive outlook (Bender et. al. 2007).

Archaeological drawing, for example, is still deemed very important on site even with the arrival of digital methods of survey and recording. This is because in the process of drawing a section, a good archaeologist will always be thinking of what the stratigraphy means: its implications in the larger interpretation of the site. As you draw you ask why and how, as well as etching those thoughts onto your mind. I can remember sections of barrow
ditches, pits, foundation cuts, that I dug 10 years ago, because of the concentration of observation I applied to both their excavation and recording. The archive of drawings is also a trace of all the ideas about each layer that has been dug: an athenaeum of the excavation. Some of the most influential archaeologists have been those with an interest and engagement in the visual arts – Phillip Rahtz a photographer, Dominic Powesland a graphic designer, Mortimer Wheeler an arts student – who went on to develop certain ways of seeing that have been drawn into the discipline as a whole (Bradley 1997:63). These representations are a reflection of our endeavours to understand who we are and how we relate to the wider world: another way of engaging with landscape and the cultural web we weave with it.

Geography too, has seen a real growth in creative approaches, giving the space for playful cross-fertilization between disciplines (Hawkins 2013, 2015). The last decade has seen geographical work that has drawn upon practices including performance (Lorimer and Wylie 2010; Pearson and Shanks 2001), creative writing (Cresswell 2012; Lorimer 2013; Parr and Stevenson 2014), photo-essays (DeSilvey et al. 2014; Wylie 2006a) and film (Pink 2007, 2009). This diversity is to be celebrated. However, specifically with reference to the visual arts in geography, more tends to be written than done in practice. This of course has its benefits, and is driven by necessity in an academic world where recognition is still focused on publication output. But without the deep knowledge and real connection to the process of creating art, some writing on the subject can lack depth and conviction. There is sometimes a tendency to use art as a vehicle for theory (Hawkins 2011, 2013; Rycroft 2005). This can sometimes leave discussions about art and geography tired and dulled. Perceived distinctions can become inflated, which do not seem so relevant as a practicing artist, for example Tolia-Kelly’s (2012) paper on the supposed divide between art and visual culture. Sometimes it’s best not to try and verbalise some aspects of art: it is a dialogue in itself that cannot always be easily translated. My own creative practice has emerged naturally throughout this research. It would not have been convincing if only included to prove a theory or be part of the current geographical trend.

What is also important to consider is how we draw images and text together. All too often, these are considered separately: images added as an illustration to a point in the text. The emergence of authorial illustration (Braund 2012) stresses the need to recognize
illustrations as key to meaning-making, and how we can imaginatively play with narrative through the combination of image and text. It is to storytelling that we turn to next, as we consider how the diverse and complex narratives of stone can be handled in a way that gives them imaginative space.

2.4 Stories

How, then, do we begin to find ways of telling these stories, of narrating these tangled biographies? Allowing an inter-play between literary and visual language gives space for stories to tell themselves, for people to use their imaginations and make their own connections. The space we leave around a narrative is often as important as the form we make visible. In this way, words and images can play off one another in “a kind of accidental poetry” (Tan 2010:3), sometimes taking the narrative off in an unforeseen direction. Some of the meaning is left for the reader to find themselves, and in this way this form of authorial illustration can encourage us to ask questions about what we already know, or are in the process of finding out:

“If we are told what is, we lose the sense of play involved in wondering what might be. Various elements within the work are brought into dialogue with one another… generating correspondences and allowing the audience to fill in the gaps with their imagination. The audience become immersed and engage with the work on a deeper and more rewarding level” (Braund 2012:432).

In this way, the work and the reader can be seen as “meeting halfway” (ibid.:438). Sean Tan, the author and illustrator, describes the implications this has in the impact the work has on us:

“At its most successful, fiction offers us devices for interpreting reality, and imagining how many such interpretations might be possible. The novelist
Milan Kundera has said that we go on being children, regardless of age, because in life we are always encountering new things that challenge us to understand them, instances where a practiced imagination is actually more useful than all that laboriously acquired knowledge” (Tan 2002:8-9).

This is not limited simply to visual arts. Rather, it is an opening up of ways of telling more generally; narrating these complex relationships between materials, people and landscape, in ways that preserve their complexity and delicacy. How can we allow for the expression of different voices, rhythms and histories, ways of knowing and being, which have been discussed as such important factors of understanding our world? Ingold states that stories are “an education of attention” (2013:110). This whole piece of work has been a process of me making sense of what it is I have discovered out in the landscape, drawing together conversations and experiences. But it is also about allowing the reader to feel close to those too: an opportunity and space in which to become embedded in that particular world too. John Berger, in his collection of stories and essays ‘Bento’s Sketchbook’ (2012:84) puts this very aptly:

“When we are impressed and moved by a story, it engenders something that becomes, or may become, an essential part of us, and this part, whether it be small or extensive, is, as it were, the story’s descendant or offspring… it is as if the bloodstream of the read story joins the bloodstream of one’s life story. It contributes to our becoming what we become and will continue to become.”

In this way, a story takes on life: it does not stop at its telling. Rather it continues, propelled by telling and re-telling. Stories are a way of teaching, from the earliest myths and fairy tales (Pullman 2013), and as part of the oldest traditions. But they are also a way of remembering. We all remember a story from childhood or the plot of a film, when we forget many of the details of more factually presented work. They allow us to capture different elements too, which may relate to us personally, or hold resonance. Stories can act, then, as:
“a kind of junction or relay, a point of contact and emergence for the background current of residual landscape memory. A momentary ‘charge’ brings the past and the present briefly into alignment, and then flickers out” (DeSilvey 2012b:55)

Most of all, telling stories is a way of letting the imagination go, entering a different world for a while and allowing the mind to wander, as Phillip Pullman (2013) says:

“It’s the sense of sharing something, I think. The sense of sharing a wonder. These are wonder tales and if you don’t get all straight and anxious about them, if you let the wonder just flower and take root and enrich the [child’s] imagination… you’ll be the better for it. And there we are.”

Knitting in a sense of shared biography, a vivid sense of landscape and actions, stories are able to embrace and express any dislocations in temporalities or sometimes disparate aspects. It is often only by going through the process of making the work that meaning begins to emerge. A creative looseness is needed that allows for somewhat unruly narratives to announce themselves, and be set alongside one another:

“Like the geological cross-section or the excavation trench, such writing works with the folds and abutments which cause non-contiguous elements to become neighbours within its boundaries” (Wilkes 2014:6).

Being able to play with words, structure and images enables a more adventurous way of telling that suits the exploration of these complex worlds, especially when it comes to suitably reflecting the rhythms, temporalities and disjunctures that may be encountered: “landscapes told as a distribution of stories and dramatic episodes, or as repertoires of lived practice, can be creatively recut, embroidered, and still sustain original narratological integrity” (Lorimer 2006:515). In this way narratives offer a way of not only re-presenting events, but also of re-structuring experience (Moszkowicz 2012).

Ideas of narrative have been well explored in cultural geography, contrasting with the relatively small amount written on narrative in archaeology, where this ability to play with
temporal events and processes with different forms of writing would really be of real benefit. This contrast in attention may be due to the alternative outlets available in archaeology: to the ability to tell stories in museum settings or through series of objects (Edmonds pers. comm.). In this research, which goes deeper than the archaeological into the geological, the freedom offered in narrative approaches gives a way of bouncing back and forth and joining stories over millions of years within the world of stone. To be able to lend imaginative narratives, in writing and imagery, that play with time in this way is essential. It opens up the geological as a rich ground for telling stories that can happily ignore any supposed boundary between nature and culture, or past and present (Daniels and Lorimer 2012).

The ways in which narrative has been experimented with thus far are diverse, and suited to the particular material being dealt with. Where we are not limited by academically excepted outputs, this might take the form of designing books whose very design physically defies a neat linearity of time (Black 2012). But within academia, creative responses to these temporal challenges are emerging. Caitlin DeSilvey practices a reversal of narration in her exploration of Mullion Cove, “looking to a fractured landscape past to find resources for encountering a future unmaking” (2012a:31). In doing this, she asks, “Might it be possible to experiment with other ways of storying landscape, framing histories around movement rather than stasis, and drawing connections between past dynamism and future process?” (ibid.). As quoted earlier, she talks of stories being able to bring the “past and the present briefly into alignment” (2012b:55), experimenting with these temporal shifts to question our place and understanding of our landscapes.

Mark Edmonds, in his work on Neolithic quarries and axe production in Cumbria (2004, 2006) has also written through and around the past and present. He uses voices from the twentieth century to colour and animate our potential understanding of the distant past, showing again how “working at a landscape scale goes against the grain of our inclination to break the past into discrete time slices” (Edmonds 2006:168). In our own attempt to narrate ideas emerging from the archaeology of these Neolithic quarries (Edmonds and Ferraby 2013), we have run two journeys in parallel: the journey up and down the fell to quarry stone in the Neolithic, alongside Mark’s own journey of working there, told through his on-going relationship with a particular roughout (a sketched out, unfinished axe form).
Using a visual-prose-poetry to narrate these parallel temporalities allowed us space to describe the close details of life lived, along with the larger processes and changes in the environment.

The approaches explored above show that different ways of writing, as well as how we bring in visual aspects, can offer a variety of ways of exploring and presenting research. It also emphasises how we need to be prepared to use creative methods, and specifically the ways which suit each of us as authors, to tell these stories (DeSilvey 2007a). In a recent conference presentation (Ryan 2013) Anna Ryan spoke about trying to engage architecture students with landscape through creative writing. After briefly introducing this, the next fifteen minutes were spent listening to her own piece. We found ourselves walking out by the coast, exploring a building looking out to sea, before slowly, regretfully being returned to a stuffy university room with hard chairs. In that piece of writing we saw that landscape, each engaging in our own ways. By writing without clear academic intent, ideas emerge gracefully and often remain far longer. Such experiments in writing are emerging more and more in geography (for example Lorimer 2013; Wylie 2005), hopefully opening up the field for other endeavours.

In discussing storytelling, we must also consider the importance of the voice of the narrator. In his exploration of writing place, Wilkes suggests that “landscape writing should be a torqued form, pulled between personal engagement, particular detail, and wider relevance” (2014:8, orig. emph.). To achieve this balance can be difficult, and sometimes some elements dominate. Some of the modern ‘nature writing’, for all its different approaches and creative telling, has sometimes become self-centred, a danger explored with great aplomb by Kathleen Jamie (2008), and by Wilkes (2014:141), who bemoans how:

“the first person narrator, assumed to be identical with the biographical author, still prevails in many examples of new nature writing, to the point that this emphasis on the subject-centred viewpoint can limit the potential landscape, levelling its variety and flattening its polyvocality”.

David Harvey (2010:348), in his exploration of narrative in archaeological landscapes also argues that “in making space for some ‘other stories’, however, we should allow space for
other story-tellers”. Harvey reiterates again how important it is to value knowledge and ways of seeing, “it is the ‘real’ material and connotative consequences that these voices have that makes them worthy of consideration” (ibid.).

2.5 Cultural Geology

With this narrative imagination in mind then, it is possible to explore notions of landscape and materials in interesting ways, including through different methods of working, close observation and an appreciation of other voices. Now we can explore how this applies to stone: how the geological can give us another way of understanding and engaging with the world around us, and another way of telling. This section will draw in these branches of discussions into a more specific exploration and development of cultural geology.

“The science of geology is wide in scope and general in application; it deals with matter and with life, with time and with space; it touches the philosophical and borders on the romantic; majesty and beauty are its essentials, and imagination is necessary for its pursuit. The cultural value of such a science is not to be despised” (Parks 1925:432)

Geology has found popularity within the humanities in different ways, often providing a physical metaphor for more intangible concepts and ideas. Stone particularly has been seen as “emblematic of obduracy, with a hardness, weightiness and apparent immutability epitomised by the phrases ‘hard as rock’, ‘stony-faced’ and ‘turn to stone’” (Edensor 2011:240). Aspects of the layered, stratigraphic and temporality of geological strata have also been borrowed as useful ways of thinking and talking through the land, “the dense tectonic plates of humanity” (Serres 1995:16). With these apparent properties in mind, it has been taken up in various forms, a written transformation and confirmation of mind and matter.
The most prominent of these currently is in discussions of the Anthropocene, the driving force of the ‘geological turn’. The Anthropocene is a rapidly growing realm of geo-philosophy and physical geography alike, but is also spilling over into many other disciplines such as archaeology. The idea of the Anthropocene is that human action is now a visible and definable layer, or epoch, in the geological stratigraphy (Crutzen 2002; Crutzen and Stoemer 2000; Yusoff 2013), though where chronologically the exact traces of this begin is still under debate (Brown et al. 2013). Some (Crutzen 2002; Edgeworth 2014) place it at the end of the 17th century, whilst others mark it by other anthropogenic changes to the Earth such as the beginnings of agriculture changing the atmospheric balance (Ruddiman 2003) or more recently, the first detonation of the atom bomb. The result of this identification puts our activity on an equal par with the in-human: with tectonic might and large timeframes of environmental change (Yusoff 2013). This really represents a ‘social geology’, with humanity as geologic and a geomorphic force: in other words, it foregrounds the human. It is an approach born out of a concern with industrial human impact on the Earth, climate change and consequent environmental catastrophe, and one which, therefore, side-lines the character and nature of geology itself. The term gives it away: it’s anthropocentric. It highlights a certain lack of modesty, acknowledging “ourselves as the superstars we have been for some time” (McKay 2013:46).

Regardless of arguments about what marks the beginning of the Anthropocene, the physical remains of human activity in the Earth’s strata is archaeology. This includes ‘contemporary archaeology’ as we see when we dig development sites strewn with wires, rubbish, trenches and concrete, right back to subtle traces in the landscapes from our evolutionary roots as hominids. Edgeworth et al. (2015) refer to this as the ‘archaeosphere’, but it seems an unnecessary distinction. Excavation reveals the subtle distinction between archaeological deposits and features, and the natural; inventing new terms to explain this tends towards an unnecessary complication in a process of understanding that is deeply rooted in individual interpretations of layers. Perhaps, then, what the term Anthropocene is really suggesting, is the wider, negative effects of human endeavours on the Earth and our reactions to them (Latour 2014).

For all the talk of “geologic subjectification” (Yuseff 2013:781), the Anthropocene is a projection of human conditions onto, and appropriation of, geology, rather than working
through and with the geologic itself. What discussions of the Anthropocene have done, however, is make us think about the geological turn in terms of a temporal device; a “wrinkle in our idea of time” (McKay 2013:46), a way of thinking about where we fit into the vast geological timeframe. Edgeworth (2014:74) describes this as a:

> “collision of scales, a colossal shift in focus from macro to micro levels, as geological perspectives move from four and a half billion years of Earth history to focus in on the relatively brief period of human evolution and technical development, and the thin envelope of material deposits associated with it that will arguably one day form a geological layer in its own right”.

A way of working with the geologic that settles better into my own work is that of geopoetics. By this I do not mean mere explorations of ‘space’ and ‘place’ and their relation to time (Mitchell 2000). Instead I am referring to an approach to the geological that works through real and physical matter, with the “humility of poetic attention” (Ferguson 2009:182). In some ways then, this goes back to the earlier discussion in this chapter of the importance of careful observation, maintaining a sense of wonder and curiosity and being open to the world. It was this imaginative response to observations that was desired by Harry Hess when he first used the term geopoetics. Hess’s work, amongst others, led to the scientific understanding of plate tectonics in the 1960s. He felt that the discovery was so abstract, it needed a certain way of thinking to be able to be able to accept it, and therefore asked people to:

> “suspend their disbelief long enough for his observations about seafloor spreading… He needed his audience, in the absence of much hard data, to *speculate imaginatively*, as if reading poetry” (McKay 2013:46, my emph.).

This imaginative approach to the geological is key here, providing a loose flow of narrative between people and stone, allowing stories to emerge.

Geopoetics also refers to a certain kind of geological thinking, “a bold condensation of culture and geology” (Wilkes forthcoming:1). Some poets use stone and the geological more broadly as a metaphor for human emotion or action. A poetic approach can weave
through ideas of stratification and temporality, advocating ways of learning about and producing work on the often disjointed, fractured and non-linear nature of deep time. Once aware of this ability to poetically meander through temporal strata, it becomes possible to draw out narratives that bounce between epochs, drawing together small moments of human lives with epochs, changing environments and long extinct creatures. Writing and thinking in a way that joins facets of stone, allows for “hybrid, multiple, simultaneous interpretations” (Madge 2014:180). It is revealed how it is possible to tell stories through time and through material, drawing again on Massey’s (2006:46) comment that landscapes can be thought of as “intertwined simultaneities of ongoing, unfinished stories”. Wilkes (forthcoming) writes that:

“geological realities create specific affordances for thought… kinds of ‘landscape writing’ in which the material of the terrain works on the author, complicating the received idea that to write a place is to shape it… here one feels the geology pushing back”.

In contrast to work on the Anthropocene, this work is foregrounding the geological: it is work that is composed from the minerals of the earth. McKay advocates this way of thinking as it forces a shift, we have to put effort into it, “one feels one’s thinking stretch as it takes on the remote possibilities” (McKay 2013:48).

Others have realised the potential in the geological, and in stone more specifically, for narrating through the ground (for instance DeSilvey 2012c; Lorimer 2012). Similar work has ranged from those looking at geological and social stories and knowledge in mines (Walker Barker 2006), buildings (Edensor 2011, 2012) and sculptures (Harvey et al. 2011). There have also been a number of biographies connected with stone emerging (for example Murphy 2010; Neild 2014). But perhaps the most influential work on my own thinking, has been ‘A Land’ by Jacquetta Hawkes, as mentioned at the beginning of this chapter. Hawkes was an archaeologist with close connections and interests in the art world. She used her archaeological imagination to explore the nether-surface of Britain, through its geology, archaeology and artists:
“In this book I have used the findings of the two sciences of geology and archaeology for purposes altogether unscientific. I have tried to use them evocatively, and the image I have sought to evoke is of an entity, the land of Britain, in which past and present, nature, man and art appear all in one piece.” (Hawkes 2012:vii)

This introductory statement reveals this same desire to use the power of imagination and curiosity to break down temporal and disciplinary dichotomies. It is particularly this way of cruising through temporal scales by poetically narrating through stone that has drawn me to Hawkes’s work, time and time again. It is the excitement evident in this work which continues to attract attention, the evident joy found in small observations across temporal scales:

“I see modern men enjoying a unity with trilobites of a nature more deeply significant than anything at present understood in the processes of biological evolution; I see a land as much affected by the creations of its poets and painters as by changes of climate and vegetation.

The nature of this unity cannot be stated, for it remains always just beyond the threshold of intellectual comprehension. It can only be shown as a blurred reflection through hints coming from many directions but always falling short of their objective” (ibid.).

Though some may view this as outdated, and others may sneer at the vibrant approach (MacFarlane 2012), the writing, a “geological prose-poem” (ibid.), has proved inspirational, and its reissuing (2012) reflects the current popularity and interest in matters of the land. Lorimer (2012:87) describes how through Hawkes’s particular way of telling stories, “mineral memories and body memories are unlocked in tandem”, a sort of “experimental earth writing” (ibid.:90). ‘A Land’ is, therefore, a cultural geology of the British Isles.
Up until this point I have just referred to ‘the geological’. I would now like to concentrate specifically on stone as a cultural geology. This work is about stone, not rock. Rock implies the raw material; stone the mineral and cultural mix:

“While rock is the mineral substance in its natural, untouched state, involved in cycles of erosion, stone is rock put to use, appropriated by the mind, thought-thickened” (Ferguson 2009:183, my emph.).

Since humans have had such a long and enduring relationship with stone (Conneller 2011; Edmonds 1999, 2004), the opportunity to narrate cultural geologies arises in a myriad of contexts and temporalities. Viewed without meaning, stone acts as a backdrop to life, albeit an often scenic one. But when seamed with stories and approached with a curious mind and imagination, it comes alive. A cliff face becomes a fragmented anthology, a collection of fossils, a tardis of worlds, past and present. And the different properties of these materials, the tales of their formation and transformation, affect the ways in which we interact with them, our relationship with them, and as a result mould the stories we tell with them into the future.

In this research, limestone has come to dominate, though the shales and clays of the Jurassic also play a part. The attraction of limestone was in its strong cultural geology, “when I try to imagine a faultless love/ Or the life to come, what I hear is the murmur/ Of underground streams, what I see is the limestone landscape” (Auden 1951). Limestone has been drawn into human spheres because of its very particular properties: it is good for working with and for building. Formed in shallow seas and inland swamps, its sediments are often peppered with the remains of creatures and plants: etched traces of past landscapes. The different limestones on the coast are used in different ways according to their unique properties: Beer stone because it is so soft to quarry out, Purbeck marble because it is hard enough to take a polish. In his study of Adrian Stokes ‘Stones of Rimini’, Wilkes (forthcoming) describes how “Limestone’s mutability gives Stokes the permission to slip between geology, art and the organisation of society”. Limestone is used in so many different contexts that it provides a way in to many different worlds: Roman columns, a smart building in the City of London, the floor of a cathedral and a bookend on a shelf.
Connected to limestone, then, are those who quarry, cut and carve, lay and install, and who enjoy the results of these labours.

The shales and clays of Lyme Regis and Kimmeridge are quite different: dark grey dissolving layers, laced with the gassy smell of anaerobic water and death. Yet from these unpromising layers emerge some of the most important fossils in history of geology. They too are laced with stories and human links, but ones that bring together creatures and searchers, the finders and the found. In this way, the properties of the stone effect how the stories evolve into the future (Edensor 2012:449), and creative approaches allow these evolutions to be traced.

At the heart of this work, then, are stories in stone: the narratives that thread, dot and join stone with human lives across temporal scales and from the smallest details to the widest landscapes. They are stories in stone that wait to be discovered, mined and recreated. These cultural geologies are always in progress, being made and recomposed. In this way, our notions of who we are, and our place in the world is built, transformed and confirmed.

I want to end this chapter with a sculpture. In their discussion of stone, Harvey et al. (2011) discuss the work of the Japanese artist Atsuo Okamoto. Okamoto cut a granite block into 50 large pieces and sent each one to collaborators all around the world. For five years the pieces lived with that person, after which time they sent it back and the original block was rebuilt from the constitutive parts. The different lives those blocks had lived over the five years, the different environments they had been exposed to – cold gardens, damp corners, dry mantle pieces – had subtly altered their textures and colours. When reassembled, the whole stone became:

“a patchwork of colours, a visual reminder of the diverse movements each piece has undertaken” (Harvey et. al. 2011:187).

This stone became a gathering point of people and places, of stories and histories. Stones form a complex stratigraphy of life and narrative, earthy forms and biographic encounters.
This image has been removed by the author of the thesis for copyright reasons
Down on the beach at Branscombe, the sea has calmed after autumn storms. Its surface is pale and silky, its edges just slightly ruffled where water meets stone. I look at my booted feet that stand upon a mix of pebbles: flint nodules nested in soft chalk, smooth pale ovules, jagged and holed dark stones. Banks of pebbles; clusters of stories told and unknown, in creation and being lost. Back at the house, a small tray is set in the conservatory by the front door. As I take my boots off, I note the stones that fill it: half snaked coils of ammonites, pale grey and yellow, stones with holes, amorphous liths which must be turned about to be understood. These have been collected slowly from beaches along this coast by various hands that have selected them from all the others, finding fascination in these stone worlds.
CHAPTER THREE
METHODOLOGY
3.1 Introduction

“Looking brings closer”
Berger 2012:111

This work is an excavation of one particular part of Britain: a strip of coast, the seams inland, and the people intimately connected with it. Like any piece of work of this nature, it is hard to tie it down to any one disciplinary approach or any single methodology. Instead, it has grown out of the various disciplines and landscapes I have worked in, and from the people I have worked with. It has its roots in the wide ground of ethnography and includes being outside and getting immersed, making and masonry, photography and writing.

This chapter will explore the different methodological approaches that I have taken in the research, and show how these are closely interwoven into one another and the overall development of the research. It begins with a discussion of ethnography, before delving deeper into the landscapes that have formed the core of this research. The discussion then moves on to the way in which I worked with people, focusing in on a small number of people over a long period of time. The next sections focus on my visual practice, including photography, timelapse photography and film work. This includes instructions as to the use of the addition audiovisual material included with the thesis. The chapter ends on the role of writing in the work. These key discussions set up the role and importance of different practices that are the foundations of the chapters to come.

It should also be noted here that all drawings, maps and photographs are of my own making, unless otherwise stated. They have not been given specific figure references. They are there to illustrate but also tell stories of their own, and therefore give the reader the freedom to read them as they wish (Chaplin 2006).
3.2 Ethnography

“Ethnography is not a prescribed set of methods – it is a methodology that acknowledges the complexity of human experience and the need to research it by close and sustained observation.” (O’Reilly 2005:i)

The general aim of an ethnography is to gain greater understanding of people and their lives. In this case I wanted to look at how people’s work with stone affects their perception of the landscape, and how, in turn this can affect our own thinking about the land. How would gaining insight into the situated knowledge and processes carried out with stone by geologists and quarrymen on the Jurassic Coast open up different perspectives on those stone worlds, and the landscape more broadly?

The way in which I went about the research relied strongly on my own intuition and my reactions to the material and people encountered during the process. The research evolved very much through the practice. I was guided by what I experienced and by my conversations and discoveries out in the landscape. These accumulated experiences allowed me to combine a number of approaches which I developed and grew more confident with over the course of the research, enabling a flexible approach to the material and the direction of the research itself. The range of methods employed, including participant observation and creative practice, could be summed up as a form of ‘experimental geography’ (Last 2012). A background spanning a number of disciplines meant I did not begin the research with defined methods of ‘doing geography’. Rather, I used the combination of visual and ground-based approaches that I have learnt to employ in archaeology and art. In this way, the study could be seen as having created a new geographical methodology.

working through and with landscapes, materials and creative practice in geography is becoming more diverse and experimental. These creative and experimental approaches encouraged the sort of approach I have used here. To have had the freedom to react in my own way to the material has made this research what it is. It has also made a difference being in a department where so many different methods of work are undertaken (for example Cook et al., I. 2014; DeSilvey et al. 2014; Harvey 2010; Thomas 2004), and creative methods so encouraged, such as within the Geographies of Creativity and Knowledge Research Group, Exeter University.

As a cultural geology, this research involved drawing out the relationships and subtle narratives on the coast between people and stone. To get deep into these worlds requires time and most importantly, people with a close knowledge of the material that they were prepared to share. Having studied anthropology at university, and worked alongside anthropologists on archaeological projects, I knew the ideas and theory behind ethnographic research in the field. I had read patronizing accounts of work in Africa (Barley 1983) contrasted with deep, sensitive work on Romany gypsies in England (Okely 1983). In Sarawak, Borneo I worked closely on ethnographies of the ‘cultured rainforest’ (Barker et. al 2013). This project explored the different ways of tracing human action in the rainforest, from remote gardens, abandoned longhouses, myths and contemporary use of the forest. Though I was there as the geophysicist, I was intrigued about the ways in which the anthropologists went about talking to the villagers. It opened my eyes to the realities of anthropological fieldwork, and the importance of recognizing those people who were at the heart of it (McPhee 1969). It required sensitivity, and the need for the ethnographer to be “involved in humanity” (McCullin 2012) in order to create work that represented the realities of the situation without causing offence.

At the outset of my research on the Jurassic Coast, visiting and talking with some of the individuals involved, I found that being open to all these voices allowed very different perspectives to enter and distill in the work. It was formed and directed as much by these conversations, and the points of interest that materialized from them, as by my own prior knowledge and ways of thinking. As a result of this embedded approach the research has
Children playing in the longhouse in Pa’Dalih, Sarawak, Borneo
been co-constituted with the geologists and quarrymen I spent time with. I have felt this acutely, and realize that without their input and generosity I would not have been able to travel so deeply into the nuances of stone and the cultural narratives associated with it. Many of the people involved have become real friends, and been very supportive both throughout the research but also in support of the process of writing up. It has been important for me to put a great deal of care into these relationships, and I hope that the research does them justice. Through this co-constitutive process, it is also hoped that the communication of this work in the public sphere and the realms of quarries and geology on this coast, will be clearer and the impact positive (Lassiter 2005).

This ethnography of stone has been formed through a variety of practices. In discussing the methodology, this chapter is exploring some of the foundations of the epistemology and core ideas that underwrite the research. The following sections will outline the specific landscapes in which the research was undertaken, the ways in which I worked with people, and finally creative practices including photography, film, making and writing.

### 3.3 Being in the Landscape

For the two years prior to beginning this research, I worked as an archaeologist for a commercial unit (Cambridge Archaeological Unit). The second year there was spent slowly working our way through a site at Trumpington, in the south of Cambridge, ahead of the construction of a new housing estate. The topsoil had been stripped off down to the yellow sands and gravels, across which a host of archaeological features could be seen cutting the natural. Over that year we dug Neolithic ring ditches, studying the delicate pours of gravels from the raised barrow into the ditch; Iron Age pits rich with ash, pot and organics; Saxon sunken buildings and bed burials. Over one year, the site changed as the seasons turned into one another, areas were finished and left to grow weeds, and people came and went. The landscape grew inside me as every day its subtle changes
revealed a little more – a haze of gravel near a dark brown ditch, mist by the river, ice on the site hut door. That year was a rare opportunity to really get inside the landscape and get to know it in a unique and deep way, giving it time and seeing down into the ground. It is a way of knowing and understanding that I now seek out in all landscapes.

In ‘A Land’, Jaquetta Hawkes (2012:218) describes feeling connected with the earth, “pressing deeper towards the foundations of Britain”. A similar feeling of being immersed in landscape is found in the writing of Nan Shepherd, as she recounts her explorations of the Cairngorms:

“What more there is lies within the mountain. Something moves between me and it. Place and a mind may interpenetrate till the nature of both is altered. I cannot tell what this movement is except by recounting it.”

(Shepherd 2011:8)

What both Hawkes and Shepherd manage to achieve is an exploration of landscape that is curious and ripe with observation. Their writing reflects their sensitivity and passion for the material. My own study is an effort to achieve a similar depth and closeness; an attempt to burrow down into a landscape, to grow and understand the material and people working with it. From the outset of the work, I felt (more than thought) that I needed to get straight out into this new landscape and begin to form a relationship with it. To start with, the Jurassic Coast was a line on a map punctuated by place names and contexts of events spoken of at meetings, or locations of the finds of fossils. Some places caught my attention more than others, and I began there.

The drive back and forth from Exeter established a strange sort of rhythm – a way of getting to know the rises and falls of the coastal hills, the glimpses of sea and cliff. The drive became as important as the destination; a slow growing familiarity with places both visited and still mysterious. It was more than just movement up and down the coast. For me it has been the time when I think and piece things together. There is something about the changing landscape that induces thought. It has become a ritual of sorts, with the
passing of familiar way markers: a hillside outside Bridport sculpted with strip lynchets, the high pass to Dorchester with land falling away to either side, the pond barrows caught in low light, the top road from Kingston to Langton and the view across to Corfe Castle.

“On the drive down [to Purbeck], the north side of the high hills by Bridport were white with frost and frozen snow. They looked more beautiful and sculptural than ever, and I cursed that I couldn’t stop and photograph them.” (Field Diary 16 January 2013)

“From Burton Bradstock I had a really lovely drive. The whole landscape looked as though it were taking a deep breath of sunshine. The sea glittered at the end of valleys, hills were carved with shadows” (Field Diary 14 February 2013)

It has all become part of me, and my greater understanding of this landscape as it hunches and folds inland from the cliffs and beaches. It is more than just a coastline – it is the interlocking hills and valleys, the inland towns and villages, subtle traces of
archaeological features appearing and disappearing. The drive has helped form the connection between places, both physically and in my imagination. My car became a carrier of these places - boots and footwells thick with the pale yellow mud of Purbeck, quarry dust coating the outside - small reminders brought back with me as frail links to those other, much loved places.

From the coast I strayed inland, following seams of stone, people, stories and adventure. I walked down holloways and over hills, helped dig up fossils and layers of stone. I went down underground mine shafts and watched progress in the quarry yard. I stood out in storms and watched the waves crash and smash, sat on summer beaches flushed with visitors. I tried to immerse myself in these stone landscapes and get to know every side of their characters. Stranded for more than a few weeks in Exeter, I would feel an almost physical pull to be back out. I had a strange feeling of missing out if I was not there, camera in hand. It was a strong attachment which developed quickly and has remained throughout. This reflexive relationship with the landscape has driven this work to something more: it is now part of who I am. In turn, this has led my exploration deeper into the ground, extending the horizons of my inquiry, horizons of depth and distance.
Holloway near Simmondsbury
Lines and ditches on Maiden Castle
3.4 Choosing Stones, Sites and People

The landscape of the coast is long and varied, from slumping clays and rich red sandstone to hard chalk headlands and sheltered bays. As soon as I began my research I started to hone in on certain places, certain stone exposures becoming prominent in my imagination. In many ways, these places almost chose themselves. The roots of this work lie in the landscape; the route it took was formed very much by my own reactions to certain landscapes and people. The focal places in the research are ones in which there were strong communities of stone, in either geology or the quarries. Three places became the centre of the work: Purbeck (the Swanage area in particular), Lyme Regis and Branscombe/Beer. From these starting points a web of other connections began to grow and spread, so that different sites became interconnected. Inevitably, as the research went on, people recommended other people I should talk to, or things I should see. So from these starting points a network of other places and people grew, tracing lines through the stone up and down the coast. This interconnection between people and places also reflects the reality that none of these places exists in a bubble. Instead, they, and our perception of them, are affected by a range of influences and historical contexts. So, from these specific sites, we can follow the stone back out into the wider world.

3.4.1 Purbeck

The area of Purbeck upon which most of the work focused on
At the eastern end of the Jurassic Coast, the area around Swanage in Purbeck rapidly emerged at the outset of the research as a place I felt a strong connection to and curiosity about. I’m not alone in this attraction, as the hoards of summer tourists will attest, as well as the attraction of artists and writers who have long flocked to the area in search of inspiration (Denton 2002; Hyland 1998; Wilkes 2014). This limestone plateau unfurls inland to the north in a series of waves that rise and fall, ending in the Purbeck Ridge. Criss-crossing the wind-washed grasses are walls of Purbeck limestone. Houses, churches, roads and sculptures all reflect the long and intensive quarrying of the local stone.

My attention here was drawn by the shape of the landscape, the colours and light, clouds shadows racing over rich grasses full of creatures. At the outset of the project I was put in touch with the owners of W.J. Haysom and Son’s quarry (Haysom’s Quarry) in Langton Matravers. The quarry is now run by Mark Haysom, who is now the eleventh generation of Purbeck quarrymen in his family. His father Trevelyan (Trev) learned with his own father at their quarry out at St Aldhelm’s Head when they worked on the restoration of the Temple Church in London after the Second World War. Now they run a series of small quarries close to the coast outside Swanage, with a base at Lander’s Quarry on the Kingston Road. The Haysoms’ knowledge of stone is therefore deeply rooted in this landscape. From the quarry it travels out to the geology, history and natural history of the area:

“I came out of Trev’s museum, with odd flakes of snow falling. He spotted a peregrine falcon flying over and told me about how he’d been in a dinghy one day and seen one getting a young kittiwake from the cliffs. He said he’d noticed kittiwake numbers declining, so thought that maybe that was due to increased peregrine numbers. It was lovely to see it fly over: neat and crisp, like a dart” (Fieldwork diary, 18th January 2013)

Through them, I have had the opportunity to see across and beneath this landscape through an informed and curious lens. The quarry started off as a foreign environment for
me, but as the work and time has progressed, it has felt more and more familiar. Now, it feels like another sort of home.

Locations of the Haysom’s quarries in Purbeck: Lander’s is the main base for the yard

Stone is such a strong part of the identity of this area. The history of Purbeck is, in many ways, defined by the quarries that supplied stone for the tombs of Medieval kings, great cathedrals, piers, paving in London and sculptures. Its geology too has been the subject of study since the early days of the discipline, receiving the scrutiny of pioneers such as Buckland and De La Beche (1835). The landscape as a whole reflects these stony worlds and the people who occupy them. As a result, it is in Purbeck that I have spent most of my fieldwork time. I felt that I wanted to become part of this world, more than any other on the coast, or beyond. The emphasis within this research has fallen on this landscape. It is knitted into the wider coastline, but in fact the real attention lies inland, as the seams of stone head north from the sea.
A Purbeck view: Looking east from St Aldhelm’s Head across June meadows
Purbeck views: Renscombe (top) and Swanage Bay from the cowslip meadows of Townsend
The yard and showroom at the Haysom’s quarry, Purbeck
In the heart of the Jurassic Coast, roughly mid-way along its 98 mile stretch, Lyme Regis is famed for its fossil worlds and those who explore them. The rise and fall of its blue-grey and yellow cliffs to either side of the Cobb are the setting for stories about Mary Anning and Jurassic seas. In the winter, storms thrash the soft shales and limestone, whilst the summer brings hoards of tourists who whack at pebbles with hammers, hoping to strike lucky. The grey lias of the cliffs is striated with bands of hard limestone, as the marine conditions changed with the influence of the Milankovitch cycle (Hart 2009:43) or other orbital cycles (Cope 2012:8). The marine environment was sometimes rich with life then choked into stagnant silence as the sea levels changed. Trapped in the layers that formed, creatures and plants were fossilized leaving snapshots of the sea floor that can now be used to reconstruct these worlds.

Lyme was one of the first places I visited. It seemed somehow inviting, with the interest of the beach and cliffs balanced with the lure of bookshops and hot tea. It is also where Richard Edmonds, the Jurassic Coast team’s Earth Science Manager, lives and spends much of his time studying the geomorphology and hunting for fossils. It was Richard who encouraged my curiosity in this stretch of coastline, as he gave me the opportunity to understand something of the complexities of the geology here. The cliffs and beach gained greater meaning as he showed me different aspects of his research. My own relationship with Lyme also developed through some chance events that I happened to
witness: a succession of landslides, Richard’s discovery of an Ichthyosaur and the longer observation of change. These experiences of physical links to the material and landscape created a much closer and deeper experience. Being able to then talk through these processes and events with Richard meant that knowledge was built on a physical foundation. I could relate what he was saying to what I had seen. It gave it meaning and context, and in doing so, it found a place in my wider thinking about stone, people and the coast.
Church Beach with Charmouth and Golden Cap beyond

The Cobb
The ammonite pavement on Monmouth Beach with Golden Cap beyond

Richard hunting for an Ichthyosaur
When I moved to Exeter to begin this research, I stayed in Branscombe with friends until I found a house. Barbara Bender and John Torrence have lived in Branscombe for years, and set up the Branscombe Project – an oral history project in the village. My first days there were spent exploring the cliff paths and the undercliff, returning to the house to hear stories of smugglers, quarries, the changing beach (Farquharson and Dymond 2014), the recent wrecking of the cargo ship *Napoli*, the beach during the war. The landscape between Beer and Branscombe is alluring and magical to begin with: huge yellow and white striated cliffs towering over the undercliff; bright pinacles of stone rising from the vegetation to loom over the sea. The undercliff was formed by a landslide in the nineteenth century, and now forms a sheltered microclimate reminiscent of the Jurassic environment in which the stone was formed.

This secluded landscape was brought alive by the histories and narratives I was told. But it was the care and enthusiasm of the people in Branscombe that created a particular atmosphere inviting return visits. This stretch of coast became even more important to the research when I visited Beer Quarry Caves to investigate the quarry industry and its links with Exeter Cathedral. This glimpse under the ground, and the rich history which accompanied it, gave another dimension to this landscape.
Throughout this research, I have returned time and time again. I have spent time sitting, photographing, walking, talking here. I have been with friends and alone. I have spent many days in Barbara’s house by the sea thinking and talking through ideas. So Branscombe is not just a site that I have used; rather, it has shaped how I think. It is an inherent part of this work.

The cliffs between Beer and Branscombe
Hooken, Branscombe, and with Barbara and John
3.4.4 Other sites

What this summary of the main sites in the research reflects is that they go beyond just being ‘sites’ where knowledge may lie, or a study may take place. My relationship with them, as with any landscape, is complex and also quite hard to verbalise. Landscapes are often things which grow inside you, with different subtleties working to affect you. I chose to return to them again and again, and as a result was pulled deeper into those worlds. The landscape, history and material were all very important in my decisions. But so to, as comes across in the descriptions of all three places, were the people. It was the people who gave me a way into those landscapes; a lens through which to see the stone. Early on in my research I noted that I preferred places that I had explored with someone I got on well with, or where I’d had an interesting conversation or experience. These were also places where I could become involved in processes as they occurred; making, observing landscape change, talking to people in the space as they worked. By being part of these processes and worlds, it allowed me to gain my own perspective on events, rather than hearing them second hand. It also meant that I could get deeper into stone: I could feel it, see it, smell it, hear it. All this affected my experience, perception and greater understanding. All those senses combined to give a knowledge of the stone which went beyond the surface.
Around these three central landscapes, other places and people emerged as part of this web of stone. These are all interconnected, either through wider histories or more personal histories and relationships:

“The people in this project are a network, a web. They are woven together and I move between them, guided by their threads. I love finding out their personal histories in relation to one another”  
(Field Diary, 10 April 2013).

These other places and people connect collections of stone in buildings or archives, and are points of comparison and wider context or perspective. Although they will appear in this work in less detail, it does not make them any less valuable.

In terms of process and drawing stone from the ground, several quarry and geological sites were significant. Jordan’s Mine (Albion Stone Ltd) on Portland is a fascinating site and part of the rich history of stone on the Isle (Bettey 1970; Davies 1956; Stanier 1989; Thomas 1998, 2008). Visiting the mine made me begin to think about absence and negative spaces in the landscape, as well as a more specific historical and contemporary comparison with the Purbeck quarries. Conversations with the mine manager, Mark Godden, had a big influence on this work, especially in light of the crossovers between geological and quarrying knowledge.

A number of other places helped make sense of the overall geology on the coast, and some of the processes that go on there. These included explorations of landscape with Jurassic Coast geologist, Sam Scriven. Sam and I spent a number of days out walking and discussing the geology and archaeology of landscapes, and this opportunity to chat through ideas out in the landscape helped with the formation or solidification of some of the ideas that emerged through the research. We explored the coast and inland, in different locations that connected through larger geological features: Lulworth and Mupe, Abbotsbury and Portesham. We walked the holloways around Simmondsbury and stood surveying the land from the tops of hillforts. Working with Sam also led to my
Mark Godden at Jordan’s Quarry (Albion Stone) Portland
Sam Scriven: on some of our walks near Abbotsbury (top) and Lulworth (bottom)
involvement with two projects exploring fossil exposures in quarries. Horn Park Quarry near Beaminster is being conserved due to its importance in revealing the most continuous sequence of ammonites in the Inferior Oolite. The other site is Keate’s Quarry in Purbeck, where the longest set of dinosaur footprints in the UK were discovered in the UK. Being involved in the recording and conservation process of these footprints has brought them closer into my own sphere of thought.

There are also other places and people which involve stone collections and facilitated the drawing together of these networks of stone into an archive of sorts. I have discovered people and places where an enthusiasm for stone, and preserving aspects of stone cultures, has led to personal archives that are as much records of people’s own lives as they are of stone worlds. The curation of these very varied collections reflects this. Some collections form museums such as Steve Etches’ collection of fossils from the Kimmeridge Clays (the largest of its sort) in Kimmeridge. For the moment it is beautifully housed in his garage, but will soon move into a purpose built museum in the village. Charlie Newman’s museum in the room at the end of his pub, the Square and Compass in Worth Matravers, is quite different. Drinkers can peruse the material collected as a result of the passion that Charlie and his late father have for the stone in this landscape. In the Haysom’s Quarry up the road from the Square and Compass, Trev Haysom has made a museum full of wonderful finds from Medieval quarries, layers of stone, fossils and tools housed close to one another. All these individuals know one another, advising and helping, so that one collection begins to merge into another through these personal histories.

Stones stories also merge and collect in buildings. Exeter Cathedral emerged as a place where many of the threads of geology, quarrying, people and places combined and came to rest in its fabric. Different individuals could unpick parts of its story, and different types of stone could be traced back and forth from the ground into the larger masonry. Narratives overlapped and relationships unfolded in this waiting Medieval giant. I passed it nearly every day on my walk to work, and each day thought about those stones: some with stories waiting to be told, others forgotten with lost tales never told. Exeter
Cathedral forms the last of the substantial chapters in this work, marking as it does, a collection of many of the stones, people and processes introduced throughout the research.

This work then, will bring together some of these threads which exist in these stone worlds on the Jurassic Coast. The work is not meant to be an in depth geological work or total coverage of every bit of knowledge associated with quarries on the coast. The people who contributed to this work by sharing their knowledge are experts in their fields. As such, this is a gathering of narratives of stone, retold from my own perspective: a form of stone authorship.

3.5 Working with People

3.5.1 Conversations

The nature of my conversations with people varied according to the person involved and the point in the research at which I went to talk to them. Approaching some took more nerve than others. Even though I got more used to it as time went on, I still get butterflies in my stomach when I know I have to broach the research with certain people.

Since my PhD was based within the Arts Programme at the Jurassic Coast World Heritage Site, at the outset of my research I attended a number of meetings about various art projects, including Exploratory Laboratory (Black 2012; Black and Walwark 2012). Through this project, I decided to make contact with those artists whose work seemed to
run in line with what I was interested in. I was not quite sure where this might lead, but pursued it anyway. I interviewed the artists Mat Chivers, Simon Ryder and Zachary Eastwood-Bloom, and the collective Proboscis, all of whom were part of the project. Since I was not sure what I was looking for, these initial conversations comprised of discussions about the coast and what we thought of it. We talked about geology, the difficulty of finding an artistic route through the material, certain places, exchanged facts, explored and walked. Although these artists have not been included in this writing up of the research, they were important in how I found the heart of this research. They, like me, were new to the coast, trying to forge their own path through a well trodden topography. As a result these conversations were good ways of vocalising ideas and reflecting on my own ideas.

As well as these artists, my initial conversations were with the geologists on the Jurassic Coast World Heritage Site Team: Richard Edmonds and Sam Scriven. Because I was part of the team, owing to the collaborative nature of my PhD award, there were plenty of opportunities to talk to Richard and Sam, and they were always very willing to help, and generous with knowledge. They knew what my work was about, and could guide me towards particular people or events that might be of interest. They introduced me to fossil collectors and preparators, enthusiasts and experts. In the end, I spent a lot of time with them as individuals out in the landscape, discussing all manner of ideas.

It was harder approaching people by telephone or email, explaining what I was trying to do when I didn’t quite know it yet. I was fortunate that people were generous with their time, open minded about the work and welcoming when I met them. Once I had arranged to meet someone, I would spend time planning what I wanted to ask them, writing down a set of areas to cover or specific things to find out. Once there, I would be able to remember these to guide the conversation, without the formality of going through sets of questions. At the outset, I would explain the work, ask if I could record, get them to sign an ethics form, switch on the recorder, and begin. Sometimes, of course, the conversation naturally sparked up quickly before I had chance to get the recorder on. Every meeting varied; every one left me full of ideas and often with the feeling of having got to know
someone well even in that brief time. The conversations lasted anywhere between an hour and four hours, or longer if it were part of a walk.

Even as I got to know people better, it still took a great deal of nerve to contact them to ask if I could come again, if they could talk more. I would often feel quite anxious about it. I thought very carefully about people’s reactions, my approach. It was particularly difficult once I was back in the office, having not seen the person for a while. I would worry that maybe I had imagined that it had gone well, and would agonise about the right way of going about the next stage. Then, very often when I made my next visit, everything would be fine and my doubts proved unfounded. But, although tiring, I think this level of sensitivity and awareness of people is crucial.

### 3.5.2 Transcription

After the first recorded conversation was completed, I tried transcribing for the first time: a long, arduous process. I had to decide how much of the minutiae of the conversation to include, and whether to make note of, but leave out sections where conversation turned to irrelevant subjects (Crang and Cook 2007; Emerson et al. 1995). I found that I hated the sound of my own voice, but that I could quickly tell what did or did not work in the conversation. Since I started transcribing from the start, this allowed me to hone my technique for the next time. I realised that I needed to allow pauses to settle: often people were thinking about what to say. I started to interrupt less. But, on the whole, I seemed to be able to cover the subjects I needed to whilst enjoying a really good conversation with someone. I had not consciously thought about a ‘technique’ before I started, but mine seemed to work just fine.
The act of transcription was also a way of reminding myself what had been said, of picking up on small, overlooked details. Transcribing, then going through and making notes and highlighting the document, allowed me to draw out themes and interesting avenues to pursue. They helped develop my thought, or rediscover ideas which had often been present during the conversation, but had since disappeared. In other words, they were a good way of thinking through the material and using it to plan where to take the research next. Looking back, the transcripts are also an interesting reflection of my own levels of knowledge, thought processes and state of mind. My first few conversations with people like Trev and Mark Haysom, or the ExLab artists, were incredibly naïve. I realise just how little I knew about stone, the local landscape and its history, processes of geology or quarrying. These records reflect just how much I have had to learn as part of this research, and where my own experiences and knowledge lay at the outset of the work.

3.5.3 Repeated Visits

This work is about people’s deep knowledge and relationship with stone. It therefore needed a rich and focused approach. I would not find out the subtleties of this in one brief conversation (Basso 2009). Indeed, the pioneering anthropologist Malinowski (1922) presses the importance of investing time in being in a place with people as one of his founding principles for ethnographic research. I knew, therefore, that this work would be focused on a small number of people, rather than trying to talk to lots of people in a way which floated on the surface. This group of people formed around a few individuals to
begin with, and slowly grew from there. A web of interconnected people and places developed that became the core of this research. This was a way of working that I really relished, because it allowed me the time and freedom to develop long conversations and really get to know people. “I like listening to people talk about what they really love – it feels real” (Field Diary, 31 July 2013). It also gave consistency, and I was able to better anticipate challenges within the work. Because of the close attention paid to these people and places, the work grew from there.

“So much of this work is about being brave enough to ask, people being kind enough to help, and things appearing at the right time. Maybe that’s why it feels as though it has shaped itself in many ways”
(Field Diary 11 July 2013)

I spent a great deal of time with these people. I talked to them on walks, in pubs, sitting rooms, photographic studios, on beaches, down holes, in offices. As time went on, conversations became part of action, rather than static, solitary acts. I started spending time photographing (explored in section 3.6) and getting more involved. With the geologists I went out fossil hunting, helped dig up an Ichthyosaur at Lyme Regis, excavated the Inferior Oolite at Horn Park Quarry to reveal the different beds, walked through the landscape and talked. I looked at people’s collections of fossils, and watched how they cleaned them. All these perspectives added to my own perception of the scales and details of these geological knowledges. At the quarry, the occasional visit to talk to Trev or Mark developed into more regular appearances to take photographs. As time went on I started to write at the quarry (section 3.10) and become involved in other small ways. I would help out on the odd occasion when they needed a spare pair of hands: answer the phone or do some simple masonry. My work with them at the new quarry at Broad Mead (section 6.3.2) resulted in me carrying out the archaeological watching brief required as part of the planning permission (Ferraby 2014).

Being able to be more fully involved in the real day-to-day activities allowed far greater understanding of the nuances of the quarry. There were aspects of the work which I
would never have thought of without having being actively involved. It also changed my relationship with the people there, so that I no longer felt like an outsider. Rather I felt part of things. This obviously helped make my research more interesting, but it also affected my own state of mind. Doing research like this can sometimes feel lonely: you don’t know where it’s going to go, or if it is ever going to be useful to anyone. I’m used to feeling active and helpful, so to feel part of something practical, to be able to help out, made a huge difference to my own mood, as well as to the research itself. The people at the Haysom’s Quarry made the process of fieldwork a happy one, and that has seriously affected, for the better, the outcome of this work.

I have spent comparatively less time with some of the other people in this work, but their contribution has been no less valuable. Other quarries and individuals related to the cathedral or collections, have all been vital. But perhaps since these elements did not form the foundations of the work, I ended up spending less time with them. The focal points of this work – such as the Haysom’s Quarry, and Richard and Sam the geologists – were my way of thinking, learning and developing ideas. Other connections have strengthened these, given them added depth or perspective.

Part of spending lots of time with people, is the process of learning a different language: a stone language. In some ways, my background in archaeology allowed me to understand some elements before the work began: stratigraphy, excavation, some quarry machinery. But, on the whole, I had a lot to learn. I remember at the outset hearing the geological language: fault, joint, anticline, monocline, unconformity. Names of fossils whirred here and there along with the stone types and beds they were found in. Formations and geological horizons all had to be absorbed. In the quarry, these became further complicated by the material knowledge that accompanied them, and the special names they were given: Rag, Thornback, Vie Bed, Cap and Spangle, parts of the Purbeck-Portland, the Durlston Formation, the Lulworth beds. In the saw sheds and masonry workshops I heard about “chamfers”, “working a face”, “taking the stone out of twist”. A strange language of unknown processes. At first, these names and terms floated around, meaningless in my developing vocabulary. But slowly they began to take shape,
meaning, relate to one another, and sit comfortably. They related to conversations I’d had, things I had seen, processes I had tried, places I had visited. Now they feel part of my own language and my own private poetry.

3.6 Photography

“Everyone in the world is now familiar with photographs and cameras. And yet what is a photograph? What do photographs mean? How can they be used?” (Berger and Mohr 1982:7)

Photography has played a central role in this research. It has offered a way of having a dialogue with the world around me, of coming to understand the complexities of these stone worlds and the science behind them, and finally a way of communicating the work. They are not just here in this document as a piece of ‘visual evidence’. Rather, they have been integral to the entire process: a form of authorship and illustration. The complex geology and unique nature of quarry spaces are best understood and communicated with the aid of visual material, without which they would be very difficult to imagine (Leitch 2007).

My way of working has always been one which has encompassed visual approaches. Exploring things visually has been a process of gaining understanding and thinking through details. Processes such as drawing have always allowed me to get to know something in a way which I would otherwise not: a deeper way of seeing that becomes etched into my mind. It is another way of exploring the landscape, which becomes at once intimate and interpreted:

“I thought about going to draw at Lulworth, but as I drove, I could already see a picture in my mind of Winspit, in charcoal… So I went and sat on a wall and drew the image that I’d seen so clearly in my head – a strip from
entrance to top. It was so nice to draw again. I drew it twice and now I feel as though that impression and detail is emblazoned on my brain forever” (Field Diary 14 February 2013).

Although drawing and printmaking have been some of my main ways of working in the past on archaeological landscapes (Edmonds and Ferraby 2013), photography has always been an instinctive and practical way of working, and another way of thinking through ideas:

“taking photos…is a way of shouting, a freeing of oneself, not of proving or asserting one’s own originality. It is a way of life” (Cartier-Bresson 1976:8).

Photography has allowed me to record and absorb landscapes, people and stone at a whole range of scales. By looking at a few sites and revisiting them regularly, I have also been able to record change, either intentionally or accidentally (Cerney 2010; Ferraby 2015; Southam 2000). The process of photography has, therefore, been key to my developing understanding of these particular stone landscapes. By wrapping those images into this thesis, both text and image play a part in communicating the narrative of the work.

As a lone researcher out in the landscape, photography has always provided a way of having a conversation with oneself (Leitch 2007). It is a way of reflecting upon what is seen: “Photography is the process of rendering observation self-conscious” (Berger 2013:19). It is also a way of being in the landscape – half an eye always on a good shot – a very particular way of looking and a way of seeing. In this way, Susan Sontag (1973:55) likens the photographer to “an armed version of the solitary walker”. Out in the field, alone, the camera brings a sense of belonging and meaning to adventures.
Winspit
Charcoal, graphite and conte crayon
By taking pictures of a place, I feel myself getting drawn deeper and deeper into it, as the details of the land are etched into my memory with the exposure of light. It is a way of being alone, of thinking through the land. It has also been an important way of creating a dialogue with the people involved in the project, and finding my own place and role within the stone landscapes and communities of the coast.

Photography is a practice through which I have understood this landscape. I was new to this place, to some of the ideas of complex geological and geomorphological processes. Taking pictures offered a way of thinking through these ideas, problems and areas where I lacked understanding. Photography was a different way of accessing the material, in contrast to reading about it or having it explained. It was key to my own process of digesting these concepts and connections to this landscape. It also became something which I had to do. If I was out without my camera I would feel frustrated that I was missing something important. Partly this is because of the nature of the rate of change on the coast. The daily jostling of land and sea, events like landslides, excavations or new discoveries, were aspects I wanted to capture. As Jean Mohr (Berger and Mohr 1982:73) aptly sums up, “how do you free yourself from an obsession, when you are a photographer, if not by photographing the object of the obsession?” This also reflects what a personal and subjective matter photography is, and how they should be read as such, “Making photographs has to be, then, a personal matter: when it is not, the results are not persuasive” (Adams 1981:15). In an interview on Radio 3, the documentary war photographer Don McCullin (2002) stated that, “photography isn’t looking, it’s feeling”. In this research, the process of photography and the images themselves reflect this sentiment, both as a record of my attachment and a physical exploration as I followed my instincts.

My archive of photographs from this research now ranges from detailed records of specific events, such as the excavation of a fossil, a storm event, or a single piece of masonry work, to larger records of specific places which span over the whole timescale of the research. Photography can, therefore, be seen as a way of seeing different unfoldings of time and action in the landscape. As a collection, the photographs also
reflect the time spent, and subsequent research patterns formed in certain sites or with particular people. They show growing familiarity and deepening relationships as the subject and content of the photographs change. In terms of this work as an artefact, it is the way they are combined with my written narrative which frames them. In this way, I am giving them another layer of context, a set of meanings as they relate to the text and overarching story. Yet they are also given space for ambiguity and shifting narratives which may suggest untold stories and traces of other things. They relate to these specific geobiographies of stone (Karjalainen 2003), the intricate relationships between people and stone, as a material and a landscape. The following discussion will explore how the medium of photography allowed me to explore the material of stone and the myriad relationships that span from it. I will divide the discussion into that of the landscape, then the people, though really they are more connected than this division reflects.

3.6.1 Landscape

At the outset of the research, it was the larger landscape of the Jurassic Coast that I was trying to get to know and become familiar with. I drove, stopped, walked and photographed: a gradual zooming in on the landscape. Archives of particular places were established and gradually grew. In these images you can see reflected the elements I was keen to know, curious about or fascinated by. As the nature and sites of the project came into focus, the photographs in the archive reflect this, becoming more recurrent and in-depth. I began returning to the same places and navigating through the camera lens from the wave-line inland, absorbing the shapes and forms of the landscape, the details of the stones, the changing faces with the seasons. By recording these visits, I could look again and again at the photographs once back at my desk or when removed from the coast. In this way, the landscape became even more familiar, as I could use the photographs as references to compare to notes and information, building my knowledge of the coast as it tied into the visual material.
Sometimes my visits and the associated photographs were unformed, unplanned, allowing my thoughts and investigations to be led by the place itself, in that moment. But at other times I was focused on recording specific events. Taking the time to photograph and minutely observe a specific site, a set of people, a process, often led to the formation of a deep and grounded relationship with it. Photography took me beyond just looking. It formed a connection which endures, not only because it has been captured and will be remembered, but also because of the very act and process that I went through to take that image. In February 2013 I witnessed a huge landslide on Monmouth Beach, Lyme Regis. This beach is one which I was brought to by Richard Edmonds at the start of my research to look at fossils and the geomorphology of the beach ledges. Since then, it was somewhere that I had returned to often just to walk, think, and photograph fossils and the bands of lias and limestone. That day in February, as the cliff groaned and slipped, I could appreciate the scale of change that was occurring before my eyes. I also understood it as an historic event. To record this was part of my growing relationship with this beach, but also as something scientific to be used for comparison with other images. My presence at the event and the photographs I took, therefore, instantly made me feel part of the history of the place. I was visually written into the movement of material that had formed over millions of years, as it returned to the sea (Ferraby 2015).

What has also emerged from the practice of photography in this research, is a way of learning. The level of close and reflexive observation involved in taking photographs is conducive to learning the land and understanding the processes that formed it. The result of this observation has been unexpected revelations and a form of unconscious learning. At one quarry site (Broad Mead, Haysom’s Quarry), the use of time-lapse (see section 3.7 and 6.3.2) and documentary photography from the first removal of topsoil until the end of the season, had a huge impact on my perception of that landscape, deepening my understanding of the complexities of stone and quarrying, and leaving me with a vivid memory of the stratigraphy and geology. It clarified my perceptions of the physical state of the land, a thought echoed by Cartier-Bresson more generally, “for Cartier-Bresson, to take photographs is ‘to find the structure of the world – to revel in the pleasure of form’” (Sontag 1973:100). Looking with the camera was a process of constant unexpected
revelations, learning things I didn’t know were there to learn. “The camera became a tool of serendipity, allowing me to find something when I was looking for something else” (Harvey et. al 2011:75). Aspects of the research were often drawn out and made solid through photography or the photographs themselves. It was the combination of spending time with the intention of taking photographs alongside the ability to revisit them again and again which led to this. The practice of photography was particularly key when stone was being made slowly absent, the quarry or coastal landscape rapidly changing. The photographic archive allows a virtual reconstruction of those layers – they can be removed or replaced, and with them we can travel forward and backwards through time.

3.6.2 People

Photographing people is a complex process that requires trust, judgement, time and sensitivity. It is also a collaborative process: good photography relies on both subject and photographer. As with the landscape and stone, I began taking photographs of people gradually. When out with the geologists on the beach or up hills, or whilst one of the men from the quarry was showing me something of interest, people crept slowly into the frame. First hands or arms pointing something out, then gradually more people appeared in the images. Photography was intrinsically linked to the process of conversation: as I got to know someone a little better, I could ask if they minded if I took pictures as they worked. Then as I photographed them working, we got to know each other more and so talked more about what they were doing.

Some people in the work were used to being photographed and talking to the public, such as the geologists Richard Edmonds and Sam Scriven. They also work on the Jurassic Coast Team, so were aware of what I was trying to achieve through my work. As a result, it was easy to take photographs and engage in the conversation from the outset. With others however, it took time to build a relationship where I could easily be around to talk and photograph. The crux of the work is about their relationship with stone rather than my own, so I was keen to really get to know the ideas and feelings which sat in these
places. By photographing the men working there, I was able to be around the quarry and workshops with a purpose, free to observe.

At Jordan’s Mine in Portland, it was very difficult to photograph people since they were all on or by loud, large machinery, in the midst of a complex and potentially dangerous process. I didn’t have the freedom to wander in my own time, being led by mine manager Mark Godden through the grid of tunnels. The light levels were also very low, so unless people were still, it was very difficult to get a good photograph. As a result, there are very few photographs of people here, and the only person I really got to know well was Mark Godden.

At Haysom’s Quarry in Purbeck my photographic explorations were focused in the yard and workshop. I became keen to get to know the people, and understand the processes, techniques and human aspects of the work. About a year into the research I started making regular visits with the specific purpose of taking photographs. After making a circuit of the yard, recording details of stone in an attempt to get to know the different beds which lay in stacks, I would then enter the workshop.

The first couple of times I went in, I felt incredibly nervous. The workshop is full of the loud whirr of saws, the revving of the slew as it brings in stone to the primary saw, the purr of the polisher as it skirts the surfaces of stone. The men all wear ear protectors, and most of the time have their backs to the main shed as they busy over a saw or work over a block. It is therefore incredibly difficult to get their attention in order to make them aware of my presence so that I’m not in the way. Mark had introduced me to Wayne, the workshop manager, and I would approach him first to say hello. I started to ask him about what they were working on, and what the saws did.

“I went into the saw shed where Wayne and Adam were working. I had a chat to Wayne. He explained that Adam was cutting the slabs for Westminster before Dave put a hand finish on them. Wayne was cutting blocks for Julian’s Bridge and preparing elements of the surface. We
talked for a while and he showed me how the machine worked. Then they all went off on lunch break and I was deprived of my photographic subjects! But I got some good ones of the quarry shed.”
(Field Diary 26 September 2012)

Gradually I got to know them all better and felt more at ease taking pictures and chatting to them. I still got nervous though, and I realised that the camera gave me a reason for being there, and a job to do. Often Mark or the others would chat for a bit, then get called away or have to get on, and I would be left standing in the middle of the workshop feeling awkward. But armed with my camera I could become absorbed in my own work, until another opportunity to ask about a stone or process arose. After spending so much time in there taking photographs and talking, I had come to know what the different machines did, where the dusty water sprays from the saw, which piles of stone are being used or not, when to move and when to stand still. The close observation carried out through photography had allowed this awareness of the work and space to develop.

With each visit I would send back prints of the best shots I’d got, always trying to include ones of everyone. I like to do this anyway, but in this situation it also felt like a way of thanking them for having me around, and a way of giving them something back. It also often led to further discussion, or being able to draw out certain questions or ideas on the next visit. The process of photography is about taking and leaving behind. The quarry now has a detailed collection of photographs that record work and people during those three years. The practice of photography and the photographs themselves created a dialogue, and a deeper relationship, often, spurring conversation into areas it may otherwise not have gone:

“Trev looked at the photo of Mary Spencer-Watson’s piggery roof. He commented that it was good they’d got it off. He also spotted a tile with two holes in it, and said it’d be interesting to see if one had been cut by hand and one drilled with the machine. This might show phases of stone/roof maintenance.” (Fieldwork Diary 26th September 2012)
Taking pictures also created conversations around photography and cameras, as I discovered how many of the men at the quarry were keen photographers themselves. This had the effect of reducing my presence as a ‘researcher’ per se, and instead, relationships became more rooted in mutual interests. I was lent cameras, filters and lenses by various people, which reflects their kindness and generosity. Far from being a professional photographer, I have been able to learn a lot from people at the various quarries I have worked with.

3.7 Timelapse Photography

After seeing timelapse photography used on archaeological sites I worked at (such as the Neolithic Stepping Stone Project, Garrow and Sturt n.d.), I saw how effective a method it could be for communicating the subtle changes and movement which form a landscape or environment (Cerney 2010). I decided it would be very interesting to record some of the processes and changes which occurred in a larger excavation in the quarry. In May 2013, I recorded work at the Lander’s site of the Haysom’s Quarry. The excavator trundled in and out of the hole, cleaning up layers in an organised sweep, before taking the pile away. Beyond the yellow and grey sweep of stratigraphy and the judder of the machine, the far hills of Nine Barrow Down rose up. Clouds swept in, sending shadows out over the landscape before them. I sat and watched, the camera ticking away minute upon minute of images. When I compiled them, I saw a landscape captured in all its subtle changes, the machine like a small insect buzzing back and forth in its midst. The timelapse communicated the myriad of static and changing, natural and human elements which go into our perception of a landscape. The quarrying process was recorded, the movement of people, machines, material captured.

“I’m sitting in the corner of the quarry, above the new hole. It’s a dull day, but the sky is broken into ranks of cloud that are marching off beyond
Nine Barrow Down. Across the valley, the gorse is out, running in a yellow ridge that fades to dark green towards the top. There are sparrows in the hedge next to me, and the odd crow caws as it dawdles its way over the valley. Apart from that, the air is dominated by the sound of the slew and excavator as they rebuild the ramp. It’s a strangely comforting sound. And over the piles of stone I can hear the high pitched hum of the primary saw. There is something relaxing about being here. It’s good to have an excuse to spend some quality time with a hole, and a very nice hole at that. My brain is used to thinking about things going through the ground: it can relate to this.” (Fieldwork Diary 22nd May 2013)

Timelapse in the Haysom’s quarry

I went on to use timelapse photography in the quarry workshop at Haysom’s. I recorded Wayne cutting paving on the saw, Justin loading blocks and setting lasers on the primary saw, Dave pitching forest marble, Abe and Gavin restoring mullions. Once the camera was set, out of the way, I left it for a few hours before coming back to check. I would have a chat about what the work was, how it was going. When the images were animated, it gave a view of the quarry at work. It showed all the different processes, the way people
interacted, the constant movement and change in the stone as it was cut, polished, shaped, turned to fragments and dust on the floor, washed away or stacked.

After these shorter fragments, the timelapse came into its own when the Haysoms opened a new quarry at Broad Mead in May 2014. Working with Mark Haysom, I began the timelapse at the very beginning of the quarry’s life. Then, every week or two, I would come down and put the camera on for a day or two. As the quarry rapidly descended, we tried out different positions for the camera: a ledge on the section, tucked in the grasses at the edge, the cab of the excavator. As time went on, it revealed the changing seasons as the wildflowers and grasses grew around the hole, filled with butterflies, were cut. Sheep appear in the background field, and disappear again. We appear in shot and disappear, fleeting glimpses. The timelapse reveals the complexity of life in and around this quarry, the processes of stone removal and the natural changes in the landscape. This was made visible by the extended period of observation: capturing a whole season of digging from May to September, and then finally the stillness of winter in December. The quarry will be active for 30 years: if we continue to record it, we will have an archive of removal and replacement in the landscape: holes forming and filling in again. No doubt it will continue to reveal the unexpected too. It will exist as an archive for this specific landscape and industry, preserving it for the future.

I went to meet another photographer interested in recording the quarries with photography. Jed Corbett is a photographer who grew up in Purbeck, and has returned every year to photograph the quarries, people, landscape and ecologies (Corbett 2007). Jed’s close attention to detail alongside the repeated visits, has formed an archive going back 30 years. Now this collection reflects a landscape of industry which has changed or remained, through the eyes of one man. Things which were just observations have now turned to history. His photographs hold rare records of ‘quarr’ sheds, holes that are now mere indistinct dips in a field, tools or views.
As part of the process of photography, I also began taking short pieces of film. These usually captured a particular process or event: waves rolling in against the cliff, a landslide, someone operating a saw or the chisel passing over stone. These films became little vignettes of understanding for me, ways of thinking about movement and rhythm. I was able to look back at them and remind myself of details after the event, observe new aspects or think how the filming could be improved. By combining movement and sound, a better sense of the atmosphere and an immediateness is brought to the viewer, allowing me to communicate these events or processes to other audiences. As with stills photography, they became a way of being around people which created a different atmosphere of work: a calm as both the person being filmed and myself were intent on our own work:
“I found when I was filming Mark, that you spend a very long time with that person, and for very long periods of time you don’t talk to each other, with that lovely silence where two people are just concentrating on what they really love doing.”

(Me in conversation with Jed Corbett, 10 May 2013)

The films have an important sense of immediacy and atmosphere. They allow others a glimpse into my experiences and the nature of the sites and processes which form the core of this work. Therefore, like the photographs, they form an essential part of the narrative of this research. I collected the footage over a long period of time, gathering different shots under similar themes or in places. I then arranged the film clips into a series of short films to be included throughout the work. These were then edited by Jack Laurance, a director at Armoury, London. Jack has a very good understanding of the narrative and feeling of my work. He edited the films together into the order I wanted, creating a rhythm and feeling for each which reflected well the images and character of each film.

These films, along with other short film clips and the timelapse films, are located on the memory stick included with the thesis. The files are prefixed by ‘film’ or ‘timelapse’ to make them easier to locate.

As you read on, you will find boxes with a film name and brief description that looks like this:

**Film** | **Film title (length): A brief description**

These signposts are located at the point in the text where the film brings another dimension to a description, place or process. It is suggested that you watch them at these specific points in the text.
3.9 Making and Doing

From the outset of the research I felt a great need to be involved physically in the processes and work I was observing. I did not feel that I could write about stone without having worked with it myself. This work is rooted in stone, so without knowing it in the intimate way which comes from working it I thought it would be a shallow, pale reflection of the material. Things made create and absorb narratives, ”Making things… often feels like telling stories” (Ingold and Hallam 2014:1), and these become woven with the maker themselves (Tilley 2006).

I have always learned better by doing than watching, or reading about something. To really get to know stone as a material I have to use my hands: feel the surface, the alteration in texture, the reverberations (Ingold and Hallam 2014). It was a way of getting under the surface (Paton 2013). Some of this may stem from the way in which we work in archaeology, always feeling our way through layers, guided as much by the texture and the sounds of contact with soil and finds as we are visually. As a result, an archaeologist’s knowledge of the land is very much a 3D, textural understanding. It is this that I seek in other areas of my research. I had also wanted to work with stone for a long time. I was keen to be physically engaged with it, especially as an act of precision reduction – again, very like archaeology.

The need grew gradually throughout the first year of the research, until by the beginning of 2013, I was almost physically frustrated by my lack of involvement in working stone. I knew that I could not get any further, or deeper, until I found my own way through the material. Only then would I be able to have a real idea of how other, more experienced stone workers reacted to it and felt about it. It would allow me to understand the material which underpinned all the processes I was interested in (Dant 2005).

I started to look about for ways of learning stone. I investigated carving courses. One at Weymouth College seemed hopeful, as it is one of the big teaching centres for masons in the South West. But the course fell through due to lack of numbers. Then I looked at a
course on Portland. It seemed OK, but I realized it wouldn’t be teaching me skills of masonry, or helping with understanding this process in the quarry:

“I realise that what I actually want is to learn how to square up a block with a mason. One of my Purbeck masons. That’s what I need to really begin to understand them, their work and the stone itself. But I get really frustrated and fretty about how to go about making that happen – I don’t dare ask any of them in case they think I’m bothering them or being wafty… It has put me in a really bad mood because the need to work with stone is actually becoming a physical frustration and I can’t find a way to solve it.” (Field Diary, 10 April 2013)

At that point, things seemed to come together. On the same day, I had a call from Gary Breeze offering to teach me lettering and the basics of stone carving for a week, and one from Abe Shaffer a stone mason at Haysom and Shaffer in Purbeck (a masonry business affiliated with the Haysom’s Quarry and part owned by Mark Haysom) offering to teach me the basics of masonry for a couple of days up at the quarry. I felt such relief that finally I was going to be allowed to get my hands on a lump of stone, wrap fingers round chisel and hammer, and make marks, reduce, shape and form.

Reading back over notes I made just before starting my stone working, I realise how much I needed the process of making to ground myself and my thoughts firmly back in the material, rather than flitting and worrying about other aspects of the project or life more generally:

“I think having the time to make will allow me to think clearly and digest some of the things that have been happening lately. At the moment my brain is too full of too many things. It needs quiet time to reflect – let the conscious side be absorbed in the making so the other part can rest and work things out.” (Field Diary, 31 May 2013)
Once it came to the actual making, I wanted to learn skills, processes and material. I wanted to learn the whole vocabulary of stone at once: I was hungry for it. Yet in doing this, I had to come to terms with the fact that my work would not be perfect from the start, something I have always found frustrating.

“I can already feel a conflict between ‘making me’ that wants to make something beautiful, and ‘PhD me’ that is emphasising the need to understand a range of skills and processes.” (Field Diary, 31 May 2013)

I was aware that part of this was also grounded in wanting to be able to show others what I had made. I wanted to show them at the quarry that I could work with stone, that I was practical and able. However, once I began actually working stone, my worries fell away. It felt exactly as imagined. The chisel and mallet sat in my hands as if they always had. And I knew instantly that I had found what I was looking for. In the methodical removal of material, things began to make sense.

Working with Gary I made a sculpture in Portland stone and a piece of lettering sculpture in Purbeck Pond Freestone. With Abe I worked on a piece of masonry in Purbeck Burr based on a template for a Keel Mould at Kingston Church. I have continued to work at my lettering, and have done small bits of masonry at the Haysom’s Quarry, including pitching and edging some setts for a new path at Westminster School, when they needed an extra pair of (rather inexperienced) hands. I have, in other words, tried to get as close as I can to stone on this coast through being physically part of its various processes.

Knowing various kinds of stone from the quarries through making has given me a deeper understanding of the material. It has also allowed me to be able to talk more easily with those who work it, the vocabulary becoming natural and flowing. Names of stone, machine and people have become second nature. Making something with someone is always unique: you talk naturally, get to know one another quickly. But it also envelopes other people in the process, and creates a rapport through a shared knowledge of it.
Another kind of making has been the creation of drawings and maps. Maps have always been an important part of my work, and making them myself is a way of being able to create an aesthetic whilst focusing in upon the information they convey. They have been based upon the Ordnance Survey and geological maps. The small drawings and illustrations that appear are part of a much larger archive of drawings, not all of which I could include. However, they often form part of presentations, giving the work an extra element of animation.

Working on a block of Pond Freestone. (Image: Caitlin DeSilvey)
3.10 Writing

“The movement of writing resembles that of a shuttle on a loom: repeatedly it approaches and withdraws, closes in and takes its distance. Unlike a shuttle, however, it is not fixed to a static frame. As the movement of writing repeats itself, its intimacy with the experience increases. Finally, if one is fortunate, meaning is the fruit of this intimacy.” (Berger 1979:6)

Writing has been an important process in this research, be it in the final document here or the pages of notes kept along the way. I have now filled four fieldwork diaries: red, moleskine, plain notebooks thick with handwriting. My ramblings may not live up to those famous historical writers and artists whose names and legends are attached to these ‘nomadic objects’, but they are a detailed record of my thoughts and ideas, landscapes, sketches and inner anxieties throughout the research. Having this repository of thoughts has been vital. Like photography, being able to write honestly about situations and my own feelings about the work, has been a process of having a dialogue with myself. In difficult situations I have been able to pour out my anxieties. I have been able to write out my unknown hindrances. They have also acted as an archive. Much of what I wrote would be forgotten otherwise. By being able to read them again and again, the seeds and growth of ideas can be seen and recalled to put to use. Small details have prompted larger recollections.

Those notebooks have become attached to me: I carry the current one everywhere. I have written on beaches, tucked down on cliff tops, at my desk, in pubs, tents and quarries, and in the car. My little Corsa has been like a travelling home, a place to retreat to write up notes, plan interviews, warm up after rain soaked adventures. Certain car parks became oddly recurrent locations for my notes: Worth Matravers, Renscombe, Hive Beach, Lyme and Portland Bill.
Notebooks
“I’m sitting in the car with the dark gathering around me, in the car park at Worth. Even the sunset has gone now. All that’s left are fans of different blues shooting off at angles across the sky, like strata in a cliff. Far off, beyond St Aldhelm’s Head, tiny orange lights twinkle – Weymouth maybe. It’s very cold.”
(Field Diary, Worth Matravers, 16 January 2013)

“I’ve been sitting here thinking and writing for nearly 3 hours! In that time, the car park has got emptier, the elderly couples increasingly replaced by families and teenagers playing rugby on the grass…”
(Field Diary, Portland Bill, 3 March 2013)

“Sitting in the corner of the quarry above the new hole….”
(Field Diary, Lander’s Quarry, 22 May 2013)

“Sitting here in the drawing office, I’m slightly cut off. But I can hear Mark, Corinne and Marie-Anne talking downstairs, and out the window I can see rain being sent horizontal against the stone piles…”
(Field Diary, Haysom’s Office, 21 October 2013)

As well as showing that I spend a lot of time sitting while I write, they also reflect the changing location of writing. As time went on and I began to write up, I started writing at the Haysom’s Quarry. It began with a need for somewhere to download photos and wait for timelapse cameras. I would sit up in the drawing office or down in the showroom. I realised straightaway that these were spaces I really loved being in. They allowed me the peace to think and write, whilst simultaneously being surrounded by the life and activity of the quarry. I could hear the hum of saws, the slew out in the yard. I could hear Marie-Anne and Corinne discussing orders in the office, the comings and goings through the office of men from the workshop, customers, the postman:
“I love sitting here and absorbing all the different things that go on in the life of the quarry. Wayne is outside using the slew to load up green marble worktops into a car. Justin is lifting them in. Mark and Corinne are discussing chamfers in the office…”

(Field Diary, Haysom’s Office, 10 December 2013)

I felt as though writing came more easily here because I was surrounded by stone. The showroom is built of Purbeck stone, its walls and floor flickering with ancient landscapes. I found my place at the end of the long table, facing down the building. From there, I could graze my feet on Blue Marble, look up to the cantilevered staircase of Spangle and Blue Bit that rose up to the drawing office. I could look out the window and see piles of stone that framed the fields, and in the distance, the jutting headland above Chapman’s Pool and the sea. I was at home here, in this world of stone. And I was made to feel that way: Marie-Anne and Corinne who run the office, Mark Haysom and the others, all made me feel welcome and part of things.

As I got deeper into the depths of writing up, I began to spend more time there. Between bouts of writing, I could wander out into the quarry amongst the piles of stone, chat to the guys in the shed, go up to Broad Mead and set up timelapse cameras. All these breaks allowed my thoughts to churn, and the writing followed. Photography and writing continued together, one developing the other. The Haysom’s Quarry in Purbeck has become a force in the writing. It gives further explanation to why this landscape has become such a large part of the work, because really, over the course of the three years, it has become part of who I am. Being in the quarry also removed me from the more academic environment of the university, and the pressures and distractions which inevitably come from that. I have always felt relief in arriving there, and as a result, the writing has followed. I traced phrases from my fieldwork diary:

“It’s good to be back at the quarry” 18th August 2014
“IT felt so nice to arrive at the quarry” 21th August 2014
“It’s so nice to be here today!” 3rd July 3014
Over the course of the work, I have recorded the surrounding landscape, so alongside notes on stones, tools, anxieties, there are observations on the world around:

“Up at the quarry by half seven. Got some good writing done. The sun came up orange in a haze through the mist, and Purbeck lay relaxed and calm as it rose through the sky” (Field Diary, 11 September 2014)

My writing spot beneath the cantilevered staircase at the Haysoms’ quarry
3.11 Review

As will become clear in the course of the next chapters, this work has taken a multidisciplinary approach in order to explore the subtle and nuanced cultural geologies of the Jurassic Coast. The nature and complexity of the stone and knowledge surrounding it invited a range of approaches, and suited a flexible and creative approach. The approach has been very much shaped in response to the material that emerged, the nature of the stone and its cultural communities. The next chapters will show how the doing, thinking and building of this research have grown up very much in relation to one another. It is hoped that this will show the advantage of working creatively and openly, and develop an already blossoming realm of creative work in both geography and archaeology.
4.1 Introduction

“Few parts of the world present in a small compass so instructive a series of geographical phenomena as those which are displayed in the vertical cliffs of the south coast of England”

(Buckland and De La Beche 1835:1)

The exposures of stone along the Jurassic Coast provide a point from which to view the complex stratigraphy that ripples inland to the north. These layers of stone have been a physical guide for efforts to think through ideas about how the Earth was formed and how the landscape has evolved over time. Geological and geomorphological concepts on a whole variety of scales have grown from these cliffs, and been applied to them. As a result, the stones that build one upon another, that fold and fault, have complex histories of evolution that are connected to the evolution of knowledge, and reflected in their context and properties. To understand these stone worlds requires a certain kind of imagination, and a certain way of telling. Talking to the geologists and quarrymen who work on this coast, and inland from it, it is striking what nuanced understandings of stone they have. These different forms of knowledge are born from specific engagements with stone. What this chapter, and those that follow it, will show is how this knowledge is learned and communicated, how it dwells alongside objects and places, and just how valuable it is as a result.

The whole coast is worked on by a variety of individuals and groups, whose interactions form intersecting understandings relating to its geologies, histories and cultures. I was particularly drawn in my work, by the interweaving knowledges of geologists and quarrymen, both historically and in the present day. Two very different engagements with stone, with very different outcomes in mind, actually compliment one another very well. The knowledges formed by specific engagements, and the interplay between the two groups of practitioners, form the focus of this chapter. Looking closely at these different voices, and their ways of knowing and telling, can give us a very different sort of understanding of the coast and its stone. The work also explores how creative ways of retelling and communicating these ideas and the voices behind them can bring this to a wider audience.
This chapter will focus on Purbeck to explore these ideas, since it is here where I found the two worlds of quarrying and geology intersected in interesting and inspiring ways. The short film ‘Purbeck Landscape’ introduces the landscape more generally before we plunge into focused areas.

Film | **Purbeck Landscape** (1 min 11): A short film introducing the coastal areas of Purbeck and some of the recurring sites in the research such as Winspit and Chapman’s Pool

The first section of the chapter explores how the different knowledge acquired by quarrymen and geologists is shared or remains separate, both historically and in the contemporary setting. The following sections take us deeper into these ideas, looking at understandings of stratigraphy and languages of stone. Using a variety of examples, I then explore the different ways in which geologists and quarrymen learn about the properties and beds of stone. The chapter concludes with a tour of three collections which illustrate the importance of knowledge learned through stone, and the value of these personal collections.
4.2 Beginnings

There are many ways of knowing and understanding stone landscapes; different ways in which people have come to connect with the geology of this coastline. Our connections with stone and geology work at so many levels that it can sometimes be difficult to unthread all the perspectives: curiosity, aesthetics, science. It is clear that humans have long had a connection with stone as a basic material to use in daily life. But there is more to it than that. The archaeological record shows how humans have had a deeper appreciation of the properties, aesthetics and curiosities that stone has to offer (Conneller 2011). Certain stones are shown preference over others despite (or perhaps more likely because of) difficulties of their location. The green stone (volcanic tuff of Group VI) found in the Langdales, Cumbria, for example, was quarried for thousands of years. Located high up on the side of the fell, the journey to the outcrop is a long walk up, the scramble to the working face precipitous. A run of scree coats the slopes below, made entirely of the waste from the roughing out of axes in the Neolithic (Edmonds 2004, 2006; Edmonds and Ferraby 2013). The finished axes, polished smooth, have been found in archaeological contexts as far as the Alps. Some are barely used, a sign of the power of that unique material, born in and of the high mountains.

As well as specific stone types, it is also particular features within the stone that have often drawn human attention in the past. What is particularly interesting is how fossils have been made use of over time and in different contexts. With specific reference to the Palaeolithic, Mesolithic and Neolithic, Conneller (2011:95) notes that:

“All fossils, with the exception of shells from recent geological periods which have similar properties to living shells, can be considered stones with remarkable forms. It is this unusual form that appears to have marked them as interesting and led to their collection and transportation, often over great distances”.

The scree slopes of Neolithic stone working in Cumbria and the Belmont Axes
Study of a Belmont axe (wax and watercolour)
Some stone axes have been found where the maker has carefully knapped around a fossil, leaving it on show in the heart of the stone. An early example of this is a fossilised sea urchin *Conulus* in a 400,000 years old flint handaxe from Swanscombe in Kent. Other fossil urchins have been found in archaeological contexts dating to species of pre-modern humans such as *Homo Neanderthalensis* and *Homo Heidelbergensis*, reflecting an early fascination with these forms (McNamara 2012). Bronze Age burials in Britain and France have also contained fossils. Some of these are just single pieces, such as ammonite fragments in a barrow at Garton Slack, East Yorkshire (Oakley 1965a:18). Others form larger collections, such as the discovery in 1887 of nearly 100 fossil echinoids encircling the skeletons of a mother and child in an Early Bronze Age tumulus at Dunstable Down (McNamara 2012; Oakley 1965b:117).

It is only within the last 300 years that it has been accepted that fossils are the petrified remains of past organisms that lived millions of years ago (McNamara 2012:2). Yet the
collecting of fossils has continued to the modern day, as the stone forms are assembled on mantelpieces, built into walls, lined up along garden paths and kept in drawers: a continued fascination with found creatures of another world that spans generations. Some of these specimens still hold meanings beyond the purely geological: brachiopods are known as ‘Devil’s Toenails’ and ammonites are referred to as ‘snakestones’. In Kinkenholt in Hampshire, urchins or ‘shepherd’s crowns’ were, until recently, collected by farmers from the fields and placed in pots by the doors of houses (McNamara 2012). This is a recurring tradition and faint echo of a sense of protection, visible through the ages. Some ancient collections become re-collected; enfolded into a more modern collection, accruing a whole new layer of meaning and archival context.

Charlie Newman, a geology and archaeology enthusiast who owns the Square and Compass pub in Worth Matravers in Purbeck, talked about how he has found fossils in Iron Age and Roman contexts in the area. Deliberately collected in the past, they have now gone on to form part of his own collection and museum display:

“I’ve got echinoids and bits of ammonite that have been deliberately transported and are on sites...so I’ve got a nice little collection of bits – fossil collecting that’s 2000 years old!” (Charlie Newman, 15 February 2013).

A collection of extinct creatures from the past has become a collection of the present; lives connecting over geological and archaeological time. This connection also reflects how these interactions with fossils are not necessarily only scientific or aesthetic, but also form a valuable and ongoing personal assemblage. Charlie went on to talk about his sister’s collection of fossils:

“My sister’s got the bug. She collects, predominantly in Swanage – she goes off under Ballard [Down]... And she’s got, I mean her kitchen looks like a misplaced gravel pit! She’s actually got something in the region of about six or seven thousand Echinoid’s – sea urchins – and she’s got them all in sweet jars. Her entire kitchen is fossils!” (Charlie Newman, ibid.)
This intertwining of present day collections and biographies of stone with the geological and archaeological is another way of tracing the evolution of ideas about these stones and of discovering more about our complex relationships with them. The idea of collections will be explored more later in the chapter in section 4.5.

A recent collection of ammonites cemented into a garden wall in Portesham, West Dorset

4.3 Geologists and Quarrymen: Shared Knowledge

Purbeck presents an interesting landscape in which to trace the development of stone concepts and knowledge through the communities of geologists and quarrymen. In the 19th century, when huge developments were being made in the newly established field of geology, Purbeck, like Lyme Regis to the west and the Isle of Wight to the East, was visited by prominent geologists of the day such as De La Beche, Buckland, Conybeare, Sidgewick and Webster (Buckland 1835; Buckland and De La Beche 1835; De La Beche 1826; Webster 1826). Their discoveries included individual fossil finds, and made
contributions to wider understandings of relationships between different beds of stone, such as Webster’s (1826) detailed observations of the Portland and Purbeck beds. This work built on a growing body of literature and exploration in Britain and abroad. The studies also produced geological histories specific to the area, that in turn have gone on to shape understanding and perception of this particular landscape. The knowledge of the landscapes lagoonal, forested origins and the creatures that lived there have become part of the character of this place, adding geological depth to the present day landscape. The stones became part of stories on a whole range of scales. The early geologists saw in the cliffs of Purbeck a stratigraphy and fossil record that allowed them to understand the changing environmental conditions associated with their formation. In the cliffs at Peveril Point and Durlston Bay they mapped the exposures of stone and began to explore the fossils held within them:

"That the univalves in the marble, as well as in the other beds, resembled the *Helix vivipara*, was observed by Woodward long ago, and I have alluded to this in one of my letters to Sir H. Englefield: but according to my own way of viewing the subject, it would be incorrect to call this a decidedly fresh-water formation, since I think this term ought to be restricted to beds supposed to have been *formed in lakes*: and I have no doubt but that the Purbeck beds in general contain a mixture of freshwater with marine shells” (Webster 1826:40, orig. emph.).

The difficulties with the Purbeck beds, in particular, is how they vary across distances. The same bed can subtly change over a short distance or disappear altogether. The beds themselves are also numerous, and often difficult to identify, especially in their raw form in the ground. These were problems encountered by early geologists. Some beds were more easily recognisable from one end of Purbeck to the next, such as the Cinder Bed (a dark layer thickly made up of marine shells), but others proved more difficult. As a result, the early geologists talked with quarrymen and spent time looking at the exposures of stone inland in the quarries. A different sort of eye, tuned into the specific properties of the stones and where to find them, was needed.
Blue Purbeck Marble
At this time, “around 1800, there are a hundred odd active quarries in the Swanage parish” (Trev Haysom, 15 June 2012). In articles published on the geology of the area at this time, there are many mentions of stones identified in quarries, or knowledge obtained from quarrymen. Webster (1826:39-42) mentions: “the workmen informed me…” , “the quarrymen can point out…”, “the quarrymen can distinguish…”, “at Tillywhim Quarry, in the south east corner of the Isle of Purbeck, they may be observed…”. This was the combination of two quite different perspectives of stone: the geologists visited the quarries to understand the wider scientific picture, whilst the quarrymen had the intimate knowledge of different beds of stone and their properties. Webster (1826:38) remarks that:

“In Durlstone Bay I obtained from the quarrymen the thickness of the several beds, and the names by which they distinguished them from each other: but I should observe that these local appellations are not used by London architects and builders, the whole together passing here under the name of Purbeck stone only”.

What is also interesting to note here is the fact that the intricacies of Purbeck stone do not seem to have been appreciated by architects either. This aspect will be drawn out further in Chapter Seven. Reflecting on Webster’s observations, Trev Haysom said that:

“Webster, good old Thomas Webster, who visited Purbeck and was of that pioneering generation in the early nineteenth century, he commented that the quarrymen can identify the beds of stone from one side of Durlston Bay and the same beds on the other side... But I mean it’s blindingly obvious to me really, you can recognise the Cinder Bed in one place and you see it somewhere else... If you go back to the knowledge the quarrymen had – the unlettered artisans – compared with the geologists who pioneered science, men like Webster. I mean, the Medieval quarrymen probably knew that once they hit Bed A, Bed B was going to come next. Don’t you reckon?” (Trev Haysom, 19 July 2013).

Some geologists also used quarrymen to undertake further excavations for them, the most famous in this area being Beckle’s during work on the ‘Mammal Pit’ at Durlston in 1857 (Ensom 1998:56; Hart 2009:92). Not only would he have benefited from the physical strength and vernacular knowledge for dealing with the excavation that the quarrymen would have had, but also their unique knowledge of the beds and keen eye for detail. Unfortunately the records of the excavation have been lost, and with them any particulars of this interesting relationship.

On the whole however, the opinions and observations of the early geologists were well recorded. Many donated their archives to museums, wrote detailed papers, notes and made drawings. The knowledge and views of the quarrymen, on the other hand, is much more difficult to discover, and was perhaps more problematic to communicate since it was so deeply embedded in the physical relationship with stone. It was rarely written down in the past, and nor has that changed particularly now; instead it is talked through and discussed. Abe Shaffer, a mason in Purbeck, described this way of passing on knowledge within the quarry at Haysom’s:
“It’s still operating in that quite family Medieval way of the knowledge and the skills being passed down. And Mark’s the direct recipient of that, and Trev was the exact recipient of his dad, and it goes back like that. And as nostalgic as people get about that on the surface, that is real: that does mean something. Trev said that his father and his father’s brothers were all masons, and he said when they were kids they used to get around the kitchen table and they bored us stiff talking about stone. One had been to Australia, and one had been here... you know, men always talk about it but they don’t write it down... There’s nothing written down about where was good and where wasn’t and what the different features are of the marble here as opposed to there... But you know, knowledge is one of those things that is only maintained if it has utility in the world, and as soon as it ceases to have utility it disappears. When it’s gone, it’s gone and there’s already a lot of things been lost just because of how the work has changed, not through any carelessness, but just when the economy changes so the work changes. Then certain spheres of knowledge are no longer useful and therefore they pass into lore.”

(Abe Shaffer, 26 March 2013)

Their is a tacit knowledge, and in my experience I have often found that those working closely and physically with a material have a great deal of insight, but are often modest about sharing it. It is, therefore, challenging to know the various ways that quarrymen may have thought about the stone they were bringing out, and whether or not they engaged with the concepts developed by the geologists. Beyond this, did the quarrymen in the past consider fossils as anything other than an aesthetic form? What myths and explanations did they have for these fossil forms that have become lost over time? These were practical men working to earn a living, so they would not have necessarily had the luxury of time or inclination to think too much about the meaning of what they found. In the end, it is very difficult to know. There was probably huge variation in perception and thought between individuals, just as there is now.
I was interested to know what Trev thought about quarrymen’s perceptions of fossils and geology in the past, with the benefit of his own deep knowledge of the stone and its surrounding history:

“They must have been intrigued by the fossils mustn’t they?... There’s a nice reference and insight into that: There were two knights that went to the Middle East on Crusade and came back to France and gave accounts... One of them was with King Louis [and] one of the things he commented on, was a rock was brought to show the King, or brought to his tent, and when split it revealed a perfect tench – a tench being a fish. So there was a fossil fish in the rock, and the Medieval mind was curious ... I mean, Dad said to the old generation of quarrymen when they saw the footprints and things, he’d say ‘well, what do they make of that?’ And they’d just say ‘Noah’s flood.’” (Trev Haysom, 19 July 2013)

It is hard to know where different individual’s imaginations took them from the stone, or what snippets of knowledge and myth were carried or lost.

There is a huge fascination about stone worlds amongst the quarrymen I have talked with: a natural curiosity that is driven on as much by contact with the stone, as with other people, within and outside the quarry world. There is still a sense of magic that they share when exposing stone layers and fossils:

“There’s something about looking down across a section of that place and thinking that on a lot of those horizons there was dinosaur action and no such thing as the English Channel, and stuff was tramping all the way across to the Continent. It just seems like an extraordinary way of being able to imagine, and look at all those materials, and think that when that shell was laid down, it was like a tropical lagoon, and here we are a hundred and twenty million years later and just cut it open again.”

(Mark Haysom, 14 June 2012)
It shows how invested some of those working in the quarries in Purbeck are in knowledge for interest’s sake. In turn, their interest and enthusiasm reflects back upon their treatment of the stone and wider landscape, working it with a sensitivity that often goes unseen by the wider world.

Over the years, this reflexive relationship between the communities of geologists and quarrymen in Purbeck has continued. The boundaries have become less defined, with less of a social and intellectual division, allowing for a more discursive relationship. In the quarries of Purbeck now, there is a huge awareness of geology. Fossils are removed for special sale, or if they are seen as potentially unique or interesting, the geologists are called in to take a look. In Keate’s Quarry, Purbeck, a trail of fossil footprints were found, creeping their way across the dipping bed of Freestone in the 1997. These were originally spotted by Trev Haysom on a winter weekend. He had gone out for a walk with his daughter and her friend. In the low winter light he caught sight of the circular depressions that interrupted the natural faults and bedding of the stone that had been exposed to quarry.

The steeply dipping Lower Freestone with Sauropod footprints
“Trev said that the Upper and Lower Freestones come away as a bedding plane i.e. the lower is left. The top bit of lower stuff is better, then as you go down it gets rotten because the clayey stuff was laid down first. At first when they’d found one in another quarry locally, they thought it was a turtle or dinosaur nest, but they soon realised they were footprints. Trev recognised them” (Fieldnotes 30 April 2014).

The geologist Paul Ensom (former Collections Leader of the Department of Palaeontology, Natural History Museum), a friend of Trev’s, was called in. He identified them as the prints of a sauropod. Since then, they have been studied further. They are the only set of preserved, in-situ dinosaur footprints, and the biggest site thus discovered, in the country (Wright 1997:185). Next to one set of footprints, there is also a shallow scoop that some believe was caused by the creature’s tail scraping the surface of the mud (Richard Edmonds pers. comm). The footprints are thought to have been those of either a brachiosaurid or a tatanosaurid (both species of Sauropod) created over a period of time as the sediment dried out on a beach next to a freshwater lagoon. During that time, a number of different individuals, including a baby, walked over this patch: a little trail of baby footprints can be seen within a larger print. They were then sealed by the swift deposition of sediment over the top, caused possibly by a storm, which ensured the preservation of the footprints (Wright 1997: 185-6).

After their initial excavation, they were covered up for protection, until in the autumn of 2013 the National Trust (the landowner) decided to open it up for the public. To decide how best to display and preserve this unique site a number of different sets of knowledge were required. A meeting was called, at which Kevin Keate’s (Junior) (who along with his father, Kevin Keates Senior, run the quarry) and Trev Haysom were present, as well as geologists from the Jurassic Coast team (Richard Edmonds and Sam Scriven), a small team from the National Trust and myself. It was obvious that it required the combined knowledge of these different communities in order to fully understand the academic implications, physical context and appropriate conservation options. It was encouraging to see an openness and enthusiasm to learn amongst the different people there, and how important the practical intersections between geological and quarrying knowledge were considered to be. The geologists were able to talk through the nature of the footprints and
the value of these within the field. The quarrymen could explain the exact layering of the stone, where other outcrops had been known to occur with similar prints, and how the stone might be treated in order to preserve them. That this continues despite the economic pressures on the quarrymen and the academic and bureaucratic limitations placed on the geologists and land managers, is especially important. This site proves how vital these collaborations are.

As part of the ongoing work, I suggested that using 3D photography to record the footprints would be useful for providing a millimetre accurate record of the site, which could also be used to visualise it digitally or through a scale model. A friend of mine using this technique in archaeology, Prof. Dominic Powesland, was interested in how it could be used with geology. He became involved to run the survey and to work with the Jurassic Coast World Heritage Site Team and the National Trust on ways of using the data. We also used the process of recording the footprints as a chance for myself and Mark Haysom to learn the method. Recognising the value of the process of quarrying in the production of geological knowledge, Mark was interested in how the complex stratigraphy and details of each layer of stone could be recorded during the excavation of a new quarry. I was interested in the wealth of interesting ways of approaching this, and the implications this would have for future research in the area. In this way, Mark was involved in recording the footprints that his father had spotted 17 years before, in order to take on wider research on the stone they are so absorbed in. Sometimes it just takes the right combination of people to make things happen. It also shows how much work is done in collaboration on a day to day basis in the stone world of Purbeck, with no regard to financial or academic gain. But it is these groups of individuals who are often behind the development and communication of important knowledge. As such, their work needs to be recognised and valued.

Much of this sharing of knowledge now occurs as a result of the well-established personal relationships between certain geologists and quarries. These have often developed as a result of years of mutual help and shared curiosity. The Haysoms have worked for years with Paul Ensom. He and Trev Haysom have worked closely together for years, together pushing forward knowledge of Purbeck stone. These established relationships have allowed for ongoing discussions and interpretation of discoveries out in the landscape and in the quarry. A few years ago, the quarry works at the Haysom’s Lander’s Quarry revealed a
Photogrammetry of the Sauropod footprints with Dominic Powesland

(Images: Mark Haysom)
Mark Haysom carrying out photogrammetry amidst the Saurpod prints
fossil forest (Trev and Mark Haysom pers. comm). Paul Ensom and others from the Natural History Museum were brought straight in to record and study the find. They were able to reconstruct how the trees had slipped down into a lagoon, also discovering the remains of turtles. In other circumstances, these delicate remains could easily have gone unrecognised and been lost forever. Instead, they are now part of a growing archive of finds from the area, vital for building a more detailed understanding of this complex geology.

This to-ing and fro-ing of information is now a made by easier by the ability to photograph and email finds of fossils in the quarry and get almost instant feedback on what, or how important, a specimen is. On one of my visits, Mark Haysom had spotted an unusual fossil in a block of marble whilst out in the yard. He took a photo and emailed it straight to Paul Ensom for his opinion: an echo of the men who kept fossils aside for the visits of geologists from London. At first thought to be a possible sauropod fossil (previously unseen in the marble), but Paul eventually concluded it was a crocodile tooth.

The recognition of and collaborations on large and small discoveries in the Haysom’s Quarry are altering understandings of this landscape. Their generosity with knowledge and finds is also extending out of the quarry, as they have donated pieces to museums and for education. When the Castle at Durlston Country Park (Purbeck) was re-opened in 2011, Trev donated a stone for their ‘Rock’ exhibit, which displayed a wide range of fossils found in the Purbeck limestone.
The spotlight on some of the fossils in ‘The Rock’ at Durlston, donated by Trev Haysom
Trev Haysom advises workmen installing the lights for ‘The Rock’ at Durlston. The spotlights show just how many fossils are visible in the surface of this one block.
4.3.1 Stratigraphy

A developing knowledge of geology and understanding of stratigraphy is also a key aspect of how quarry operators work practically in the Purbeck landscape. Due to its complexity, this knowledge is necessary for them to plan the location of new quarries, source particular beds and assess the type and quality of stone being removed.

“It’s an awkward material and there’s nothing you can do about it! All you can do is know it as well as you can, and then you can deal with it.”

(Mark Haysom, 14 June 2012)

In particular, an understanding of the formation, folding and faulting in Purbeck is a vital aspect to grasp. The stone ripples north from the coast in dips and crests created by the force of the formation of the Alps (Richard Edmonds pers. comm.). As a result, a particular bed of stone might be found twenty metres down in one place, and ten metres above ground level only a short way away.

The Lulworth Fold: a ripple of Purbeck beds at Lulworth Cove
Richard explained the geology behind this when we stood looking out from St Aldhelm’s Head one day, and his description communicates this complexity well:

“In the Cretaceous, the ground was still subsiding, but for the early part of the Cretaceous we actually have these very near shore environments... Imagine a coastal landscape where sea levels haven’t changed for millions of years – that’s really hard to get your head round – but that’s what happened at the end of the Jurassic period. This basin filled up and you ended up with this really shallow environment that the Purbeck beds formed in. And I’ve heard claims that the depth of water in these lagoons could vary by as little as 2 or 3 meters between here and Sussex, because you’ve basically got this vast, great big basin that’s filled up. So the actual coastlines are miles away. But even there in the Purbeck bed, the way to understand those is that there are some very arid beds full of evaporate minerals in some places, and other times there were beaches made up of shell fragments pounded together. Other times there were lagoons packed full of a single species like Viviparus that made up the marble, and in other places there were oolitic banks on the sea shore.... We see those as layers of rock in the vertical, but it reality all these environments existed in the same time, but in different places. And that’s the difficulty with the Purbeck beds: you trace them across their outcrop and they change, because the environment was changing. What you’ve got to think about is all those environments were around at the same time, and they were laying down different types of rocks at the same time, in different places, and that makes them really difficult to understand.”

(Richard Edmonds, 18 July 2013, my emph.)
The Purbeck Beds emerge on the coast at Peveril Point. From the beach, beds such as the Cinder beds and marbles can be spotted.

The platforms of quarried stone beds at Winspit.
The geology of the Purbeck beds is incredibly difficult to understand, and one must take time encountering the stones in different places in order to understand it. This complex stratigraphy has a knock on effect on how much good stone can be quarried, and from where:

“You have got such a radical change over such short distances, in a small area basically, and all the Purbeck beds coming in on top, you’ve got very quick change of sediment over fairly short distances … It’s immensely complicated and fussy and small scale. You’ve got faults and jumps and areas where it’s diving away quickly. On one part of the patch it starts off flat, and if you see all round Durdle Door and Lulworth, you can see all the faulting that goes on - all that folding, and if you imagine that sort of thing but on a smaller scale, you’ve got all that dipping, diving, jumps between layers. And when you’re trying to dig something that’s all small and bitty anyway, not only does that effect the quality of the block in the area, but it just makes the whole digging process more awkward.”
(Mark Haysom, 14 June 2012)

At the outset of this research when I first started coming down to the quarries in Purbeck, I found the layers of stone immensely confusing. Encountering geological stratigraphy when I was used to the archaeological was always going to be a change in scale. But in Purbeck I was really struck by the importance of understanding a diverse combination of processes: initial formation of stone, subsequent folding and faulting, erosion and re-deposition. It required knowing not just one landscape – the present surface – but also a whole series of past landscapes that only existed in one’s imagination. To know these required engagement with stone in the cliffs and quarries, and the investment of a lot of time and attention. Trev sat me down on my first visit to the Haysom’s Quarry. He explained the dipping stone and how the extraction of various types of stone relied on that. Over time, the names of beds and where they came from became gradually more familiar as they recurred in conversations. But it took going down into the quarry for it to make sense: to see the process for myself. It highlighted what a unique perspective is gained from this work and the removal of stone, layer by layer.
In May 2013, I spent an afternoon watching work in the quarry hole at the Haysom’s Lander’s Quarry. For the first time I had the opportunity to see how the stratigraphy on show related to the layers being removed. The process was so like archaeology in some respects: being involved in the physical process engaged the imagination in a way that allowed the same process to be applied to other layers of stone. In that moment, information gleaned from maps, conversations and geological diagrams, became animated. It gave me insight into the nature of the quarrymen’s knowledge. This was further highlighted as Mark and I recorded the excavation of his new quarry at Broad Mead. Seeing the actual removal of layers from the topsoil down, one after the other, instantly gave me a material understanding of that landscape.

What normally occurs in my head during an archaeological excavation – the peeling of layers in the ground creating a growing stratigraphy reconstructed in my own imagination – was occurring in the quarry. One season of observations of that quarry changed my perception not only of the whole landscape of Purbeck, but also my geological imagination. I can only guess at what someone like Mark holds in his head. Talking to him about this one day, he remarked of the Purbeck stone that “once you get to know it a bit, it comes alive” (10 December 2014). This animation of stone that occurs with a particular way of
knowing and seeing that is key. But it also highlights how difficult it can be to verbalise this process and knowledge and as a result how often it gets overlooked.

In the process of work, both archaeology and quarrying are processes of methodically ‘destroying’ the landscape. Yet this process is vital for gaining a detailed and physical understanding of the land. By removing stone and earth from the ground, we are simultaneously building an understanding of it. In doing so, we are forming a relationship with it that fosters its future.

The Haysom’s excavator at work in Lander’s Quarry, with the chalk hillside of Nine Barrow Down visible beyond.
Mark Haysom and Mark Tilsed assessing the Purbeck beds at Lander’s as the quarry progresses
Stone being excavated at Broad Mead Quarry: archaeology on a grand scale.
There is constant discussion going on around the stone: it is the hub for a range of curious minds. As a result there is no longer a clear divide between the two communities of quarrymen and geologists working in stone in Purbeck. Instead, there is an evolving conversation on a whole variety of scales. This discursive environment sees the transfer of knowledge go both ways, and out into the world in a whole range of forms. Yet perhaps this is more than it being a matter of two different communities of people working together.

The knowledge which exists, maintained and developed around stone in Purbeck relies most of all on the individuals involved, and the relationships between them. The complexity and depth of this stone knowledge lies in the subtleties created by these different perspectives. It leads to a more grounded appreciation and understanding of landscape. It is an understanding based in an interest and passion for this place and stone, its past and future, people and wildlife, its faults and folds. The relationships and stories of those individuals involved in the stone here become part of its history and character, its mythology and grain. In this way, Purbeck stone has become more than just an exposure on the coast or a building material. It is also a community of people who exist around it, and form within it.

4.4 Learning Stone

4.4.1 Languages of Stone

Within these stone communities, there are however, different lithological languages, which can add another layer of complexity to the understanding of the already manifold nature of Purbeck stone. One exchange with Mark Haysom particularly got me thinking. I had been trying to describe the different successions of Purbeck stone, and became confused when one geologist grouped together the Grub, Thornback, Wetson bed and Freestone into “the Freestone Vein” (Thomas 1998:60). In my experience, the term ‘Freestone’ only applied to those stones that are good for carving as they can be worked in any direction i.e. without a dominant grain. A bed like the Grub could not be worked in this way, having a shelly, mixed make up. I asked Mark if he too would class these as ‘Freestones’, to which he
replied that geologists divide things in a way which, from a quarrying perspective, is not always very useful. “Strictly it is the right answer, but if someone phoned asking for a bit of Freestone I wouldn’t send a Grub” (Mark Haysom, 25 March 2014). Not understanding the complexities that underlie the nomenclature of Purbeck stone can have knock on effects on the way it is perceived and made use of by outside parties, such as architects and those involved in planning.

These distinctions in the specifics of language seem to form from the different engagements geologists and quarrymen have with the stone, as particular knowledge is gleaned for practical purposes. Geologists are more interested in the formation processes of the stone and how that reflects different pockets of geological time. In many cases these geological groups are governed by past environmental conditions or the presence or absence of certain key fossils. Quarrymen, on the other hand, focus more on the practical properties and uses of the stone, both historically and contemporaneously. In this way, the two approaches act as temporal pivots: looking backwards and forwards in their specific engagements. However, these delicacies of nomenclature can make it difficult for those looking in from the outside. Anyone interested in the stone of the area must have an understanding of two languages, and the blurred edges that surround them. It is these circumstances that make the cross-over knowledge of certain individuals, such as Trev and Mark Haysom, so valuable since they are able to navigate between these two worlds, to explain and translate.

As well as disparity in recording of geological and quarrying knowledge, some confusion is created by the adoption of names of certain beds from quarrying contexts into the geological language and literature. In early geologist’s accounts of the Purbeck beds, they make reference to the ‘Lane End Bed’: Benfield in 1940 calls it ‘lannen-vein’ in his description (2011:112), but it is now widely referred to as Laning or Leining Vein. When asked, Trev Haysom thought ‘Leining Vein’ came from the old English for ‘layered’. In an attempt to find a concrete spelling of it in current use, three different versions emerged. Similarly, the Pond Freestone dug out on St Aldhelm’s Head by the Haysoms is thought to have got its name from a geological reference to its stratigraphic position ‘upon freestone’ i.e. on top of the Freestone. In conversation, it is normally referred to as ‘Pon Freestone’, but has become a more commonplace word (‘pond’) when written down. On the other hand, some beds, such as the Roach, are more relatable to the geological, “The roach
bed… seems the most likely place to find fish, and perhaps that is why some quarrymen of long ago first called it the roach” (Benfield 2011:31). This reflects the ongoing mutability of naming stone.

The complexity of naming different Purbeck beds becomes more complicated when the traditional quarry names for the stones are replaced. Generally in Purbeck all the quarries use the same names (albeit with occasional varying of spelling) so they know what is being referred to when they swap stone or need help with part of an excavation. People buying stone can compare between quarries, or replace stone like-for-like. However, one of the quarries is now owned by a larger company with other quarries elsewhere in Britain. As part of their marketing, they have renamed some of the stones with a disregard to tradition or more importantly the implications this may have on the Purbeck industry. A stone they call ‘Purbeck Royal Blue’ could actually be a Rag, whilst another possible Rag or Leining Vein is being called a ‘Purbeck Marble Viviparus’. As the following photograph illustrates, the stone they call ‘Marble’ is a far cry from the real thing, with very little similarity in pattern or colour. This presents an interesting case. One way of identifying Purbeck Marble is by the presence of the Viviparus shell, but this is also present in other beds. The three marble beds – green, blue and grey – are only found on the ‘Marble belt’ in Purbeck, and only one quarry (Haysom’s) has access to it. Using the name ‘Purbeck Marble Viviparus’ on a different bed is therefore deliberately misleading. The bed they are using will not have the same properties or qualities, and as a result, the reputation of the Purbeck marble could be damaged; dangerous for an industry relies so heavily on its reputation for high quality stone.

‘Purbeck Marble Viviparus’ sample on the left, with the real Blue Purbeck Marble on the right
4.4.2 Learning Stone in the Quarry

As discussed, knowledge around stone in the quarries is not usually written down. Instead, it tends to be passed on orally and through learning alongside others. The nature of the material requires a particular way of learning about how to work it. And because there are so many Purbeck beds with subtle differences in colour, shell content and other properties, this can take time. Taking one type of stone, it might vary in colour and inclusions across the bed. Because of the variability across beds when they were lain down, there is also difference in thickness and hardness of stone as it is quarried out of the ground. Benfield talks about this in his description of Thornback (stratigraphically found just above the Freestone):

“Like all currents, that which formed Purbeck stone did not always run the same; in some places it left more of one material than another, and often made it up with the next. For instance, one bed which I know very well, the thornback, runs to a thickness of about four of five inches near Swanage, yet three miles away at Langton it averages twelve inches; that difference would be very little on the floor of a lake or sea. But why should that particular material remain thicker at Langton, while the next above it is represented there by a mere thin bed of scurf or rubbish, but has formed a thick stone at Swanage where the thornback was pinched.

Despite varying thickness the beds run true through the seam; they may pinch down into almost nothing, but they are always there – a thin or thick thronback has always the same texture to the expert, although its hardness varies almost as much as its thickness”

(Benfield 2011:32-3)

At different points in the quarrying process stone will also vary in appearance: from its raw state coming out the ground, when it has weathered in the yard, after it is cut with the saw and in its finished polished form. This can be illustrated by looking at the Grub, a layer of stone found stratigraphically above the Roach.
Thornback
Purbeck Grub is a Jurassic limestone, dense with fossils. Seen in its finished form as a polished piece of paving or hearth, the Grub is a beautifully subtle bluish, brown grey stone with thick whorls of fossils playing through its surface. Although its colour does vary slightly across the bed, in polished form it is quite recognisable in comparison with other stones. But trying to identify it as it is excavated from the quarry, stacked in the yard, or out in the landscape is more difficult. I have seen it used as bar tops in local pubs and kerb stones in Swanage. In its raw form, I found it had been used to make a monument in Lulworth, and a mason (Andrew Whittle) had cut letters into a block from the Haysoms to make a memorial bench below the Hardy Monument near Portisham. The Haysoms excavate it in two quarries - Lander’s and Southard – which produce Lander’s Grub and Swanage Grub, the two types being subtly different.
A block of Lander’s Grub used by Andrew Whittle to carve a memorial bench at the Hardy Monument, West Dorset
Grub: sawn and polished
On a cold winter’s day, Mark takes me down the yard to show me the stacks of Grub. By the track is a high stack of the Lander’s Grub, notably different to the ‘gingery’ Rag stacked alongside it. Behind, the Swanage Grub is piled up, slightly less bulky, its raw edges a touch greyer. Mark points out the ‘mealy’ layer, soft and clayey, cutting through the middle of the blocks, caused by a period of changed environment during the formation of the stone. The old quarrymen used to refer to the holes in the block created by these as ‘dog nests’. He explains how, when sawing the Grub, this soft layer has to be taken account of, so one block really has to be treated as two. The uppermost layer of the two is quite often ‘venty’: little faults in the stone riddle it, leaving air pockets that form weak points in the stone. These faults can reduce the usable area of the block, leaving the person sawing it with a difficult job of making the most economic use of the stone.

The top surface of the Grub is characterised by a crisp bubbling, where the defined forms of shells stand proud. This is a recognisable feature of an uncut block. Once sawn, the sections through the blocks show layers, some with higher densities of shells and others altering in colour from orange-brown to blue. This is why there is variation in colour and shell content, forming a rich, organic mix when slabs for paving are lain down together. Pointing out a sawn block of the Lander’s Grub, Mark shows me some of the variation in the shelly section. In this lens looking back 120 million years, it is possible to see how the shells have been moved about by currents. In this particular case Mark shows me where something has buried into the sediment as it was being lain down, disturbing the shells and turning them on end.

The variation in the Grub represents series of small and large events occurring far back in the geological past, but brought alive by the knowledge of someone able to see them. For Mark, it is this combination of knowing the past geological form of the block, as well as its potential for use in the future, that allows him to do this work. Looking at the surface of that Grub, marked by quarry saw and geological events, the range of knowledge and skill required to understand these complex beds of stone is again illustrated.
Grub from Langton (top) and from Swanage (bottom) in Haysom’s yard
A ‘Dogs Nest’ in the Langton Grub

A ‘Venty’ block: the top layer of the block has partly peeled off leaving an island of stone
Surface of Swanage Grub

Detail of the surface of Langton Grub.
A section through the Grub, showing the way shells layered up

The sawn surface of a block of Grub with the bedding of the shells shifted in places as something has buried through the sediment
The ability to identify the individual beds in different forms and contexts is something that can only be learnt by being in contact with the material on a daily basis, engaged with it on a practical level:

“I think with our stone, there are still times when I look at sawn stuff and can’t identify it, and there’s such a cross-over. You realise that you’re so dependent on being able to see what the thickness of the stuff was and there isn’t just one thing that necessarily identifies it wholly. And you realise you’ve just got to keep looking at the stuff, and keep looking, and then you can just make as good judgement after years and years – the same way Dad can spot the difference between a swallow, a house martin and a swift when it’s like this dot flying miles and miles away!”
(Mark Haysom, 14 June 2012)

The ability to learn stone in the quarry therefore relies on being able to work alongside someone more experienced. In the past, knowledge was closely guarded, passed down from father to son as they worked together. This applies now as much as it ever has. In the Haysom’s Quarry, Trev has been passing knowledge on to his son Mark:

“I’ve picked it up from, partly by osmosis really, having lived with, and spent time around Dad, asking him questions, and that’s been a really great source of someone who obviously knows as much as he does. So mostly through him really. And being able to catch up in the day like we have done since he semi-retired a few years ago through to now... It’s nice to be able to rely on that experience really, as it’s amazing how much stuff there is to know and how to make sure what stone’s OK for what. And Dad’s taken an interest in the historical application of it and going and visiting these places, and knowing what’s survived and what hasn’t. So to be able to rely on that source of information has been really valuable.” (Mark Haysom, 14 June 2012)

In turn, Trev and Mark impart that knowledge to the others working in the quarry. Without a certain level of understanding and ability to recognise the stone, the quarrymen would be
unable to do their jobs. The more familiar they become, the more able they are to work independently. Within the quarry organism then, knowledge is passed to and fro as people move around the machines to take up different roles. Those who work by hand and on the machines are able to get to know beds of stones through different means, as different characteristics of it are drawn out by certain modes of working.

The ability to understand stone by being around those who know it well, has been reflected in my own growing knowledge of the stone and quarry processes. Spending time observing, photographing and talking in the workshop, yard and quarry holes, and working the stone itself in different ways has given me a wider understanding. When I began I knew nothing about Purbeck stone, its geology or quarrying. Comparing that to now, when I am aware of it in so many nuanced ways, shows how vital these different levels of engagement are for learning about the complexity and mutability of this stone. These engagements, and the understanding that grows from them will be opened up and explored further in the chapters that follow (Chapters 5-7).

4.4.3 Learning Geology

Similarly, and in compliment to the way I learnt about stone through the quarry, working with geologists on the excavations of fossils opened up a way of understanding some of the intricacies of the geology that allowed me to understand stone more broadly. In part this was about being able to comprehend the often subtle variations between layers of stone. This was drawn out when I helped excavate an area of a disused quarry near Beaminster in Dorset. Horn Park Quarry has become famed for the visibility of the complete sequence of layers in the Inferior Oolite, and the important ammonite species within them. This wonderful yellow stone can be seen emerging on the coast in the area around West Bay and Burton Bradstock, from where it runs north through the Cotswolds.

At Horn Park Quarry, there was a rare opportunity to see the exposure inland, highlighting once more the importance of quarries in building geological understanding. The excavation
(organised by Natural England and the Jurassic Coast team) was designed to reveal a section through several beds of the Inferior Oolite, which could then be preserved to act as an educational resource. The team that day was comprised of Sam Scriven (Jurassic Coast team); two amateur, but experienced, geologists ‘Walrus’ (surname not known!) and Bob Chandler; and Andy Cowap (fossil preparator) and Pete Langham (professional fossil collector). The mixed nature of this group highlighted the importance of the different skills necessary to carry out this sort of work, and the different ways in which these people understood the significance of what they were seeing. Great camaraderie was evident, between people who were there because they were fascinated by the process. Chat ranged from ammonite species, recollecting other excavations and discussions about other work. For me, it was a realisation of the complexities of these layers, small changes seen by knowing eyes. But more importantly it provided a way of understanding the layers running inland, and of fostering a geological imagination that went deep beneath the surface of the landscape.

Film | **Horn Park Quarry** (1min 45): A short film on the geological excavation at Horn Park Quarry.
Location of Horn Park Quarry, West Dorset

The Inferior Oolite cliffs at Burton Bradstock near Bridport
The old quarry site at Horn Park Quarry

Some of the ammonite specimens excavated to expose the beds
Ammonite and an ammonite cast from the excavation at Horn Park Quarry
Pete Langham peels back a layer of the Inferior Oolite at Horn Park Quarry
The other geological excavation I was involved with was in many ways quite different. It was that of an Ichthyosaur on the Blue Lias ledges of Lyme Regis. A small fragment of the fossil had been discovered by Richard Edmonds. The small block had become displaced from the ledge by the winter storms. Picking it up and turning it over, Richard saw the string of neatly rounded vertebrae running across it surface. He recognised them as belonging to an Ichthyosaur, a marine reptile that lived in these Jurassic seas about 190 million years ago. Mary Anning had discovered the first one, and since they have been discovered from time to time along this coast.
Once Richard had located the rest of the beast, we waited for low tide and the excavation began. The fossil straddled the edge of a ledge, so that parts of it were visible in the grey surface of a rockpool. The rest was nested in the layers of shale, which needed to be separated to reveal the fossil. Although the process of excavation was familiar, I had never worked in stone, with wedges to pull the rock apart. It was difficult to see what was fossil and what was the imprint of it in the next layer. A keen and practiced eye was required. The experienced fossil hunters (Chris Moore and his son Alex, who are based in Charmouth) and Richard confidently pulled at the stone. All the time they were assessing which parts of the creature they were seeing, and therefore working out which block to remove next. Some parts of the body of the Ichthyosaur – its ribs and back – came out in large blocks which remained intact and were carried on a stretcher off the beach. Other parts were more disparate and scattered, dropping out in small fragments. In the mud that was formed by the activity and the urgency of the incoming tide, I found it impossible to keep track of all the different parts of the fossil. The next day, the last bits were removed and taken with the rest to Richard’s garage.
The block, the ripple of veribrae caught on its top edge. Image: Richard Edmonds

The void left by the block in the ledges
Parts of the Ichthyosaur fossil emerge from the ledges
Sam Scriven bags up ribs from the Ichthyosaur
Richard examines the ledges and takes a part of the fossil away in a barrow
The Ichthyosayr assembled in Richard’s garage
Over the next few months, Richard removed the piddocks (burrowing shellfish), cut down the waste stone from the blocks and started to piece the jigsaw of the Ichthyosaur back together again. And somehow he did it. Its final form shows what a difficult job that was. Many parts of the skeleton had been scattered before it fossilised; vertebrae and paddle bones punctuated the area round the body and the jaw was in bits around the head. But from
the small details tended from his careful reconstruction of it, Richard was able to retell its final moments; to tell its story through stone.

The Ichthyosaur had died in a shallow sea, its body sinking to the bottom. As it decomposed it filled with gas, giving it buoyancy, and without the pressure of a deep ocean to keep it down it floated back to the surface. Here, its head end was picked at by predators, whose teeth pulled at the bones and flesh. The body lost balance and sunk once more, its now heavier tail end hitting the seabed first. The dislodged bones were gently scattered by currents, pushing bones into crevices or faults in the rock. This snapshot of the death of this Ichthyosaur was pulled into the present with amazing clarity. To create this wonderful picture from the geological past, it was necessary to pull it from the ground; to take it apart and put it together again. As with the Purbeck stone in the quarry, understanding the processes and nature of the stone can bring it alive, reanimating this huge Jurassic beast. In the process, the story of the Ichthyosaur has become inextricably linked with Richard’s, despite a temporal gap between them that stretches 195 million years. It is these connections that are created and the stories that can be told through them that we turn to next.

The Ichthyosaur, 700 hours after its discovery. Image: Richard Edmonds
Juvenile Ichthyosaur at Richard’s house
4.5 Collections

Richard’s Ichthyosaur is now lying bound and finished in his garage. Upstairs under his bed is another. In a nearby room, a juvenile specimen is laid out on a shelf, another on the wall. Amidst these are ammonites and other fossils collected over a life time from the beaches around Lyme Regis. This is a personal collection, brought alive by the stories Richard tells about his discovery of them and the various lenses they can give into the Jurassic. In this way, these personal collections of fossils and stone are quite different to those found in a formal museum setting. They are bound together by the intention and curiosity of their creators. Their stories are narrated on a personal scale, connecting other people and fossils together across time. This human link brings these assemblages of stone to life in a way that reflects the cultural and geological, and the inspiring inter-weavings that form between them.

Moving back into Purbeck once more, I want to focus on three different collections of stone and the stories they tell. Each collection has been formed into a museum made up of material collected over a lifetime, and complimented by the experience that has grown with it. Trev Haysom’s museum is located in one of the buildings at the quarry, and contains a unique mix of fossils, stratigraphic examples of Purbeck stone, and historical quarry artefacts. Up the road in Worth Matravers, Charlie Newman is the owner of the Square and Compass pub. His museum fills a room at the end of the pub, filled with fossils and archaeological finds from the surrounding fields and Chapman’s Pool. Over the hill in Kimmeridge a garage lies neatly organised with the best collection of Kimmeridge fossils in the country. These have been collected and carefully curated by Steve Etches, a plumber and self-taught fossil expert. These three, Trev, Charlie and Steve, are all friends. They help each other out with advice about fossils, cleaning finds or lending stone. The three very personal museums therefore interlink with one another. They also provide a way of understanding the important connection between personal narrative, geological knowledge and a desire to share these wonders with others.
Steve Etches’ collection is one of the most inspiring museums I have ever been in. From the shell of his garage he has formed a neat, organised system of cabinets and drawers, between which he weaves stories and sparks curiosity as he brings out different specimens and asks questions. As we move around the space he shows me the skull of a Jurassic marine crocodile (*metriorhynchid*) that has somehow remained in perfect 3D form. It seems strangely new, as though it had just washed up on the beach. He quizzes me on objects: a cluster of small stone beads are actually thought to be ammonite eggs, which makes me ask whether ammonites are gendered? How do they reproduce? I had never even considered it before. A precious case is opened showing an abstraction of stone, and as work it out slowly – a beak, an orbit – Steve tells me that it is actually the only Pterosaur to have been found in the Kimmeridge clay, and only the second skull discovered after Mary Anning’s initial discovery over a century ago. What becomes clear as he shows me round and describes these fossils, is that this is a collection driven by a passion for knowledge:
Steve Etches at his museum
Top: View of Steve’s museum
Bottom: Rare Pterosaur fossil from the Kimmeridge clay
Top: Ammonite eggs
Bottom: Fossilised lobster that has kept its 3D form
“What you’ve got to do is look... The thing that people don’t realise is you’re not collecting them just to look at the beauty. Really it is when you’ve collected and cleaned these things, what does it tell you, you know what I mean? That’s the information I’m really interested in - what does that one show you that someone else’s doesn’t?”

(Steve Etches, 15 February 2013)

This passion is reflected in the close observation and thought that he has put into every one of these fossils, and the way he describes them to me as we look. His enthusiasm brings these creatures to life. Here, he is describing discovering the remains of small crustaceans inside an ammonite:

“Right, there’s another body chamber – can you see? And there’s the end of the body chamber of another one. Can you see? Turn that over... that’s the carapace of a crustacean – some little lobster. So it’s now living in that there I reckon, and it goes right to the back of the body chamber because when it mouls it’s vulnerable to predation because it’s soft. So it mouls that, and then it stays in the back to let the shell harden. Well, I thought, that’s bluddy interesting. So the next one I broke open: again, another one! So it’s quite common!” (ibid.)

One of the prize specimens of Steve’s collection is an Ichthyosaur. The soft tissue has been fossilised in such acute detail that you can see it on the paddles. In its stomach, the mixed up remains of its last few meals are clearly visible. It was found by Charlie on the cliffs between Chapman’s Pool and Kimmeridge. After getting the first part out, they went back for the rest:

“I said ‘the skull’s got to be there Charlie, it must be, unless the head’s been bitten off’. Now, Kimmeridge fossils normally, something always happens – either the skull starts to fly apart or you end up with nothing. So anyhow, we carried on and cut a massive, even bigger hole out, and then we got this huge chunk out right across here: a massive great slab. You couldn’t see
any of it, so it was impossible to see if we had it. What we did was check the periphery of the hole to see if there’s any bone going on, which there wasn’t. Then we had to cart that up, poooool, about a mile, a mile and a half. We made a stretcher out of a fish box with handles and that, and if you know Chapman’s Pool it’s, oh Christ, up that slippery slope and all the way... I let it dry for quite some while, and then temptation overtook, so I started cleaning that end and then I hit the snout and thought ‘phew’! And so when Charlie saw this cleaned up, he nearly died. I mean that was just something fantastic. And being the good guy that he is, he was so pleased that we’d recovered something as good as that. So we got a cast made and Charlie’s got the cast.”

(Steve Etches, ibid.)
The interest that Steve and Charlie have in the fossils is clear, as well as the companionship between them. The community they have made around them is based on a curiosity about these particular stone worlds. The stories of discovery draw in those who weren’t there. The story gives the fossil new interest, as we imagine these men slipping and sliding up the cliff with their precious find on a homemade stretcher. They both recounted to me an incident when they were excavating a Pliosaur on the cliff. Charlie described it:

“We went down fairly late in the day and there were some very big spring tides and we knew we’d be cut off at Chapman’s [Pool] on the return journey at what’s called Cherry Gardens. We cut up through Houndstout, the undercliff. Neil was in front, me in the middle and Steve at the back, and we’d all loaded up [with bits of the fossil]. We’d all got a hundred weight of material each, and struggling through. And me and Neil were just chatting and having a laugh, looked round and Steve had disappeared! We thought ‘where’s he gone’? He’d slipped about 30 feet down the cliff!”

(Charlie Newman, 15 February 2013)

Steve told me:

“I was behind them with a bluddy great rucksack full of stuff and they were there nattering away, and I just WOOOF, my footing went and I went straight down over the side! And anyhow, do you know they never even noticed! I caught them up and said ‘do you realise what’s...’ ‘no, really, have you?!’ Couldn’t give a monkey’s!”

(Steve Etches, 15 February 2013)

These shared stories, memories and banter between people in these communities of interest surround the stone. Collecting fossils and creating these collections also runs through families, bringing people together over time. Over in Worth Matravers, Charlie has continued the collection that his father Raymond began, so that the museum in the Square and Compass has become a form of family geological biography. The stories told in the pub by Charlie and others range forward and back in time as adventures and specimens are recounted, his dad and others remembered through the things they found and discoveries
they made. Charlie described to me how one particular fossil, a Pliosaur, had been initially excavated by his father and completed by Charlie years later:

Charlie: “The [other] Pliosaur in the museum, there’s a nice link there between myself and me Dad. He found bits of it in pre-’63 and he’d already collected and gathered up quite a lot of pieces. But he hid four very, very large vertebrae just sort of at the top of the beach, and covered them over. Then he went down about 3 or 4 days later - and it was the winter of ’63 – ’64, and we had this horrendously bad winter – and all the cliff basically there was a huge mudflow and landslide, and the whole site got buried. It took 35 years before it got back to where the site was... We had some particularly bad storms in ’96 I think it was, and it finally uncovered the location where this very large Pliosaur was, and then I spent about 3 months excavating... I spent 3 months digging, and we dug about 80 tonnes out over 3 months!”

Rose: “So then you were able to put it together with stuff that your Dad had found?”

Charlie: “Yeah. He’d only brought a few odd pieces back. There was another lady up at the Head [St Aldhelm’s Head], Martha Mac. She had one of the vertebrae for a doorstep for about 20 years, which her son Nick eventually gave to me. She had a rockery in the garden which was also made up of quite a lot of the neural arches from the vertebrae... So I added those...”

(Charlie Newman, 15 February 2013)
Charlie Newman in his museum at the Square and Compass, with Pliosaur fossil
Top: The Pliosaur in Charlie’s collection
Bottom: A display in Charlie’s museum
This description of the fragmented discovery of one fossil is reminiscent of Okamoto’s granite sculpture (Chapter Two). One creature has been dispersed by the movement of earth and tide, the history and biography of its collection written upon its stone bones. The pieces Raymond Newman kept in the pub museum were joined eventually by the other pieces that were lost under the landslide, and the weathered bits from Mrs Mac’s garden. In the process, this ancient, geological creature became infused with other stories and lives, which until told and recollected, lie silent in the cabinet at the end of the pub.

It is not just within the cabinets and drawers of these museums that these collections grow. Standing outside the doorway of the Square and Compass and looking around, it is clear how fossils have become absorbed into the buildings. Ammonites are built in around doorways or gathered clusters in walls of gardens. Charlie told me how he had purposefully accumulated as many fossils as possible into the fabric of the house he has built across the road from the pub:

“I’ve got fossils in the heads over the windows which Trev chopped out for me, and the big ammonites – titanites giganteus – I’ve got those over the windows. Looks quite nice... I’ve got lots of fossils in the floor - crocodile shit at the bottom of my stairs!” (Charlie Newman, ibid.)

The walls of the building constructed to house Trev Haysom’s collection up at Lander’s Quarry, are a dappled reflection of the Jurassic and Cretaceous lagoons that form the Isle of Purbeck. Around a plain metal door and the industrial front of breeze blocks rest stones raised and etched with ripples, footprints and other faint traces of ancient life. Turning the corner to face the end of the building a veritable stampede of dinosaur footprints pace across the surface, hither and thither. Long collected footprints from different beds, different times: Downs Vein, the aptly named Footprint bed, Grubs, Bottom Caps, New Vein and beyond (Mark Haysom, pers. comm.). These were found in the Haysom’s quarries that extract stone formed from freshwater, lagoonal environments
Trev Haysom in his museum
at Lander’s, Bellevue and Southard, modern keyholes into a series of juxtaposed Jurassic landscapes.

Stepping through the door and out of the wind, Trev’s museum reflects the breadth and depth of his knowledge, his lifetime of observing and collecting. Downstairs, huge blocks of medieval marble lie half finished, marked by tools and time. Trev discovered these as they dug marble, breaking into an old working. They found blocks left as though the men had gone off for lunch 700 years ago and never returned. Showing them to me, Trev remarked on the nature of the tooling, reflecting on various aspects of their form. One block had been worked into the rough shape of a tomb stone, marked with the efforts of many hours of labour. There had obviously been a fault in the stone, for after all that work, it had split in two and been abandoned. Around these huge blocks lay fragments of fossils, tools, and boxes containing things yet to find a home in the museum. On the walls, Trev had mounted thin cross-sections of the different beds, rising through the stratigraphy from floor to ceiling. Venturing upstairs, past boxes filled with chains, chisels and rusting pick heads, we came to cabinets with neatly regimented tool typologies. Further on were tables and cases of fossils, in the process of being arranged and rearranged: a turtle shell cast dark in pale stone, frail fracture lines traced on the subtle tones of individual plates. Fish scales glittered like jewels in a case amongst the jumbled remains of other bones and teeth, scattered by an ancient current.

In his museum, the walls that contain it and out into the wider quarry yard, the geological and cultural clamour and mix in a narrative formed and maintained by Trev. Not only do these stones and quarry artefacts tell us about the past; they also tell his story and the connections with the wider communities of quarries and geologists in this area. All three of these collections – Trev’s, Charlie’s and Steve’s – are modest and personal, but with an importance that should not go unrecognised. They are reflections of very particular sets of knowledge and experience. As such, they should be valued, as should the individuals who have created them. These museums do not rely on outside funding or support, nor do they follow the trends that are set in academic museum and heritage studies. Only Steve’s has now gathered funding in order to expand into a custom-made building with facilities for further research, thanks to his own determination and hard work. With clear roots in the material itself, these collections have a focus that invites interest because of the enthusiasm
of those who created them. The very specific knowledge of their creators allows the narration of very different sets of stories that knit between people and stone.

The wall of Trev’s museum, coated with roaming footprints
Masonry marks on Medieval tombs in Trev’s museum
Tools of the trade in Trev’s museum

Fossilised turtle
4.6 Review

The Jurassic Coast, and in particular Purbeck, encourages a certain way of knowing through the stone encountered and narrated by geologists and quarrymen alike. These two communities have developed their own ways of engaging with, learning, describing and recording stone that accord to the nature and aims of their work. What has become very apparent during my time spent in Purbeck is the complexity of knowledge that builds in and between them. By allowing space for these stories to emerge through stone, this chapter has revealed the importance of the voices of the storytellers (Edmonds 2006; Harvey 2010). The richness of material that these quarrymen and geologists have revealed to me, illustrates the importance of recognising the landscape as something that is peopled. Without them, the wealth of meaning and depth that can be found in the land would go undiscovered. It is the animation with which they weave together knowledgeable narratives of people and stone that keep these landscape vital and alive. This recognition of the strong role of engaged and experienced people is something that is often sadly lacking in the recent flurry of – arguably more romanticised – narratives of landscape by ‘new nature writers’ (for instance MacFarlane 2008, 2013).

These geologists and quarrymen have formed a deep understanding of stone because they are engaged with it as part of their everyday work and interest. For this reason, the understanding of these individuals, especially the quarrymen whose work is often deemed merely as ‘industrial’, often goes unrecognised by more official organisations whose role it is to manage and govern these landscapes. However, as Harvey (2010:348) also stresses, “it is the ‘real’ and connotative consequences that these voices have that make them worthy of consideration”. The larger organisations and authorities responsible for the wider management of this landscape need to appreciate and value these stone based knowledges. In this way, more fitting ways of governing the quarries in Purbeck might be found. Impacts would reverberate beyond the quarry space, in the future of the ecological, historic and everyday contemporary use of the landscape. Appreciating a landscape rich in narratives of understanding is also vital in the developing realm of ‘heritage’. Rather than focusing on elements of the landscape that have disappeared, heritage should also be a sphere of discussion that values those people and places that hold distinct ways of
understanding. By storying the landscape with the biographies of people and material culture, we are able to find more suitable ways of going on into the future (DeSilvey 2012a).

Aspects of stone knowledge will be developed in the coming chapters as we continue this exploration of stone through the process of making, the spaces formed by working stone, and how it travels out into the wider landscape.
5.1 Introduction

“It is symbolic of man’s creativeness that from the beginning we know him from the things he made rather than from his bodily remains”

Hawkes 2012:137

Chapter Four discussed how the practice of working with stone requires an understanding of different elements of its geology: its stratigraphy, formation process, fossil content or faults. So far, we have begun to explore the subtleties and poetry of the language associated with stone and the stories that weave between geology and people. We also saw how, throughout human history, there has been a recognition of geological features in the process of making, from fossils in hand axes to ammonites set in the walls of houses. In this chapter, the scale moves to focus on and into the surface of the stone, the marks made as chisel and saw pass over it. The different ways in which we work stone draw out particular aspects and details of the geological. As different exposures are carved out, perspectives are gained that create new narratives and understandings. Jaquetta Hawkes considers this in the work of her friend, the sculptor Henry Moore:

“That is why he has often chosen a stone like Hornton, a rock from the Lias that is full of fossils, all of which make their statement when exposed by his chisel. Sometimes the stone may be so assertive of its own qualities that he has to battle with it, strive against the hardness of its shells and the softness of adjacent pockets to make them, not efface themselves, but conform to his idea, his sense of a force thrusting from within, which must be expressed by taut lines without weakness of surface… It is hardly possible to express in prose the extraordinary awareness of the unity of past and present, of mind and matter, of man and man’s origin which these thoughts bring me” (Hawkes 2012:98-99).

This chapter will draw out further the influences that flow between people and stone, and the understanding that can be brought to bear on the past and present through the intimate processes of working the block. To begin to comprehend the often tacit, unspoken insights
that come with the familiarity that making brings, I wanted to do it myself; to learn *through* the material, rather than just learning about it on the surface. As such, this chapter takes quite a personal view of the material as different methods and stones were tried. It also explores the ways in which stone masonry is learnt, the influence of tools and machines, and wider observations from the quarry environment. As with Chapter Four, the focus will be on Purbeck stone and the Haysom’s Quarry, but also introduces that other famed Dorset limestone: Portland stone.
5.2 Knowing through Making

“It is this movement – which is complex and paradoxical, as are many things which touch our hearts – it’s this movement that I want to try to define or describe” (Berger 2012:151)

In her discussion of engaging with stone through making, Conneller (2011:82) asserts that you gain a different understanding of stone by making a stone tool than you would if you stood looking at a stone monument. Engaging through making is a way of getting beneath the surface and close in to the geological details of the stone. As stone makes contact with the hand or tool, the nature of its properties travels through the body, to be absorbed into the mind: the short, sharp, high pitched moment as flint is flaked, or the dulled thud as a chisel passes through the grain. It is through this mixture of the senses – feeling, looking, listening and smelling – that a detailed knowledge of particular stone types is developed through specific techniques. Hand tools and machines bring us into contact with different qualities of stone, leaving a range of marks on the surface. As explored through the Grub in Purbeck (Section 4.4.2), the surfaces exposed in the raw, chiselled, sawn or polished surface, bring out the different facets of the stone’s character. In this way:

“Different understandings of material are not simply ‘concepts’ set apart from ‘real’ properties; they are realised in terms of different practices that themselves have material effects” (Conneller 2011:5).

Making, then, is a point at which the maker and the stone meet and alter one another. It is, “a form of correspondence… the drawing out or bringing forth of potentials immanent in a world of becoming” (Ingold 2013:31).

In Chapter Two, I described the process of archaeological drawing: the process of etching details of the earth to memory, of interpreting and thinking through layers in the process of representing them. Applying close observation and attention to the process of excavation and drawing brought, not just a finished record, but a different level of understanding of the
material. It is this idea of observing and learning material through processes of making or creative methodical reduction, that I am interested in here.

When I want to really get to know something – an object or a landscape perhaps – I will often try to draw or photograph it (see Chapter 3). This visual process can act as a form of dialogue, or a way of producing a rich memory trace. When I began working on Neolithic stone axes with Mark Edmonds, I drew a collection of three axes over and over again. It was a way of feeling across their surfaces, drawing in the subtle colours and veins that ran through them. As I drew, I turned them in my hand, felt their weight and slid my fingers over smooth bevels. The drawings helped absorb the character of those stone axes, each one slowly revealing secrets. John Berger (2012:150) has described drawing as:

“a form of probing. And the first generic impulse to draw derives from the human need to search, to plot points, to place things and to place oneself”.

Normally, to have the drawings would be enough. But there is something about stone objects, something very particular about their bulk which demands closer attention. By not having carried out for myself the processes by which they were made – not knowing the feel of stone flaking from a surface or plucking at the edge – there was a gap in my understanding. As such, it was difficult to feel fully connected with the people who had made them or to reflect tacitly on their actions. A closer understanding of the process of making has the potential to reveal the more subtle relationships between people and stone that flourish beneath the surface.

Spending time in the quarries, the same need to understand stone through making emerged. As I learnt more from looking and photographing around the quarry and talking to the quarrymen, I became aware of certain gaps in my own knowledge. There was a whole way of knowing and another language associated with it that I could not grasp. As a result, I started to learn different techniques of working stone: masonry, sculpture and lettering. Each method brought different insight into the geological mass of the stone, and cast new light on the conversations and understandings I had previously experienced.
Stone Axe drawn as part of ‘Stonework’
The process of making also coincided with watching excavation work at the quarry. Seeing these very different scales of stone removal made me think about the nature of opening up stone; of getting within it. Cutting away stone at the landscape or block scale is very similar to that of archaeological excavation. Every action is considered in light of prior knowledge, but it is also a form of adaptive learning, constantly adjusting to new aspects of the material. Excavation is controlled destruction; a creative removal. It is a form of making in reverse, leaving only the finished form, with little to indicate the subtleties of the process itself. In this way, then, an awareness of creativity and decision-making contained in the negative spaces that remain is required to understand the finished form, the material and the maker themselves.

While this chapter explores this at the level of the block, Chapter Six will take these ideas of negative space out to the landscape scale. Although the following sections focus on the work of quarrymen and masons, this knowledge of stone absences is equally applicable to geologists. In excavating the Ichthyosaur (Chapter 4, Section 4.4.3), for example, it was vital to understand the patterns of impressions left by bone, of shales and clays that had broken from the ledges. To be able to flit between scales of landscape and block is important here too, as understandings of repeated erosion on a wider scale inform awareness of a tiny absence in the shale.

Working stone forms an intimate and very particular knowledge of it. But the process of altering the material, of reducing it down and changing its form, also marks a change in the maker:

“To know things you have to grow into them, and let them grow in you, so that they become part of who you are” (Ingold 2013:1).

Working with stone is to have an ongoing dialogue, one which alters both maker and stone. As the conversation goes on, the maker’s perceptions are subtly altered as certain aspects of the stones character become familiar or reveal fleeting secrets. In this way:
“Material things are not external supports or measures of an internal life, but rather people and things have mutual biographies which unfold in culturally specific ways” (Gosden and Marshall 1999:173).

Interacting with stone in this close way – with the chisel, saw or excavator – can have an effect on small details and rhythms of daily life (Dant 2005). I have noticed that the quarrymen at Haysom’s have a particular language for stone, a certain accidental poetry born as much out of traditions as from a growing intimacy with the material. There is an ease with which they speak about stone which at times gives it a glint of the anthropomorphic. They speak of having a ‘period of acquaintance’ with it, it being ‘cantankerous’ or ‘difficult’ like an old man. On one occasion, Mark Haysom described the process of working marble, and how even a solid stone can be delicate and ‘bruised’:

“The trouble with cutting marble is you tend to – we refer to it as ‘stunning’ it. If you work into a 90° corner, an internal angle or something like that, with air guns or mallets, if you work into that a bit hard you can bruise the stone and you end up with a discolouration which actually carries a bit further into the stone than it looks like it does…. You end up with a bit of a white stun line.” (Mark Haysom, 14th February 2013)

Past and present are wrapped together in an encounter with stone, and the results of this depend upon the specific characteristics of both the maker and the stone. Purbeck stone is particularly interesting here because of its diversity, each bed having its own characteristics. And this diversity accentuates the sensitivity and care with which many of the quarrymen I have worked with show towards it, as they have allowed it to work on them as they work on it. What follows is an exploration of developing knowledge from observation through to the three different techniques I worked with, and finally the role that tools and machines play in this.
5.3 Observation

As explored in Chapter 4.4.2, much of the knowledge around stone is passed on not through written sources, but by watching and learning from the experience of others. This is just as important for the processes of working the stone:

“It is, in short, by watching, listening and feeling – by paying attention to what the world has to tell us – that we learn” (Ingold 2013:1).

In the quarry environment this is particularly important. As someone coming in from the outside, there is a lot to make sense of when entering the quarry workshop. During my early visits to the Haysom’s I found it was a space that was half familiar from a lifetime spent around wood workshops, but also very foreign in terms of the processes that were carried out, the machinery used and the system of movement around the saws and stone stacks. So, as mentioned in Chapter Three, I started to spend time there and watch. Photography proved to be a form of deeper observation; of zooming in and reliving those moments in the captured images. To begin with, I looked at the whole yard and workshop, I kept my distance, taking in the way they programmed the saw or set stone on the polisher. But slowly I got closer and closer to watching the processes involved in making, becoming more familiar with the quarry and stone as a whole.

5.3.1 The Workshop

Film | Workshop (1 min 24): An introduction to the atmosphere and action in the masonry workshop at the Haysom’s Quarry

As I photographed and filmed the work on the machines, I realised that each had its own rhythm; repeated action that wrapped its operator into a series of movements and noises. I came to recognise how stone was set up, the saw programmed according to the job card, small adjustments made and the start button pressed. This regular mechanical rotation was attended to by constant attention from the man on the saw.
Timelapse Film | **The Masonry Shed** (54 sec): Filmed over the course of a day in different areas of the Haysom’s masonry workshop

Once each saw and machine had become familiar I realised that the shed as a whole had become a different place. By just listening I could tell which saw was on, which lay waiting as water swirled beneath it, and which lay silent, unused. I began to understand why palettes were organised as they were, as stone was transferred from pile to pile as it was cut to size and packaged up. At the end of the day, when the quarrymen had left, wandering through the shed looking at the still and silent space brought its own observations. I could see how things were arranged or the end product of a process I had seen in action, think through other questions I wanted to ask. Slowly, as time went on, I realised the shed was no longer an intimidating space. Rather it had become familiar, recountable and full of people and sounds that I had come to associate with a sense of belonging somehow. Those rhythms had become part of my natural awareness. It was these unspoken, hidden subtleties of understanding these processes of making that were surprising. It made me aware of how the quarrymen working here every day must become tuned into ways of making and understanding that are not clear to see at first glance.

Timelapse Film | **Primary Saw** (29 sec): The working rhythm of the primary saw, which is used to cut the stone into initial slabs and blocks
The masonry shed at the Haysom’s Quarry
Work in the masonry shed
5.3.2 Working by hand

The difficulty with really seeing processes of making on the machines was that I was often not able to get close enough to see what was going on in detail, or to watch for long enough to see the process from start to finish. The saws are noisy, spray a lot of water, and those operating them need space to concentrate. So it was when people were doing work by hand that I was able to get closer in and understand the process of making, stroke by stroke. It began by watching Dave Peddle, a mason at the Haysom’s Quarry (as seen in ‘Workshop’ film). He was creating a hand-finished chisel surface on paving slabs for restoration work of a floor in Westminster. Each of the sawn slabs needed surfacing with the linear bands of chisel marks that would emulate the existing Medieval stone work. I watched with fascination as Dave easily worked his way from end to end of a draft with the assured regularity of an experienced hand. I noted how he stood slightly sideways on to the slab, to allow the space for the mallet to swing naturally. I picked up the change in tone as the chisel advanced; the high pitched sound that characterised this particular stone. These small details of sight and sound lodged in my imagination.

I was interested to get deeper into these processes of making and the intricacies they revealed. My mind could not quite get around the different processes involved: I needed to see more. It was at about this time, in April 2013, that Mark Haysom mentioned he was starting work on a lettercutting job for the Beaminster Tunnel. I asked if I could watch and photograph the process. This way, I would be able to learn more about how the detailed, skilled cutting was carried out. It was also the chance to follow the biography of one object: a stone rooted in events and places by the processes worked upon it.

The unusually wet summer of 2012 had caused a landslide at the tunnel just north of the small town of Beaminster in Dorset. It brought down one end of the structure and with it the plaque embedded there. At the opposite end, an identical one remained intact, from which Mark had to take a rubbing to work up into a stencil for the replacement.
Template for the Beaminster Plaque (drawn by Annet Stirling for Haysom’s Quarry)
Back at Haysom’s Quarry, this could be transferred onto the stone for work to begin cutting the letters. The stone was a large block of Pond Freestone. This beautiful, pale limestone is only found and quarried at the Haysoms’ St Aldhelm’s Head Quarry. It is part of the Purbeck Portland beds, which are a little deeper than the Purbeck beds. The Purbeck Portland beds formed in shallow, tropical marine conditions, unlike the lagoons that characterise most of the Purbeck beds, such as those previously discussed in Chapter Four. The Pond Freestone is valued for its qualities as a freestone. It has no grain, so can be worked in any direction. Its dense, homogenous form is perfect for fine carving and lettercutting. This particular block was not quarried fresh for the job. Instead, it was recycled. It was originally the step of the altar in St Aldhelm’s Chapel, a 13th century church built on the high, exposed cliff at St Aldhelm’s Head. When this was replaced, Brian Bugler (mason at St Aldhelm’s Head Quarry) thought its dimensions would suit the Beaminster job. So, what was part of one monument has gone on to form another.

Arriving one day at the end of April 2013, I found that Mark had already begun the work. The thin pencil traces of letters were marked out and the first pale cuts crept their way across the surface. I have seen a lot of inscriptions in my work in Roman archaeology, hunting for meaning in the words and phrases. But watching Mark cut these letters was the first time that I began to appreciate the process itself and the ongoing biography created by the motion of the chisel. The small decisions and movements made by Mark would be reflected in the profile of the stone forever. Very often when we see inscriptions in the buildings or monuments around us, the sunken areas of the letters are neat and crisp, the processes behind them invisible. Watching Mark, I wanted to learn the details of this process, to absorb and understand it.

Cutting a letter in stone is an exercise in precision and balance. The aim is to keep inside the line of the letter to create a sharp distinction between the cut and surface. The inside angle must be regular, the two sides meeting in a straight line down the centre of the letter. The depth must also be consistent, so that, when finished, the light and shadow lies in equal balance. It was not until I watched Mark actually taking chisel to stone though that the process made sense.
Top: Pondfree stone polished and raw surfaces
Bottom: St Aldhelm’s Chapel
First letters on the Beaminster Plaque
Mark’s left hand held the chisel firmly but lightly, so that he could angle it and swing round the forms of the letter. The right hand held the dummy (a small metal mallet) that hit the rounded end of the chisel. In order to form the curves and lines of the letters, Mark was therefore required to move his whole body around these two tools, as elbows swung back and forth. Being able to see how the body curved round each element of the letters brought them alive in a whole new way. They became animated with the movement that formed them.

**Film | Beaminster Plaque (1 min 16): Tracing the movement and sounds of lettercutting**

At first, I couldn’t predict what Mark was doing or where he would go next. It was difficult to work out where to position myself with the camera where I wouldn’t be in the way, or faced with an elbow. But gradually, the rhythm of chiselling and movement of letters began to make sense. He would start at the bottom of a letter, gently forming a shallow groove with small, tentative taps in the serif of the letter, before gathering force and working up to the top. There he would slow again, curving to the finish, the taps punctuating the end. I began to learn how the angle of the chisel varied as Mark lead it round the letter forms. The sounds also changed. As he started the larger letters of ‘TUNNEL’, he swapped to a wider chisel. Instantly the sound took on a different tone. Rather than being light and porcelain, it became chunkier, stronger, though still reflecting the high ting of the hard stone. There followed a satisfying ‘chunk’ of rhythmic removal as the pale crisp angle emerged. As he reached the top it slowed and dulled once more into the corner.

I wasn’t there when Mark finished the plaque a few weeks later. It was placed within a large stone frame, and installed back into the restored tunnel. Up there, overlooking the road, it holds multiple biographies: of the original plaque, the step for the altar stone at St Aldhelm’s Chapel, Mark’s work and the quarry story. Seeing this practice in action didn’t just teach me about the practicalities of lettering, it also highlighted the potential for all these stories in other such stones, other sets of stone lettering.
By carefully observing work in the quarry and in the context of fossil excavations (as discussed in Chapter Four), an array of different understandings of stone can be gained. Ingold, in his broader discussion of making, notes that, “this kind of learning aims not so much to provide us with the facts about the world as to enable us to be taught by it. The world itself becomes a place of study” (2013:2). These stone worlds can teach us about the subtle relationships between material properties and the processes that shape them. But, for me, observation alone was not enough. I felt an overriding need to learn different techniques myself in order to really know and understand them (as discussed in Chapter Three). Without this physical engagement, I knew I stood no chance of gaining deeper insight into the way the people I was encountering perceived the stone through their work. I therefore undertook a series of practical workshops: lettering, sculpture and masonry. Each of these was an engagement with a different type of stone, but also with a set of processes that linked and built on one another. At the end of this, my relationship with the stone and with the people involved had changed: I had gotten beneath the surface.

5.4 Making

5.4.1 Lettering and Pond Freestone

After watching Mark’s work on the Beaminster plaque, I was keener than ever to try lettering for myself. Observing him had left an odd sense of already being able to imagine what it would feel like to work the stone in this way, how my hands and body would encounter it. A friend, Gary Breeze offered to teach me at his workshop in Norfolk for a week in June 2013. Gary is one of Britain’s leading stone lettercutters. He was trained in the famous Kindersley workshop in Cambridge, and been apprenticed to David Holgate (Breeze and Frazer 2014). Gary has gone on to produce lettering pieces for public and private commissions throughout the UK.
With the prospect of a week of lettering ahead, I was keen that the stone would be from the Haysoms’ quarry. Mark found me a beautiful piece of Pond Freestone: a sheered block with a polished surface but frayed, raw edges. Looking at its pale, unmarked surface before it was put in my car, I could imagine just where in the sequence of stones it had emerged from; the stack in St Aldhelm’s Head quarry that it may have rested in, the motion as it was cut with the saw and the open, windy landscape as it was transported up to the office at Lander’s. It was not just stone, it was those places, people, times of day; it was the flock of crows and gulls lifting from a field at the quarry edge and ebbing in the wind, the sound of the frame saw shunting back and forth and the view back to Worth. This stone had in it life that I had encountered in the quarries. It was animated with geological knowledge of its tropical, maritime origins. The letters that would be carved upon it then, would form another micro-landscape upon the one the stone already held for me.

At Gary’s workshop in Diss, the block was mounted up on an easel, a piece of art already. Looking at it, I became almost afraid to interfere with its pristine surface, formed over all those millions of years, carefully quarried and cut. And what to write on such a thing? What language could verbalise what I felt about this stone? I realised that ‘LAND’ would say it all. Land on a stone formed of the sea. Land cutting sea. Human cutting land into sea. We decided that the stone already had rather an archaeological feeling, its broken form reflecting the megaliths of Orkney; a smaller, southern version of a stone from Brodgar. As a result, the typography and design would reflect that. The first letter would slip off the edge as though snapped in some past lifetime. Gary cleverly added subtle suggestions of ancient letters. And as much as the letters themselves, the space left on that smooth surface created a balance.

Once the words had been set out, the stone stood waiting. I tapped the tungsten tipped chisel nervously on my thigh: I was worried about making a mistake before I’d even begun. Gary showed me how to hold the chisel: fingers curled round to nest it in a straight line, and the pad of the thumb tucked beneath it, into the crux of the index finger to control its direction. This differs from the grip used in masonry, where the thumb is tucked at the front of the chisel, flat against the index finger. This keeps it out of the way of the heavier mallets and greater force used in masonry. In lettering where there is less force required, having the thumb in contact with the chisel helps guide it round the letters.
Gary Breeze with one of his pieces of lettering sculpture
The yard and derrick at the Haysom’s St Aldhelm’s Head Quarry

Brian Bugler and Andy Webster in the masonry shed at St Aldhelm’s Head
Track from St Aldhelm’s Quarry
To begin with, a shallow trench had to be made running up the centre of the letter. This would work as a boundary when chiselling in from the sides, so that the surface of the stone would not be plucked beyond the other side of the letter; instead the surface would only break up to that central line. Next, the chisel had to be positioned with the corner of the tip on the very edge of the delicate serif, and delicate taps with the dummy took it into the meat of the letter. It was very difficult to concentrate on all elements of the chisel and stone at once: the angle must be constant to leave a consistent surface, the inside of the chisel must stop at the same depth in the central line whilst the outer edge of the chisel must keep within the line of the letter. Beginning with a letter with no curves – the N – meant that I could concentrate on just getting these things right, without worrying about going round curves. At the same time as thinking about the chisel, my body was also trying to catch up with proceedings. I could not work out where to tuck my elbow, how to get an angle where I could see both sides of the chisel, or what height I needed to be at. It was all a lot more difficult than it had seemed when I’d watched Mark easily tapping out letter after letter on the plaque.

As I progressed though, concentrating on nothing but the contact between metal and stone, I felt pleasantly absorbed by it. The stone was becoming familiar; those sonorous taps tuning into my actions as more of the letters sunk in neat pale cuts on the surface. I enjoyed the methodical and strict precision the process required. I savoured feeling the difference between the hard, polished surface of the Pond Freestone with its lighter, organic heart. It became very apparent that it was the balance between the original surface and the cut letter that was most important. The space created around the letters was as interesting as the letters themselves.
Detail of the cut ‘N’
Cutting the first letter, and getting into the swing of it (from timelapse)
I discussed this later with another well known lettercutter, Annet Stirling:

“Whatever lettering you make, it always has a sort of pattern – as long as it’s more than one line it starts to have a pattern because of the way the letters fit underneath each other... So it can get quite abstract at times because, like you say, you’ve got spaces and you don’t have to carve all the letters and you can carve the spaces in different ways.”

(Annet Stirling, 21st August 2013)

Annet too, had interesting links with the Haysom’s quarry and the different stones found there. She and Brenda Berman originally set up a temporary workshop at the St Aldhelm’s Head quarry to work on a large commission for Ian Hamilton Finlay (the famed Scottish poet and sculptor). In this way, Annet came to know the stone they were using to create the lettering pieces in a much more intimate way. She and Brenda learnt from the Haysom’s and the other men working at the quarry. It became a place:

“where they learnt more about the raw stone they use and its place of origin than they thought there was to know… The experience of having done much of their work at the Quarry… has helped to further instill a respect for the natural properties of stone and, more specifically, for the various kinds of Purbeck they most often employ (Thornback, Feather, Pond Freestone, Bottom Bed and so on). Their work has become as much about the geological map of their material source and the complex landscape there they have come to love as the words they have carved” (Whiting in Berman and Stirling 2005:18).

When I met Annet in the quarry down at St Aldhelm’s Head after I had done the lettering with Gary, I asked her about the stones she liked to work with:
This image has been removed by the author of the thesis for copyright reasons
“Well for the fine work obviously the Pondfree is the nicest, because you can get such a nice, sharp, small letter. But I always find the light stone is very difficult because you don’t get the difference between the cut and the stone, so it’s only really visible if it’s got good lighting on it... Personally I like the Feather best, which is a lovely sort of bluey colour, and it’s got browns in it and it’s got calcite lines, which I don’t mind but obviously if it’s a headstone you have to watch out. It really shows up really nicely when you carve it. It’s quite hard but it’s nice to carve too. So I think if I had to say one thing was my favourite, probably I would like that better because of the end result, but I love carving that... So what I love is, you get that lovely texture when they’ve done the chiselling. It’s just so beautiful.” (Annet Stirling, 21st August 2013)

Annet’s long exposure to the different Purbeck stones through her lettering work and through seeing them in the quarry has led to a practical but also personal sense of the stone. Back at Gary’s workshop, my own appreciation of the Pondfree stone had grown. I now knew what it felt like to break the surface, to run the chisel through the body of the stone. My knowledge of it was no longer based solely on the visual. I now had a tactile memory of it; an understanding of its material nature. And the letters of LAND were now etched upon the block of stone, quarried out from that huge headland in Purbeck. My actions and growing knowledge of techniques were part of its long story, begun in those ancient tropical seas around 140 million years ago. Through those small incisions on its surface, I began to understand the stone in a new, and very satisfying, way.
During the week spent working at Gary’s workshop in Norfolk, I also wanted to get to grips with the three dimensional aspect of stone. I was anxious to understand the processes and techniques involved in reducing a block down to a planned design. When Mark and others at the quarry explained certain aspects stone working to me, I sometimes found it difficult to imagine the nature of what they described. It was as though they spoke a language that I wasn’t quite able to translate: internal mitres, pecks and twist seemed abstract and out of place. Instead I wanted these to be familiar terms that tripped off my own tongue with the confident understanding that came with practical work.

So it was, that Gary embarked on teaching me how to work out a basic sculpture. To begin with, we dithered about the design. I had no idea how the process worked, and as a result found it surprisingly difficult to think of a design that would allow me to learn different skills whilst also being aesthetically pleasing. My ideas all involved amorphous shapes, instilled by years of admiring the work of Moore and Hepworth. But this would not be a good place to start: it would be like trying to draw an abstract human figure, without having first trained in life drawing to understand the mechanical elements that underlay the human form. To be able to work stone in three dimensions, one has to understand, like the human body, its surface and form. It must be reduced methodically with a precise idea of the finished form. So my doodles of seed-like blobs were set aside, and Gary worked up an idea. The block would be half worked, leaving the lower half as a pedestal for three interconnected shapes: a cylinder, prism and cube. It was simple but at the same time strangely enticing; the rules of geometry holding it together. Gary drew out scaled plans ready to translate them onto the block.

We had taken time too, choosing the block of stone to use. I was keen that it would be connected to my quarries on the coast, but had brought nothing so large with me from Purbeck. So Gary chose a block of Portland stone from his store. I could immediately see that this was Portland Best Bed, perfect for carving. I had got to know the Portland beds
My own drawing of a Henry Moore ‘Helmet Head No1.’ from an exhibition at the Tate 2010
Gary’s design for the sculpture, laid out with the block of Portland stone on the banker
from a set of visits made to Albion’s quarry and mine on Portland earlier in the year. Portland is famed for its quarries. The layers of freestones that comprise the Portland Limestone formation have, as in Purbeck, been quarried since Roman times and quarrying increased massively from the 13th century, for use in the construction of monumental public and ecclesiastical architecture. Portland stone has been used in some of the most famous public buildings in the world, and a walk through the heart of the City of London reflects this, as it continues to be used in vast quantities today (Bettey 1970, 1974; Davies 1956; Edmunds and Schaffer 1932; Stanier 1989; Thomas 1998, 2008; Weinstock 1967). Among many other buildings and monuments, it was used in the Palace of Westminster, St Paul’s Cathedral and London Bridge, the British Museum, V&A and National Gallery.

Around 145 million years ago, towards the end of the Jurassic Period, what is now the Isle of Portland was located on a similar latitude to somewhere like Florida (Godden 2012:1). The stone formed in a warm, shallow, sub-tropical sea (much like the Pondfree stone in the Purbeck-Portland formation). Calcium carbonate formed around minute particles of sediment and shell to form tiny spheres known as ooliths that gradually cemented together to form the stone (Godden 2012:2, Thomas 2008:51). The Portland beds were folded during the tectonic ripples resulting from the Alpine formation, to create the Weymouth Anticline. This East-West band of Portland beds has been largely denuded by later erosion processes, leaving the two bands of its lower folds exposed on Portland itself, and inland running from Portesham through to St Aldhelm’s Head. But it is on the Isle of Portland itself that we see the beds of this famous stone exposed. Seen from above, its quarries dominate this landscape, in the nibbles taken from its coastline, to the craters that mark its surface inland.
Exposures of Portland beds in West Dorset (after Thomas 2008)

Geological section through the Isle of Portland (after West: website resources)
Portland beds in Albion’s Quarry

Portland Roach and Base Bed (front) at Albion Quarry
Derrick and quarry landscape at Portland Bill in the south of the Isle

Abandoned quarry landscape at Tout Quarry in the north of the Isle
Beneath the mixed beds of the Purbeck formation, the Portland Freestone Members are most suitable for masonry and building work. These consist of Roach, Whit Bed and Base Bed. At the top, the Roach is “full of casts and moulds from gastropods and bivalves such as *Aptyxiella portlandica* or ‘Portland screw’ and *Laevitrigonia gibbosa* or ‘osse’s ‘ead’ [horse’s head]” (Godden 2012:7). This makes it durable for building and very beautiful, with the empty forms of past life riddling its pale form. The Whitbed below is also shelly and very strong, making it a very good building material, but less good for masonry. And at the bottom, the Base Bed is the finest quality of all the beds. It is very homogenous freestone, with few shells, making it (as we saw in the Pondfree of Purbeck) very good for fine carving. It was this Base Bed, or ‘Best Bed’ as it is sometimes referred, that I was using for my sculpture. It had even been quarried out of Albion’s quarry, so I had seen the quarry from which it had emerged. I could imagine that white, sunken space contrasting against a dark, sullen winter sky. I imagined the high tech saws and technology used to split it from the earth. We will return to these hollow spaces of Portland in Chapter Six, to see how the character of stone and space resonate in contrast to those of Purbeck. But for now we return to the workshop.

The white block of stone was poised waiting. The tools were lined up: a punch, sharp ended to remove the bulk of stone, a claw chisel to get towards the final surface, and finally the 1cm chisel. Gary had drawn pencil lines on all its sides to mark the shapes it would be reduced to. At first, the different faces seemed abstract; I couldn’t work out which shape emerged where and which face would remain intact. We chose a face to begin with that would offer me a simple space to reduce to. We needed to work back the face to create the edge of the cube. The first job was to ‘edge in’. This used a very similar technique with the chisel as was used with the lettering: to cut along a line – in this case the edge of our worked area – leaving a straight outside edge. Once this was established, it created an edge from which to work into the block. Next, we needed to remove one centimetre across the surface of the face. To remove the main bulk of stone and get close to our final level, we used the punch to work away from the edge, plucking off large flakes of stone. The punch has got a pointed end which drives energy through the stone, lifting pieces off. Unlike the lettering, this required a lot of force and it was hard work. Once this frustrating process was completed, Gary showed me how to gradually bring the surface down to an even finish with the claw chisel. This chisel has an indented head so it can move more effectively across the
stone. I placed it close to the edge, and worked my way in. For a stone that is meant to be ‘soft’ in comparison to the Purbeck limestone’s, this Base Bed still felt hard to me. It was difficult to stay relaxed. I found my shoulders hunching over the block, my hand gripping the chisel tightly. Finally, Gary showed me how to work over the surface with the chisel, creating fine, even marks across it. Already the stone was coming alive in a new way. The different tools had each created their own marks that rippled and marched across the new exposed surface.

As each face was slowly worked, and the stone removed, it created a whole series of sculptures. Every intervention into its original cube form changed its balance, the way the light travelled across its surface, the lines that could be connected between the emerging shapes. I had not expected this constant revelation. At each stage I became tempted to stop, pleased with the new form. At each, I recorded and carried on. Somehow this process of reduction brought something more with every step of removal. The white Portland stone rotated as I rooted out new patches, from different angles.

Achieving a flat surface was difficult enough, but working on the cylinder was even more challenging. A few months before, I had seen Abe Shaffer – a mason at the Haysom’s quarry – creating a Purbeck marble fireplace with metre long cylinders at each side. I had thought it must be hard work. But it wasn’t until I tried making my short stretch of cylinder for the sculpture, that I realised just what a skilled job he had done. To form a cylindrical form out of stone, you reduce it to a series of drafts – flat planes running down the length of the cylinder. You might start with four drafts. Then you draw out more, slowly reducing the width of these until finally you can chisel between them to produce the perfect circle.
Marked up block and tools

The first face with marks of chisel (outer edge) and punch (centre)
Edging in to remove the next area
Forming the cylinder
The finished sculpture
Finally, after much work, the piece was finished. Each finished surface reflected the process of my own learning: feel for a flat surface, listen to the stone, work in not out. The final sculptural form was satisfying to see. In the three shapes that made it, viewing it from a different angle showed a new shape, space or line. It sat white on a slab of Hornton stone that swirled blue green in contrast beneath it. Shadows played upon its surface. The stone had been changed as parts were taken away, and as a result the marks and light that flashed over it animated it anew, making it fresh. The process of making had altered my understanding of that piece of Portland stone, with its occasional curve of blue shell, and the white dust that floated off in clouds as the chisel chunked through it. It gave me another way of being able to think through stone. It gave me an imagination that could work in three dimensions more easily than before; reducing sections and planes of stone in my head. I could see a stone and begin to imagine the processes it had gone through. But what I needed now was to understand this in more detail, with the particular rules and methods of masonry.

Timelapse Film | Carving Sculpture (2 min): The process of carving the sculpture from start to finish

Film | Sculpture Film (51 sec): The changing form of my Portland sculpture

5.4.3 Masonry and Purbeck Burr

Working with Gary on the sculpture and lettering had given me a taste for working stone. Next I wanted to learn the very foundations of masonry: how to cut a block from the rough. The Portland sculpture I had made began as a sawn block, with straight edges to work from. Learning masonry would start further back, with the block of stone in its raw form. I would have to create flat, squared edges that followed the grain of the stone from a block from the ground. I would have to learn how to read the raw stone, and react accordingly: the foundation of all masonry. I wanted to learn from someone who had a deep knowledge, not
just of the processes, but of the types of stone involved and to an extent some of the histories behind these techniques and their integration into buildings.

I was lucky that Abe offered to teach me. Abe Shaffer runs a masonry business ‘Haysom and Shaffer’ in partnership with Mark Haysom and the quarry. He moved from the States to train as a stone mason, having encountered Purbeck marble on a visit to England. Having trained at Weymouth College at the same time as Mark Haysom, he went on to work on various projects, including restoration work at Canterbury Cathedral. It was in the process of sourcing marble for a repair on the corona of Canterbury Cathedral, that he came back to Purbeck, and decided to stay. Abe has a contagious enthusiasm for stone and for Purbeck. He has absorbed elements of the history and stories behind the stone from Trev Haysom and others, and delights in talking about it all. It was for this reason that I was glad he would be teaching me. I didn’t just want to learn about the methodological processes; I wanted to know the stories, histories and memories behind it.
Some of Abe’s masonry work: a Blue Marble fireplace and Spangle cantilevered staircase
So it was that in the cold, damp days of January 2014 we met up in Purbeck to do a couple of days masonry work. Abe based the template on a moulding from Kingston Church, just up the road from the Haysom’s Quarry, so that I would be aware of the realities of the practice.

Burr is a type of Purbeck limestone which was used throughout the Medieval period in this area in houses and public buildings, including Corfe Castle, which was constructed in the 11th century (Hart 2009:199). Burr, or ‘Broken Shell Limestone’, is found in the Upper Purbeck formation, just underneath the marble. When quarried in the medieval period, it was taken from the marble belt, that runs from Peveril Point through Quarr and Dunshay. This particular block had been quarried out a year or two previously at a farm just west of Lander’s, on the valley hillside. This connection to the Medieval quarries, and a particular stone so embedded in the vernacular architecture of the area, made my small piece of masonry work feel part of a much larger history. As a quarried block, the Burr appears to be a dark, sandy yellow, with a somewhat gnarly surface and neat bedding visible in its section: evidence of its sedimentary, freshwater deposition. It has traces of small shells, but these are much more broken and distorted than in blocks such as the Thornback, Grub or Spangle. Abe described it as:

“a very gauzy stone; even when it’s finish cut you’ll see there’s all these little voids in it, which are just voids within the shell.”
(Abe Shaffer, 30 January 2014)

It can therefore be distinguished from similar stones, such as the Downs vein or Freestone:

“the shells in the Burr are broken and tumbled in every direction, while the limestone matrix has weathered away into cavernous holes. This weathering is characteristic that it is possible to recognise isolated pieces of Burr in the remains of medieval buildings at some distance from Purbeck” (Thomas 1998: 61).
Burr in buildings and walls in Kingston
Burr masonry at Kingston Church (tinged pink with lichen)
Abe had made up a template from a block with a Keel mould from St James’s church at Kingston (built in the 1870’s). A ‘Keel’ mould is named after the keel on a boat, since “you get the sharp bit that comes on the roll” (Abe Shaffer ibid.). To work on something that was a real and solid part of the architecture of the area felt somehow grounding, again drawing me into something much bigger. These few days of masonry felt like a chance to become part of the Purbeck culture of stone, even if only in a very small way. Abe had selected the block from the quarry yard at Lander’s a few weeks before we started. After seeing photos of it, I couldn’t wait to get going on it. Embarking on masonry felt different to the carving I’d done with Gary: there was less personal expression in it, less choice. Instead it was guided by the template and the stone, and the final result would depend upon how my handling of the chisels and eye for detail. I anticipated the methodical restriction, and to my surprise, came to really relish it.

Arriving on the first morning, Abe had set out my block on the banker. On the others were blocks of “grey, hard and moody” (Abe Shaffer, ibid.) Inland Freestone which Abe and Tom would be working on. Tom had been working with Abe over the summer cladding the school in Langton Matravers, and was keen to learn the basics of masonry. He was originally a furniture maker, and it felt slightly intimidating to be working with two experienced craftsmen. Although Tom hadn’t worked much with stone, he had a knack for tool use from his furniture making and other work. I hoped I would not embarrass myself, and that I would be able to remember all that Gary had taught me.

To begin with, we had to assess the stone:

“The first thing to do is look at your block and to see what flaws it has, what features it has, what’s your flattest surface, where are you going to start... you look at the job and say ‘what do I need from this block? What are the features that are going to be important?... this is very important when you’re working from the rough because you don’t want to spend any time on something that’s just ended into the wall; you’re going to leave that rough and it’ll be made good.” (Abe Shaffer, 30 January 2014)
Templates for the plan and section of the Keel Mould
This initial survey of the block is designed to make optimum use of the stone in order to use the minimum time and effort; masonry is about making a living after all:

“The whole object of this exercise is to do as little work as you possibly can because it’s an insane thing to do; to take a rough lump of rock like this and expect it to end up looking like that.”
(Abe Shaffer, 30 January 2014)

Masonry is hard, time consuming work, and it is therefore important to make decisions that made the work as straightforward as possible. So we looked for the optimum faces for the finished work, joints in the stone, any possible seams or faults. From that we could work out our bottom bed and orientation: work could begin.

I looked at the rough block and tried to imagine the many processes and stages of reduction it would have to go through before it was finished, with neat, crisp, flat edges, all at right angles to each other. I wondered whether it would ever get there: it was a lot of material to remove. Without Abe, I wouldn’t have known how to begin. Somehow, making the first advances into the material always seemed the most nerve-wracking. After roughly pencilling in the position of the finished block, it was time to begin the slow and painful process of ‘taking the block out of twist’. This poetic phrase refers to the process of squaring up the block on its bedding and in line with the grain, so that the flat surfaces work with the natural strength of the block. The aim is:

“to produce a completely flat surface so that when we’re finished and you put a straight edge on it, there will be no light underneath the straightedge on the angle in any direction you put it on – this will be a completely flat plane. So the first thing we have to do is we have to establish where is that plane, because all we have is a lunar surface of rock.”
(Abe Shaffer, 30 January 2014)
The raw block and starting to ‘bone in’
This began by ‘boning in’: the beginning elements of creating levels. Each corner needed to be chiselled down to a surface that was flat within the stone, following the natural bedding, so that a small wooden block could be placed there. Once these were flat enough, the blocks were placed on and two straightedges rested upon them. Crouching down, we then had to see if the two aligned, or whether certain corners needed to be brought down. It was a way of checking levels across the block. The slightest irregularity in the surface could alter the block angle and hence your impression of the levels. This was work that needed to be perfect at every stage, or small irregularities would set in and develop through the work, “that’s the sort of subtlety you’re looking for because that’s what brings it out of twist.” (Abe Shaffer, ibid.)

It was surprising to realise just how quickly my eye became attuned to the stone and the particular angle at which it was sloping. Extending the levels across to the other side of the block seemed very natural. Actually chiselling down to those levels however, was a slow and anxious process. I developed what I came to call ‘flatness anxiety’, where I simultaneously felt very relaxed by the practical and rhythmic nature of the work and also very anxious about not undercutting the stone (and thus ruining my flat surface).

Listening back to my recording from the workshop, I can hear my chiselling as I embarked: thunk, thunk, THUNK, pause. Thunk, thunk, THUNK, pause. Only the third hit ever really counting. It doesn’t sound controlled, even, relaxed or confident. It is, frankly, embarrassing to listen to. But it reflects through sound how my chisel use changed, and how it contrasts with Abe’s experienced rhythms: CHUNK, CHUNK, CHUNK. Early on, he advised me that:

“a slower but more forceful strike removes more waste. Concentrate on each cut… Just slow it right down and make each hit of the chisel count. You don’t have to hit it hard but you have to be a bit intentional with it and clip into it... it’s a very slow and rhythmic thing.”

(Abe Shaffer, 30 January 2014)
Trying to chisel a flat plane is a strange combination of looking and feeling, very much like taking down a surface when excavating an archaeological site: you feel your way through your tools, learning to be led by the material you’re in contact with. But like archaeology, it takes time to learn this, and until you do it can easily feel as though you’re lost within a surface. To achieve good results, you have to be confident and relaxed, and yet it is very difficult to do this when you’re not fully at home with the material. It takes time to learn it with your eyes and hands. “The key to getting good at this is to relax… it wasn’t until I’d been doing it for about five years before I actually relaxed” (Abe Shaffer, ibid.). Abe called this a ‘period of acquaintance’; his was ten years, I had two days. But I liked this term – it caught the spirit of having to get to know the characteristics, subtleties and moods of the stone, as you would a person.

I was aware that, although I could sense irregularities in the surface and trace certain lumps and bumps, it was another thing trying to even them out without exacerbating the problem. Abe explained how:

“It will always be more than just the little hump you can see: you have to feather that in on either side… once you get a feel for where you’re going you’ll get a sense of that flat surface and push right across… move that plane into the body of the stone.” (Abe Shaffer, 30 January 2014)

It was a process of constant whittling and checking, especially since without the confidence to remove a lot of material at once one draft ended up being whittled multiple times! Although I could see how Abe was doing it effectively, when it came to it, I still found it difficult to translate that into my own chisel work.

What also became apparent on listening again to the workshop recording, was how Abe’s experience and familiarity with the work and materials was also reflected in the language he used to talk about it. It flowed naturally and with an obvious affection, much as my own does when I come to describe an archaeological context; it takes on a slightly poetic edge born of this enthusiasm. Descriptive words or phrases also form a very practical role in immediately bringing to mind a particular approach: “You’re always better trying not to
take too bigger bite... nibble as much as you can”, “one beautiful little 8th of an inch stroke after another” (Abe Shaffer, ibid.).

Once the corner areas were perfectly level in relation to one another, we now had to create the draft round the edge, joining one flat area to the next – first one end, then the other. I felt nervous leaving the relative safety of the corner and advancing into the vast, undulating territory of the draft. It developed a rhythm: set the chisels angle, advance level clunk, clunk, clunk, set the straightedge, bend down, check for light, whittle down the high area, check, whittle, check, whittle. And so on.

But once done and perfectly leveled out, a satisfying island of waste was left in the middle – a reminder of what had so far been removed. The bumpy, yellow surface was giving way to a whitish, ridged advance. I left it for the day, to return the next with fresh eyes, a hand that had unfurled and a wrist that had regained its strength. I knew the work would be hard, but I hadn’t reckoned on the weight of the hammer or my inclination to grip the chisel (a terrible habit).

The next day, the wind whipped rain viciously across the Purbeck hillsides. The Isle of Wight, briefly visible, was lost to low cloud. We shut the doors and I hunkered down to the task at hand: to remove the wasteland in the middle of the block. Abe showed me how I would use first punch, then claw chisel and finally a boaster chisel to work the block down to its final surface.

I was looking forward to the satisfaction of removing hunks of material with the punch, which Abe described as, “a sacrificial beast of burden” (ibid.). I had used this tool before when working with Gary to whittle down the waste on my Portland block, but I was unaware of the ‘Purbeck’ method. Rather than just ‘following the gullies’ as I had before, the Purbeck method involves creating straight and level parallel lines through the stone. You have to draw the punch through in furrows, trying to remove as much waste as possible whilst not undercutting or plucking a chunk out; “you want to pull that force back out of the stone again” (ibid.). So again, it was a constant cycle of chiseling and checking with the straightedge, slowly advancing across the wasteland. I found that it took absolute concentration, not so much to create the straight line, as that came more easily from my
Creating drafts between the leveled corners to bring the stone out of twist
Tools: punch, one inch chisel and two inch claw chisel
aesthetic awareness, but keeping it on a level was much more difficult, especially when faced with small patches of harder stone and shelly accumulations which sent the punch off askew. Standing back to look at the results, I was pleased to see a stretch of satisfying strands of cut and raised stone, like grass blown flat in the wind. It left an organic, rough looking surface that contrasted beautifully with the smooth, chiseled surround.

Next came the 2 inch claw chisel. I found I didn’t like using this tool as much. It seemed to bounce, and it was harder to adjust to a way of working which achieved the removal of any material at all. Somehow getting down towards the finished surface level made me feel nervous, and I found that I was getting lost in my levels. Abe drew up some lines, so I could systematically cut down to the level in waves, advancing across the stone in neat drafts. Breaking the job down methodically made it much easier. And by the time I’d reached the far draft, I felt ready to get to it with the Boaster and leave the final chisel marks on the stone.

The marks on the stone are now the material traces of my narrative of learning that stone, those techniques and tools. I can see where I faltered, or had got into rhythm. I can feel the small hump left in the final draft. Looking at the whitish, almost completely flat surface at the end of the day brought a deal of satisfaction. It also highlighted the sheer time and effort which goes into working a block from scratch, what huge levels of skill, experience and confidence were needed to complete the task at all, let alone at speed. The marks left on my block were angled roughly in the same direction, but they lacked conviction somehow. Looking at the worked surface of an experienced mason, you appreciate the regular spacing and depth of the chisel marks and the natural rhythm they have established with the stone. Annet Stirling commented on seeing this at St Aldhelm’s Head in the quarry, “Somebody’s hand has done that, and just because they weren’t too self-conscious about it, it looks so easy, and lovely, and beautiful” (21 August 2013).

By engaging with the process of masonry, new awareness was brought to familiar things and places. Suddenly, looking at the Medieval buildings in the area which I’d driven past
Beginning to remove the material inside the draft with the punch

Advancing in drafts across the surface: the right side has been chiseled flat, slowly removing the punch marks
time and time again, I could see the effort of individuals which had gone into their completion. It suddenly made sense why buildings such as Cathedrals took hundreds of years to build, and the amount of men who’d have to be involved. I visited Kingston Church to see the original used for my template, where my block would have formed part of the building. The pale stone had taken on the characteristic pink hue formed by the particular algae which grew on it. And there on the surface I saw rank upon rank of boasted chisel marks, running parallel to one another from block to block, regular as clockwork across the whole building. An astounding feat that, had I not tried it myself, would not have been fully appreciated.

I’d hoped to chat to Abe about his work on Canterbury Cathedral as we worked. I’d also planned to meticulously record the process with regular photographs and clips of film. But from the moment we started, the process involved such high levels of concentration, that for large parts of the day the only sounds to be heard were the chips and chunks of chisel on stone. While working the stone, my focus was not just on seeing the marks made by the chisel, but by feeling my way across the stone: checking the angle of the chisel, feeling for the plane and the last mark, pushing the chisel forward at the right depth. This was to be expected – it is the same working any sort of material. But what did surprise me was that sound made such a difference to my understanding of the material and process. Hepworth once said “I can tell by sound alone what’s going on” (in Berman and Stirling 2005:18). I was constantly listening for the sound which verified the precision of the mark and my use of the tool. A good clear sound was needed, not anything that scuffed or slid. I would have found it near impossible to talk whilst working, since I was already in dialogue with the stone. Discussing this with an archaeologist friend, he reminded me that this is what we experience whilst excavating particularly complicated features – you watch, feel and listen to the contact between the tool and the surface, adjusting your approach as you do, and constantly thinking and re-thinking about how to read that surface (Ben Elliot, pers. comm.). You have to use all your senses to find your way through the material. As well as the periods of activity, it is also the moments of silence which are important, when you sit back, consider, measure and think before continuing again. A rhythm of working and pausing, defined by concentration on that one material.
This satisfying rhythm is easy to get lost in it:

“You just get the sense of what a pleasant occupation this must have been all those years ago. I know it’s very hard work, but just to be here and all you can hear is the mallet and chisel all day. It’s therapeutic. It’s a lovely kind of focus, that’s what I’ve always found... it’s just a nice space in your head... There’s nothing romantic about it really at all; in effect it’s quite a silly thing to do!” (Abe Shaffer, 30 January 2014)

Abe’s sentiment here is something I’ve heard echoed in other quarries and by other people. It highlights the contrast between the relaxing metronomy of the chisel, and the far from relaxing reality of the physically hard work. The machines in the quarry hold a similar rhythmic pull for me. There is something about the way they accelerate up when switched on, the hum rising in pitch, the added screech as the blade makes contact with the stone, and the constant hiss and trickle of water as its sprayed over the saw, stone, apron, boots and floor. These rhythms seem to form the base of the action in the quarry and workshop: the repetitions around which daily working life continues. By spending so much time in these environments, and by learning some of the processes, my own awareness has become far more sensitive to these complex stone worlds. Becoming familiar with tools, and the understanding of marks on the stone, have allowed a much greater understanding of the stone and the people who work it. It has also opened up a new ability to read stone work of the past; to make sense of the reasoning and knowledge behind the marks that remain. This very particular knowledge has not only come in useful in my understanding of stone in the quarry yard or some of the Medieval buildings, it has also entered back into my archaeological work on Roman sites in Britain (for example at Aldborough Roman Town).

I feel strangely attached to my block. I’d altered it forever, if slowly. It had taken 16 hours to almost finish one flat surface. Earlier on in my research, I’d spent some time down at the Haysom’s St Aldhelm’s Head quarry talking to Brian Bugler. Brian has worked at the Head since the 1970s and remains one of the most well respected and knowledgeable masons in Purbeck. Trev had brought him some Burr, and he had decided to make a quoin (a block where two faces show, so used on corners of buildings): it took him 5 hours to do the whole block. That is what 30 years of experience can bring. This illustrates well Ingold’s
point that “concentrated in skilled hands are capacities of movement and feeling that have been developed through life histories of past practice”. It was easy to feel deflated in the face of such experience. Brian’s swift, neat work in comparison to my laboured but enthused attempt, further highlighting the importance of a deep knowledge and tacit understanding of the stone itself, as well as of the techniques and processes used to work it. Through working the stone, and a ‘period of acquaintance’, the subtleties of each bed of stone is learned and taken on into the next task. It is by getting under the surface in this way that the huge geological variety at play in the stone of Purbeck is absorbed and understood.

Brian’s worked block of Burr and his tools
5.5 Machines and Purbeck stone

My own experiences working with some of the limestones of the Jurassic Coast have used traditional hand-tooled techniques. Having touched briefly on machines in the quarry in section 5.3.1 (‘The Workshop’) I now want to return to them to explore the lengths to which stone can be learned, understood and re-imagined through more mechanical processes. The role of the machines in the quarries cannot be ignored in favour of the seemingly more romantic traditional methods.

Thinking back to the masonry work with Abe, and the conversations around the traditional process of working a block from the rough, it could be easy to suppose that this ancient way of working with stone gives insight that modern processes and machinery cannot. The shadow cast by William Morris and the Arts and Crafts movement might reflect a view that a craftsman has a spiritual link with material and form where machines do not (Bunge 1956:42). Morris believed that machines were used at the cost of the human elements of creativity and imagination (Dant 2005:31). This is a view that has continued to hold across many fields of inquiry. More recently, Ingold has argued in various directions about the nature of machinery in the process of making, perhaps confusing at times the perceived role of a ‘machine operative’ with an experienced and skilled craftsman. He argues that a craftsman is “the complete opposite of the machine operative” (2011:59) and that in using machines “the intimate coupling between movement and perception that governs the work of the craftsman is broken” (ibid.). This view is, in essence, an over-generalisation at the expense of what is actually a complex relationship between a maker, material and their tools. It also reflects a tendency on Ingold’s part to view ‘craft’ as something necessarily small scale and traditional – romantic even – without leaving room for the creativity, skill and knowledge of materials found in more industrial settings such as quarries.
During my time in the Haysom’s quarry, I found myself increasingly drawn to the machines: the saws, polishers, finishers that squatted in the workshop, the excavators, forklift and slew in the yard. Once more, it became quickly apparent the nature of skill needed to operate these, and the way stone was learned and understood through them. Some of the temporary staff never quite come to know this, instead doing their instructed activity without thought to much else. However, the men in the quarry who have worked there a while, and who show a natural inclination to see a job well done, are gaining an understanding of stone shaped by the particular requirements of the different jobs. In many ways, this is due to the nature of the material itself. The sheer variety and mutability of Purbeck stone requires an informed approach. Not only are there many different beds that need to be identified and understood; there are also the surprises that lie waiting in blocks – a change of colour, calcite lines, faults and fossils – that must be allowed for and adjusted to. So although they are using machines to excavate and cut the stone, the material demands a high level of understanding and sensitivity:

“I think to be honest, the biggest learning curve with everything we do is more to do with learning the material than it is the basic operation of a machine that you’re on… It’s more to do with how you approach the material than how you interpret job cards, and make the most out of it economically and effectively in that way.”

(Mark Haysom, 14 February 2013)

Purbeck is rare amongst British stone quarries for this high level of complexity within and between the many beds quarried. Even nearby on Portland there are fewer beds and the main three that are quarried tend to be more homogenous and easier to work. For this reason, at Albion Quarry they have been able to invest in technology that can deal with much greater quantities of stone in a more production line based process. Many of the machines used at Albion just would not be suitable for Purbeck stone, “The material governs a lot to me … you need to assess every block and every slab, and machinery doesn’t do that” (Mark Haysom, 14th June 2012).
Conveyor belts at Albion Stone, Portland

Adam King carefully works out slabbing at the Haysom’s Quarry, Purbeck
I spent a good deal of time in the workshop watching work on certain projects. Even an apparently straightforward job such as cutting paving blocks requires detailed knowledge. There were several occasions when Adam King (saw operator at Haysom’s quarry) explained to me how he was having to measure a slab out carefully in order to avoid potentially weak points or calcite lines, whilst also trying to waste as little as possible.

On one visit, Mark and Wayne Monks (then Masonry Manager) were working on a set of marble slabs that would form the gutter and paving round a swimming pool. For the concave curve of the gutter, they were having to carefully set the saw to run up and down the length of the slab in ever deepening ridges. The depth of these cuts had to be absolutely precise, the curve consistent. As they worked, they talked and checked, crouching to measure or bending to look down the line. It was very apparent that it was in the skilled hands who understood the stone and the nature of the job, that the saw was being made use. Without that in-depth and tacit understanding, the machine would have little use.

Film | Working the Saw (1min 17): The process of saw work on Purbeck marble

Mark Haysom setting up marble on the saw
Mark Haysom and Wayne Monks checking the marble slabs
I asked Wayne what difference hand tools and machines made to the process of understanding the various stones in the quarry:

“He said that physically working with the material is the only way that you can really come to learn and understand all these different stones. Working it by hand, you get to know it a lot better, because you’re closer to it, so you learn all the little characteristics of it – the way it likes to be treated, its flaws, how it flakes or chips. You also get to know this on the saw as well, and you learn to look out for certain things in certain stones, like vents. You grow to know what it feels like because some stones will be softer and cut quicker, or harder and slower. You learn things like Cap, which is very hard and glassy, and ‘pings’ when worked, as opposed to the Down’s Vein which is softer and ‘thuds’. Working the hard stuff by hand, you have to keep your chisels sharp, and keep sharpening them as they get blunter quicker. But you also learn different things according to the job you’re doing – you appreciate different qualities when cutting paving with the saw or cutting letters by hand. So you pick these things up slowly with every new job that you do” (Field Diary, 15 November 2013).

What also became apparent was the level of inventiveness expressed in the work in the quarry shed. New job cards sometimes brought with them particular problems or details that required a different approach or tool. On several occasions I saw how tools were appropriated or modified to perform a specific task. Understanding the machines and process allows the men in the quarry to alter certain aspects to achieve a desired effect.
Perceptions of skill and the use of machines is generational as well as material specific. In the quarries of Purbeck now, the quarrymen inevitably spend a great deal of time using machines. Only a few of them are trained in masonry, and so transfer the skills and knowledge from hand work into the more mechanized work. Many of the other men have had no formal training. They have learnt on the job, often being trained up first on the saws and slowly learning other processes, including hand tooling. The current technology and work patterns at the quarry have created a generational change in the way skills in the quarry are developed. The older generation started off doing all their work by hand, becoming trained specifically as Purbeck masons. This shows in their vast knowledge of Purbeck stone and the speed and confidence with which they work it. But within their lifetimes they have seen significant changes. They have had to adapt to and learn new ways of working as the technology has developed; from the first use of angle grinders through to the use of huge, computer operated circular saws. Although these technological developments have made work easier and quicker in many way, it must be hard to watch these changes and the subsequent loss of particular skills and knowledges. I discussed this with Trev one day, with reference to the angle grinder:

“It has wrecked the craft, the angle grinder... It’s just one of those things which has detracted from the old skills. Can’t change it – it’s very effective, I’ve used them myself. They’re actually quite an important step in working stone – you can do an awful lot with an angle grinder.”

(Trev Haysom, 26 September 2012)

He then went on to explain the virtues of using air chisels:

“...mason’s use air chisels a lot... and they’re effective. The chisel’s vibrated so it delivers lots of rapid blows; and lots of rapid blows are better actually than fewer harder blows for a lot of masonry, so they are good.”

(Trev Haysom, 26 September 2012)

Trev has been caught in the development of new technologies, and is divided between enjoying the results but also missing the skills which went with an entirely hand tooled
“I worked in a yard in Oxford, and all of us were equipped with these things, and we used them on a daily basis. And I’d been there for a week or two, and there was this old Scotsman worked in one corner of the shed, and he didn’t mix with the other blokes – he didn’t come in the mess house and sit and have a cup of tea and that, he had his lunch on his own. Anyway, I’d been there for a while, and then he come over to me and he said ‘you’re one of them quarry slaves from Dorset ain’t you?’, or words to that effect, and I said ‘yeeees’ – being a bit intimidated by a man who was about to retire and I was only a kid, you know. And I thought, ‘what’s he on about?’. He said ‘the finest stone mason I ever worked with come from down your way – Fred Harris’ – he worked with him down in London on the House of Commons. I came home and reported this to my Dad, I said ‘you ever heard of a bloke called Fred Harris?’ ‘Aye’ he said, ‘he worked in London most of his life’. Anyway, then this old Scotsman picked up my air-chisel and held it up, like that [gestures], and says ‘this is the prostitution of the craft’, put it down and never talked to him again. So you see his attitude to it was it’d come in in his lifetime: you couldn’t help but use the stuff otherwise you were much slower than the other men, and all that, and yet it was detracting from the old skills. Well that thing there [angle grinder] has taken it a stage further. They’re very helpful – if you want to make a shape like that [circular tin with cakes] out of stone, you got to chisel the middle out, traditionally – setting aside automatic diamond machines and all the rest of it now – but to plunge that thing in, make a few cuts, you can knock it out quickly. In that kind of way, every mason uses one. That’s why we got one! But I still think of it. Oh God! Pity this was ever invented!” (Trev Haysom, 26 September 2012)
Angle grinder
I heard quite a different reaction to the development and use of new technologies from the Ex-Master Mason of Exeter Cathedral, Peter Dare. Peter originally trained as a mason at Beer Quarry, before going on to work on many projects, including the one in Oxford discussed by Trev above, as well as at Truro Cathedral and other churches and public buildings. After working as the Master Mason on the Cathedral, he moved to Brisbane where he led the masonry and building works on the final third of Brisbane Cathedral. Though a similar age to Trev, he is very enthusiastic about new technologies. Talking to Peter about some of the Cathedral masonry in Britain now, he told me about an encounter with a mason ten years before:

“I said ‘why don’t you use air tools?’ and he said ‘oh we don’t like the noise, and they vibrate…’ And I think, yeah, and they also speed the job up by 50%” (Peter Dare, 3 December 2012)

Peter also ran one of the most up-to-date quarries for building the cathedral in Brisbane, using (for the time) state of the art diamond wire to remove large blocks of stone:

“I remember Frank doing these great big column stones, and they were clusters of three, and it used to take him about 5 days to work one stone about that high. When we had our machines, we could put a block on the machine and we would cut the equivalent of four of his stones in about 4 hours, while he was taking 5 days. But because you had to have a chiselled finish, all our work had to be a chiselled finish. I used to cut everything 2mm larger and then the masons had to work that last 2 mm. And it worked, because you got the same finish on it, although it was all being done... Anyway, then we went from drawing on the floor to CAD, and we employed an architect as a CAD draughtsman, and he used to then draw everything on the CAD drawings, then we could email from the CAD to the machines at the quarry, they’d put it on a floppy disk, put the disk into the saw, it came up on a screen, tell you how bigger block you needed to get it out and everything, and then just put the starting line on the screen and it was all diamond wire saws and they would cut the shape you needed. So you’d get all these massive saw cuts.” (Peter Dare, 3 December 2012)
Today’s generation, it would seem, are in a very difficult position. Technology is advancing at such speed that it is vital to keep up to date with new machinery and techniques, in order to remain economically viable. Again, in Portland these technological leaps are easier to make due to the regularity of the stone and the depths and predictability of beds. In Purbeck, however, they face a great challenge in attempting to maintain an economic venture, whilst also being limited by the cantankerous nature of the stone. The same large scale approaches which work elsewhere are simply not viable here. On the other hand, it is this variability and character of the stone which allows the Purbeck industry to continue; it has a reputation historically and in contemporary building for quality and specific (often decorative) stone characteristics, both locally and nationally. Mark Haysom therefore, faces very different challenges to those that his father, Trev, faced when he was running the quarry. Mark is constantly having to assess the viability of different technologies for use with the Purbeck stone, in an effort to keep up with a market driven by cheaper foreign imports whilst also maintaining the high quality and reputation of Purbeck stone.

Perhaps, rather than being seen as something negative, the changing use of machines in the quarry can be thought of as having created a variation in “the flow of everyday life” (Dant 2005:31). Certain sets of knowledge are disappearing with the advance of technology, but they also form new ways of interacting and knowing. The nature of the geology in Purbeck means it will always be important to understand the stone at a close level. However, what is important now is to value the knowledge that already exists, and ensure that it is maintained and passed on. What this does highlight, is a lack of new blood coming into the quarries in the form of apprentices or workers wanting to learn the trade. It is the ‘period of acquaintance’, the time spent with the stone that is important for the Purbeck stone industry, and indeed other quarries in the area and across the UK.
5.6 Review

To make with stone, whether by hand or machine, involves a detailed knowledge of the geological ‘heart’ that lies beneath the surface. In Purbeck, the subtleties of the many beds that form the rise and fall of the landscape take time to learn and understand. Some of this can be learnt through geological maps and descriptions, looking at photos or piles of stone in the yard. But to really absorb those tiny geological details – the density of stone, the flighty fossil forms, the colours raw and cut – it is necessary to work through the material. By going through the rigorous processes of making with stone, aspects of its character emerge and become familiar. As I worked through the lettering, sculpture and masonry, the different stones became known in a new way. They emerged as individuals with stories and personalities not easily forgotten. Just as when we draw, the slow reductive processes of hand-tooling allow an absorption of the subject: a deep set knowledge and memory.

It would be easy to romanticize the process of making and those individuals who make (Ingold 2011). Instead, what has emerged from being involved in different practices of stone at the quarry, is that it is difficult, physically hard, highly skilled work. It is not enough just to observe their work in order to understand it (Jones and Yarrow 2013). Instead it requires close, practical engagement at a variety of scales and with a range of practices to really gain deeper understanding of stone. In this way, learning stone through making has strong parallels with archaeological excavation: just as a landscape is absorbed layer by layer through the contact of tools and details of sight, so to is a stone learned by the passage of saw or chisel. The felt changes of these material properties combine with colour, texture, smells and sounds, leaving a memory and knowledge that becomes part of how we understand the stone, and the land more widely.

Over time, these stones have become part of my own personal understanding, and altered my view of the quarry and wider landscape as a whole. The deeper geologies of these enticing materials have been brought into focus, and with them the ways of working, knowledge and recollections that accompany them. Just as Hawkes describes how the “fossil outlines of former lives enrich the sculptor’s work” (2012:99), so too does the process of working closely with stone bring these humming ancient snapshots to life.
Fossilized, mineralized remains are animated by the cut of the chisel or saw. In this close collaboration between past and present, biographies of the stone worker and geologic are drawn together.

Working in these different ways also brought me closer into the web of people who are trained in these techniques. It gave me a new understanding of their work, perspectives and daily working lives, in a way that would not have been possible solely through observation. Whilst I have sought to describe these experiences and the effects they have had on my understanding, certain elements of this familiarity still remain tacit, not easily retold. A community forms around this knowledge; one that is connected over space and time through the stone itself. This chapter then, has worked at the scale of making, working deep in the block and under the surface. The next takes a broader view, to consider the stone in the spaces it inhabits and the voids it has left.
6.1 Introduction

“I feel that by showing those places that are normally outside our experience, but very much a part of our everyday lives, I can add to our understanding of who we are and what we are doing”

(Burtynsky 2007:9)

Stepping out of the workshop and into the wider landscape, this chapter takes us into the spaces formed by working with stone. Like a sculpture, the quarry spaces of the Jurassic Coast are marked by their formation and have the potential to tell stories of their history and the people connected with them. This chapter will explore some of the ideas behind narrating these spaces, before going on to look at different sorts of quarry space and the stories they can tell. The main body of the chapter is divided into two sections: open cast quarries and underground quarries, with examples from Purbeck, Portland and Beer in East Devon.

Locations of the quarries discussed in the text
6.2 Negative Space

At art college we were taught that, in order to really understand and represent a form, you had to concentrate on negative space. In life drawing, to get to grips with the fleshy reality of the human body, it is best to think about the shapes and spaces that form around it: the triangular void created by the arm when hand is on hip, the absences where chin is raised up over shoulder. By thinking about the spaces in between, the presence of the remaining objects – body, chair, floor, blanket – were actually lifted, highlighted and made more real.

A view down the Jurassic coastline shows how the same is true in the landscape. As the sea has nibbled and destabalised the cliffs, the land has retreated back in linear courses leaving steps and ledges, headlands and faults. It is as much the balance of the bulk of the land with the flat, fading plane of the sea, that gives an impression of the form of the coast. It pulls the solid geology into focus, the yellows, greys and whites of the stratigraphy looming in contrast to the mutable marine expanse. As sections of cliff have dropped, slipped and disappeared in the course of my knowing them, their absence has been marked in my memory, giving light to what once might have been.

This awareness of what had gone – the space between – was particularly acute in the quarry landscapes I explored. Quarries are, by their very nature, absences: holes, pits, tunnels. As the stone is removed to form these empty spaces, it is moved out into the wider landscape, very often becoming a positive mark, to make upstanding structures, like walls or buildings. Edward Burtynsky has worked a lot on this idea through his photographic works, and has commented that “when you think about it, there’s a big hole somewhere for every stone building on the planet” (2007:14). Looking into the voidal space of a stone quarry there is a suggestion of solid bulk transferred to another area or element of the landscape.
Natural negative spaces: the Purbeck coast looking east and a Holloway near Simmondsbury
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Quarry spaces also play with a sense of scale. Looking down into a quarry at the ridges left in surfaces, standing blocks and cut shapes, it can be difficult to get any idea of scale at all, unless a human element is present. Burtynsky (2007:9) has also noted that, “the compression of space through light and optics, yields the ambiguity of scale”. In his photographs scale is often hinted at with a ladder, or digger, and very occasionally a human figure. These small elements make the surrounding stone walls of the quarry expand and change. They go from abstract and sculptural to become somehow epic and monumental. Looking at one of Burtynsky’s Vermont quarry photos, Mark Haysom commented that you need:

“just something to give it that little bit of scale. I mean, other than that, if it wasn’t for the trackway or the guy, there’s not really anything to tell you that each one of those platforms is 20 foot, or whatever they are.”

(Mark Haysom, 14 February 2013)

Standing in quarry landscapes of Purbeck and Portland, the same feeling can be experienced. Ramps, blocks, stacks, walls and stone faces suddenly leap into perspective at the arrival of a digger or lone figure. The very nature of the material seems to alter in the subtlest of ways. Contrasting Burtynsky’s photographs with my own from Purbeck and Portland, it is noticeable how geology itself affects the look and scale of the negative space. Burtynsky’s photographs send the gaze into the huge, regular beds of the marble in the Rock of Ages Quarry in Vermont. In my own, we see the expansive, homogenous faces of Portland stone in Albion’s Jordan’s Quarry, and then the thin, rolling, variable beds of Purbeck stones at Haysom’s Lander’s Quarry. Not only do these varied stratigraphies of the quarry walls affect the sense of space, but the bedding and character of these layers dictates the method of their removal. The character of the geological impacts the whole aesthetic of the quarry face and space. In the Purbeck quarry we see the cautious excavation of layers, bed by bed, whereas Burtynsky’s Rock of Ages shows the blank, angular remains of large scale industrial extraction.
Jordan’s Quarry, Albion Stone, Portland

Lander’s, Haysom’s Quarry, Purbeck
In the act of removing the dimension stone, quarries become something architectural in their own right: a form of inverted architecture. The process forms angular suggestions of bulk in the remaining space. This is an aspect of dimension stone quarries that has fascinated Edward Burtynsky. In his photographs, something about the subtle colours adds to the sense of a purposeful, built creation. Certain blocks are tainted with vertical discolouration as minerals seep from faults or bore holes. In one image a glacial blue cross of water sparks in a sheer cut base, so aesthetic as to be intentional. Harvey sums this up well, noting that:

“what is particularly interesting is that the attractive physical space of a quarry is created as a by-product of paying attention to something else” (Harvey 2011:59).

Looking at these photographs, you have the sense that you are gazing up into the interior of a building, rather than down into the ground. Some quarry spaces even take on an architectural presence very like the one that the stone went on to build. Cave quarries can seem like cathedrals; modern mines echoing the crisp angles they have created elsewhere. As with a sculpture or a piece of masonry, creation is in the removal of material; an industrial reordering of the Earth. What is seen as a destructive process can, through the adoption of new perspectives, be seen as a way of shaping and reforming stone worlds.

Quarries accidentally produce aesthetic balance. But they also offer a very different perspective for thinking about landscape and our perception of the Earth more broadly. In many ways, this has been reflected in the ideas of those involved in Land Art. Bailey and McFadyen (2010) have explored Heizer’s famous ‘Double Negative’ as a way of thinking about how the creation of empty spaces in the landscape affect our relationship with landscape. Heizer created ‘Double Negative’ in the desert canyons of Virgin River Mesa, Nevada:

“Heizer carved two large vertical trenches out of facing cliffs, each one taller than the Empire State Building: 1600 feet by 50 feet by 30 feet. The soil, gouged out to make this work, weighed a total of 240,000 tons.” (Crone 1982:19)
By removing the earth, Heizer was playing with the opposition between positive and negative space:

“By dissecting the ground surface, by subtracting and removing mass, weight and density, with ‘Double Negative’ Heizer created a transparent and invisible structure. Heizer defined a space in the ground, which had a power and a force that was disproportionate to its emptiness…There is nothing there but it is still sculptural” (Bailey and McFadyen 2010:574).

This relationship between negative space and positive form has been experimented with in different ways and at different scales (Ahmed and Jameson 2012). Looking at the work of another artist, these ideas of what is held in space can be developed further. Rachel Whiteread rose to fame with the creation of ‘House’ in 1993. By spraying liquid concrete on the interior walls of a house due for demolition and removing the exterior walls, a cast
of the house was created, “revealing a full-sized, inverse representation of the three-storey home, complete with outlines of fireplaces, windows, architraves and staircases” (Wroe 2013). Whiteread referred to it as “an unprecedented expression of inside-out reality” where she was “mummifying the air inside the room” (Walsh 2010).

By making the void solid, Whiteread captures and draws attention to the details and textures on the surface or edge of solid matter. As a result, this opens up part of the archive of memories and stories associated with the space inside the building. With reference to another piece of her work – ‘Ghost’ – Jones described how:

“On this side of the white surfaces of the massive block, engraved with negative image of fireplace, door, window and light switch, we wonder at the dark invisible silence within. Vanished lives, lost voices, forgotten loves are trapped in that fossilised room like prehistoric creatures in limestone” (Jones 2012).

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Space, then, is powerful in its own right. It can give shape and meaning to form, be active and retain meaning and memories. The voids left by the absence of stone can be as engaging as the stone material itself (Meyer 2012; Wylie 2009). These spaces are never finished (Andreasson et al. 2010; Edensor 2005). Whether they were worked historically or still in production today, they are, “a repository that is forever in the process of change” (Hogue 2004:59). In the same way as a building, they create a ‘temporal collage’ (Edensor 2013:450), offering multiple readings and layers of meaning. But as the ground is “handed over to space” (Arnheim 1948:33), the ability to learn from these spaces, to read into their surfaces and reconstruct from what is gone, is dependent on the ability to understand them. What this chapter shows is how the quarry space can engage with a world of stories, memories and learnt experience. However, this is dependent upon drawing out these recollections from the people with whom this knowledge lies. In the time I was undertaking this research, I explored many places. Some remained just quiet, empty spaces for me. It was those that were animated by the voices of people that sparked my curiosity, knowledge and connection with these quarries. This ability to animate space – empty areas of landscape – is yet another reminder of the importance of these unique sets of knowledge, and the generosity of those who can impart it. Without these individuals and communities, these particular spaces and landscapes would lose some of their depth and richness. To know and understand these keyholes into the Earth requires time; a slow learning imparted through being in them observing and listening. I enjoyed the time I spent in these places, and I feel that my perspective of the world has changed as a result of being in them. But I am also very aware that I have only begun to scratch the surface and that many more stories are waiting to be told.
6.3 Open Cast

Open cast quarries are those from which stone has been extracted from the surface down, whereas underground quarries or mines specifically tunnel to access a particular bed or set of beds (Norris 1994). The techniques and methods chosen to extract stone reflect the nature of the geology and the technology available. If the desired beds are close to the surface, it may be easiest to dig from the surface. But if the beds are buried deep and there is a lot of unusable, cantankerous overburden, it may be more viable to tunnel for it. Technology also affects the decision as to how to extract stone. This is reflected in the Purbeck quarries. Today, mechanical excavators allow the removal of stone layer by layer across an area, easily scraping off unwanted clays or friable stone. Before these machines became readily available however, it was necessary to tunnel for the stone, carefully judging at what depth each bed was to be found.

We will begin by exploring the open cast quarries before coming to the more secretive, elusive undergrounds. This section then, will focus specifically on the open cast quarries belonging to the Haysom’s in Purbeck. It was through these spaces that I was able to plunge deeper into this landscape and the quarry world.

6.3.1 Starting out

In the woods that run along the valley side parallel to Langton Matravers, amidst the spring bluebells or autumn piles of pinched dry oak leaves, dips and rough piles of stone mark the quiet remains of quarrying. The locations of the workings echo the beds of stone beneath the ground. In these voids in the woods, we see the negative space that in its positive, forms some of the greatest Medieval Cathedrals in England. Purbeck marble was quarried to build effigies, pillars, altars and tombs (Blagg 1990; Blair 1991; Cochrane 1970; Leach 1974; Legg 1988; Stanier 1979; Weinstock 1967). The manor names still mark these places and link the quarries to historic buildings. Dunshay Manor, just down the valley slope from Lander’s quarry, was owned in 1219 by Alice De Briwere who contributed marble to the
building of Salisbury Cathedral for 12 years (Brian Bugler pers. comm.; Legg 1988). In the
garden of the manor now are overgrown trenches and holes from which grew the columns
of the cathedral. Some of the surface workings a little further along in Wilkswood are
“among the most ancient workings in Dorset” (Legg 1988:14). The Romans quarried
Purbeck marble as a luxury material, transporting it to urban centres like Colchester and
Silchester. So the rugged topography of this hillside was forged alongside these ancient
buildings. The absence of stone here indexes its presence elsewhere.

Up on the top of the hill, towards the coast, you might take the well trodden Priest’s Way
from Swanage up to Worth Matravers. This old track follows a rise of land roughly parallel
to the coastline, below which the Purbeck beds roll inland. As you walk along the path,
taking in the views, the fields to either side might seem dimpled, slightly cratered. These
slight changes in the natural topography is often all the casual visitor will see of the open
cast quarries in Purbeck; the depressions in backfilled spaces, deflated over time.
The lumps and bumps of old marble workings near Wilkswood, smoothed by spring foliage

The garden wall at Dunshay Manor, beyond which marble was quarried for Salisbury Cathedral
Abandoned quarry workings at Townsend, at the Swanage end of the Priest’s Way.

The miniature barrows are the nests of yellow meadow ants

An area restored after quarrying by the Priest’s Way
As a condition of securing the planning permission the quarries in Purbeck now have to divide each open cast area into a series of phased advances. Only a small number of these can be open at any one time. As a new phase is begun, the last will be backfilled and restored to a specific landscape function or type (such as arable or grazing land, or conservation grassland). As such, the landscape between St Aldhelm’s Head and Swanage is dotted with keyhole-like glimpses into the yellow-blue world of the Purbeck beds. Despite being open to the air, these spaces have a secret feel to them. They are often inaccessible to the public, or surrounded by mud filled yard that makes approach less enticing. There is something about them though that seems to draw peoples’ curiosity; an other-worldliness of some kind, a rare opportunity to see beneath the surface.

It was going round the yard at Lander’s with Trev on my first visit to the Haysom’s Quarry, that my own curiosity was captured. Trev had been describing the beds of stone and some of the history of the quarries to me, before taking me out amongst the stones. We walked to the back of the quarry where, dropping away before the back drop of the chalk hill beyond, the section of the quarry hole appeared. My first impression was of a sludgy pale trail snaking down one side of the hole, but flanked by stratigraphy on a grand scale. Having only stopped digging at an archaeological site a few weeks before, this geological spread was stunning. It framed the beds in a snapshot as they were about to roll down into the valley. I was caught. And it was at that point that my wish to go deeper into the ground began. In contrast to the stratigraphy of the shallow archaeological layers with which I was familiar after 15 years of digging though, this deep quarry world was unknown. I did not know how the hole had been made, who had worked on it, what the beds of stone were, or what they were used for. Gazing into that hole for the first time was the beginning of a steep learning curve; one that reflects the vast and detailed knowledge of those who work in these quarries.

My fascination with this void in the yard continued. As the months went on, I would peer into it, gaze across it and try to equate it in some way with the names and appearance of stones that I was beginning to know. But it remained strangely silent. It wasn’t until they began excavating a new phase of the hole at Lander’s that it began to make sense. As work continued, I began to hear more about it. I listened to Mark talking about issues with a particular bed, or where to stack a certain unexpected stone. The hole began to come alive.
Some of the small quarries near the cliffs south of Swanage: (from west to east) Belle Vue, California Farm and Southard. Image: Google Earth

My first view of the quarry excavation at Lander’s, looking out towards Corfe Castle
One day I arrived at the quarry with a timelapse camera, and talked to Mark about where I might put it that would be interesting. He suggested going to watch Mark Tilsed taking out a bed of stone in the hole. At last I had a chance to see the process in action, with a ringside seat. I had seen this particular phase earlier in the year, when the hole was only really a ramp to a lower level. In the couple of months that had passed since then, it had gone down deeper, and a sweep of yellow and dark grey layers now flanked its eastern side.

Since the camera was set up in a somewhat precarious place, I had to sit by it while it recorded. For the first hour, it seemed that Mark T. had decided to rebuild the ramp for the excavator, so in the hole below little stirred. But eventually he appeared again, and work began in earnest. I watched as he carefully scraped back the earth and rubble to reveal the next bed of stone below. His methodical tidying was a vivid reflection of archaeological excavation, where you are always cleaning back to keep a clear sight of the archaeology. The next sweep took the last layer of unwanted material from the stone, the metal excavator bucket scraping unpleasantly against the stone. I could feel the judders of it from where I sat up above. The smooth bed of stone that was left lay pale in the sunshine, lined with fault lines that ran away to the north. With the teeth of the bucket, Mark T. carefully dug down the edge and inched up a block from the corner. Mark Haysom came down and I saw them bending down to examine the stone and assess the bed. The block was taken away to the saw shed to be dissected before work continued. The machines left, and the hole lay quiet again. But I had already begun to understand it a little better.

**Timelapse Film | Excavation (1min 04): The progress of excavation at Lander’s**

Seeing some of the process in action had animated the stone and the void left by its removal. The stone was connected to people and machines. It became joined to conversations and histories of other work in the area. The stone and space are also brought alive by the constantly changing natural conditions: clouds race over sending shadows ahead of them, sunlight brings up the spectrum of colour. The timelapse captures one afternoon, but allows the imagination to stretch to the length of seasons and years of shadows, days and nights, rain and sleet, summer sun.
Abe Shaffer and Mark Tilsed regard the first layers and piles of the hole

The timelapse set up
Mark Tilsed cleaning off the next layer of stone
This short snapshot of excavation at the quarry, made many of the other conversations I was having make sense. Certain aspects seemed to fit into place, and it became more familiar. But I still had a long way to go. The area at the back of Lander’s seemed to shift and change between my visits. I had watched Mark T. digging in May 2013, and by November the hole was deep, its sides that cut backfill slumped. Wandering round the yard the following April, I was surprised to find all trace of the hole had vanished, leaving a bright new area of earth, lined with large blocks:

“At the back of Lander’s, the land has changed again. Beyond the neat stacks of blue grey slabs, and huge lumps of rough yellow stone, the hole has disappeared. Where I watched its careful excavation back in May and the slow revelation of its stratigraphy, there is now a two tone earth surface, stretching out to the line of the road. One half is like a continuation of the yard, with a continuation of the pale yellow fine rubble, the other brown and rich with returned topsoil, ready for reclamation by nature. Between the two lies a neat line of boulders, defining an unknown boundary.

For Mark, and the others in the quarry, this change may not feel so stark; after all, they have patiently dug and refilled it over an extended period of time; a daily shift of stone. I imagine the yard is a more gradual morph, and that the past and future states of the land are kept in Mark’s head as reference points for necessary work” (Field Diary, 30th April 2014).

The sudden change in the yard where the hole had been filled highlighted my relatively short acquaintance with this landscape, and the role that observation and memory played in reconstructing the constant processes of change that go on in the quarry. After two and a half years, I am only just starting to be able to identify changes and really understand the processes behind them. But this experience of watching the excavation and seeing the void filled also highlights the nature of the archaeological imagination. Standing in front of this refilled landscape, I can still imagine the space of the hole, the stratigraphy, the changes that occurred. I can look at the ground and begin to assess what material was returned to it and the process of backfilling. The backfilling of archaeological sites always carries with it a sense of sadness as the carefully excavated trench and the memories associated with it are
returned to the earth. It is a strange form of erasure, as you realise you can’t quite remember the exact location, yet you can remember tiny details of the stratigraphy, or the feel of the fill of a certain feature. The space is held in your head, preserved. You carry that missing segment of landscape around with you, and in some way these old trenches and the details of the earth become part of who you are. So perhaps this view of the backfilled quarry emitted in me a sense of being part of this landscape finally. At last I could look at it and know some of the secret spaces, the true form of the earth, which lay beneath the surface.

It made my eye sensitive to the realities of what lay beneath my feet: solid ground or backfill, tunnel or deflated void. So often presumed solid and constant, the ground around the quarry became alive with interference and movement:

“Out in the quarry, the fog has fallen. Gullied, sodden tracks with pale puddles amble into white nothing. Piles of stone ebb and flow in and out of sight. The glacial slop of sludge smeared down the old quarry hole is barely visible. Squelching along the track, sounds rise out of the mist to be lost to the landscape. I come to the quarry hole at the back of the yard: once neat and crisp, it now looks like a bomb crater, one half dug deep into thick craggy stone that hangs out of the section. The mist has softened the colours and edges, making it hard to see the beds clearly. Standing on the track, there is a gaping hole to each side, and nothing in front of me – it feels a vulnerable, delicate place to be. I think about what is under my feet – redeposited stone, bashed flat with the bucket of the JCB. Cracks run suggestively at the edges of the holes; this stone world feels suddenly fragile. It makes you wonder about the solidity and longevity of voids: some are fleeting – they become voids in memory only, others are solid, long lasting, continually rediscovered and re-imagined as the generations go on (Field Diary, 11 November 2013).

There is a fragile and changing relationship at play between the void of the hole and the solid quarry yard. The hole spreads, widens, is filled, redug at the margins, slumps, is filled
completely, compacted, and reclaimed by the yard. As the excavations open and close, so the order of the yard is changed as tracks and piles shift accordingly:

“Today the quarry is bright in the winter light – a different place to the mist swathed imaginings of a few weeks ago. It is a constantly changing space, as palettes of stone are shifted through stages of work, or organised in storage. Paths through the stone emerge and disappear; holes open up, expand, and disappear again. This one yard has become familiar, and yet I still don’t know its full history – what parts are reconstituted and which still stay solid. This quarry has had a whole long life before I came along, and it is near impossible to retrace that history in full. Even looking on satellite images, the yard is out of date – the building I sit in hasn’t been built – a platform of concrete stands ready and waiting. The sheds look different, and the open quarry is in a different place. Small, subtle changes to a place I can never recreate in full, which to me is always of this time. It has been hard enough to grow to understand the quarry as it is now, let alone try and reconstruct it in the past. And this makes me think more about these types of spaces, and what we find archaeologically – they make such huge impacts on the landscape, and yet they slip away again into the past, to be lost to memory. And surely this is worth thinking about when it comes to aspects of planning, and considering the impact of quarries on landscape?” (16th November 2013).

The process of open cast quarrying and its rapid, concurrent restoration leaves a landscape where the quarry has been erased, and yet where it still remains in subtle ways. The quarry hole is “like a moving peep hole under the turf” (Field Diary, 22nd May 2013), where stone is gradually learnt and understood, changes observed and mentally noted. It is a strange hidden and mobile history of exploration. Seeing just a small part in that one yard makes it clear how memory lies in these places; memory of a space and an exposure, and the stories and histories that exist around them.
Delicacy of the yard
6.3.2 Broad Mead

The quarry yard is a confusing landscape due to this complex history of intercutting quarries, stacks of stone and different buildings. I was to experience a subtly different perspective of the quarry space by seeing one dug from the very beginning. This opportunity arose in May 2014 when the Haysoms’ began at Broad Mead, close to the yard at Lander’s. Although I had heard about the planning permissions for Broad Mead over the years I had spent at the Haysom’s Quarry, the area still remained somewhat abstract in my head. Finally Mark said it would be going ahead, and one day we went to have a look at the site before work began:

“Mark had installed a neat new gate, with large stone gate posts. And beyond was a gentle slope of green pasture that looked out over to Ballard Down and the bay. Above, skylarks made their heady progress upwards, their song catching with others in the gentle breeze. The fields around it were hazed with cowslips. This would be the last time we’d see this field looking green for a long while now. As I stood I could imagine the formation of the sections, the browning of the landscape as the hole progressed down. It stood for this moment, peaceful, free of machine tracks and noise, the stone still solid beneath it. And it made me consider the past quarries and how easily, on the face of it, the land heals itself, so you wouldn’t know the difference” (Field Diary, 2 May 2014).

Alongside the track up to Broad Mead sank the cratered remains of the Haysom’s Turnpike Quarry. After years of extraction it now lay unused: a concave memory of activity. The overburden and unusable earth and scraps of stone from Broad Mead will be used to backfill Turnpike. As one hole opened, the one next to it began to be filled. Something about this transformed volume gave another way of thinking about time in this landscape; slow accumulations and swift erasures. And with the physical processes in the landscape, the generational knowledge that grew and faded with these spaces.
Detailed location of Broad Mead

Preparing the site at Broad Mead
Mark had to break through a dry stone wall to make access to the new quarry at Broad Mead and had sunk in large stone gateposts. To each side of them a gap was left in the dry stone wall. During the first days of excavation we took a side each and began reconstructing the wall. On the right, Mark’s wall grew up swift and confident. On the left, mine took longer and had in its construction a distinct hint of inexperience. Standing back and looking at our efforts, it struck me that this quarry came with planning permission for the next 30 years. These little sections of walls, built into something much older, would still (hopefully) stand as a monument to that beginning. We will be in our 60’s when that quarry closes, and who knows what the context of its existence will be then. Somehow, in that small section of field boundary, I felt that we were writing ourselves into that landscape, in a subtle way, invisible to anyone else.

Broad Mead was a rare opportunity to see a quarry from the beginning. The day eventually came when it would begin, and I went down with Mark Haysom and Mark Tilsed to record proceedings from the first cut of the turf. It was a beautiful day in early May. The grass had been cropped short by the sheep. The field spread before us in the sunshine, the yellow excavator perched upon it, waiting. Mark checked the plans and we worked out the dimensions of the space we needed to mark out. Whilst Mark T. got the machine ready, Mark and I set about measuring and pegging out, calling out measurements in the still air. For me, this was just like setting out an archaeological site. It felt good to be able to be practically helpful for once, and actually involved in the process rather than just standing by watching. The start of this quarry would not just be observed, rather I would have a hand in it and be close to the scrunch and pull of earth and stone.

The area marked and the timelapse camera set, it was time to begin. The teeth of the bucket dug in and pulled the first scoop of turf up and away into the back of the dumper. The turf and topsoil is still ‘living’ and therefore was piled in a low bund where it would continue to hold the nutrients it had in the ground. Thus when this phase of the quarry finishes, it can be laid on top of the backfill.
Mark’s walling by the gate
My walling by the gate
I had agreed to carry out the Archaeological Watching Brief (Ferraby 2014) as part of the planning consent, so as the surface of the topsoil and subsoils began to be revealed, I walked behind the bucket, eyes becoming accustomed to the orange brown earth. A watching brief involves following behind in the fresh trench in an effort to pick up any archaeological features or finds and it therefore involves very close observation. The difficulty comes with the having to get to know a new form of geology and soil formation in order to be able to see subtle differences in colour or possible features in the section. Luckily, between Mark and I, we had the archaeology and geology covered: Mark could tell me what was a weathered Rag, and I could pick out which flints were archaeological and which were just ‘tractor-liths’.

I spent quite a few days watching the removal of top- and sub-soil until a large square of earth had been revealed to the rushing Purbeck skies. A week passed before my next visit, by which time, the surface had begun to drop. In one corner an exploratory hole had been dug through the beds of Rag, then filled with water. They had come on to the Rags close to the surface. These thin, shelly beds are part of the Middle Purbeck formation. They naturally break into irregular shapes of various sizes, and as a result are mainly used for crazy paving and landscaping. At this top level, the Rags were coming out thin and bitty, but deeper down much thicker blocks were removed, which would be sold for larger landscape work. Because these top beds were so thin, to stop them getting damaged by the machine bucket, they had to be removed by hand. Merv, who usually works at the Haysom’s Bellevue Quarry, was brought in to pick and stack them – long and painstaking work.

As the excavations moved deeper, the beds of stone could not be relied upon to do what was expected of them. Across the area, some beds jumped or dropped, and thick layers of clayey earth appeared between the layers of stone. As Mark showed me where the beds banked and dipped, I realized how uncertain the process of quarrying in Purbeck is. It is very difficult to anticipate the presence or condition of the beds, or the angle or depth to which they will ripple down the valley.
Watching brief at Broad Mead
Throughout the process, Mark has to make decisions about which stone to remove, which to keep, and how best to deal with problems as they arise. As earthy beds were removed, the smooth plated surface of the stone beds would emerge, to be pulled out in blocks revealing another layer beneath. Very soon a striped and variable stratigraphy presented itself in the sections, dipping away to the north. Between the beds of stone, thin layers of clays, shales or crystalline calcite emerged; reminders of the changing environment during their formation. Furtling in a section, an interesting array of different materials emerged or dropped on to the quarry floor, crystalline fragments crushing beneath the dumper and setting the ground alight with the glimmer.

For the few days that I would be in Purbeck, a bed or two might be removed. In the time between visits, the quarry seemed to change startlingly. Not only did the advancing seasons change the quality of light, vegetation and state of the stone. But the colour of a layer or space left by the removal of a certain bed seemed to change the character of the quarry. I began to hear the names of beds I had never encountered. These included ‘River Bed’ the surface of which is raised with the casts of cracks in a drying mud. I had seen this in the quarry yard but not known where in the succession of stone it came. They were also bringing out the ‘White Bed’ which appeared to be a greyish blue stone, with fossilised wood ingrained in the surface of some blocks. Leaning down from the JCB, Mark Tilsed told me that it was a terrible stone for using outside as it just disintegrated and turned to mud. They were taking a piece away to see how it would saw up for internal use, since it was quite like the Cap in appearance though behaved very differently. This sort of testing and investigating is ongoing, as the huge variation in the geology offers up different qualities or ways of using the stone. Keeping track of the succession of stones was a steep learning curve. Sometimes the quarry would reach familiar beds such as the Wetson bed, Thornback and Roach, and their appearance would act as a reference point around which I could fit the quarry into the wider stratigraphy of Purbeck.
Mixtures of earthy matter between the beds of stone
White Bed
Stratigraphy: September 2014

Entrance to the old underground
“Down at Broad Mead the hole is deeper; the stratigraphy is rich as it slopes and slips down hill. A summer of Rags and clays, Devil’s Bed and jointing, then finally the good ones: Roach. Thornback. Wetson Bed. Freestone. Now it’s the River Bed: it’s that bluish grey stone with the upstanding cracks forming little jagged ponds on its surface. I’ve seen it round the yard, but never coming out. It makes sense now. And below that another new one, the White Bed. “Terrible for anything”, says Mark T. “just falls apart”. Dave agrees, “not even for roads, it just turns to mush”. We’re leaning on the JCB at tea break. The men roll cigarettes, paper stuck to lips in the sunshine. We talk about progress in the quarry. “This ain’t like up at Belle Vue”, Mark T. goes on to say, “up there you get stone jumping 40 foot – have to dig it out vertical in places. And that hole by the shed [at Lander’s], that jumped 80! Straight from the Rags to the White Bed. Crazy”. I laugh. He starts the machine, trundles off and work begins again” (Field Diary, 11 September 2014).

As Broad Mead got deeper, the old site at Turnpike next door became filled in. In May it was a wide ragged crater. By late August it was full. And in early September it was time to level it out. The planning permission stated that the area had to be returned to grassland, so Mark had to source the right sort of seed and get it on before the autumn advanced. The site suddenly looked very different. A slight dip in the topography was the only physical reminder of the quarry’s existence. It struck me that very few people will remember it was there, and even fewer will know what layers of earth and stone were tipped in to re-form the field. The knowledge of that other material made me realise just how much this part of Purbeck is made up of refilled holes and mixed, moved material. These stone worlds remain hidden and mysterious. In excavating Broad Mead, the machine broke into an old underground quarry tunnel. Although it was known there were undergounds in the area, their existence is hazy and their exact location unknown until they are discovered in the
process of quarrying. These stone spaces are both present and absent, distinct yet also ephemeral.

Being involved in the excavation of Broad Mead over its first year was a rare chance to see an evolving part of the Purbeck landscape, as the digging took it through layers, which themselves represent millions of years of evolution and environmental change. To be able to see the beds of stone revealed and removed, the emerging stratigraphy, and the wider changing ecology around the site over a year has drastically changed my understanding of this landscape and the earth more widely. By being practically involved in the process, my understanding of the geology and character of different beds has deepened. My involvement in it and close observation through the changing months has led to an intimate knowledge of this one, small piece of Purbeck. I can recount its stratigraphy, form and space. I remember the views across to Ballard Down and Swanage Bay, storm clouds rolling in from Chapman’s Pool. June, sitting on the warm stone on the floor of the quarry, seeing a square of blue sky cut by the darting forms of swallows. December, watching the dawn sun spill pink light on the surrounding hills, and later the moon rising and darkness enfolding that quiet, sunken space.

It has also shown how much hidden knowledge there is in this landscape; holes that appear and disappear, stone dug, moved and replaced. Becoming aware of these changes highlights just how much people like Mark and Trev Haysom, who work with stone on a daily basis, must know. Not only is their knowledge honed to the Purbeck stone, it is also made up of their memories of spectral spaces that have appeared and disappeared; a dynamic landscape that is largely unmapped and unrecorded remains in their heads. The depth of understanding found in these individuals reminds us again how this knowledge should be valued. It should not be overlooked and unheeded in the face of bureaucracy. To some, these holes in the ground may be seen as ‘scars’. There is no doubt that they are destructive, but like archaeology it is a creative destruction which builds knowledge. In the hands of those who are sensitive to the landscape, these open cast quarries open a very different and engaging view into the earth and our relationship with it.
View from the gate to Broad Mead: June 2014

View from the gate to Broad Mead: January 2015
6.4 Underground

Moving from the open cast quarries, this next section explores the undergrounds that weave far beneath the surface. In Purbeck, the underground quarries were designed to access particular beds:

“You’d find a layer of stone to start with at the surface, and 9 times out of 10 if you follow it it’s going to dip deeper into the ground and you get to the point of thinking ‘well this is an awful lot of rubbish to shift to get to the good stuff, or do we undermine it?’ So obviously underground quarrying started like that originally.” (Trev Haysom, 15 June 2012)

The coastal and inland underground quarries vary in their stone landscapes. Out on the cliffs, the stone could be seen emerging in a clear stratigraphy. In these places, exact beds could be followed inland, to be tunneled or blasted. Inland, though, beds had to be identified as they emerged from the ground, to be followed along the bedding plane. This reflects again the level of knowledge of the quarrymen to know where exposures of different stones existed, and where they might lead. The landscape of Purbeck is littered with old quarry shafts and depressions where undergrounds have collapsed. They are small reminders of strange spaces that lie forgotten beneath the ground: history in absence. The spaces, methods and subsequent use of these undergrounds have left them with different atmospheres and the promise of faint echoes of history.

The exploration of undergrounds begins with the cliff quarries but then ventures down the inland tunnels that few rarely see. Explorations of these spaces then broaden out geographically to compare with other undergrounds along the Jurassic Coast: a modern stone mine in Portland, and the historic undergrounds of Beer Quarry in East Devon. The stone from these three locations – Purbeck, Portland and Beer – is followed out in Chapter Seven, into the fabric of Exeter Cathedral. Exploring these spaces will draw out how we can sense people, stories and histories in the voids that remain deep inside the earth.
Locations of the quarries referred to in the text, on the coast and Purbeck more closely.
6.4.1 Cliff Quarries of Purbeck

The limestone cliffs of Purbeck are characterized by the changing beds and manmade marks of quarrying. Looking east from St Aldhelm’s Head, you can see the pale yellow wedges standing proud against the turquoise sea. Along this stretch, the bites, ledges and gaping holes mark the fervour of past industry. The stone quarried here was taken off by boat to build in the City of London, and harbour walls at Ramsgate and Dover (Trev Haysom pers. comm.). A mixture of tunneling and blasting was used to extract the stone, gradually creating ledges in the cliff. These areas were then used to roughly work and store the stone, before it was craned onto boats. The ruts from carts and footings for cranes still mark these benches. In a few of the less accessible quarries, images of boats have been inscribed on the wall; faint reminders of a lull in activity while a man waited for a boat to arrive or a storm to pass.

On maps of Purbeck’s coast, the names of these quarries run poetically along the shore: Dancing Ledge, Tilly Whim, Winspit, Seacombe, Hedbury and Topmast. Some quarries were abandoned in the late nineteenth century, when the turn from stone extraction to tourism began to creep into the district (Benfield 1940). At this time, the growth of Swanage as a tourist destination led to friction with the quarrymen, whose bankers and stone chippings littered the old quay in Swanage Bay. After the Second World War, the advance of machinery meant that open cast quarrying was a more viable approach. The last cliff quarry to close was Winspit in the late 1940’s (Hyland1998:50), worked last by Old Billy Winspit who lived in the cottage just up from the quarry.

Even after the decline of the cliff quarries, they have become an important part of the character and history of this section of the coast. In the development of Durlston Country Park in the nineteenth century, the caves at Tilly Whim quarry became part of the visitor’s tour. Now, all the cliff quarries exist as strange reminders of an industrial past which strongly linked land and sea. In recent years, they have been re-identified as places of leisure with an aesthetic ecology of their own. They are a keen haunt of climbers, walkers and naturalists.
Looking east along the cliffs from Seacombe

Tilly Whim
Dancing Ledge
Even the names of some of the old workings have begun to change, acquiring a nomenclature of climbing routes rather than quarrying. They were the first of the underground spaces that I explored, the open, coastal location lending easy access.

It was December 2011 when I first made it out across the fields to explore the cliff quarries properly. I had gone with Mat Chivers, one of the artists commissioned as part of the ExLab project. Mat and I walked down to Seacombe in the fading afternoon of a winter storm, the wind tugging at our clothing. When we reached it, we stood watching the huge waves pile in, to crash white up the height of the cliffs:

“Tucked down in the long, windswept grasses that covered the cliffs and old spoil heaps, I lie watching the huge storm waves run in, swoop, swirl and suck back from the cliff edge. Spray shoots upwards along the coastline, visible white in the falling gloom. A few meters away, Mat crouches, wrapped over his camera and tripod, a silence as he films his shot. The world is empty, but for the rhythmic beating and booming of the waves, whose echo is the vibration of the stone under us, mighty and deep. But we feel safe amongst the ruined quarries, the hints of human presence in the forms of the land.

We have been here a while and the light is fading fast. Mat has moved down the cliff and all I see of him is a shade of deeper darkness and his camera screen glowing, small and bright. The rain comes, and we begin the walk back around to the head of the valley, stopping only to record the last remnants of light, caught on white horses out to sea. We feel as though we have shared a secret, on that empty coast, that lonely valley. Lights peep out, and Worth comes into sight.” (Writing after the event)
Later that night, the rising moon persuaded us out again and we followed the strip lynchets contours of East and West Man down to Winspit:

“When conversations ended and the pub door shut, the wind had dropped completely. The storm clouds had vanished revealing a huge, white, winter moon. All around us the landscape was lit by moonlight – a pale, strained version of daylight. We decided it was too good to miss by retreating indoors, and instead we retraced our steps down the hill to the sea. As we came into the cove at Winspit, we were met by the sound of waves beating against the foot of the cliff, eerie in the silent, silver night.

The flat rock outside the quarries now lay empty, an odd pile of stone left where it had been stacked. The space felt like a town square or forum, made strange by the absence of people. Beyond, the dark, square mouths of quarry tunnels gaped. Our footsteps sounded loud in the hushed night as we walked towards them, and darkness draped upon us as we passed through the entrance. After a minute, our eyes became accustomed, and we could make out the shadows cast by the moon striking the props and pillars of stacked stone. Tunnels ran away into blackness, and piles of stones, shattered and deserted, lay in corners, or blocking the way. Further in, the moonlight faded and stopped, and we were aware of our bodies in the cool darkness, and unknown spaces opening before us. Something about that feeling of space reminded me all at once of being in a cathedral, temple or monument: a sense of peace settled around us. Strangely, for such an alien place, we felt safe, enclosed in a world carefully created by deft hands over many years. Time seemed to shrink in the shared, stony darkness.

Turning, we could see the sculptural supports silhouetted against the moon outside, and we broke out into the light and air. Crouching down on the edge of the platform, we watched the waves cruising in for the second time that day. But these were smaller, calmer. As they ran, the moon caught white horses, leaving trickling, silver tracks over the crest of the waves. We
watched, hypnotised by rhythm and only stood to shake out cold limbs, and reach for the camera.” (Writing after the event)

Other explorations of Winspit followed, through the seasons: a bright winter’s day when the sound of dripping water filled the caves; summer crowds crawling in every nook and cranny; a film crew filling the space with shouts and orders. The more I returned to it, the more I was caught by and drawn to its sculptural qualities. Sitting on the cliff opposite, its bite-like space was sculptural, and close inside it, the carved out rock appeared monumental. I realised that I had to draw it to really get a grasp of its form. I started thinking about Henry Moore’s drawings of the sarsons at Stonehenge: the way the stones appeared monumental in their depiction as grainy charcoal forms on a cleaner white page. Moore has communicated the solid, stoniness which makes the monument stand proud, framed by the Wessex landscape. In his monochrome version a weightiness is visible, balanced by fine details such as small cracks running over the surface or the light on a joint. But this is also achieved by the negative space left around the stones, a contrasting form and space.

When it came to Winspit, I wanted to achieve a similar grasp of the angular, cubist, linearity of the stone cliff and the way in which this contrasted with the hollowed out spaces of the underground; to try and understand the nature of the stone and the quarry. Drawing that chunky cliff face made me understand better the nature of the beds of stone, the way they formed different shapes and related with one another. The splintery Shrimp Bed at the top to the stronger, pale beds of the Portland Freestones and the more lumpen, bluish Chert Vein running in their midst. By picking out these beds unconsciously through drawing, and going back to photographs for comparisons, the nature and location of the undergrounds has begun to make more sense. Understanding the beds of stone has been a process of understanding the materiality of them: their formation, solidity and how they are worked and used in the wider landscape.
Architectural forms at Winspit
Because of this, the voids which now remain there have been instilled with a greater sense of space and context. The relationship between the stone and the remaining void runs both ways. The void draws attention to the stone, but the stone also gives a weight of understanding to the void.

Seeing the narrow entrances to underground cliff quarries, it is possible to think about the mass of stone which has been removed. It is an abandoned space created by activity and human enterprise. Creeping into the dripping underworld of the quarry cave, the void becomes paramount – an emptiness that stretched back into the heart of the hill, broken only by the regular presence of a pillar, formed by the Under Freestone and Under Picking Cap that was left by the advancing quarrymen. The pillars almost seemed to grow from the floor – a manmade stalagmite (and marker of time). Looking up, the House Cap ceiling is uneven and organic, echoing its algal origins. On the walls, beneath the orange damp, the horizontal bedding is visible, sliced through with the angular shards of quarrying. These, and the ridges on the floor, indicate time in this quarry landscape, the slow removal of blocks and the progression of the void behind them. Inside these mines, these ridges and protrusions, absences and voids, are faint traces of the quarrymen and the worlds they inhabited.

The space has been formed by different processes of quarrying that are specific to their time and the type of stone. At Winspit, they were trying to remove the Under Freestone, but in order to do so, they had to remove the stone above to have the space to work with the tools of the time. Benfield, writing in 1940, describes this:

“The whole cliff face is solid stone, with no layer of underpicking dirt in it to help in getting out the blocks; a bed of stone two feet thick is blasted out to uncover each block, every inch of this has to be drilled and charged and then touched off, which means slow and hard work even with pneumatic drills” (Benfield 1940:166).
In the half century that has passed since it was last quarried, Winspit has been influenced by other forces. The damp has created a microclimate for bats, lichens and rare orchids:

“The quarry floor at Winspit of course has got the Early Spider Orchid all across it. Well, they wouldn’t have been there if it hadn’t been for the fact that there’s a quarry floor. It’s getting a bit of soil on it now and that is the ideal place for the orchids, and that’s the case all the way through Durlston. All the Spider Orchids are on the scar banks where there’s very little soil on top of the stone. They wouldn’t be here otherwise.”

(Brian Bugler, 25 September 2012)

The walls have become etched with graffiti, marked by the flames of campfires or carved into new forms. The sheltered spot is used by walkers to shade from the sun, an arts installation, a climbing spot, a shelter and party spot. All these narratives clamour for attention in these spaces. The void is full of histories that shuffle and fade: “These places are saturated with meaning… For any approach to them must take into account the endless narratives … which have accumulated about them” (Pearson and Shanks 2001:156). Just as buildings become “palimpsests and temporal collages” (Edensor 2013:448), so too do the quarry spaces where the building begins. Some of the stories can be unpicked and retold, but much of the vitality of the quarries is gone, or only visible when recalled by one of the quarrymen. These quarry spaces have become part of a Romantic view of this landscape; one based on the remaining aesthetic rather than the hard labour that underlies their history:

“I think it’s only in hindsight and from a point of view of luxury ultimately, that you can start to view it like that. I can hardly imagine that any of the guys working like that and being absolutely reliant on it – no other options, it was that or nothing. With people cycling miles and miles to go and do hard, arduous, killer work for hours and hours, and cycle home again, and just about earn a bit of bread. It was pretty hard. A hard existence I reckon.

It’s quite an evocative space isn’t it, with all that has happened and then it’s gone. And anything that feels like it’s been left half-done conjures a bit of a
sense of the process and the feel of the place doesn’t it? You can almost imagine it down there. I reckon it was hard going. I don’t fancy that. I’m not up for it!” (Mark Haysom, 14 June 2012)

The cliff quarries are seen as an important part of the heritage of this coastline, whilst up the hill the working quarries struggle for survival. The heritage status of this coastline, and a landscape labeled as National Trust, AONB, SSSI, is actually acting against the very industry which gives it its character and strong sense of identity. In this way then, these spaces feel confused. They are saturated with voices and meaning and as a result are hard to get close to, or to find stories in. The sense of their history and their momentary present is mutating: from a space of an industrial process and focus for a community of stone, to a backdrop for a romanticized tourist gaze. These quarries have been the subject of photography, writing, poetry and artists for the greater part of the twentieth century, and something in their space seems weary.

It is when I am out one day with Abe Shaffer, shuffling down a slope to Scratch Bottom quarry, that the magic of these places comes alive again. We drop onto the ledge and sit watching the cormorants nesting on the cliff before exploring the waste stone in the overhang of the old quarry. Edging round a ledge, another small quarry cave reveals the inscribed boats, bobbing on an ocean of stone. Black stains mark the scar of old blasts. Abe chats happily about the stone and the conditions for the quarrymen, as we sit eating apples and watching the waves scoop the ledges. His enthusiastic narrative charges these spaces once more with quarry character and a deeper past. These particular quarries are, despite their sculptural bulk, somehow unresolvable, fluid and fleeting, echoing in some way the coastline into which they are formed.
6.4.2 Underground at Haysom’s Quarry, Purbeck

In contrast to the public spaces of the coastal quarries, the inland landscape of Purbeck is scattered with workings that have been long forgotten. Much of the southern area of Swanage is built on land once rich with undergrounds, causing the subsidence of some unfortunate buildings. In the area around Durlston and Worth Matravers, small craters mark the remains of shafts from the undergrounds. In some places, the site around the shaft still survives, with a walled in area, quarry sheds and capstan for dragging up the carts (Norris 1994; Phillips 1996). At Townsend, the cratered remains of the shaft entrances are filled with brambles and shrubs, the areas round them hummocked with spoil heaps. Much as I was tempted, I would not have dared venture down any of these passages. My knowledge of the stone and the relative safety of the different shafts was not good enough for that. But I started to feel very curious about these spaces. People told me stories about exploring down them:

“\textit{I’ve spent a lot of time investigating all the old quarry workings. They’re fabulous. I don’t know if you’ve ever been down any of them, but they all vary very much depending on the individuals that were working them: whether they were really amazing, tidy and clean working, or a bit scruffy and sort of stuff everywhere. But they are fascinating to go down.”}

(Charlie Newman, 25 February 2013)

Sitting in the pub one evening when I first knew Mark and Abe, they started to talk about the undergrounds. Mark described how they had broken into an old tunnel whilst quarrying a few years earlier. He told me how he’d taken a candle in and seen the pillars built up of blocks of rough stone and how, following the passage, he had seen the tread of dinosaur footprints tracking over the ceiling. They had found old rusting objects and names carved and scorched on the rocks. Abe added about the Down’s Vein quarry’s, which could be as little as a few feet high so the quarrymen had to propel themselves along on their knuckles. It was amazing to think that there were these underground worlds that had somehow stopped in time, just winding beneath our feet.
Quarr shed with capstan for bringing stone out of underground shafts. Near Langton Matravers
In these tunnels, the worlds of humans and stone collided and wrapped in a strange muffled history tucked within the geological beds. I couldn’t wait to get down into one and experience these spaces for myself. Somehow I could not quite imagine them, and as a result felt as though there was a part of this quarry landscape that I could never quite know or understand.

Eventually, in November 2013 I got the chance to go down. Mark said he would take me down the one that I had heard about in the pub, all those months before. A couple of days before I went down, I wrote:

“Having been underground in Jordan’s [mine on Portland] and the cliff quarries, it does influence how you think about the surface piled with stones. You are more aware than ever of the nature of our relationship with the earth, which so often is dislocated. How will going underground here in Lander’s affect my understanding of this now familiar landscape?” (Field Diary, 10 November 2013)

“It is a wet and windy November day in Purbeck. Outside the office is a world of whipped white – beyond the nearest wooden pylon and stacks of stone, there is nothing. Today the quarry is an island; head down, working, the outside world receding. I am sitting waiting to go down the undergrounds in the quarry. These are secret voids – unknown spaces, under the radar of modern life. I was first told about them a year ago, by Mark one night in the pub – a tantalising description of going underground with candles and seeing the footprints of dinosaurs on the ceiling. And now, after all this time, I sit waiting for the moment when I too will know this space. I can’t really imagine it – I’m not sure if it will be a small, cramped space, or open and corridor-like.

Arriving at the quarry this morning, Marie-Anne and Corinne [who run the office at Haysom’s] started telling me about the ones they’d been down; how they’d gone with children who’d revelled in crawling down tiny tunnels on their bellies – a thought we all baulked at! Corinne remarked how she
wouldn’t want to go down on a day like this, and how I’d have to be very waterproof. It gave me a slight sense of foreboding. I don’t even know whereabouts in the quarry the undergrounds are, or what stone they go into – at the moment they are an abstract void in my imagination. I am surrounded by the sort of material which came out of them, yet have very little concept of what the remaining space will be like. So much about these spaces is depended on the beds they cut, the ceiling bed (in Winspit and Jordan’s an organic, rippling surface), the textures left on the wall, the way the space opens out before you.

After lunch, Mark told me where the underground is and I remembered wandering in the quarry one evening and him pointing out a big cover and mentioning there were undergrounds. Then, I had looked out over to Corfe where the castle sat nestled in the hills, and thought of what ran beneath my feet. Finally now, pieces of the quarry puzzle are beginning to fit together, as things mentioned in interviews a year or two back, finally make sense, or take on a real presence in my mind.

(Field Diary, 11 November 2013)

The next day, the time had come to go down. We walked out of the shed and round to the corner where I’d watched them dig the open quarry back in June. We stopped for a moment while Mark pointed out the different beds visible in the section: Lanning Vein, Rags, Grubs, Roach, then the Thornback, Wetson Bed, Underpicking Dirt/Cap and the Freestone, then finally the Down’s Vein, just visible. The underground we’d be going into was between the Roach and the Freestone: I looked down into the hole, and tried to imagine being at that depth inside the ground – I couldn’t.

The shaft entrance was a bulky, stone squared feature half covered in large lumps of timber. The others were lying neatly to one side where Mark had moved them with the machine earlier. We started down a world of stone that descended rapidly into a patch of darkness below, Mark’s voice ahead of me become absorbed in the shadows. An ammonite impression was visible in one stone, and another was teeming with shells that just caught
Level of the underground, between Roach and Freestone

Entrance to the underground
the faint light. The big blocks meant each step took us down steeply, and soon we were in the shadows.

The torch came on to reveal a neat tunnel tall enough for us to stand, just. Walking behind Mark, I could make out the silhouette of his boots and legs, and beyond a clean floor bound by the bedding stone on the left, and a rebuilt area of backfill to the right. In front was darkness, and quiet: total quiet except the sudden loudness of our own footsteps and hushed voices. Later, sitting alone down there waiting for a long exposure photograph, I would consider the extraordinary stillness of the tunnel – no movement of air or sounds of creatures, and an enclosing blackness which was thicker and more profound than any other dark. There was a passage I remembered from Benfield’s accounts of working underground which came back to me then, bolstered by my own experience: “Nowhere else can be found the same sense of being completely alone… No night is ever as dark and still as a quarry” (1940:69).

Mark and I made our way down the tunnel, seeing from side to side other offshoots that were lit and shadowed again as we passed them, the space awakening for a brief moment. The tunnel turned until we came to the shaft at the other end. There, another steep flight of chunky steps reached up to the light. Mark tried to explain where we were, but it made no sense to me. We could have been miles off by this point; I’d lost all sense of direction almost straight away with the alien environment. He showed me how the Freestone had been removed first, then the Underpicking Dirt so that the Wetson and Thornback beds would be easier to bar out.

Because we were busy looking at our feet, I hadn’t really noticed the ceiling at this point. Mark stopped and shone the light upwards into a small offshoot corridor: there, waiting patiently for us, were the footprints: one, two, three. They crept across the base of the Roach, each pressing into the now empty space below them; three-toed reminders of a lagoonal moment in time in the far distant past. Mark turned the torch off, and they vanished into a blackness that took the stone with it. The void grew into my whole world for that small moment, and instinctively I reached out to Mark and the wall to reassure myself that they were still there. We made our way back round to the shaft and ascended back into the sunshine, eyes adjusting to the sudden light, feet squelching in the mud. Once
up again, the landscape looked different, knowing there was that space down there, just waiting. Mark pointed out the other shaft entrance which we’d seen – it was only 10 or so metres away, and now on the surface I was able to understand where we’d been: the darkness and unfamiliarity of the tunnel had made any relation with the real world difficult.

I went to fetch my cameras and sound recorder from the office, and prepared myself to go back down by myself. Having been given a glimpse of it once, I was eager to get back down and start finding ways of recording it and really getting to know it myself. I headed off across the yard in the bright winter sunshine, through piles of familiar stone. Arriving at the shaft entrance again, I paused to photograph it and sort my things out before heading down again. The sound recorder went on and I spoke my thoughts aloud as I went down, in the absence of anyone else. Considering the structure of the shaft, I realised that the familiarity of the stone, it’s chunkiness, and the knowledge that Trev had built it, made it somehow reassuring:

“It’s quite scary having to trust in the fact that Trev knows his stuff. It’s quite a weird thought to think that down there is a hole, and there is a big bit of stone missing in the ground, and yet it’s all somehow holding up. There’s something about the chunkiness of the stone which makes you trust it more, and not just that but I suppose the feeling that it’s a stone that I’m familiar with a bit.” (Me in the Underground, 12 November 2013)

Listening back to that recording, I can hear the nerves in my voice that I hadn’t even been aware of, and loud intakes of breath as I get to the bottom:

“I will happily admit it’s still making me feel a bit nervous. It’s amazing how different it feels when you’re not down here with someone else...” (Me in the Underground, 12 November 2013)

Being alone totally changed the experience – I suddenly felt very cut off: very, very alone. Without Mark to talk to, I became hyper-aware of every drip at the shaft entrance, and most of all, aware of the sound of silence. My boots made loud squelchings and suckings in the mud near the entrance, which became creatures of the depths in my imagination.
Once again, the camera came to my rescue. I concentrated on getting it set up, and starting to experiment with taking pictures in very challenging light conditions. Mark had given me a big bag of tea lights, so I began by setting the camera up right at the bottom of the shaft where I felt safer, and started to place the lit candles down the retreating passage. They had to be placed out of direct view of the camera behind pillars or in the stacks of the backfill, so that a haze of light was created in the long exposure, one which highlighted the drama of the stone. Somehow, placing the candles further and further down the corridor was like a slow conquering of the space: a domestication of it. Suddenly the importance of fire and the atmosphere of these environments brought a whole other level of understanding to work I’d done in the past on cave art and prehistoric life. The candle light softened the stone and made it a warm, friendly, enclosing material, rather than a cold barrier.

“Over my left shoulder is the shaft rising up and all the lines of huge droplets that are running silver like icicles as they sloop down, heavy and weighted. And I can see the blue sky at the top. To my right I can see my shadow from the sunlight that’s just getting in, and then the candle light is creating this warm, orange glow down the passage – the candles are hidden so they’re not effecting the long exposure – it’s picking up the edges of things really nicely and you get these beautiful squared off edges and shadows leaping forward, then the end of the tunnel the blackness, where there isn’t a candle.” (Me in the underground, 12 November 2013)

Fiddling with the camera brought happy distraction, as I attempted to manually focus on a space I couldn’t even see. In the absence of a remote control, I had to hold my finger on the button for as long as the exposure required. When Mark had done it, he said he’d done a couple of minutes, so I started with a minute… nothing. Darkness, with a faint tinge of… something. Two minutes and there was a small glimmer of a candle. Four minutes and an orange hued monumental tunnel appeared on the screen. Between each go I would rearrange the candles – a couple of millimetres here to highlight the pillar better, or a shift
round the corner to avoid glare. And then I stood in silence, finger on a button, with nothing to do but sense and listen and imagine. I couldn’t talk or I’d lose concentration and take my finger off the button. So in those minutes, silence reigned; a thick silence punctuated by drips on the stairs and my own breathing. At one point I discovered a toad sitting in the gloom watching my strange activities. Even its small presence brought comfort to this deserted underground space where I stood hunched over a camera, waiting.

After some time, I got cold and hungry and decided it was time to resurface for lunch. I left the underground patiently waiting for my return, and ascended the yellow, damp blocks to the surface. I was shocked to realise how accustomed I’d become to the silence, and how coming up to the air again made me very aware of what sounds had been missing:

“It’s really funny going back up – I can hear the saws over in the sheds, a chainsaw somewhere over on the Down. The view straight out of the shaft is right over to Corfe, and you can see the castle clear as day, just nestling in the green hills. It’s just weird! Everything down there is one colour and you’re surrounded by this world of solid yellow, white stone, and it’s quite cool really.” (Me in the underground, 12 November 2013)

The difference in colour palette was a really unexpected aspect of the underground. The autumn landscape extended away in those pale, ephemeral greens, browns, grey and yellows that always remind me of Ravilious’s thinly applied dry watercolours; a solid sculptural meandering of hills, roads, hedges, piles of stone and rising smoke that instantly falls and drifts in the still, cold air. Whereas down below, the space was a pale yellow in my torch light, and a dark, warm orange void aglow. Variations came in the form of shadow, or the darker line of the Underpicking Dirt, and in the contrast between torch on, torch off.

I was glad to return to the warmth of the office, both the heated floor and the comforting presence of Marie-Anne, after the cold isolation of the tunnel. Mark came in, and I didn’t dare admit to him how nervous I’d been, or how long it had taken me to advance just a short way up the tunnel. I returned underground warmed and fed, and ready for another stint. And this time I stomped happily down the shaft steps, already knowing the pattern
and form of the steps; where the big stone turned with a bigger drop, and the now familiar uprights at the bottom. This time I wanted to explore the area where the tunnel divided, separated by a line of sculptural pillars and proceeded by a more open area. Here I’d seen writing on the ceiling, dark blackenings of chunky letters spelling names of the far and recent past, weaving their way over the plated forms of the Roach. I set the tripod up low, and settled myself on a good chunk of stone to wait out the long exposures I would need: five minutes, six minutes, seven.

“In this low candle light now, I can see the darker marks of names that have been graffiti’d on the roof – Alex Lander and others – I can see all the cracks in the Roach, and that underpicking dirt is a darker brown trail along the side, with different laminations from the pillars in the middle, holding up the roof between the two tunnels. Very cubist and monumental. It feels like the ruin of a building, like you’re exploring an archaeological site, which I guess you are. It’s all these strange remnants of people over time, and this feeling that people have made it in a certain way, and left it and gone – an odd sense in spaces created by people and when they’ve gone again – an extraordinary sense of absence is highlighted more than in other places in the landscape, especially since it would take a certain kind of person to work down here, and keep going every day in the dark. I suppose you just become absorbed by it really. Already I’ve lost a sense of time, and thinking about getting a little bit further, a little bit more stone out.” (Me in the underground, 12 November 2013)

As the afternoon passed on, the only signal I had of time was the slowly fading patch of light just visible at the foot of the shaft. Emerging out on the surface for a break, I was surprised to be met by a dash of red lit cloud, painted across the dusk sky beyond the saw shed. Jackdaws hawked and cloughed to roosts, and Corfe Castle had disappeared into the mist which now hung low in the valley. Back down in the tunnel, it felt suddenly cosy; a warm space somehow totally removed from the real world, where time became lost and thoughts had the space to emerge and build. The long exposures, slow photography, somehow seemed fitting to this space: a slow, steady exploration into the earth.
Reading Benfield’s descriptions of the cut off dislocation in the undergrounds had not prepared me for how it felt down there. However, going back and re-reading them, I can feel the real force and truth of the words. They may have been quarrying and I was taking photographs, but there is the same sense of total absorption in stone and separation from the outside world:

“Once underground, of course the time of day or night made no difference at all. It needed an effort of back-thinking to know whether it was after tea or after breakfast, and when I was at work there was little likelihood that I thought about the time … Underground there was complete freedom from any contact of sound and sight; no one knew I was there – except for the light of one candle there was nothing in my world but blackness. If I dropped it or blew it out there was the darkness of doom itself everywhere; thunder, lightning, rain or falling stars might all appear on earth, Prime Ministers or the price of beer might fall, but nothing of them could reach down to where I was” (Benfield 1940: 72-73).

Later, when I was talking through this odd sense of dislocation with Mark, he told me how:

“Dad used to say, blokes used to go to work and they’d see the guys coming up out of the underground and going home at seven o’clock in the morning. Down here it makes no difference does it? Down here working by candlelight, it might as well be one in the morning.”

(Mark Haysom, 12 November 2013)

By the end of the afternoon, I felt a strange sensation of comfort and familiarity in the underground. I loved with the idea of being in the earth, and couldn’t get over that sense of being inside a bit of the ground that was missing:

“The candles make everything look warm, and the shadows are dancing up and down the stone. It feels amazing to be inside a bed of stone, not just seeing it from an edge, but actually being in it, between two other beds. I’m walking in the middle of a sandwich: on top of me is the Roach and below me is a little bit of Freestone that they left in, then I don’t know what comes
after that – dirt’s and then the Down’s Vein a bit lower... I just can’t get over how much coming down here changes your perception of the rest of the landscape. You feel like you’re in the middle of a secret. It’s this amazing secret space – you’re far beneath the earth and no-one knows you’re here almost.”  (Me in the underground, 12 November 2013)

The bands of stone had become my world, and their names danced through my thoughts: Roach, Thornback, Wetson bed and Freestone. Their stony presence had become everything, and over the course of the afternoon, other things ceased to matter.

It was a shock therefore to hear Mark calling out my name as he descended the shaft, and to find out it was gone 5.30 and everyone had gone home. With his sudden presence, I realised again that I had in fact been a bit lonely, how isolating the space is. With him there, I would be able to brave going down the far end of the tunnel, right at the farthest point around the corner, where the footprints waited. I desperately wanted a photo, but however hard I tried by myself, I couldn’t make myself go round that corner into the embracing black. So Mark kindly took me, and we chatted about exposures and best angles of light and places for candles. The space had become more human and alive with the conversation. It was also nice to have different, more experienced eyes with me again. Mark noticed all sorts of things, and could talk about them in a language of one who knew stone. My favourite was his description of the Roach ceiling – I thought they looked plated, and Mark said “Not much stitching it in there is there: just skirty, Roachy bottoms” (Mark Haysom, 12 November 2013).

His stories also brought a greater sense of time to the space. For me, it was difficult to get any sense of chronology or lifespan, except for the odd suggestion of individuals with the writing on the ceiling and the odd object left about. I enjoyed hearing about how they’d found it, because it was entirely pragmatic and unromantic; totally down to earth yet sensitive to the place:

“When we first broke in we came in. It’s quite unusual to be able to come in and walk all the way down something that’s so clear. We shovelled out a bit out of the entrance way and dragged out a few lumps with a chain and
bucket and all that, just to get it a bit clean – scraped it out with a shovel because when you punch through a lot of stuff falls in.”
(Mark Haysom, 12 November 2013)

Exploring this space with Mark highlighted again the importance of knowledge passing on in these places; the stories that travel with people and spaces, which can so easily become lost. Just one story from Mark about the workings brought people back into it and repopulated its empty tunnels:

“I think it’s one thing to do this well lit – there’s something about only having the one candle, and they were expensive, so you wouldn’t have just had loads on the go that you didn’t need. I wonder what it was like to try and do that underpicking just by candle light? And hear someone screaming down the other end: big stone was dropped and shoved an iron bar right through their leg. That happened to a guy – Tommy Bonfield apparently: a block fell down, jumped this bar up and it went through his leg, and he had to crawl all the way back to the entrance way, up out of the shaft and across a field where someone found him.”
(Mark Haysom, 12 November 2013)

As we left, we blew out the final candles, leaving a small pile of them on a stone for future exploration. Our footsteps sounded up the corridor, stopped as we paused to look at a creature, and slowly disappeared as we climbed up, up, into the different darkness of night, filled with stars and suggestions of life and movement. Behind us, the underground lay still, settling, waiting.

Driving out along the Kingston Road that night, my mind ran with tunnels. My whole idea of that landscape had been changed. It was full of these burrowed spaces, many of which were forgotten and lost: a strange kind of archaeology – so real, human and solid, and yet so strangely ephemeral in that underground landscape. I felt as though finally I was able to have a lens on that stone landscape, that was closer to those that the people in the quarry saw through.
A dinosaur footprint caught in time
6.4.3 Jordan’s Mine, Albion Quarry, Portland

From that personal, quiet exploration of the underground at the Haysom’s in Purbeck we move to something quite different. No underground quarrying occurs in Purbeck now, but in Portland the advancing technology has made it a viable way of dealing with the stresses of land use on the Isle. As discussed in Chapter Five 5.4.2 (Sculpture), the Isle of Portland is made up of a series of limestone beds that have provided building stone for almost 1000 years. The edges of the island, especially in the south around the area of Portland Bill lighthouse, are nibbled and frayed with the ledges of quarries. A derrick (crane) still stands, motionless, on a ledge. Around it are more small reminders of an active past: a stair cut in stone, deep gullies sloshing dark for the boats to pull alongside. At the north, when arriving by road across Chesil Bank, the vast cliffs are smeared with stone waste that was tipped from the quarry above. Demand for Portland stone is still high, and now only two companies quarry. Albion is the largest. The continued demand has put pressure on them to find new methods of quarrying, and has forced them underground in order to make the most of the stone whilst not needing to use the land above:

“Because the stone is quite hard and it’s the advent of modern cutting equipment using diamonds and things, you know, very hard cutting media, that really – really that's the key thing that happened, that opened up the potential to mine I think, is the availability of suitable machines and technologies. That in conjunction with massive environmental pressure and resistance to more greenfield quarries, is what drove the mining.” (Mark Godden, 5 March 2013)

Mark Godden, the Mine Manager at Albion tried mining at Bower’s Mine first. Now they are mining at Jordan’s Mine with all the power of technology, engineering and geological information behind them, and the results are staggering.
Saw lines and chainsaws at Albion’s Jordan’s Quarry
“The very first underground stone mining on Portland took place in Bowers in 2002 where working methods were established, we then stopped for a year or two and re-commenced in Jordans in 2008. Bowers was just a trial to prove the concept and as far as I am aware this was the first new stone mine to be started in the UK for a century.”
(Mark Godden, 5 March 2013)

Out in the quarry you get the first idea of the difference in scale and technique used here, in comparison to what I had become accustomed to in Purbeck. As with Burtnysky’s photographs of the Rock of Ages, the yellow dumpers were all that gave the scene scale in the vast white landscape. In the section, the depth and homogeneity of the beds could be seen. Mark Godden explained how they used a long chainsaw on the back of a JCB to cut a slit into the stone, about a meter or so back from the face. They then insert hydrobags: strong high-tensile steel pillows which are tubed to a water supply. Once these are placed in the gap, they are slowly inflated with water, forcing the stone apart and breaking it from the face. This leaves a neat, angular advance across the quarry. They don’t waste stone through blasting, or time through sawing it all. Huge advances in methods and technologies have developed around the specific properties of Portland stone: many of these methods would not be possible in the more variable, cantankerous beds of Purbeck:

“What happened, when all this kit was being produced, about 15 years ago, basically people had to take what they knew about the stone and apply the new technology to the stone using traditional knowledge, so there’s a bit of a marriage of things there really… It’s more a case of adapting our working methods to the capabilities of the machinery really... One of the things we have extreme things cutting, is chert, which is like flint – it’s extremely hard – as an archaeologist you’ll know that! We have a massive job cutting that, so we’ve been working with the machine manufacturer to develop some new types of cutting teeth, and that’s what’s been fitted to this machine. We’ve been trailing for the last month, and it’s proving really successful and we’re actually now able to cut the flint more efficiently.”
(Mark Godden, 5 March 2013)
Driving beyond the quarry we came to a large corrie-like depression, around which were machines and site huts. In the face of stone ahead of us, two large squares of darkness led away into the hillside. In many ways, these reminded me of the entrances of the tunnels at Winspit. But the mouths of Jordan’s tunnels were reinforced with steel cages and edged by the entrance and exit of various pipes and tubes. Unlike the quarries I was used to wandering around, here I had to stay with Mark G. I had to don a hard hat, torch, emergency air supply and hi-vis jacket. It felt like a very different sort of adventure. As we walked through the immaculately geometric entrance way, I knew this was like nowhere I had ever been before. Ahead of me, I saw corridors advancing away in perfect cubes of darkness. The noise grew with the background whirr of the air fans and saws embraced us. Mark showed me how he had monitored the mine for movement since it begun: it had moved about 1mm, astonishing in an underground structure so large.

Mark Godden has worked at the quarry for about thirty years, seeing out a myriad of technological and landscape changes. His father was a quarryman on Portland, as was his father; “I can go back for ten generations with at least one grandfather being a quarryman on Portland” (Mark Godden, 4 December 2013). Mark G. knows, not just the stone in his own quarry, but the island itself, with a huge depth and understanding. He understands all aspects of the quarrying, details of the geology, and how it all hangs together as a result. It is this combined understanding of the geology, quarrying process and aspects of engineering that enabled him to design and run this mine. The space has been excavated using a 75% maximum area extraction ratio:

“The mine itself is laid out on a 6 metre by 6 metre grid, so the roadways are 6 metres wide and the pillars are 6 metres wide, and we’ve got what’s called a 75% maximum area extraction ratio, and what that means really, is if you have a plan of the mine, we’re allowed to take out a maximum of ¾ of the area – you’ve got to leave a quantity behind to hold the roof up. That’s worked out with geotechnical calculations, looking at the strength of the rock, distance between the joints – a whole series of factors you plug into a formula basically, your calculation, it spits out some numbers, and then you can apply that to some graphs and then that gives you a suggested outcome – so that’s basically where we started.” (Mark Godden, 5 March 2013)
Entrance to Jordan’s Mine and a plan of its tunnels (courtesy of Mark Godden, Albion Stone Ltd)
Mark Godden shows us the hydrobag and the chainsaws being set up to cut out blocks
Removing waste stone
Like the Purbeck cliff quarries with the pillars of stone left to support the ceiling, this quarry space has been worked out to ensure the maximum extraction whilst retaining the stability of the remaining stone. The plan shows the neat, measured tunnels forming a regular grid, deep beneath the island’s cricket pitch. The stone is removed using a similar method to out in the quarry: a small JCB with a mounted chainsaw cuts into the face of stone along the edges of the block. The hydrobags are then inserted and gradually inflated. The pressure forces the block away from the stone at the back, after which it can be removed to the yard. This method is so controlled and neat, that it leaves straight, regular tunnels. On the walls are the marks left where blocks were cut; a faint trace of the stone that made up this evolving space. Patterns are etched into surfaces caught in the harsh light, where different machines have worked the stone. Instructions and labels are sprayed onto the wall: a graffiti of the formation and maintenance of this space. The walls have become collages of the processes worked upon them; faint memories of what has gone.

Film | **Portland Cut** (32 sec): A mounted chainsaw cutting a block in Jordan’s Quarry

In contrast to these human marks, the walls hold secrets of the geological. The ceiling ripples dark, “*The roof horizon here is the Basal dirt bed, which is a paleo-soil.*” (Mark Godden, 5 March 2013). From time to time, a vast crack would appear in the wall, running through to the next space and the next, and above our heads into the darkness above. These are faults in the stone, ‘cambering’ caused by the same tectonic force that rippled the Purbeck beds during the formation of the Alps. Mark G. described this to me as like bending a Mars Bar in an anticlinal shape: the chocolate on top begins to form regular cracks. It was amazing to look into these ancient stretch marks, to be right down in amongst them as they flowed onwards through the stone. He explained how above the algal roof, the stone is softer, and has absorbed these fractures so they do not carry through to the surface. On a wall near the entrance, Mark G. pointed out a darker flow of stone on the surface. This, he said, was a storm event in the Jurassic which heaved all the shell content on the shallow sea floor.

“This is a palaeo-surface, and this would have been the sea floor, and it’s a ‘scour’ and it’s probably been created by a single storm event about 145 million years ago. So a storm whooped the scour up, and you can see that, if
Ancient joints in the ceiling and a reef of shells from a storm event visible above the painted marks.
you look very closely, that a lot of the shells in here are imbricated, so they follow the line of the cut. So a single storm event scoured the sea floor and then in the scour, these oyster reefs grew – so this is an oyster reef, called a 'patch reef’.” (Mark Godden, 5 March 2013)

The arrangement of mussel like shells and sediments is the only reminder of that event, now criss-crossed by wires and painted labels of an industrial age far removed from the events of 145 million years ago.

The mine, like the quarry, is extracting the three main Portland beds: Basebed, Whitbed and Roach:

“The Base bed is the cleanest of it, so that’s the one that tends to be worked for more working things, like things with carved in detail, although it is used for ashlar as well, but generally if you want to make a headstone for example, you would use some Base bed, not the Whitbed because the Whitbed tends to more shelly. The reason for that is, when the stone was being laid down, the Base bed was being laid down in deeper water so the environmental conditions were very different. As we move up through the beds and get to the slightly younger stone, then the sea level had fallen so the energy of the environment is more, there’s probably more life for whatever reason, more inclusion material in fossils. The Roach at the top is very fossiliferous, and that was almost a beach environment.” (Mark Godden, 5 March 2013)

The qualities of the different beds change subtly in relation to their location, giving them slight differences in colour or shell content. As such, they are named by their location, as well as the bed. So Albion sell ‘Bowers Roach’ and ‘Jordans Whitbed’. By 2013, the mine had mainly quarried the Whitbed. The corridors stretch in all directions, architectural and beautiful in their industrial, brutal lines. But on my first visit, Mark G. had just begun to put in ramps to the Base Bed, making the depth of the tunnels in these sections 10 metres. The effect of this on the space was monumental. Standing on the cusp of the ramp, the mine had all the feeling and spatial sense of a cathedral. The long, tall space seemed to stretch out
making me feel small and insignificant. An added fascination with this space emerged on my second visit to the mine, to photograph the space with Mark G. By this time they had taken more portions of the space down into the Base Bed. We were walking down the corridor at the Whitbed level, and would come to a gallery where the stone dropped vertical to the quarry floor. You could gaze over a cubist space, the lights of diggers could be seen ebbing and flowing along their geometric tracks.

Small alcoves appeared from time to time, filled with tools, equipment or figures. The stark electric light amidst the gloom of the corridors created an almost theatrical effect. This whole space, so industrial and practical, was full of sculptural and artistic qualities. At one point, Mark G. pointed out that we were now under the local cricket pitch. It felt strange to imagine a normal world continuing up above, through those layers of rock and earth, whilst down here we walked in crisp corridors with the hum of machines and ancient reefs coating the walls. A subterranean landscape continuing in parallel with the world above.

I asked Mark G. what would happen to this mine when its extraction life was over. He replied that eventually it would be backfilled. It can’t be left as an open space since it
would be a safety risk both for those entering it and as a void beneath public land. But there was something incredibly sad about the fact that this would be erased from the landscape once more. Here in Jordan’s Mine, the space is so architectural, so modern and alluring, that to backfill it would feel like the equivalent of knocking down a building. For Mark G., this space represents years of hard work. Instead of building up, he has tunneled in, but it is a space he has created, that his knowledge has formed. For it to disappear again seems a huge shame; a destruction of his hard work. The sense of loss I remarked on with regard to the open cast quarries and to archaeological excavations seems heightened here because this industrial space feels so designed, so satisfying in its modernist lines.

Out in the wider landscape, the Whitbed and Basebed from Jordan’s Mine has been used extensively in buildings in London and throughout the UK. This includes the Bomber Command memorial, Green Park Tube Station, BBC Broadcasting House, the Gurkha monument and the Ashmolean Museum. Looking at these buildings and monuments, it would be hard to imagine the hollow space under the cricket field in Portland. They seem a world away. Yet the space created in the process of their formation remains as valuable, telling and architectural as the buildings themselves. This quarry is a hidden world that few get to see. Within the secretive enclosure of the mine, human skill and natural change are emerging in parallel, showing what value this process has in the space itself and not just in the buildings it creates.

6.4.4 Beer Quarry Caves

Moving West from Portland, past Chesil Bank and Lyme Regis, we come to a much more ancient quarry snaking beneath the wooded hillsides. Tucked in a quiet coombe on the coast of East Devon, the Old Quarry at Beer is now famous as a space rich in human history, ecology and its links to some of the greatest buildings of Medieval Britain. In many ways, it bears resemblance to Jordan’s Mine, highlighting some of the changes in technologies, methods and standards in the modern era of quarrying, as well as the ongoing similarities in knowledge and approaches to stone. The pillar-and-post method of working
is the same as that used at Winspit and Tilly Whim in Purbeck (Hart 2009:217). I had long wanted to visit the caves and finally in November 2013 I was lucky enough to go with John Scott, who runs the site, and Peter Dare, the Ex-Master Mason of Exeter Cathedral, who was apprenticed at the quarry in Beer and used the stone in his work at the Cathedral. The two had known each other since they were young, which added a different quality to the visit as stories from the archives and those from their memories swirled back and forth between them. They seemed to delight in telling them; in pointing things out which they knew I would find interesting. Enthusiasm filled the empty space of the caves that day.

The quarry was saved from blasting in the 1980’s by John Scott:

“I used to come in here as a kid out of interest’s sake... we used to explore with a ball of string and a candle! Never got very far, but we used to. And it was 1983 I had a telephone call from Lord Clinton, who’s the local landowner – Devon estates – because he owned the quarry and had no idea what was involved, so I took him round... then it was only about a month or so later, one of the lads working in the quarry over the road tipped me off that the explosives expert was going to blast this one flat... I managed to prevent this happening by applying to Clinton Devon Estates for a lease...

The workings are now leased by Beer Quarry Caves Ltd. We have also formed the Beer Quarry Caves Charitable Trust with the aims of furthering our research and hopefully providing a museum and interpretation centre to tell the story of the underground quarry and the flora and fauna of the above ground area which for centuries was quarried for chalk to provide lime.”

(John Scott, 22 November 2013)

John Scott now keeps the caves open for visits in the spring and summer. During the winter months it is kept closed to protect the many bat species which hibernate in the constant 12°C temperature of the caves. He also continues the study of the caves, including the history, archaeology and ecology.
Outcrop of Beer stone down on the coast and John and Peter deep in the quarry
Beer stone is a gritty, calcareous freestone (West n.d.(b)), with very few identifiable fossils. Its gritty texture was formed by compacted shells, including debris of *Inoceramus*, refined clay and sand compressed on the seabed around 120 million years ago (ibid.):

> “*Beer stone was laid on the seabed where the water was shallow and fast flowing; any shell remains were ground up so tiny they combined with sand and clay. But the climate then was much warmer – a few million years earlier the sea was teeming with life and the water was deeper... that’s full of fossils.*” (John Scott, 22 November 2013)

The high energy environment created debris such as carbonate shoal sand, “but one without the extensive micritisation and ooid development that is common in the Dorset Jurassic limestone’s” (West: ibid). It has a high porosity and is light weight, but with a crushing strength similar to that of Portland stone. The stone is a creamy white colour when fresh, greying on exposure (West: ibid). Like Bath stone, it is very soft when first quarried, becoming harder once cut from the ground. This is another reason it was a popular building material, especially in the era before mechanised tools. When the Romans first began quarrying the Beer stone, they did so with hand tools such as picks (Edwards 2011:97), and later saws were used to cut the stone out.

In his 1882 ‘Observations on Beer Stone’, Masey records Smeaton’s reaction to visiting the quarries in 1750, in his history of the Eddystone Lighthouse:

> “…it is of so soft and workable a nature that I found the workmen sawing out blocks from the general mass (or posts) with carpenters’ saws, which they could do to any dimensions required; and, though this stone was capable of being thus wrought, and was so free to the tool, yet I found that it hardened considerably after being exposed to the weather, as was manifest by the buildings that had been erected many years at the village of Beare” (Masey 1882:4).

The quarry itself is extensive, running for about seventy acres (that are known of) under the fields between Beer and Branscombe:
“We can get into about 70 acres down here now, with what we’ve cleared, and opening up linking tunnels. But we’re still shifting waste, and there are chambers down here where no one’s set foot for 100’s of years where we’re still getting into.” (John Scott, 22 November 2013)

This was not the only quarry in this area; the whole area round the two villages is honeycombed with cave networks as well as the dips of out of use open cast workings. Some of the underground workings have been incorporated into current operating quarries, such as the ‘New Quarry’ opposite the Beer Quarry Caves, now run by Hanson (previously Bath and Portland and before that the Beer Stone Company), whilst others remain ephemeral to the modern landscape, hinted at in various adits in the cliff face or names on maps, exposed or hidden over the years. In many ways these undergrounds, like those in Purbeck, exist as secrets in the landscape that only occasionally reveal themselves, and are often to be discovered more in stories than out in the landscape:

“In sixteen- something, a bloke called Mercher took out a lease to quarry stone out at Hooken, and what they did about four fields back from the cliff face, they dug a slope shaft at 45 degrees until they got down as far as the Beer stone seams. They were working towards the sea. But the quarry never reached the cliffs. When the Under Hooken landslip took place, it took about 100 yards off the cliffs and that exposed the adit.”

(John Scott, 22 November 2013)

The most striking aspect of the quarry at Beer is how history can be traced through the space of the quarry: etched upon the walls, or in finds, archives and personal memories. When Peter and I arrived at the quarry on our visit, the first thing John proudly showed us was a collection of finds he’d recently discovered, or got back from the conservation department at the British Museum. The first object was a Roman brooch. Another find he revealed from his pocket was a Spanish minted Roman coin depicting Caligula, also from the Roman entrance of the quarry. John described how he thought it must have been dropped by a legionary, but the exact narrative of its deposition will never be known. The finds offer glimpses of other people whose lives have connected for a while with the space,
Archaeological finds from Beer Quarry
and of the sort of work carried out there. John’s continued collection and careful recording of these objects is giving rich depth to the past; filling the empty space with stories and suggestions.

Evidence suggests that excavation of Beer quarry began in the Roman period when a seam was discovered in the valley and exploited as a source of high quality building material, possibly associated with Roman settlement at Seaton and the Fosse Way. There are very few examples of the stone found in Roman contexts: Honeyditches Villa near Seaton being one of the few (Edwards 2011: 92; Hoskins 1992: 259; Scott and Gray u.d:4), but the quarry itself reflects the Roman styles of tooling and building.

You enter the quarry now through one of the Roman entrances and are met by the Roman arches and tooling on the wall. Moving down the tunnel, there was a marked difference in the formation of the space. The perfect Roman arches gave way to a squared off space, very similar to that of Jordan’s mine, but this marked the Saxon period of the workings, when relatively little stone was taken from the quarry. However, the campaign of cathedral building in the Norman period led to a resurgence, indicated by the long chambers supported by pillars just like those found in the cathedrals of the time. These very specific quarry architectures reflected the styles of building and designs of the times above ground, leaving a tunnel that unrolls time beneath the ground; a hidden architectural chronology preserved in the faces of the stone.

As well as the pervading style of architecture of the time, the form of the quarry has also been affected by the types of tools and technology used to remove the stone over time, “all the way through you can read the history going through the mine with the different marks and the different way it’s been mined as you go through different periods” (Peter Dare, 22nd November). From the Roman period, the remaining tooling on the wall looked like thick fur, stroked this way and that. They would have started cutting in a space at the top – the ‘breach’ – made in a space just large enough for a man to crouch, with the rougher marks at the top. From that narrow space, the pick marks work down, the two directions of working visible here, perhaps as a man worked from each side, meeting in the middle:
Roman and Norman areas of the quarry
Norman ‘pillars’
“The trouble is, in the early years when you’re just using a pickaxe, you’ve got to get an adit into the rock face – you start at the top. You see that’s roughly pickaxed there look, but then you’d have to crawl in that depth from here, so you could crouch in that space to swing a pickaxe to cut the two sides of the block.” (John Scott, 22 November 2013)

When saws came in from the eighteenth century onwards, the breach got narrower and they were used for ‘pillar robbing’: shaving off stone from the Norman pillars as an easy source of stone, judging the right amount to leave in to hold the ceiling up.

Moving into the large area in the south of the mine, we saw where the use of black powder began in the 16th century. This leaves a rough ceiling to the quarry, resulting in a very different feel to this part of the quarry. It begins to feel more naturally cavernous and less architectural without the smooth linearity of the cut roofs. Another section of the quarry is an area which was reused as a space for Catholic worship during the reign of Henry VIII:

“When we talk about Roman arches, Saxon square and tops of pillars, this is the site where the Catholics had a secret chapel in Henry VIII’s reign, and sadly there’s a print of it in the British Museum showing the carved pulpit here, but it was all robbed in 1920 and the carvings were sold. But if you look here it’s all Catholic arches.” (John Scott, 22 November 2013)

Some areas of the quarry remain more elusive. With the growth of the lime industry, working took place above the quarry caves. Often holes were cut down into the undergrounds into which waste from the lime industry was pushed, blocking up tunnels and leaving areas of the old quarry cut off and unrecorded:

“There are chambers here where no one’s been for hundreds of years because the waste they pushed down the shafts from above – there’s a pile there. That’s the one we got past – we dropped down the other side and saw the horses footprints. But when we come out of there, we had a quarryman’s pickaxe, 2 stonemasons chisels, a hammer and an earthenware bottle with a stopper in it, and a wooden box well preserved in this atmosphere which still
had leather hinges – and yet they could tell that 400 years ago, the bottle held a quarryman’s cider, and the box was bread and rabbit bones. Now that chamber we’ve got in there is about 100 feet long and the one we’d love to tackle is…. That waste was pushed down from the surface about 500 years ago. Nobody’s seen past it since.” (John Scott, 22 November 2013)

John’s description gives the sense of a pausing of time in some areas of the caves; areas where the stone has remained as it was left, with no other marks layered up by later generations. This state of fossilisation is similar to that of the undergrounds in Purbeck - spaces left on permanent pause, undisturbed, unchanging.

In the twentieth century, mechanised saws came into use. One in the entrance to the quarry was used by Peter in the New Quarry across the road in the early 1960’s:

“It’s one step up from the frigbob, because all you’ve got is a frigbob blade, and instead of having a handle, you bolt it onto the sop... You had a handle and just wound it up and it would just tick along all day.”

(Peter Dare, 22nd November 2013)

This sort of technology changed the nature of working in these quarries, as the lives of the men working there, reducing some of the intensely hard physical work. The introduction of mechanisation doesn’t make the space feel less atmospheric though, and from imagining the deafening sounds of men bashing in wedges and picking at the face of the rock, the mechnised saw brought its own rhythm “It used to fire every other stroke didn’t it – duff tsss, duff tssss” (John Scott, 22nd November 2013).

Other forms of technology have also left their mark on the space. There are regular square holes in the ground and ceiling for the cranes used to lift the stone; small carved markers of the progression of work through the space. This technology changed very little over large periods of time, since it was simple to maintain, reliable, could lift large weights and also be moved through the quarry space as was needed. Another technology which continues from the Roman period into the last workings of the quarry, and which is still evident in the
Tooling marks and spoil heaps from lime workings
Mechanised saw and Lewis
stone, is that of using Lewis holes. When John and Peter began talking about these, it all sounded very foreign, and I couldn’t quite imagine what they were describing. They began to explain: it was a set of 3 bars on a bolt used to slot into the stone so it could be lifted with the crane:

“If you take the bolt out the Lewis falls into 3 pieces, so if you take that one out the middle and stick it on one side, drop the two tapered pieces through the narrow neck of the hole but when they reach the bottom where it’s wider they come apart. You tap the straight one down between, put the bolt back and the bottom’s now too wide to pull back out the top of the hole.” (John Scott, 22 November 2013)

Peter told us of his experience of learning to cut Lewis holes:

“That was one of the jobs as an apprentice you always had to cut the Lewis holes, and we had bits of lead we had to shove down to tighten them up... You didn’t always get it right, so whoever was the mason, he would really go for it if you’d cut it too big.” (Peter Dare, 22 November 2013)

This quality of time and lives unfolding through the stone in the nature of architectural style and use of tools, is further accentuated by the unique and wonderful graffiti that is found throughout the space. The letters scrawled on or carved into the stone are often dated, and alongside the detailed records kept by the Cathedral and other sources, the lives behind those names can be explored; their stories retold:

“It’s the human side. I mean every pillar here tells a story because you get all the signatures. You can look in the records and find out which building they quarried stone for, what they were paid and very often what happened to them.” (John Scott, 22 November 2013)

Some of these walls are layered thick with names, dates, groups and memorials of events. One pillar remembers the ladies of Beer who made the lace for Queen Victoria’s coronation dress. Another is marked with the signature of William Cawley who was killed by a brandy
Graffiti and shadows
barrel whilst transporting smuggled goods. Some of the writing bears more practical
recently, another area of the quarry seems to have become used by the Boy Scouts of Beer,
and generations of Scouts names are now listed in neat ranks in the sculptural enclaves in
the far reaches of the quarry:

“I belonged to the Scouts at Beer and our Scout leader worked at the quarry.
He was a salesman for the lime actually, the agricultural lime. So as a Scout
troop, in the days before they had a gate on the old quarries, you could just
wander in there! And in fact I’ve got a photograph of the first Beer Scouts in
1953 and we’ve all got our names written on the wall in there and now it’s a
tourist attraction!” (Peter Dare, 3 December 2012)

Also ingrained into the space are elements of ecology that have adapted to the climate and
stone of the cave environment, and these bring with them their own stories. A big element
of the current character of the caves, especially visiting in the winter months, is the
presence of the bats which hibernate there. I had encountered bats in some of my other
underground forays, and loved the way in which they changed the atmosphere of the space
into something homely – rhythms of other lives going on there. The Beer Quarry Caves are
now almost as famous for the bats as the caves themselves, and are the hibernation cave of
choice for various species, including rare ones such as the Bechstein’s bat, which can be
difficult to spot:

“You can divide bats into hangers and clingers: the Bechstein’s will cling on
the rock face or on the roof. They’ll even go down a bore hole. So when we
do a big bat survey down here, we put an endoscope with a camera on the
end and poke them down any crevices.” (John Scott, 22 November 2013)

The first one we spotted was a Lesser Horseshoe, hanging alone from a nail quite low
down, then Greater Horseshoes; little lone bodies forming a small dark patch the size of a
pear on the pale walls of the cave. Further on, wires strung along the walls were decorated
with Greater Horseshoes, like bunting; small furry bodies ranked in cosy lines. And the
bats here had their stories too, and John told me about one Lesser Horseshoe:
Bats on the wire and plants round the lightbulbs
“Well one of them’s got a radio tag and we’ve been able to christen him Norman. The reason is, we do the bat survey here every winter and I got the bat records going back over 50 years, but thanks to this little bat, it’s got a radio tag, and for 7 summers running he’s navigated down here in the dark and hung on a piece of metal driven into the same Norman pillar. So we’ve called him Norman! The incredible thing is, a thing that size... 7 summers running he’d been in a barn on the army ranges of Salisbury Plain. So he’s backwards and forwards from Salisbury Plain, to hibernate down here and back again in the summer!” (John Scott, 22 November 2013)

But the walls of the cave themselves have an ecology, a history. Water drips and slips from the ceiling down the walls or in droplets to the floor. Because of the horizontal bedding of the stone, it takes much longer to filter through, “280 feet below ground... what’s dripping on us now is rain that fell on the surface above about 300 years ago” (John Scott, ibid.). The water down there entered the ground in a very different era to the one it emerged in in the cave below. To my great surprise, there were also plants in the far reaches of the caves; ferns whose roots spread across the rock, gripping to gullies. They were found around the electric light bulbs, but I was amazed that electric light would allow them to grow – a surprise ecology in that bare, stone place. What’s more, the light bulbs are stimulating the growth of things that have lain for years, forgotten in the tunnels:

“I took Tim Smit round here and he was just blown away. And two of his experts were totally fascinated. They discovered on the rock faces down here, seeds and pollen that came down hundreds of years ago and which survived in this atmosphere, where nothing grew by candle light. But because the seeds survive, when you put a light bulb down here, they germinate after all this time.” (John Scott, 22 November 2013)

In the Second World War, the caves were used to grow rhubarb and mushrooms, and the beds of topsoil still lie in neat rows in some corners of the caves, another reminder of the connection the caves have to wider contexts and events. Whilst this was going on in the space of the caves, some of the men of Beer were out fighting in France, where the stone that once filled those spaces was to reappear:
“You remember Taphy Feather? He was in the army with my father and when they got ashore on D-day they were working inland ... and they were pinned down in a churchyard with German machine gun fire. There were some blocks of stone in the churchyard that were obviously going to be used to restore the church but hadn’t been used... They were hiding behind these blocks of stone with machine gun fire. Finally they sent someone out round the back who chucked a hand grenade and that sorted out the problem! And Taphy got up and he said ‘hey look at this; this is Beer stone’ he said ‘and see that mark on there, I quarried that stone!’” (John Scott, 22 November 2013)

So the quarry is tied into the larger histories of individuals, nations and world events which swirl around it: Queen Victoria’s coronation, Henry VIII’s religious reforms, the World Wars, smuggling during the French Revolution. The empty space of the quarry, the marks on the wall and dust and rubble on the floor, all hold stories of stones that have gone out into the world to form parts of other stories:

“You’ve got to have respect for the mine. This is as historic as the Cathedral is.” (Peter Dare, 22 November 2013)

These histories and stories are layered up in the quarry space and in the buildings the stone went into. They are paused, restarted and muddled chronologies of stone, people, ecologies, all waiting in the network of tunnels that weave back into the hillside, some still waiting to be found.
6.5 Review

This chapter has explored the negative spaces formed in the landscape by the quarries: the shifting, growing, vanishing absences. These absences and voids cast light on the forms that remain. The open cast and underground quarries on this coast reveal a little known but enlightening world below the surface. Where stone has been removed from its bedding an accidental architecture has been created, and over time these spaces have rippled and lull with lives and histories. Hidden in plain sight, these spaces offer a very different view of the land. Since so few people get the opportunity to experience them, for me to explore the ebbing holes and delicate tunnels has established a particular kind of intimacy with the land. Perhaps this echoes something of the way we seek out these alternative ways of discovering the landscape and our personal ties to it (DeSilvey 2007a; Edensor 2005; Garrett 2010).

These spaces give a unique perspective to understandings of landscape, both above and below ground. They have historically been, and continue to be, sites of discovery. The cultural geologies found in them are a ‘temporal collage’ that span over 130 million years. The solid stone and its surfaces that remain are etched with the marks of their formation. But in order to trace the narratives and histories that give these spaces meaning, it is important to hear the voices of the different people who know and understand them. It is through telling stories about these places that the stone is kept alive, both in its present and absent form. The voices of those quarrymen in this chapter give real depth and richness to this landscape. These recollections are not a surface deep exploration or vague platitude: they are deep and involved responses to a landscape and material with which they have a long and close involvement with.

Memory does not exist in these places without people. It lies with those who remember and recall, and those who retell. Those quarries that lie quiet in the cliffs of Purbeck are slowly losing their older histories, to be replaced by new associations and memories. The abandoned quarry at Beer maintains a connection with its industrial past thanks to the avid storytelling and efforts of a few individuals. Meanwhile, the active quarries in Purbeck and Portland are buzzing with discovery and creative destruction. The quarry landscape is in a
state of constant flux and change, as beds of stone are dug, holes filled, old voids rediscovered. With these changes knowledge grows and develops, is passed on and lost as its use depends.

The quarrymen have brought this rich material alive for me, their stories engaging my imagination. The ways in which I have taken the material is due to my own interactions and interests. That we can delve into these landscape and explore with them in very different ways, highlights our role as individuals in engaging with these stone narratives. These spaces give room for the imagination to play with these stories, creating our own memories and understandings as a result (DeSilvey 2007b). As we create our own narratives and memories in these places, they continue to grow and draw others into them. Without this interest and engagement stories go untold and the knowledge connected to them begins to disappear:

"Things require both cultural and practical work if they are to preserve their integrity as discrete and coherent entities, lest the ‘material flux’… take over and demote them to mere matter again" (DeSilvey 2012c).

It is important to recognize the value of these spaces in order to manage these landscapes into the future. The potential to learn from the quarries and those who inhabit them is often overlooked by larger organisations responsible for managing these landscapes. The richness of understanding and the care of the landscape shown by the quarrymen in this research is too often taken for granted. In heritage management, attention too often lies with the past and what has already gone. There is a tendency to romanticize the landscape of past quarrying, especially on the scenic cliffs of Purbeck. This creates a false impression of the hardships of the past and in doing so it sets up an incoherence with the industrial processes of the present. Somehow the abandoned spaces suggest a harmony in the land, whereas current action is seen as invasive and destructive. What we have seen, in fact, is a process of excavation that is challenging and hard work, but also revelatory, creative and engaged with the surrounding landscape. Whatever technology is used, these marked out voids can offer us a much greater understanding of the earth. If anything, the current quarries are much more aware of their impact and of the sensitivity that must be shown than their forebears were, who blasted out the cliffs and tipped waste stone into the sea.
Unfortunately, current landscape management and bureaucracy is based upon the perceived negative effects of quarries: noise, dust, destruction. As a result, the active quarries are now under severe economic pressures, exacerbated by planning restrictions imposed by a form of management that does not always recognize the subtleties and nuances of this landscape.

The photographs and films in this chapter also draw attention to the aesthetic of these historical and active quarry spaces. This is an accidental aesthetic, not a contrived one. It is born out of practical methods devised in order to find the easiest way of removing stone from its bedding and hauling it from the earth, be it Roman chisels or machine mounted chainsaws. We have seen spaces that are diverse yet similar: the cubist, modern space of Jordan’s mine, the cavernous dark of the undergrounds and the deepening stratigraphic space of the open cast at Broad Mead. They all draw the eye. They have an undeniable beauty. Yet the abandoned and active quarries once again receive different treatment by those organisations managing these landscapes. The disused quarries are considered visually pleasing, adding to the sense of deep history and mystery on this coastline. The active quarries, on the other hand, are considered ‘scars’ on the landscape, not fit to be seen from the coast path. Yet over the course of this research, I have continued to encounter people who see an absorbing and irresistible aesthetic in the quarry spaces. I have encountered other photographers and artists drawn in by the glimpses of deeper earth they are afforded in quarry spaces. The lure of this accidental aesthetic cannot be ignored.

What this chapter has highlighted is the need to understand these specific quarry spaces – these absences of stone – as valuable. Despite the solidity of stone these spaces are also fragile, both in terms of their physical presence and immaterial associations. They are rich spaces through which we can be told stories, shown rare ecologies and hidden histories. They are spaces that have the potential to inspire. But this potential lies with those who know them intimately: on them being willing to open them up and reveal their secrets. It also relies on there being people with the inclination to listen, discover and learn. Once more we see how knowing stone and the quarry landscape, can bring it alive.
7.1 Introduction

“Building is one of the activities relating men most directly to their land”
Hawkes 2012:240

The previous chapter explored the spaces created by quarry processes and the ways in which we can learn from absence in the landscape. The focus of this chapter is on the assemblages that stone goes on to form in other areas of the landscape, and in particular in the fabric of buildings. These re-placements of stone in architectural features are a rich gathering ground for cultural geological narratives, “every place, as a gathering of things, is a knot of stories” (Ingold 2011:154). The quarry source and resulting building become woven together through the stone stories that can be extracted from them. Once again though, it takes those with practical and engaged knowledge to tell these stories, and make stone connections across landscapes.

This chapter explores one building: Exeter Cathedral. The stone narratives which follow have, once again, been created by the voices of those people with a deep understanding of the material: Peter Dare, Trev Haysom and Mark Haysom. Their personal and historical understandings of stone stretch from the quarry through different processes and networks that continue into the building. As a result of their rare understandings of this material, stone narratives can be traced as a web through the landscape and also through time. The chapter begins with a discussion of ideas around building, before moving on to look at Exeter Cathedral itself. From there, we take a tour of the building, first looking at the Purbeck stone with Trev and Mark Haysom, then the Devon stones with Peter Dare. After these detailed explorations of the cathedral, the discussion then moves to discoveries of these stones further afield and the narratives that link them back to their quarry origins.
7.2 Building

Between the quarries and buildings are networks of people and material, potential and speculative links waiting to be made. These “constellating material histories” (DeSilvey 2007b) offer myriad ways of exploring the geobiographies of individual stones and buildings, and the people and landscapes linked to them. Here we see stone as lively matter (Edensor 2011, 2012). The cultural geologies we can draw from it in the cathedral provide imaginative space alongside practical and historical knowledge. As a result, avenues of investigation into the building and its wider context can be revealed that otherwise might have gone undiscovered. Architecture, like any other object, can be narrated through the layers of material that form its overall structure. The outcome of this, as we saw in the previous chapter with quarry spaces, is dependent on having access to knowledge, and how we as individuals approach this task (DeSilvey 2012c). The identity of a building as materially and temporally complex as the cathedral is, therefore, multi-faceted and renewing.

“The things of this world are their stories, identified not by fixed attributes but by their paths of movement in an unfolding field of relations. Each is the focus of ongoing activity” (Ingold 2011:160, orig. emph.)

Buildings can therefore be thought of as being in a constant process of creation (Tait and While 2009). Their “ongoing, unfinished stories” (Massey 2006:46) are developed and recreated through the ways in which they are engaged with on a material and epistemological level. Exploring the cultural geology of the cathedral “allows us to play with different ways of making geographical meaning in collaboration with materials” (DeSilvey 2012c:156).

Coming to the cathedral after our detailed explorations of the cultural geologies of certain stones in the contexts of the quarry and geology, some of the stones we encounter in this building will already be familiar. This allows us to approach the exploration of the cathedrals architecture with a perspective already tuned into the different facets and potentials of stone worlds. We can imagine the landscapes, materials and people who have
been involved in the creation of a building, and the vocabulary and processes involved in stone work. We come to the building with an ability to imagine beneath the surface of the stone, and imaginatively explore the narratives that emerge from it. This cultural geological approach therefore has resonance in the broader context of heritage management and conservation. (Edensor 2011; Jones and Yarrow 2013; Yarrow and Jones 2014). This chapter will illustrate once more the value of close, practical knowledge of materials and processes, whilst also seeking to avoid representing a romanticized notion of stone work in historic buildings. Aspects of this will be considered and commented upon further in the concluding section of this chapter.

In my research, Exeter Cathedral soon emerged as the centre of a web of different stony connections on the coast. The Haysoms had supplied stone for the Quire and Chapter House in the 1970s and various people at the quarry (including Trev Haysom, Brian Bugler and Andy Webster) had researched the extensive use of Purbeck stone in the building. The quarry at Beer, and a network of quarries in Branscombe, had been used for a great deal of the stone that makes up the walls of the cathedral, from the Norman period onwards. And between Purbeck and Beer there exists a series of stone related connections between individuals. Peter had worked with Trev in Oxford back in the early 1970s when they were at the outset of their careers. Peter told me that:

“The very first job I did [in about 1970] was actually laying that floor in the Chapter House which is a Purbeck floor... It was from Trev Haysom! ... I think it was probably the last time I saw him, and that would have been a long time ago wouldn’t it.” (Peter Dare, 3 December 2012)

The cathedral seemed to tie together many threads of stone as it left the quarry and travelled out into the landscape. Connections between quarrying, stone and all the processes involved could be made across time and space in this one building.

In the course of the research, I have made a number of trips to the cathedral with Peter, often also in the company John Allan, the archaeologist. Some of these have been visits around the whole building, on others I’ve looked at specific features, such as the Pulpitum,
which is undergoing archaeological investigation currently (2014). I also organised for Trev and Mark Haysom to join us in order that they might be able to shed light on some of the Purbeck stone in the Cathedral, and to record some of their rich knowledge on the history and current use of the stone. Having all the people who formed the strands of knowledge from the quarries in the building together at the same time was a delight, and a rare opportunity. Not only was it fascinating to hear the detailed stories of some of the stones or objects, but also the interaction and sharing of knowledge between contemporaries (Peter and Trev) and how this resonated for the rest of us. In that one trip, John, the archaeologist, learnt about the care of stone and the identity of hitherto unknown stones. Mark was learning some of the stories embedded in that place, adding them to his current knowledge and work with cathedrals and historic buildings. And I was there as a link between them all, trying to record this rare moment and absorb this rare perspective of stone and of the cathedral. For me it was a pivotal moment in the research: an assemblage of people that echoed the collection of various stone types in the fabric of the building. Having the opportunity to delve into this historic building through the recollections and detailed knowledges of these individuals has given me a very different understanding of it. It has shifted my field of vision from the purely archaeological, into a wider comprehension of the vital, process driven realities of stone. Hopefully this perspective can be drawn back into discussions of archaeological and heritage sites, as well as conservation practice.

This section will begin to draw out some of these stories, to give a different reading of the building; one informed by personal recollections and close knowledge of stone sources and masonry. The stories and knowledges recounted to me have been so rich that it was difficult to work out how to retell it here. The chapter will explore the Purbeck stone and the narratives of Trev and Mark Haysom first, followed by the Devon stones informed by conversations with Peter. But it begins with a broader description of the context of the cathedral to understand what and how these stone knowledge’s are informing.
Knowledges of stone: (from left) Trev Haysom, Peter Dare and Mark Haysom

In the North Transept: (from left): Trev Haysom, John Allan and Peter Dare
7.3 Exeter Cathedral

At the heart of the city of Exeter stands the cathedral: solid in the middle of the green. Its great buff walls rise up in soft, yellow striations. Two solid Norman towers form the north-south arm. Their lower reaches are plain, but gazing up the stone work becomes complex and decorative, breaking the surface into a delight of delicate borders. The jigsaw-like walls vary as weathering, age and renewal have acted in different ways. At the arched and robust West Front, the small doors cower in reverence to the surrounding stone. Rank upon rank of figures rise up about them, each on their own pedestal and crowned with a decorative arch. Bearded knights and winged angels stand disfigured by the years; faces smoothed clear of features, isolated torsos bereft of limbs. Across them sweep the angular webs of netting to deter the pigeons, a reminder of the figures’ modern battle with nature.

Entering the building, the space inside is larger than expected. Huge clustered columns of Purbeck marble march down the long nave, from which Beer stone vaults fan out to greet one another on the ceiling. Capitols and bosses are ripe with symbols, though often too high to make out. On the floor, worn stone slabs ebb and flow with writing recalling people and events long passed. Nestled here and there in the walls are tombs. Stone carved Medieval figures are brought alive by an attention to detail that captures their clothing and armour like a page from a fairytale.

The history of the Cathedral is complex, and will therefore be only briefly introduced here. It is built upon the site of the Roman Neronian bath house at the centre of the Roman town of *Isca Dumnoniorum*. Between these Roman remains and the current building there existed a number of other ecclesiastical buildings which have been recorded in various historical sources (Hope and Lloyd 1988:7). A Saxon minster, for example, was eventually discovered where the west end of the Cathedral now sits, and where St Mary Major’s church once sat before its demolition in the 1970s.
West and North fronts of Exeter Cathedral
Statue on the West Front
Knight on the West Front
Carvings inside the Cathedral
The cathedral that stands today is formed of a number of phases: a complex web of building that presents a jigsaw of phasing deduced by masonry styles, tooling and stone types. Some stone remains in situ, whilst other blocks have been moved or replaced over time. For example, the original Norman pillars were dismantled in the Medieval period and some parts are found re-used in the outer wall, “you wouldn’t just dump the stone, you’d reuse it. So they recut it as an ashlar stone” (Peter Dare, 3 December 2012). Work has never really ceased, with chapels added, parts altered, and the large scale Victorian campaign of works. Since then, a constant cycle of conservation work has been in progress. Many stories have become wrapped in a fabric which has grown over a huge span of time. Stone has been incorporated from different quarries, but also reused from other buildings, bringing in other histories with it. In this way, buildings have become absorbed into one another as parts were demolished and rebuilt, their stories taken in or lost. Peter described to me how work he did in the 1970s on the North side of the cathedral re-used stone from other buildings that were being demolished at that time:

“A lot of the stone there on that parapet would have been St Mary Major’s... the stone above is all Bath stone which would have come from the market over the back [the Guildhall].” (Peter Dare, 3 December 2012)

So in that one piece of restoration work, two other buildings – fragments of Exeter’s history - were wrapped into the folds of the Cathedral walls.

Many types of stone are used in the Cathedral. Hope and Lloyd note that:

“Stone from the medieval building came from various quarries, of which the most important were Beer, Branscombe and Salcombe, but also from Silverton, Whipton, Raddon, Barley and Wonford in Devon, Hamdon in Somerset, Purbeck in Dorset, the Caen in Normandy” (1988: xiv).

With the Victorian works came the use of different stones, perhaps more easily acquired – Ketton, Daulting, Lapine. Different types of stone have been used more than others at different periods. Peter notes that:
“The interesting thing with the Norman work, is you don’t find much Beer stone in it: it’s nearly all Branscombe. I say Branscombe because you’ve got to think of it as a Parish. It was all little tiny quarries from Salcombe Regis to Beer, not including Beer because it’s entirely different.”
(Peter Dare, 22 August 2013)

These fluctuations in the types of stone used are likely to be tied up with the economics of stone extraction and transport. Details of this are found in the Fabric Rolls: extensive records of every detail of the cathedral since its original construction. So in the fabric of the cathedral we see the echoes of social, political and economic changes, which can be unpicked and slotted into a larger historical lens.

The cathedral has been battered and jostled by the events of history: invasion, plague, changing monarchies and with them, changing religion. It has stood, changed and changing, yet solid and ongoing, for almost a thousand years. In her discussion of building stones, Hawkes describes the use of Caen stone from Normandy in the building of many of the great medieval buildings of England:

“Very many cargoes of this oolitic limestone were shipped from Normandy to build our abbeys and cathedrals… The genes of the Norman conquerors are now mingled with those of most of our royal and noble families, and through them also Caen stone has been incorporated in our most sacred national buildings” (Hawkes 2012:101-2).

The intermingling stone types in the great walls of the cathedral are a material reflection of those fleeting or enduring meetings of people. Hawkes talks of this as an echo of the invasion, but we can also trace it through the movements of masons, of the sailors who transported the stone across the channel or round the coastline from Purbeck, Beer or Branscombe, and the many other people who would have been involved in the construction of such a monumental building.

Out of the myriad features, stones and histories held within the Cathedral, I will be picking just a few to draw out some of the interconnected narratives that exist around this building
and the quarries and geological formations from which it has grown. Where we saw the
negative space growing in the ground in the quarries of Beer and Purbeck, here at the
cathedral we see the opposite: stone appearing, growing from its foundation roots in the
surface of the earth. It takes a deep and detailed knowledge of the sheer variety of stone to
gain a richer understanding of the fabric.

7.3.1 Purbeck Stone

In previous chapters we have explored cultural geologies of Purbeck stone. On my early
visits to the cathedral, my understandings of its fabric were based in part on my
archaeological reading, but also by the knowledge I had gained from my time in the quarry.
But for me, the Purbeck stone in the cathedral was really brought to life by the presence of
Trev and Mark, who could draw more stories and histories from these stones. It is their rich
understanding that we turn to now.
7.3.1.1 The Floor

The floor of the cathedral is a patchwork of different stone slabs, each with their own unique surface. Colour, tone and texture change from slab to slab as they catch the light from the great medieval windows or hang in shadow. Some are worn and battered, ancient lettering sliding from their surface with the passage of time and feet. Disguised in plain sight, it took a visit from Trev and Mark to reveal that nearly all the slabs on the floor were Purbeck stones. We were walking over Rag, Grub, Thornback, Wetson bed, New Vein and Down’s Vein, as well as the more recognizable Purbeck marbles. On the flat surface of the Cathedral floor was a muddled stratigraphy of the Purbeck landscape, pulled horizontal from the vertical, slowly accumulated over time, a human echo of the formation of the stone itself. It had lain, largely unrecognised, stones without roots, as the knowledge relating to it had slipped away.

One of these stones is the ‘Heliar’ tombstone, which lies in the floor on the north side of the Quire. Trev called it “the most interesting piece of stone in England”. It is unusually long, about 12 feet. Thin light streams through onto its pale gold surface, catching the folds of silvered shell crescents: bivalves, identifiable by their two open sides. It is, Trev tells us, a piece of Blue Bit – or Titanites as it is known by geologists – from the tip of St Aldhelm’s Head. The quarry at St Aldhelm’s is the only place this stone can be obtained now, though in the past it would have been quarried out of the cliff quarries in the immediate area. Only two other tablets of this stone exist, in Westminster Abbey and Ottery St Mary church. The colouring has altered over time: the Blue Bit I know is a pale buff colour with silvery crescents of shells, not this rich, gold surface. Cut into it, bold letters of their time, characterful with their changes of case and sliding numbers. They stand out dark grey, and Trev explains how they have been filled with lead. He believes this must be the work of a later mason, since he doesn’t think this was normal practice at the time when the letters would have been cut. In places, they arise proud of the stone, where the lead has proved stronger than the stone against the wearing action of many feet.
Patchwork of stone on the cathedral floor

The Heliar tomb in Purbeck Blue Bit
A coat of arms has been carved into its centre: a starred cross and a band of three roses slanting to the centre. Trev gets very excited about these roses, since he believes there was a family called ‘Rose’ in Purbeck at the time. Apparently there is a worn tomb slab in Swanage graveyard to the Rose’s, and there was a Reverend Rose. Could this be another Purbeck link on top of the origin of the stone? This reflects again the diversity of the Haysom’s knowledge, as it ranges way beyond the boundaries of the quarry, and how important that is for unpicking the complex histories of these stones.

Other stones in the floor were more worn, their surfaces aged and details of the stone scuffed and marked. But they were picked up by Trev and Mark as their familiarity with these stones revealed their source or a detail of character. Their surfaces became steadily embroidered with stories of quarrymen in the near and distant past, figures of history and journeys by ship. One particular stone sparked a long debate. Located on the south side of the Quire this time, this long slab lay alongside a piece of polished Grub whose inscription dated it to 1609. The other slab suddenly caught Trev’s eye and he was immediately down on his hands and knees to take a closer look at the mysterious stone. There was cleaning work going on nearby, and we took their lamp to get a closer look at the intricacies of the shells and colours. He wondered if it was New Vein, or perhaps Swanage Grub from the area of Bon Accord Road. The Grub from that part of Swanage is a shallower layer, whereas the darker varieties come from the Langton/Acton area. As discussed in Chapter Four, even within just one bed of stone there is huge complexity and a mass of knowledge to be gleaned.

Seeing Purbeck stone in the cathedral also highlighted how, although difficult to predict and know during the quarrying process, it is also very hard to decipher and interpret once it is out in the world. It takes an expertise that comes with a lifetime of being practically involved with it. The knowledge Trev was using to identify that one stone came from quarrying the stone himself, but also from the wealth of stories and information passed on to him by previous generations as part of the process. Even on the scale of this one trip to the cathedral, it is clear how important it is that this knowledge continues to be passed on to others.
Finding a tomb of Purbeck Grub
The mystery stone
In the Quoir itself, the tiles at the west end were replaced with a Purbeck stone floor in the 1970s. The Blue Marble and Thornback were provided by the Haysom’s Quarry and installed at the time when Peter was the Master Mason at the cathedral. Trev was disappointed to discover that the Blue Marble in this area had not aged well. Many of the slabs were tainted with a pale salt deposit that had leached through the edges of the stones. Judging by its nature and deposition, it was deduced it was probably caused by the way the floor had been cleaned. On a later visit I learned they used to wash the floor, leave it over night and then put ‘traffic wax’ on it to polish it up. This may well have sealed the chemicals into the joints. It highlights the need for a full understanding of the stone in order to give it proper care and conservation. Revisiting sites is, therefore, an important opportunity for the Haysoms to check stones for wear and tear, and learn from the different aging that may occur. In this way, if a stone reacts badly, they can offer care advice, or learn a different characteristic of the lifespan of the stone.

Once more, this demonstrates the importance of this specific and practical knowledge. In the realms of building conservation it goes unsought too often, with the result that the stone fabric of historic buildings is not always appropriately treated. For beds of stone as complex as those at Purbeck, this requires a combined knowledge of their geological roots, their reductive properties during excavation and masonry, and their appearance when polished or combined into other features. Without this, it is very difficult to begin to understand the deeper properties of the stone in order to prevent damage.

7.3.1.2 Pillars

Running down the length of the nave, supporting the longest uninterrupted vaulted ceiling in England, are huge, clustered Purbeck marble columns. These were installed in the early 14th century (Hope and Lloyd 1988:37), at a time when Purbeck marble was at the height of its popularity and was widely used in cathedrals across England (e.g. Salisbury, Chichester, Canterbury) (Beckett and Hornak 1981; Blair 1991; Parsons 1990, 1991). These pillars have been identified simply as ‘Purbeck stone’ rather than a specific type. They are actually Blue Purbeck Marble, but since this is the most identifiable and well known of all the beds
in cathedral contexts, it is often thought to be the only kind. This highlights again the complexity of the nomenclature of Purbeck stone and what this reflects about assumptions of the material. Purbeck marble is often called ‘Corfe Marble’ in the Medieval accounts, since it was in Corfe that it was worked on the banker before it was shipped from Ower (on Poole Harbour), where the agents would have most likely been based.

Some of the Blue Marble in the pillars is edge-bedded, meaning that the beds run vertically rather than horizontally. Usually in a stone structure, the beds would lie as they had in the ground, as this provides strength. However in this case, the Purbeck marble blocks are longer than they are thick, so they have used the stone in the most economic way possible (Trev Haysom pers. comm). The Blue marble, brimming full of shells, appears buff and unusually dull in its unpolished form:

“They keep saying these [columns] would have been polished, but they wouldn’t because to polish Purbeck you just rub it, and a lot of these have still got the tool marks on so they were never polished. Polishing is something that comes out through the material. It’s quite roughly tooled.” (Peter Dare, 22 August 2014)

It is Peter’s opinion that these pillars would have actually been painted; used more for their strength than their aesthetics, though Trev is inclined to think that they would have been rubbed down. The Purbeck marble was expensive, and therefore its use reflects a specific choice of the material for its strength. Stone was chosen for a combination of aesthetic, structural and economical reasons:

“It’d be expensive to work. You see in those days they were looking at the cost as well: they didn’t have unlimited money to build those Cathedrals... If you’re going to work fine mouldings in Purbeck, it’d be much more expensive than working it in the softer Beer stone or Salcombe Regis or Branscombe stone.” (Peter Dare, 3rd December 2012)

The columns certainly bear a battered look, as years of patching and wear have taken their toll. New sections had been cut and added in the past, cracks were beginning to appear in
Trev Haysom regarding pillars

Pubeck Grey Marble pillars under the organ looking down the nave with the thick clusters of Blue Marble pillars beyond
some blocks and the mortar had been reapplied in some areas. The soft, blue surface of the marble is highlighted in places by shocks of white. These are formed by stromatolite within the stone: layered bio-chemical accretionary structures (Brown 1963) that provide the most ancient records of life on Earth:

“Some of it’s [marble] got this white finish rather than the normal blue. It’s supposed to be stromatolite, which is one of the earliest forms of animal and produces a limestone ooze. You still get them out in Australia.”

(Andy Webster, Mason at Haysom’s Quarry, 25 September 2012)

Considering this in the cathedral, Trev explained how his father had told him that stromatolite is only found in the Blue Marble from Lulworth Cove (the west end of Purbeck). Trev recalled taking his boat out once and finding some. He took back to the quarry and cut it up but it didn’t last well. Trev thought this was most likely because of the long exposure to salt it’d had on the beach. This again reflects a very specific knowledge that is vital when understanding where the stone was sourced, but also how these subtleties may effect its survival and its suitability for use in different features of the building.

For me, it was very interesting to see the different forms the marble took on as it stood its time in the cathedral: the buff, paled pillars with polished patches from passing hands, the salt patched floor and the aging tombs of long dead dignitaries. It was another way of getting to know the material and seeing it in a different light. It brought something more to my appreciation and interpretation of both the stone and the quarry space. Somehow seeing its lifespan in various ways – at the beginning when it had been extracted to stand in the yard, to the point where it held up a mighty roof – made me feel party to a secret that few get to see. A similar appreciation was expressed by Abe when he described to me some of the medieval Purbeck Marble he replaced at Canterbury Cathedral:

“When you see 12th or 13th century marble on the outside of a building, it’s looking pretty poor: it’s dark but the detail is worn away and the way Purbeck marble erode. It has that particular element of worm eaten decay, which I actually quite like, because all the soft clay – it has an element of clay in it, and that clay gets eaten away so all that remains is the shells, and
so it looks alive with all the fossils. There was one particular lintel on the back of the Corona that no one could see, but it was face bedded, so the natural bed had tilted upright, and everything had eroded but the shell, and so it just looked like you were staring at a living surface of snails— all the snail shells standing proud from the surface, these beautiful bivalves looking like ivory; these little Unio’s, clam like structures. But everything worked away from them, so you could see where it jointed and you could see all the texture on the surface. I mean to all intense and purposes, they look like living creatures. I quite like that – I find that fascinating.”

(Abe Shaffer, 26 March 2013)

To be able to go round the cathedral with Trev and Mark revealed how different aspects of quarry knowledge could be extracted or applied to a building as complex and historically layered as the cathedral. This experience introduced a whole other perspective to the stone and the quarry. To know the stone in the ground, yard, under chisel and saw, and then to see it out in the world, brought with it a huge sense of connection, meaning and engagement. It was something that I had not anticipated. I might know other stones by sight or composition, but I have a link with Purbeck stone that has formed through spending huge amounts of time with those who work it or being involved in practical processes with it myself. This ‘quarry knowing’ has brought the cathedral alive to me. It has connected the building to another place. It has given the stone a temporal context that reaches beyond its Norman origins, right back into the Jurassic.

7.3.2 Devon Stone

In contrast to the Purbeck stone in the cathedral, I have never worked the coastal Devon stones such as the Beer, Branscombe and Salcombe Regis, nor have I seen them in the process of being quarried. For this reason, I did not have the same deep knowledge. However, I was lucky enough to spend time at the cathedral with Peter Dare who, with a lifetime’s experience, gave real insight into the Devon stones and quarries. Peter was apprenticed at Beer Quarry. In the 1970s became Master Mason of Exeter Cathedral and
subsequently went on to build the last third of Brisbane Cathedral. This combined knowledge of the source of the material, masonry, installation and new building work gives him a unique perspective and knowledge of the building. It is a perspective that can reflect upon a range of scales, from the wider landscape to small marks on individual stones.

Like Trev and Mark, Peter’s knowledge of working in a quarry and sourcing a wide variety of local stones for specialist masonry work has resulted in having a deep and practical knowledge of the different types of stone that are used in the cathedral. His eye is tuned into the subtleties of colours, textures and tooling. He is able to distinguish the Beer stone easily from Caen stone, despite their similarities, “Caen stone is much creamier in colour, where the Beer stone is much whiter” (Peter Dare, 3 December 2012). He is also able to differentiate the more difficult local stones, such as Ketton and Weldon stone, which is important when it comes to replacing stones in conservation work:

“They [the archaeologists] can’t distinguish between the Ketton stone and the Weldon stone, and they put it all down as Ketton. And I says ‘it’s not all Ketton, there’s Ketton and Weldon there’. But John Allan said ‘none of us can tell the difference’ and I said ‘there’s a lot of difference really, when you look at it’. But they’re not able to tell the difference.”
(Peter Dare, 3 December 2012)

This is also important for recognising the variety of weathering in certain stones. Once a stone is removed from the quarry it will react to local conditions, sometimes making it difficult to recognise:

“Stone is different in different areas, like the Beer stone going pink at Broadhembury... . If you take Beer stone to Broad Hembury, which is on the top of the hill, between Honiton and Cullompton, you'll find that it goes red, and I remember going there to work on the church, thinking it was volcanic stone, and it wasn’t, it was Beer stone but with this red lichen on it.”
(Peter Dare, 22 August 2013)
Peter Dare shows Mark Haysom a detail of masonry work
The types of stone that are used in the fabric of the cathedral can also serve as a dating tool, since certain stone sources were preferred over others at different times in the history of the building. In the Norman and Medieval periods a mixture of Salcombe Regis, Branscombe, Beer and Caen stone was used to build the main structure of the cathedral. On his visit, Trev also pointed out that a small amount of Purbeck Burr had been used in the outer wall of the Lady Chapel. In the Victorian period however, other stones were introduced. Some of these were chosen to have a similar appearance, but did not necessarily have the same properties. These properties have effected how they have aged and weathered. However, unlike today’s strict conservation policies on like-for-like replacement, the variety of stone types in the cathedral seems to have been a result of the changing economies of the stone industry and transport costs. Before the 1970s, the masons used what stone was most easily come by:

“This sort of masonry was never like going along to B&Q and getting a block of stone. It’s always been the hard way.”  
(Peter Dare, August 2013)

In the Victorian period we see replacement of medieval elements and new building in stones like Ketton (“this white stuff is Ketton: if you look closely, it’s a bit like fish roe” (ibid.)) and Daulting (“it’s a limestone, coarse: takes all the skin off your knuckles if you miss. It’s like working coarse sandpaper” (ibid.)), which are much coarser but are of a similar pale yellowy cream colour:

“The Ketton stone was 1906 to 1930. And then I expect it depended on the architect you see. That was Luscombe and Harbottle… he must have thought Ketton stone was a good match for Beer, and the Daulting was a good match for Salcombe.” (Peter Dare, 22 August 2013)

As conservation work on the cathedral is undertaken now, stone is replaced with its direct forebear. Where the Victorians used Daulting rather than Salcombe, it is replaced with Daulting stone. This does raise some interesting questions about authenticity and continuity in the cathedral fabric. Like-for-like replacement reflects a desire to keep this building in
stasis when, as we have seen, its character is rooted in the ongoing patchwork of stone that is its fabric. This current approach lies heavily with the idea of a presumed authenticity (Yarrow and Jones 2014). This dulls the vitality of this building. But it also has practical implications: some of the stones like Ketton and Daulting do not weather as well as the Salcombe or Beer, and therefore have to be replaced more regularly.

I visited Andy French, a mason commissioned to carve a replacement of the top centre pinnacle on the West Front of the cathedral. He had all the pieces laid out, some complete, others still blocks. He pointed out that because the stone is replaced like-for-like, the Victorian elements are more likely to get replaced:

“People are reluctant to replace Medieval stuff, much more than they are Victorian because it’s deemed, rightly so, more precious to hang on to whatever little fragment is left, or however worn. ... Victorian stuff’s really precise – everything is always going to be level, or upright or square, because they were real tradesmen and went through an apprenticeship. Precision was important to them, but the Gothic stuff is more free and immediate.”

(Andy French, 6 December 2012)

The cathedral is, therefore, a patchwork of stones which were chosen for practical and pragmatic reasons. This can be seen from its very beginnings through to the 1970s when Peter used stone from the Guildhall and St Mary Major’s. It is only now that conservation practice dictates a strange stasis in the form and materials of buildings, freezing the cathedral as a snapshot of fragmentary histories that are no longer allowed to continue evolving. The context and narrative behind them is that of a conservation world, rather than anything deeply embedded in the material. It feels as though there is a form of separation, a distance from the material, which takes away some of the richness which has existed previously.

A number of masons I spoke to in the course of the research expressed concern at how masonry work on Cathedrals is now managed. Interestingly, most of them were of the opinion that it is the process of working stone at the cathedral – trying to emulate and learn
Worked blocks and templates for the central pinnacle of the West Front in Andy French’s workshop
Andy French works on the pinnacle, and the finished piece back atop the Cathedral
about historic methods and techniques – that is important. To try to grasp upon an aesthetic prerogative that is specific only to that moment in time seems shortsighted and contextually shallow. It highlights how heritage management in this sphere has moved away from the idea of knowledge in material, towards the preservation and stasis of mutable things with no regard to complexities of meaning or practical workings (Yarrow and Jones 2014).

Variations in the styles of architecture also play a huge part in dating stone features. The towers can be identified as Norman because of their thick walls and characteristic ‘dog tooth’ decoration. But within the building there are subtleties of style which took the knowledgable eye of Peter to identify. One of the Victorian architects in the cathedral was Pearson, who also designed Truro and Brisbane Cathedrals, all of which Peter has worked on. In seeking to make elements of the new work fit with the existing architecture, Peter has noted that Pearson uses what he calls ‘Pearson’s Variation’. The medieval masons allowed variation in their work to give a softer look, and this was picked up on by Pearson to avoid the often hard, even look of typical Victorian stone work:

“In terms of medieval carving, if you look at that string course and look at all these dentals: look at all the spaces between them and look at the size of them all – do you see how they’re different? When we did the doorway in Brisbane, I insisted to the blokes that they were different sizes and spacing. That’s how Pearson thought. He followed this medieval tradition. When you stand back it looks really good because it’s soft lines. If it’d been all the same it’d be hard and Victorian. That’s the difference. They meant to do it [in medieval times] because they could measure – they weren’t daft.” (Peter Dare, 22 August 2013)

It is not just in the material which we can trace these histories and broader contexts. We can move up close to the stones and begin to see the variety of marks which play across their surfaces. As we saw in the marks in the quarry spaces, a lot can be unpicked from these tooling marks if you know how to read them. Peter’s knowledge is clear when it comes to seeing the details in these marks, and being able to use that to deduce aspects of the wider history of the building. On one of our walks around the cathedral he spotted a stone –
Norman decoration on the South Tower

Pearson’s variation visible in the borders and bosses under the organ
Branscombe stone I think - on the North Tower with shallow, diagonal cuts drawn over its
surface. Peter pointed these out as axe marks:

“You see this is an axe finish on there: it’s more scalloped. That’s quite
amazing because that’s been there a long time that piece of stone, to think
you’ve still got axe marks on it.” (Peter Dare, 22 August 2013)

Not only is Peter’s eye tuned into these subtle marks, but he also can unfold their wider
context. He is aware when something is of particular interest, or unusual, when it might
otherwise get overlooked. In the corner of the Quire, Peter showed me the difference
between Caen and Beer stone. Looking closely, we saw the difference in tooling on the
different stones:

“See the little claw marks here? I think a lot of this was worked in France
and brought over, because you can see the tooling is different, especially on
this side. You see all these are Caen stone... It’s a shallow claw [chisel].
This was the first part to be built in 1280, that building [the Norman one]
was still there... I don’t know why they weren’t getting Beer stone. I reckon
the labour force wasn’t there, that it was in France.”
(Peter Dare, 22 August 2013)

Not only can the origin of the stone be seen, but also the variety of tool marks reveal the
difference in workmanship at the time. From this we can start to think about the skill base
in stone working at this time and how the knowledge of the Norman masons may have
spread, but also how stone would be transported. To ship big blocks would cost more than
working them in France and sending over the completed block. It all builds the stone into
the larger historical context.

Some masonry techniques have changed very little since the early medieval period. The
way we take a block out of twist, use a template and reduce it down in stages (as I did with
the block of Burr with Abe) is carried out in much the same way as the medieval masons
would have worked. Before the huge leap forward in digital technologies (CAD and
Axe marks in the Norman tower

Claw chisel marks on Caen stone
computer operated saws for example) even the drawing of templates and piece work was done in the same way:

“When we were doing our columns, which were similar to these, when we first started in the medieval way we’d be crawling on the floor doing our drawings on the floor with a big sheet of vinyl.”
(Peter Dare, 22 August 2013)

This continuity of practice is most likely due to the nature of masonry as a process. It is a disciplined practice which is very much about following a design to a specific end point using “enduring principles” (Jones and Yarrow 2013:18).

It is this specialist, practical masonry knowledge that enables Peter to identify the processes these marks represent. Having the knowledge to ask the right questions means more can be learnt about past masons methods and the thinking behind them. As Abe put it in one conversation about masonry:

“There’s a lot of different levels to know about buildings… I don’t think you really get anywhere near a meaning unless you ask how.”
(Abe Shaffer, 26 March 2013)

Peter is unique in that he has a huge knowledge of and interest in the history and future of the cathedral. Just as knowledge of stone in the quarry is passed on orally, so too is Peter’s understanding of masonry in this building. It would be very difficult to record all aspects of this richly layered building and its stonework. It is only by working closely with individuals such as Peter and Trev that the archaeologists and conservationists can learn more about the original stone fabric of the building and how that can be preserved or replaced. It is frightening how quickly this perspective and practical advice could be lost. Yet at present it tends to be overlooked: perhaps it will not be really valued until it is gone.

I was particularly struck by this when Peter explained an idea to reopen Beer Quarry in order to provide a source of stone for restoration work on the cathedral. Along with archaeologists at the cathedral and John Scott at Beer Quarry Caves, he has worked out a
way of quarrying the Beer stone in one of the Norman alcoves in Beer. Using a diamond-tipped chainsaw, stone could be extracted from behind the wall, leaving just a small incision into the Norman face. Blocks could be cut out to size thanks to the improvements in technology. This way, the cathedral would have a constant supply of stone. The project would also encourage a way of thinking that linked the cathedral with the quarry, and the masons would have the opportunity to gain a new understanding of the stone. After their visit to the Cathedral, Peter was keen to involve Mark Haysom as someone could advise on the quarry side, due to his knowledge of tools and methods, but also his sensitivity and awareness of the historical. It is rare to have this collection of skills available, and would make a fascinating project from which to learn. However, it has been halted by the cathedral on the grounds of safety, reflecting a real lack of understanding of this opportunity. Once again it is an example of not appreciating living, working skills, and instead waiting until they have disappeared before regretting the loss.

The strong interest in the histories and futures of building and stonework – the care that is shown – is also reflected in how the masons think about their own position in the building’s history. It is interesting to see them consider how their own work has slotted in to the fabric, and how that may go on into the future. Although one mason involved in the stone work on the cathedral told me he wasn’t interested in his legacy in the building, most have a real pride in it. There is a real sense of their work joining with those who have gone before them, becoming part of something bigger. Individuals are linked across time by their connections in the important historical lineage of the stones they have worked:

“When we did the Foliated Capitals for Chichester Cathedral, that was probably one of the best jobs we did... we did a few of those, and again they ended up 70 foot up in the air so if I go and look I’ve got to take a long lens to take a photograph of them!...You’re in there and you think ‘God, they did this 700 years ago – how did they get it here?’ and mine is part of it. I think that most of the cathedrals I’ve worked in I’ve felt like that, and probably the manor houses round here. But the offices in London, I have no feeling for the paving or anything we’ve done there... In an older building I feel more of that. We did a lot of work outside St Paul’s and the floors inside the
OBE chapel – I feel there’s a bit of me there that’s going to last a few hundred years hopefully!”
(Brian Bugler at Haysom’s Quarry, 25 September 2012)

“There is that nice thing of taking something on and applying yourself to it and then it’s a finished article, and even if it goes somewhere that might be an important part of England’s fabric, be it an ecclesiastical set up or a bit of flooring or replacement work for something 700 years old, there’s a nice sort of continuity of an industry that’s been going on for hundreds of years and it’s a nice thing just to have had your hands on, and had an input in.”
(Mark Haysom, 14 June 2012)

As the masons work on new elements with such a keen sense of temporality of the cathedral, their reflections give insight into the potential narratives and meanings that can become wrapped into the work. As we walk around the North side of outer wall of the cathedral one day, Peter points out a set of gargoyles that he re-carved in the 1970s as part of restoration work. The medieval gargoyles in this section are in mixed states of weathering: twisted faces made more abstract by the disappeared stone. It is hard to get an idea of narrative from their faces. Peter’s gargoyles stand out as newer versions, and their forms vary enormously. This illustrates how difficult it would be to ever trace the real stories and intention behind their design without the oral record:

P: I did one [gargoyle] of my daughter along here. This is my favourite group: that was a caricature of Polly when she was little. She used to think I had a job making dust, and she used to have a bolt and a 6 inch nail, and she’d spend hours just making dust! We had a big apple tree and she collected a whole bucketful of caterpillars, left them under the tree and they stripped the whole tree, and that’s why I did the carving of the caterpillar eating the apple leaves and the butterfly and Polly. And that was the Bishop of Crediton. The next one is a dog smoking a pipe, and he was called Butch. He used to drive in here, park up there and watch us working. And I thought ‘I’m going to do a carving of Butch’. A man called Mr Morale – he had one of these little blue invalid carriages, and I was giving a talk, and a lady
shouted out ‘I know Butch!’ He used to sit and smoke his pipe! He was a Boston Terrier. Anyway, I gave a talk this year at Exmouth and this lady popped up again and she had the book – someone’s written a book now. It’s got a picture of Butch on the front, smoking his pipe.
R: It’s gone into legend!
P: And I thought that was what it was all about really.
(Conversation with Peter Dare, 22 August 2013)

Looking at the cathedral now, after my visits with Peter, Trev and Mark, areas of it have come alive. The floor murmurs with the names and connotations of Purbeck beds, the geological and cultural narratives fizzing together. Stories leap from walls, pillars and ceiling. But not all the cathedral is lit with narrative. Some stones that form the fabric have not been seen or considered, or they lie outside the field of knowledge of those I have worked with. Some stones are lost, either to some or to all. Without knowledge of them it is easy to stop making the effort to look and they become invisible. Others go for long periods unrecognized before once again stirring into visibility. Sometimes it just takes the right person to know what they are looking at. It is like stones on a beach: they all have origins and stories, but they are not always easy to find. This just highlights once more how important it is to value the knowledge which brings stone alive, while it is still here to do so.

7.4 Back out into the landscape

We have seen how stone can travel from the quarry and become mixed up in the complex temporalites and narratives of a historic building like a cathedral. The narratives of some of these stones can be unpicked by those who know how, with a practical knowledge driven by a greater curiosity. We can follow this a stage further to see how the stone in this building connects to other buildings back out in the landscape on a variety of scales.
Peter’s involvement in masonry at the cathedral alongside his experience as an apprentice at Beer Quarry (and former resident of Beer), have led him to go back out into the Devon landscape and make new connections. He has been very interested in the old quarries at Branscombe, Salcombe Regis and Beer both historically and as a potential future resource for the cathedral. Time spent in this landscape has also led him to muse on other buildings. The church at Branscombe has its origins in the Norman period, characterised most noticeably by its sturdy Norman tower:

“I said to him about this church, ‘has it occurred to you why there’s a Norman church’? and he said ‘what do you mean?’ I said ‘you’ve got all the quarries – the quarries were there to build a Norman cathedral in Exeter. All those guys working there probably had to worship somewhere, so they built a church’ so I said ‘you’ve got a Norman church because you would have had an enormous group of people connected to the cathedral. They were supplying all the stone for the building of the cathedral – a lot of the stone.’” (Peter Dare, December 2012)

Peter’s knowledge of the landscape around Branscombe and Beer has meant that he knows where all the old quarries are. Some of these were used to build Exeter Cathedral, whilst others were used for parish churches or local houses throughout the medieval and early modern period:

“There was one quarry just the Salcombe Regis side of Dunscombe Manor. There was a lovely lane went down, and it was all paved with stone, and I reckon it was all Medieval paving, which has now mostly been ripped up with modern tractors... And if you look along the top of the cliffs, if you remove some soil you can see where blocks have been quarried. And all those undulating sort of outcrops and all the bits of flint and everything, it was all probably quarry waste. And then as you go down into Branscombe, go on around down to the Fountain Head pub at the top of Branscombe, there’s a quarry in behind there.” (Peter Dare, 3 December 2012)
The Norman tower of Branscombe church
It is not just knowing where the quarries are that is important. Peter’s close knowledge of the beds, characteristics of the subtly varying stone in this area and the requirements for building have allowed him to reopen some of these ancient quarries. It might be thought that this destroys the heritage of these places, just as one might a building. However, Peter’s careful and sensitive approach has meant that he is continuing a tradition and working practice. He has also developed ways of using these quarries which does not damage the ancient working faces. Just as he suggested in Beer, so in Branscombe he has cut an opening and quarried behind the medieval face, thus leaving it for future study and reference:

“We went in and dug away the soil from the face, the chisel marks that were on there, I think I’m right in saying, were from when they built the south side of Sidbury church, I think in the 1500’s. We tried not to destroy all that: what I did, I cut through the size of a 5 bar gate, and then opened it out in behind. And when you go back there now, you wouldn’t even know it’d been a quarry almost – it’s all grown back over.” (Peter Dare, 3 December 2012)

Subsequent to his role as Master Mason of Exeter Cathedral, Peter became the Master Mason in charge of completing the construction of Brisbane Cathedral, based on Pearson’s architectural designs. As mentioned previously, it was Pearson who designed and implemented the Victorian work in Exeter Cathedral, as well as designing other cathedrals such as Truro. So techniques, aesthetics and methods of construction that he had been immersed in at the cathedral in Exeter could be used in the new build at Brisbane, “It was working here that helped me when I went to Brisbane to build the Cathedral because I knew how a building should go together” (Peter Dare, August 2013). This was a transfer of knowledge from cathedral to cathedral at different sides of the world, separated in time as well as space. Being able to imagine the work on a variety of scales, and over the history of the building, Peter was able to produce the building designed by Pearson, with the ‘authentic’ tooled finishes, but using state of the art technology in order to keep the project to budget. In this way, the finish of Brisbane would carry with it not only the aesthetic intended by Pearson as executed in Exeter Cathedral, but also all the pragmatism of masonry which also existed at that time. By embracing modern technologies and using them with focus and care, Peter was continuing the traditional approach of masonry: to
achieve a finished piece that matched the template and design, which fitted with the overall architecture, as quickly as possible.

Perhaps this carries the spirit of the medieval masons more than any like-for-like reconstruction can. It certainly highlights the importance of that site based, practical knowledge. It also highlights again the integrated nature of some of these narratives. The cathedral connects a vast number of people over space and time. My own exploration of this is a small reflection of these vast networks of stone. It takes people with a variety of knowledge and understanding of different elements of the landscape to be able to form connections between places or buildings.

The ability to trace stone back out into the landscape has also taken Peter, Trev and Mark further afield. Many of the masons I have spoken to on the coast have spent time going to other cathedrals and buildings in Britain to look for their stone. Much of this search for historical stone is linked to ongoing work. The Haysom’s continue to supply stone to a number of cathedrals including Salisbury and current work on the floor of the crypt at Rochester Cathedral. In this way historical and future work is interlinked. But some of the stone is found much further away. Over their lifetimes, these individuals have made connections through stone all round the world. Some of these connections are quite easily traced through historical records or stories that have been passed on:

“In 1912 or 1911, they quarried hundreds of tonnes of Beer stone. It was taken to Exeter down Longbrook Street. There was a master mason called Harry Hemms, and him and his team carved all that stone, packed it in crates, shipped it to New York, took it overland another 1000 miles. So that’s the Reredos High Alter of Christchurch Cathedral, St Louis in Missouri.” (John Scott, 22 November 2013)

Looking to America, links have also been identified with Purbeck stone. The search for the provenance of stone pavers in Christ Church, Lancaster County, Virginia led researcher Marcus Key to Purbeck. The unique fossils in the Purbeck stone allowed its identification. Drawing in Trev’s knowledge of the stone and its history, and historical documents in Virginia, it was concluded that the Roach and Thornback had been transported by boat to
Virginia. The stone was originally used in a nearby mansion that burned down in 1729 and was subsequently used in the church (Key et. al u.d.:12).

Talking about this with Trev one day, he told me how various people with a knowledge of Purbeck stone had come back from trips and talked with him about seeing examples of it. A geologist had spotted Purbeck stone used for the gun platform of an English port in Jamaica. Someone else had spotted it in a church floor in Baltimore. Purbeck stone has also been found in Newfoundland and other places on the Eastern seaboard of America. As well as strong trade links with England, this prevalence of Purbeck stone on this coast may be due to the need for flat, fissile stone in areas where the geology was less suited to paving (Trev Haysom pers. comm). Closer to home, Purbeck marble is found in medieval cathedrals in Northern France, shipped and installed when it was at its most popular. Trev also came across a Purbeck stone floor in the museum in Bruges. This is an unusual find since although the marble was shipped to the continent, examples of the other beds are rarely found as local stone would usually have been used (Trev Haysom pers. comm).

As time goes on, the number of people with these deeply embedded local knowledges is dwindling. The number of new masons with locally based skills is much less than it once was, and there is perhaps less time and interest amongst the younger generations. There has also been a slight change in the nature of the work, since surprisingly few individuals are highly skilled in both quarrying and masonry. It shows once again how frail this sort of knowledge and narrative is, often relying on recalled memories and stories rather than any formal written history. They could so easily be lost, leaving the stones without their storytellers and no way of unpicking and re-telling these absorbing biographies of stone.
7.5 Review

Exeter Cathedral has stood as a conglomeration of building stones (and many other materials besides) for over a thousand years. It is a web of histories, but also of on-going stories, just a small number of which I have followed here. These stories sit in the fabric of the cathedral, but also spiral out into the landscape around, travelling back to the coastal geology and quarries, and even internationally. These narratives reach back into the past and project into the future as new connections are established. Ingold has described this form of storied knowledge as a ‘meshwork’:

“…things are instantiated in the world as their paths of movement, not as objects located in space. They are their stories. Here it is the movement itself that counts, not the destination it connects”
(Ingold 2011:163, orig. emph).

Ingold’s idea of meshwork has particular resonance in the cathedral, particularly in the context of how it is conserved and managed. His idea of things as stories and as movement, reiterates my earlier discussions of current concerns to keep the cathedral in a form of stasis. Instead, the temporal variation of the cathedral’s fabric should be celebrated and taken on into the future, with an attentiveness to stone that goes beyond the surface. Peter, Trev and Mark have shown what it is to be practically engaged whilst also being sensitive to the historical and careful for the future. These are important lessons that could be learned by those with responsibilities in heritage and conservation.

At the cathedral itself or out in the quarry, I have been shown stones, templates for new work and masonry marks. These have been accompanied by stories that have formed my understanding of the material, building and landscapes connected with them. The knowledge has crept into my consciousness as I have listened to them. It is this particular form of storytelling which can be navigated through, and re-found in, material form that allows a certain way of learning and a way of connecting over time and space:
“It is the art of storytelling, not in the power of classification, that the key to human knowledgeability – and therefore to culture – ultimately resides” (Ingold 2011:164).

This is an important insight into how this knowledge can be valued in the present and taken on into the future. Listening to Peter and Trev in the cathedral that day, it was interesting to see how their research is connected and reproduced through their storytelling. This becomes woven into a form of mythology that will live on, albeit in varying forms.

However, the effect of these stories is also dependent on an understanding of the processes and people that surround these narratives. My own knowledge of the cathedral is made up of a mixture of Peter, Trev and Mark’s accounts as well as John Allan, the archaeologist. These accounts and experiences have brought the building alive for me. I can now read meaning in the stone and find comfort in being able to name the different beds, remembering a whisper of a story, or the image of work being done. On reflection, I realise that the stories that I have been told are made more powerful because of the ability to connect these with a stone landscape with which I have formed a close attachment and understanding. My engagement with them has grown from my experiences in the landscape but also my own imagination. There is a difference in my feeling and connection with different stones within the cathedral, which in turn impacts my interest and levels of knowledge of the different stones. After the Haysoms’ visit, I wrote:

“Walking out of the Cathedral and across the close, I saw the blocks Trev thought were dinosaur tramplings. Trev and Mark have changed my understanding and geography of Exeter. Their comments and knowledge will stay with me now as I navigate the city: stone stories travelling out and being passed on” (Field Diary, 7 February 2014).

It made me wonder what their visit had brought to my relationship and understanding of the building. Going round the cathedral with Trev and Mark brought a feeling of warmth and familiarity to the building. Their stories brought a bit of the Purbeck landscape to life in the centre of Exeter. It made me realise how close I’ve become to that particular landscape: its people and stone. When they were talking about the Burr used in the 13th century, I could
imagine what that block looked like when quarried out, how it felt to work it and the look of the stone as it weathered over time and went pink with lichen. The Purbeck stone has a personal depth to it which I hadn’t really realised until I saw all these quarry worlds combined in one building. Looking at the floor of the cathedral now, I see the hole at the back of Lander’s with its layers of stone playing out across the landscape; I see the saws working through blocks, the chisel advancing along in lines. I am out in the landscape smelling the earth and stone dust as excavation begins, ears full of the sounds of slew and dumper. I remember conversations that run through years about the nature of stone, tired expressions as mid-winter in the quarry takes its toll. Going around with Peter brought it alive in other ways, with his well told stories and wealth of memory and experience. But without that personal experience and engagement, my connection with the Devon stones has never been as deep.

The cathedral has become more than just a building. Rather, its stones are a connection to those other places and people, both in the present and the past. These different narratives animate the stone, giving contextual depth to the fabric of the building. It is important that this knowledge is valued now, and that the skills that are available are used practically to learn and develop the building. If we lose these stories and knowledges, we lose something of the nuances of the stone: its fragile biographies. It reveals some of the flaws in approaches to the heritage management of buildings such as these, and what a fertile ground for investigation this could be for future work. Returning to Hawkes’s (2012:240) comment that, “building is one of the activities relating men most directly to their land”, this exploration of the cathedral through a few of its stone types reflects what can be discovered not only about stone and its origins, but what that can tell us about ourselves.
8.1 Conclusion

This thesis has explored just some of the cultural geologies that emerge from the exposures of stone along, and inland from, the Jurassic Coast. The expertise of particular quarrymen and geologists has been drawn upon to explore the geological and cultural narratives of stone: limestone has been storied through the chisel, in the ground, and through its transference to buildings. Connections have been woven through minerals and landscapes, people and processes.

These cultural geologies have shown how narratives that span huge timescales can be created by attending to the diversity of stone beds along the coast. Events and matter from millions of years ago have been linked with individuals and moments in the present. By focusing on the stone itself, the work has travelled through strata, drawing together the archaeological layers close to the surface with the geological, earthy matter below. To touch back on Hawkes (2012:98-99), it reflects “the unity of past and present, of mind and matter”. What results is a focus on our complex and diverse relationships with stone and the geological past: a Neolithic hand axe created around a fossil, the saw opening a block, the quarry void framed by stratigraphy. Each experience has offered another perspective and way of understanding the beds of stone, their properties and origins: reframing the land. On top of these scales of time, we have also seen scales of landscape; the ability to retell the story of an ancient land in the details of a stone’s surface. In this way, landscapes can be explored by carefully looking in, as well as out. The result, I hope, is an increased awareness of the material narratives that can be found when stone is foregrounded, and when it is excavated with curiosity, sensitivity and humility.

Of all the stone exposures of the Jurassic Coast – from the golden layers of the Inferior Oolite, to the laminations of clays and shales – it is really limestone that has formed the heart of this work. Its ability to be worked, by both natural and human actions, has allowed it to be drawn in close to our cultural spheres of meaning and making. These characteristics have distinguished it for others too, gradually inscribing it with a body of literature. Jacquetta Hawkes (2012:121) explored how “after its long passivity… untouched by consciousness” the Portland limestone went on to form the epicentre of London, and the
enduring grace of buildings across the country. Auden (1951) and Clifford (2014) touch upon its propensities to change, forming the landscapes around which our cultural worlds hinge. In his deep cartographies of Aran, Tim Robinson (2008) takes us through the fractures and faults of a landscape formed by its “memorious” limestone. In the limestones of Devon and Dorset (though most particularly Purbeck), I have delved into the complex geology and excavated it in ways that mesh scientific and industrial knowledge, ancient histories and daily actions. Stories meander through time, binding us with this most enduring of materials. What results is a familiarity that spans communities of people and stone, culture and geology.

What I have offered in this work is another way of understanding the land: not just Purbeck, or the Jurassic Coast, but the land more broadly. This thesis offers another way of seeing; one which peers at small things to achieve much broader understandings. It has shown how materials demand the cultivation of a close and imaginative attention in order to understand more fully what defines them, and in turn, us. It is work that has excited me, spurred me on to explore other possibilities, and it is that which I hope to pass on. Stone is not a closed book. Rather it is one that offers endless ways of telling and retelling the land, and ourselves. Which brings us back to Alan Garner’s The Stone Book, which had in it “all the stories of the world” (Garner 1992:51). Just open it, and see.

This thesis offers cultural geology as a way of drawing in past work, as well as a way of thinking about the land in the future. Finding ways of telling stories in the landscape can bring the earth alive to us in different ways, allowing us to value change and processes as much as what has been preserved. This is how my work distinguishes itself from fashionable forays into the ‘anthropocene’. Whereas a fear of the future and a resolutely human focus defines the broad theoretical stance of the anthropocene, cultural geology offers a more optimistic and exploratory approach to thinking about the world. Thinking through and with the land – on the surface and deep within it – can open up new lines of enquiry, modes of thinking, writing and drawing. By exploring the land more fully, we can work better into the future.

My exploration of stone has provided me with an opportunity to apply an archaeological imagination to the geological. It celebrates the tactile and imaginative approaches that can
be used to explore the past, both in literature (such as Edmonds 1999, 2004; Garner 1992; Hawkes 2012; Lorimer 2012; Lorimer and MacDonald 2002) and in practice. In this way, this thesis can be seen as part of a wider tradition that finds and makes connections between archaeology, geography and geology. A key part of this for my research, has been understanding of the land that is based on feeling it physically, as well as seeing it. This tactile approach to material has been taken up more broadly, particularly around studies of material culture or cultural landscapes (Ingold 2013; Paton 2013), and the ways in which we experience them (Brodsky 2002; Lewis 2000, Edensor 200, 2010; Fulton 2010; Ingold 2004, 2010; Legat 2008; Lorimer 2006; Merrimen et al. 2008; Wylie 2005).

The archaeological imagination also offers a way of extending thought beyond what is physically present, into the unseen, undiscovered or disappeared (Hauser 2007; Shanks 2012). This research has been a process of unravelling traces in stone: developing ways of telling and re-telling stories to stretch the realms of possibility. The geological, in particular, is often difficult to comprehend, with regards to its temporality, mutability and invisibility. The archaeological imagination echoes the spirit of geopoetics: Hess’s desire for people to “speculate imaginatively” (McKay 2013:46) around the possibilities of the geological, promoting astonishment and close observation. This thesis, therefore, builds on the idea of looking at the world with the “humility of poetic attention” (Ferguson 2009:180).

The spaces in the landscape created by the quarry process can cast new perspectives on the stone forms that remain. In this way, not only is the process of quarrying partly creative, but the spaces that remain can become sites of cultural and geological discovery in their own right. The accidental, unintended architecture of absence is potentially as textured, layered and informative as any building. It is the stories and memories that are told through these spaces that keep them vibrant and alive. The Haysoms’ open cast quarries revealed the stratigraphies that animate Purbeck’s geological past. The undergrounds showed hollow traces of tools and the etched names of those who worked there. Diverse ecologies develop alongside their abandonment: seeds that germinate by electric bulbs, orchids and bats. The narratives of these spaces are reliant on the involved responses of those who have worked them, and their willingness to share their understanding of them. These voids are also spaces of imagination, where these stories gather in potential, inspiring new ways of
thinking through and working with these stone worlds. Archaeology, and a growing area of research in geography (Meyer 2012; Wylie 2009), foregrounds absence, providing a context in which we can recognise the value of voids as well as matter.

Drawing on the tacit understanding gained by physically feeling the grain of the land through our excavations of it as archaeologists, this work has also explored how the process of making and using tools can offer a different understanding of stone as a material. The previous chapters have discussed at different scales how practical work can allow us beneath the surface of stone, to give insight into the character of the different beds. Tackling the properties of stone by hand or machine animates this material in whole new way. It shows what a lively material it is. The process of cutting letters into Pond Freestone revealed its smooth, dense nature, the porcelain sounds as it met with the chisel. Taking the Burr out of twist allowed a deep understanding of its voids and faults.

The processes of making explored in Chapter Five illustrated what a long period of acquaintance is required to really understand and work well with stone. The speed and confidence with which Abe worked a block out of twist contrasted greatly with my onerous progress. We have seen throughout the thesis what specific language is used to describe the stone and processes of working it. This language has grown out of familiarity and necessity: stones are ‘venty’, ‘mealy’ ‘glassy’ or ‘gauzy’; you can ‘stun it’, ‘bruise it’ or ‘take it out of twist’. It is a vocabulary as complex as the beds it describes. This leads to another key point. It is too easy to take a romantic approach to so called ‘craft’ industries and presume that the use of machines is somehow unskilled and insensitive. Rather, it is the operator that makes the difference. In the Haysoms’ quarry we have seen how their use of machines is pragmatic, inventive and responsive, whilst also being highly dependent on – and part of the formation of – a detailed knowledge of the properties and propensities of stone. Romantic illusions of traditional industries such as stone masonry are entrenched in an imagined past. In assuming that traditional hand-tooling methods are in some way more engaged or ‘true’ to the material, they are ignoring the pragmatic approach that has always been applied to stonework, whilst simultaneously ignoring the very interesting developments in mechanised work. This research has shown that methods of working with stone do not have to be antiquated, ‘traditional’ or slow in order to be sensitive, skilled and appropriate.
Throughout the exploration of different facets and scales of stone, the importance of listening and being attentive to those with knowledge has surfaced repeatedly. Our relationships with the land develop out of the different ways in which we engage with it. What we have seen here on the Jurassic Coast are communities who, through the specific ways with which they work with stone, have valuable perspectives to share. The knowledge brought to stone by the geologists and quarrymen in this thesis shows how this often neglected material can be animated, casting new light on familiar landscapes. The previous four chapters have explored different elements of stone at practical and engaged levels: quarry processes, work by hand and machine, excavations and practicalities of architecture. Stones, so often taken at face value, begin to acquire a depth of attention: the shades of local variety in blocks of Grub in the quarry, fragments of recognition in a worn tombstone in the cathedral floor. It is their practical, tacit engagement with stone, combined with an interest and sensitivity to the material that has allowed these geologists and quarrymen to gain such detailed and localised understandings. With these layers of knowledge come perspectives on the landscape that plunge beneath the surface, simultaneously connecting the geological with the on-going, daily rhythms of this coastline.

As such, this research has also shown the value of ethnography, and indeed an approach to community more widely, that invests time and attention in people and landscapes. By choosing to work with a small number of individuals and sites, I have had the opportunity to become fully absorbed in the cultural geologies I was intrigued by. This approach highlights the need for academics to be allowed the time and space to carry out these deep ethnographies. Only then can truly collaborative potential emerge, and research respond adequately to its context.

A visual dialogue landscape was also a key part of this research, and it is hoped that this approach can make a contribution to growing discussions around the place of creative approaches within geography. Where printmaking has provided me a process and space to cogitate on archaeological layers, this work on stone expanded my use of photography and film. These photographs, timelapses and films are also now a record of particular events, landscapes and people: a specific moment in the cultural and geological life of Purbeck and the other stone sites explored. The visual material in itself is a rich source of knowledge for future work. The records of the quarry excavations particularly are traces of a process of
change that might otherwise be easily forgotten or overlooked. This record reflects what a
valuable tool photography can be for communicating these complex cultural geologies,
building on current interest in visual dialogues around landscape and memory (such as
Andreassen et al. 2010; Burtynsky 2007; DeSilvey et al. 2014; Edmonds and Ferraby 2013;
Ferraby 2015; Lorimer and Foster 2007; Pink 2009; Rose 2000, 2012; Smiles and Moser
2005; Sutherland and Acord 2007; Wylie 2006a). By focusing on stone and the landscapes
it forms through the lens of the camera, another level of attention is achieved?. We have
seen how a cluster of fossilised shells or the habitual activity of the men and machines in
the masonry shed have been given recognition as they are captured in a shot. Small
moments and details have gathered with the voices to leave an enduring sense of stone in
that quarry, and on that coast.

Before moving on to discuss the impact of these conclusions upon the Jurassic Coast and
other key organisations involved in the management of landscape, it is important to focus
upon the influence of geography in this work. Geography has provided the space in which
this research could develop. The hybrid nature of the discipline has really gathered
momentum in the last decade. I wonder if this work – the approaches I have taken, the very
spirit of it – would have been possible in the academic world of geography or archaeology a
decade or two ago. I hope in turn it may lead others to follow avenues of their own.

I have been particularly inspired by those who furtle in aspects of landscapes, and narrate
their discoveries in ways that draw people and materials together at a variety of scales, and
in imaginative ways (Berger 2012; DeSilvey 2007b, 2012c; Edmonds 2004; Lorimer 2006,
2014; Matless 2014; Matless and Cameron 2007; MacDonald 2013; Pearson 2006; Thomas
2014). There is a real delight in some of this work, a playful curiosity seeking to explore
the world. The creative freedom advocated for within cultural geography in particular, has
allowed me to find a path through stone that reacts imaginatively to the material itself,
rather than being confined by any limiting academic expectations. Cultural geography has
provided a fertile ground from which to develop ways of thinking that combined
archaeological approaches and elements of making and visual practice. In turn, the
approaches I have taken and discoveries I have made can, I hope, offer geography
something in return.
8.1.2 Dialogues for the Jurassic Coast

This thesis was undertaken as part of, and a result of, collaboration with the Jurassic Coast World Heritage Team. This closing section will reflect upon how this work can feed back to those involved in different aspects of the management, communication and understanding of this coast, and also to heritage and landscape organisations more widely. I have been lucky indeed to have collaborators with the imagination and sensibilities of the Jurassic Coast World Heritage Site Team. They have been willing to see the research take its own direction, and find value in the unexpected returns it has brought. On-going discussions throughout the research have touched on many different areas of the Jurassic Coast Team’s work, ranging from theories of geology and ideas of community to the celebration and critique of arts initiatives,. I hope that in this way I have allowed the process of my own research to become an important part of the developing work of the team. For myself, working alongside the WHS team, I am also acutely aware of the pressures and difficulties involved with trying to manage such a large site at a time of financial and bureaucratic change. Here, then, I will summarise key aspects of this research that I feel could be taken on board for future work on the Jurassic Coast, and in the management of landscapes more broadly.

This research has focused upon two communities of stone on the Jurassic Coast: quarrymen and geologists. In spending time with them as they work with stone, the value of the knowledge that results has become clear. The complex understandings that grow out of interactions, be they industrial, scientific, creative or everyday, have been recognised here. Knowing about stone can bring it alive, and with it the land and landscapes it forms. The stories and narratives of the people who have featured in this work reflect a vast pool of understanding. Without their voices, memories and actions, important knowledge can be lost. This is not about necessarily clinging onto, or romanticising the past. Rather it is an awareness of what is available to take into the future. These two communities, and the individuals that I concentrated on here, are part of something much larger. Up and down the coast there are people whose lives have intertwined with the geological, whose knowledges span land and sea, past and present. Their voices are important, and need to be recognised as such. Giving space for stories to be told and shared, ideas bounced back and forth, is of
huge value. This value is not found not only in the growing identity of this coastline, but also for what it gives back to the individuals and communities involved. Concentrating on the level of individuals or small sites can be difficult when facing the international scale that the UNESCO site demands. But these small things are often the most important. It is the voices and small stories that give this land such depth.

However, working with communities at any level is something that requires time and the ability to talk with, not to (Bender pers. comm.). I have watched as large initiatives have been laid out on the coast, in the hope of drawing people in. But, as Jonathan Croose discovered in his thesis on carnival (Croose 2014), there has been growing resentment of forced initiatives. Instead, people should have an active role and interest in creating projects, if they so wish, and find ways of making their own mark. A space should be given for their voices (Edmonds 2006; Harvey 2010). This may be the case for day-to-day issues on the coast, as well as individual initiatives such as the formation of collections, as we saw with Steve, Charlie and Trev. But building these relationships takes time and trust. It is often those projects designed to support the endeavours of small actions that achieve the most success – a lasting effect within and between communities – in the long term (see for example Clifford and King 1996). This process of working with communities is also about giving something back: showing an interest, sharing knowledge, supporting a view, keeping in touch. In this way, the process of research, communication or teaching has the ability to affect us all in different, and often unexpected, ways.

This coastline and its management also provide fertile ground for discussions of heritage and understandings of landscape (Ferraby 2015). What this thesis has sought to show is the value and pleasure of exploring the complex relationships, knowledges and material forces that exist between people and the land. Understanding the landscape in this way, as on-going and multi-vocal (Bender 2001; Harvey 2010), allows ways of managing it into the future: ways that continue to interact, assess and be sensitive to what is really important about people, places and practices.

In particular, as the research has explored various aspects of quarrying (specifically in Purbeck), certain issues have arisen in regard to the perception and consequent management of this process. Firstly, having explored Purbeck stone through making,
spaces and buildings, it is clear that it is a geologically complex series of limestones that requires great insight and understanding in order to quarry it sensitively and effectively. The knowledge produced in these sites as a result of dealing with these complex geologies should be valued. These sites should therefore be given the same attention and thought in landscape management as is given to historic features such as the abandoned cliff quarries. Although it is recognised that “the small scale nature of Purbeck Stone quarrying arguably makes a positive contribution to the landscape” (Dorset County Council 2013), this thesis has demonstrated the full extent of their importance for cultural memory, ecology, and landscape narrative. In the day-to-day running of an industry that destroys the natural bedding of the earth, these quarriers are also creating and maintaining a rich understanding and memory of the landscape. In archaeological excavations we must destroy in order to recreate the past: such a process also defines quarrying, albeit with a different agenda. There is huge potential and creativity in these spaces that has been overlooked too long.

The quarries should be recognised as being part of the cultural geology of this coast, and therefore integral to the form and function of this World Heritage Site. Recognising the potential of these sites would not only affect the ways in which this landscape can be understood, but could also have a very practical impact on the ways the quarries can operate in the future. This could include approaches to mineral planning, perhaps encouraging greater dialogue. What this thesis has also revealed is how, although there are many levels of bureaucracy involved in protecting and conserving Purbeck ‘heritage’, there is very little support available to quarries in terms of protection of their livelihoods.

The thesis also has some important lessons for the Jurassic Coast Arts Programme ‘The Creative Coast’, to which this PhD studentship was a part. After briefly outlining my involvement with some of the arts initiatives around the 2012 Cultural Olympiad in Chapter One, the main focus of the work has been elsewhere. Although not dwelt upon here, I spent a considerable amount of time in the early stages of the PhD looking at, and working with, the Exploratory Laboratory project (ExLab). It was in part due to my frustrations with the project that it did not come to bear more weight in this work. Although much of this was discussed at the time (and it should be noted that the Jurassic Coast has now changed its approach to the arts, bringing it more into the daily management of the site rather than as an
add-on), I think it is now worth lightly touching upon the problems, and exploring more fully what alternatives my work has, in the end, come to offer.

The Jurassic Coast Arts Programme was designed to engage people with the coast through different art forms (Jurassic Coast World Heritage Site Website: Arts). The ExLab project in particular aimed to commission artists to create work that hinged upon aspects of earth science on the coast. Perhaps the first problem lay at this central point: ExLab explicitly tried to divide the arts (and artists) from the earth science (and scientists). In doing so, the project actually missed what is at the heart of this coastline: that it is these cultural geologies, these relationships and narratives between people and the land, that define, form and characterise it. In trying to separate them so explicitly, it created an unnecessary divide, which actually made creative practice more difficult.

The other criticism more widely levelled at projects under that Arts Programme is their approach to community and local communities more particularly (see also Croose 2014). It was felt by many, that there was a tendency towards parachuting in artists to create work that had little or no meaning to the local community. In contrast, this thesis has explored how artistic and creative practice can be found in different environments: in the way a fossil is prepared and displayed (as we saw in Steve Etches’s museum), in the lettering for a plaque or marker, in photographs to record a landscape. We have seen in this work creativity and an accidental aesthetic that shapes the landscape itself, in the form of space left by quarries: a sculptural space formed by a pragmatic need to excavate a complex series of stone beds in a way that is economically and practically viable. In Purbeck we saw quarry spaces adapting to the dipping stratigraphy, the complex mutability of the beds, and changes in technology. In Portland, the more homogenous beds now allow for a more linear removal of stone that results in the cubist holes, the modernist lines of the mine. So, perhaps what this work has shown is that more attention perhaps needs to be given to ways of seeing: to find ways of celebrating the creativity that already exists in this landscape. This sits much more comfortably with the notion that it is processes that really define this landscape: nothing set or static, but people and land always in a constant state of interaction. To explore how people do this creatively could be a rich vein; and one which would create a greater sense of something shared; a connection through the land. It would require working with people in different ways, on a level, rather than with any sense of
organisational authority, and this would require time, a slow building of knowledge and relationships.

This thesis has illuminated a different narrative of the Jurassic Coast; a cultural geology that reveals the complexity of people and stone, of culture and the land. By speculating imaginatively in practice and in thought, we have the opportunity to tell many stories, and in doing so, find better ways of going on into the future. We have seen how, “to ground ourselves, understand our place, find meaning and take steps to cherish and enrich our own patch of land demands that we change our ways, share our knowledge, get involved” (Clifford and King 2006:xiii).
Appendix I: Ethics

As part of the interview process an ethics form was used:

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**STONE EXPOSURES: Biographies of Stone on the Jurassic Coast**

This project is an AHRC funded Collaborative PhD Studentship based in the Department of Geography, University of Exeter, in association with the Jurassic Coast World Heritage Site Arts Programme. My work explores biographies of stone and creative narratives on the coastline.

This will involve extended visits and conversations with individuals working with stone on the East Devon and West Dorset coast, exploring how relationships with stone have developed and changed. It also looks at how these aspects of stone landscapes are explored visually. Research methods include visits and observation; conversation and semi-structured interviews; photographic/drawn, audio and video recording; and in some cases active participation.

The work aims to follow a string of narratives based in stone on the coast, showing the complex nature of people’s relationship with this landscape and the stone which forms it. As such certain individuals may be re-interviewed overtime, to gain deep insight into their work. The result may be quite a detailed accounts based around particular individuals. It will also form a collection of images, both from people on the coast and my own work.

Information gathered during the research will be shared with University supervisory academic staff and published in a final PhD thesis in September, 2014. It may also form content for presentation at academic conferences in the UK and abroad and for papers published in academic journals. There is the possibility that this might also go on to be published in the form of a book, or as part of other volumes.
Confidentiality
Interview tapes and transcripts will be held in confidence. They will not be used other than for the purposes described above and third parties will not be allowed access to them (except as may be required by the law). However, if you request it, you will be supplied with a copy of your interview transcript (please give your email below). However, this cannot then be used for any other purposes: it remains the intellectual property of Rose Ferraby and the University of Exeter. Your data will be held in accordance with the Data Protection Act.

Identification
Since this is a detailed narrative of personal views of stone landscapes on the coast, real names will be used in this work, and could be used if the PhD were to be published. However, if this is a real problem, please request anonymity here.

Consent
I voluntarily agree to participate and to the use of my data for the purposes specified above. I can withdraw consent at any time by contacting the interviewer.

DATE............................

Note: Your contact details are kept separately from your interview data

Name of interviewee:..............................................................

Signature: ..............................................................................

Email/phone:...........................................................................

Signature of researcher...........................................................

2 copies to be signed by both interviewee and researcher, one kept by each


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