THE UNIVERSITY OF HULL

Hybrid climbing bodies: the climbing assemblage and the technologically mediated engagements and ascensions of rock climbers

being a Thesis submitted for the Degree of PhD in the University of Hull

by

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Abstract

This thesis contributes an Actor Network Theory inspired approach to the study of rock climbing to argue that climbers are more-than-human fusions comprised of the human and non-human. The research explores this notion of hybrid climbers, which I term the 'hybrid climbing assemblage'. The complicated relationships between these human and technological co-agents of climbing are durable but dynamic, although technological developments aid climbers, the benefits of these fusions cannot be reduced to physical, technical and mental elements. Rather, each piece of technology worn or carried by the climber has its own situated set of relations which are interwoven into the complex socio-technical assemblage that co-constitutes the present day climber. Empirical data to support this study has been collected via participant observation, and interviews with 40 rock climbers based in northern England. Although some of these voices debate the roles of these technologies and their experiential impacts upon climbing, these developments are not necessarily damaging to the experience. Indeed, climbers are careful to retain the 'desirable' and 'essential' experiential aspects of the activity – notably the risk and uncertainty climbing entails. Finally, the thesis also adds to debates concerning the materially mediated experience of places, and how places are also involved in the development of socio-technical assemblages and their practices. In these ways this research aims to help us rethink our activities as implicitly mediated by technology.

Acknowledgements

Throughout this study I have received intellectual, practical and emotional support from an array of people, things and places... First, I would like to thank my partner Lynsey for putting up with PhD related moods and for being the sounding board for my many formulating Ideas. My three years of study saw the birth of Poppy, our first child. She has given me great pleasure as a welcome distraction whilst simultaneously providing me with the focus to continue my studies. I would also like to thank Penny our second child and the virtual actant whose absence but impending presence as a gestating foetus provided me with a diligent work ethic.

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In relation to my fieldwork I would like to thank all of the climbers who have taken time out of their schedules to talk and climb with me, especially members from the Buxton Mountain Rescue Service, Leeds Mountaineering Club and also the Yorkshire Branch of the British Mountaineering Council, who allowed me sit in on their meetings and helped recruit a significant number of my sample. It is these people's passion for climbing (and kit) that has driven this PhD forward and led me to what I feel is an interesting and thought provoking piece of work.

Last, in line with the project's theoretical approach I would like to thank my road bike in conjunction with the undulating roads of the East Yorkshire Wolds. These have kept me sane and healthy when the company of non-humans was preferable to all concerned!

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Chapter 1: Introduction

1.1 Research focus and context

> I felt my chest thumping. I felt my throat turn dry. If I fell from here, I knew I would be going to hospital. I exhaled slowly, puffing my cheeks. Then trusting my right foot to a vague line in the rock, I stood up willing the rubber of my shoe to stick. (Cave 2006: 101)

Cave's quote captures my conceptual interest in the pursuit of climbing. It is an account of a technologically mediated embodied practice. But it is more than this. Cave, is a climber on the edge of safety who is highly aware of the friction between his climbing shoe and the rock he is ascending. He is moving as a 'hybrid climbing assemblage' performing socio-technical practices to achieve his goal of ascending the climb.

People's experiences have always been technologised by the material artefacts of their everyday lives (Latour 1992). In more recent times it is claimed that the proliferation and increasing sophistication of the technological has blurred the boundaries that have traditionally separated the body from technology (Dixon 2008; Haraway 1985). Consequently, technologies become aligned with the body, resulting in an infinite range of hybrid assemblages with non-human agencies (Michael 2000, 2006; Mitchell 2004). Modernistic binary thinking fails to account for the complexity of these assemblages and the capacities they create (Whatmore 1999b, 2002; Murdoch 1997a). This situation therefore requires a different way of conceptualising human – non-human assemblages, if we are to explore their co-constituted and co-evolving character.

This thesis will expand on this idea through the example of rock climbing. It will explore the active roles that technology plays in the way in which humans engage with and experience the crag through climbing. By active I mean that technology has agency as a mediator in, and facilitator of, the act of climbing. This project represents a response to a call by Philo (2000), Jackson (2000), and Haldrup and Larsen (2006), for geographers and other social scientists to engage with the 'material', in order to help uncover the significance of materiality and objects in contemporary life. This focus also

stems from a surge in research examining the value of 'things' (human and non-human) by examining the relations between the social, physical and material entities of the world (Latour 1999, 2005). These theoretical positions point towards an Actor Network Theory approach for the study of human-environment-technology relations because it avoids reductionist dualisms such as subject and object (Murdoch 1997a). This point is important for this study as it relies upon the dissolution of dualistic binaries between humans and non-humans in order to explore the hybrids who proliferate in the conditions created by boundary removal (Whatmore 2002).

I intend to investigate how the changing and technologically mediated pursuit of climbing effects the abilities of climbers and their experiences. I will explore how climbers are hybrid beings that are co-enabled in their ascents as co-constituent actors amongst a 'climbing assemblage'. Climbing assemblage is the term I use to conceptualise how the corporeal is inherently integrated with the technological through climbing. This develops the work of Hinchcliffe (2007: 38), who defines an assemblage as: "an active combination of technologies. Ways of proceeding, their arrangements and their ongoing, unfolding nature". This thesis will examine the pursuit of climbing using an Actor Network Theory inspired approach (Callon 1986; Latour 1987, 1999, 2005; Law 1987, 2004) that recognises that humans and non-humans are relational, produced through and with others (Michael 2000, 2006; Pile and Thrift 1995).

My intention is to draw upon, and contribute to, academic thought concerning the relations between humans and non-humans. Specifically, I will engage with the theorisation of hybrid bodies (Dixon 2006; Haraway 1985; Whatmore 2002); the examination of how technologies as active co-agents involved in the enactment of our lives (Latour 1988b, 1992, 2000; Law 2002; Michael 2000, 2001, 2006); the exploration of the body-technology synergies of technologised embodied pursuits (Jones 2005; Michael 2001; Spinney 2006); and the understanding of how material artefacts bring meaning and comfort into our lives (Miller 2008; Turkle 2007).

The case of rock climbing is interesting in many ways. British rock climbing has been a recognised 'outdoor pursuit' since the 1880s (Hankinson 1977, 1972; Thompson 2010; Wells 2001, 2008), and since this time its culture, practices and technology have

developed. Changes have been especially dramatic over the past 30 years resulting in an extraordinary difference in what (some) climbers can now climb (Pickford 2010; Wells 2001). This is claimed to be the outcome of progressive changes and innovations in climbers' kit (Parsons and Rose 2003), and enhanced training regimes (Moffatt 2009; Wells 2007). However, there has been little research to explore how this 'enablement' is manifested in the embodied experiences of climbers, nor what the experiential consequences of these changes might be.

In addition to transformations in climbers' abilities, rock climbing is also experiencing other changes – notably an increase in popularity. Figure 1 charts the growth in British Mountaineering Club Membership (a proxy figure for climbing participation) over the past 20 years, rising from 25,929 in 1990 to 71,112 in 2009. Further evidence of this growing popularity is provided by the Active People Survey: 2 (2008) which reports that participation in 'climbing' (rock climbing, indoor climbing, solo climbing, sport climbing, mountaineering, and altitude hill trekking) has grown from 67,300 adults in 2005/06 to 86,200 adults in 2007/08 - making it the tenth fastest growing sport in the UK.

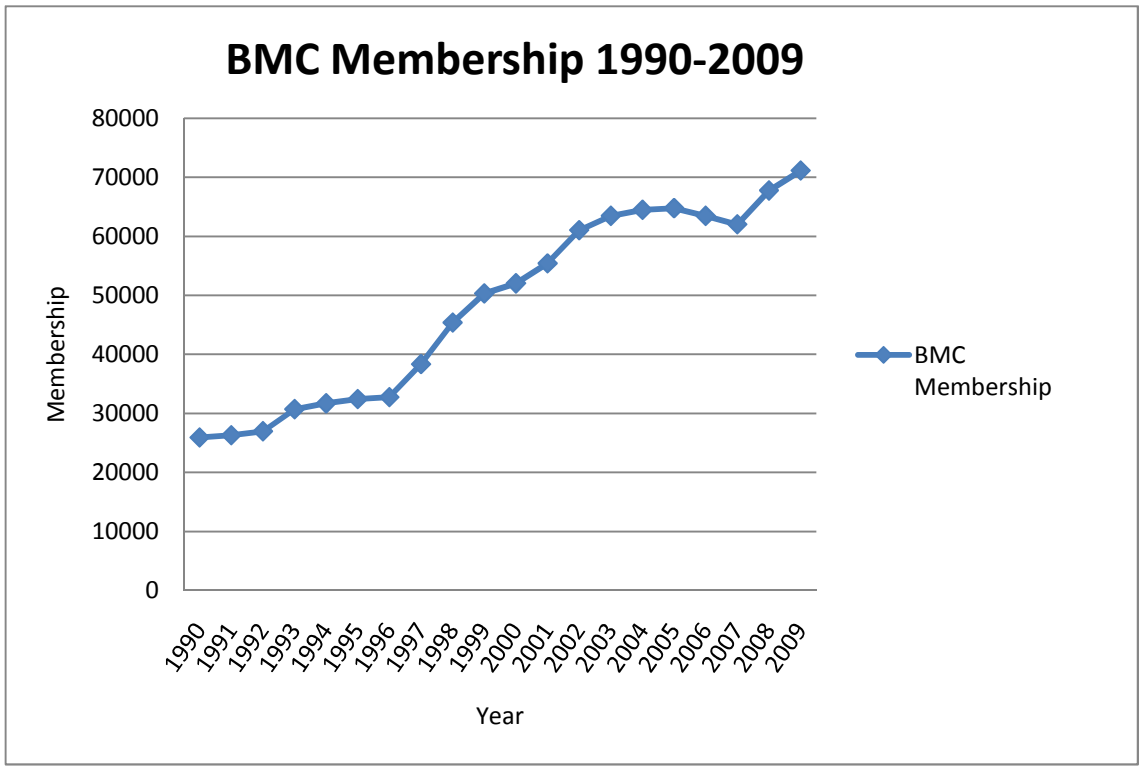


Figure 1.1 Graph showing BMC membership numbers 1990-2009 (source: www.thebmc.co.uk)

Much of this rising participation has been attributed to the emergence and growing popularity of indoor climbing walls (Thompson 2010; Milburn *et al* 1997). As well as being a popular pass-time in its own right, indoor climbing is identified as an increasingly prominent transitory route into outdoor climbing (Wells 2001). This route led an influx of participants to outdoor climbing and bought environmental pressures to popular climbing venues (Avery 2008). Some would say this influx also, poses a threat to established climbing cultures and their practices (Lewis 2004). There are long running debates concerning the authenticity of climbing experiences, and the ethical use of climbing technologies (Lewis 2001, 2004; Donnelly 2003), their associated socio-technical practices and geographic locations (Ward 2006). This has tended to polarise climbing types rather than understanding how socio-technical changes are apparent in all aspects of the pursuit (Pickford 2010). They impact on these new and older spaces of climbing and the socio-technical practices each entails, they also impact upon the bodies of climbers and their ability to climb. All of this is yet to be the subject of academic research – I hope to rectify this oversight in this thesis.

A final contextual feature of climbing is risk and how technological changes have affected the experience of climbing. Mountain incidents have increased from 607 in 1989 to 1457 in 2009, a figure inflated by the rise in mobile phone use, ownership and coverage (facilitating more requests for assistance) (Michael 2009; Bunyan 2007). Yet figures 2 and 3 from national Mountain Rescue statistics indicate slight downwards trends in both rock climbing incidents attended by the Mountain Rescue service, and fatalities as a result of climbing incidents. One would expect the reverse of this trend given that rock climbing is becoming more popular, and climbers are climbing more difficult routes. This thesis will contextualise the climbing assemblage within these wider trends.

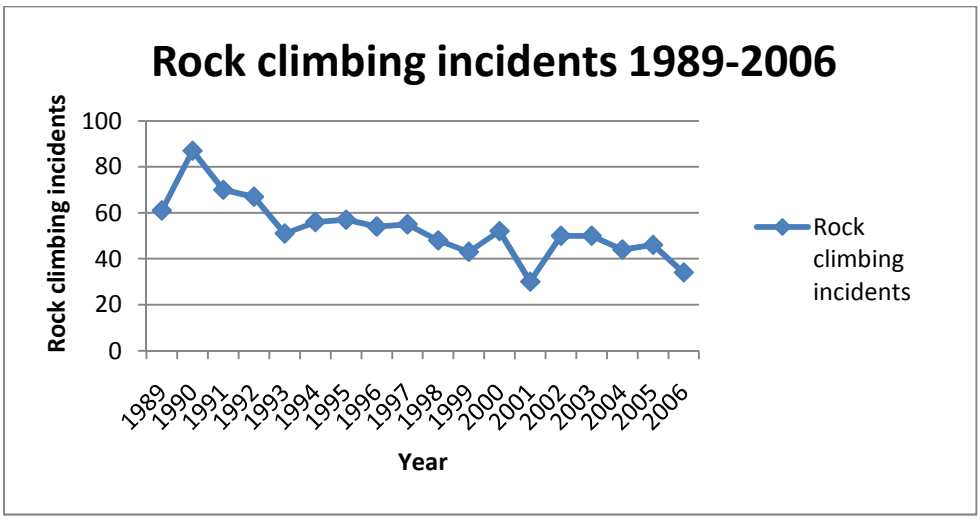


Figure 1.2 Graph showing rock climbing incidents 1989-2006 (Source of data: Annual Mountain Rescue Incident Reports 1989-2006)

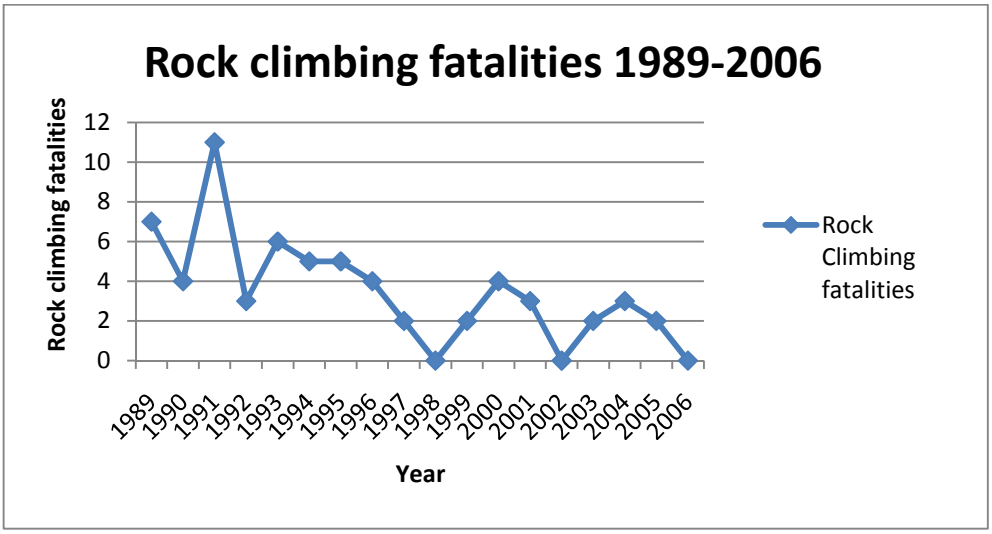


Figure 1.3 Graph showing rock climbing fatalities 1989-2006 (Source of data: Mountain Annual Rescue Incident Reports 1989-2006)

By researching climbing and how technology is changing the sport this research could help others better understand and interrogate other outdoor practices such as fell walking/running, mountain-biking, canoeing or paragliding, as wells as other quotidian technologised practices. In all spheres of life humans and non-humans are entangled in multiple ways, with multiple effects (White and Wilbert 2009). Technologies are "lively and dynamic colleagues in the making of worlds" (Hinchliffe 2007: 1). Although this research focuses on climbing I hope to be able to provide insights into the ways in which technologies mediate, produce and enact our experiences and practices.

In sum, although commentators have argued that technologies act as mediators of experience in other physical outdoor activities (Crang 1997; Spinney 2006; Michael 2001, 2000), and also extends human capabilities sensuously (Mcnaghten and Urry 2001; Macnaghten 2003), little fieldwork has been undertaken to substantiate or explore such claims. My study aims to address evident knowledge gaps in this area by undertaking intensive interviews and participant observation with climbers and other figures from within the climbing community. By researching climbing through a relational approach, I hope to capture the ever-changing complexity of these relations, and how technology is changing the sport.

1.2 Research Questions

In order to explore the notion that climbers are hybrids enabled as part of technological assemblages, this thesis will examine the pursuit of climbing using an Actor Network Theory approach. The sample for this study (see Chapter 5) is derived from climbers within Yorkshire and the Peak District. It therefore relates to British climbing activity undertaken on the proximal gritstone and limestone crags of this area, as well as ascents in other areas where these climbers climb. My theoretical and empirical investigation will focus upon the following two research questions:

1. How are climbers enabled as co-constituent parts of climbing assemblages: in terms of the active roles performed by technologies, the co-evolving relationships between actors within the assemblage, and the co-produced functionalities that emerge during the climb, as well as the involvement of and impact upon the crag, in and through climbing?
2. What are the implications of the changing socio-technical engagements of climbers both upon their experience and capabilities, and upon how can they help us better understand other technologised practices?

1.3 Structure of the thesis

The following two chapters are contextual and provide an outline of present day climbing and its historical development. Chapter 2 introduces climbing as a network of people, technologies, organisations, texts and places. It is intended to initiate the reader into the complexity of the climbing network, as well as defining some of key features and terms which are central to the arguments and empirical information I

present later in the thesis. Chapter 3 is a historical account of climbing and its technology and reflects the need to consider the changing interrelations between the social, natural and technological over time (Law 1986). These histories inform the climbing assemblage of present day climbers whose approaches to the pursuit are influenced by both the technology they have climbed with throughout their climbing careers, and by their knowledge and appreciation of the wider cultures and history of British climbing.

Chapter 4 critically reviews the theoretical approaches that I have applied and extended during the investigation of my empirical study, and which support this thesis. I outline how theories of embodiment have allowed geographers and others to study people's experiences in greater sensual and emotional detail. I also outline contributions from Science and Technology Studies and human geography that suggest a non-dualistic conceptual framework that allows hybrids to populate the space between humans and non-humans. In this chapter I also review the limited attention that academics have previously directed towards climbing and other risky outdoor activities.

In Chapter 5 I present the methodology used to explore hybrid climbing assemblages. I outline the differing methods that I used, including semi structured interviews and participant observation. I also detail and justify my approach to sampling and discuss the practical issues that presented themselves and had to be overcome during this study.

Having detailed my aims, theoretical inspiration and methodological approach, in Chapter 6 I present my substantive, empirical research. For the purpose of clarity I artificially separate aspects of the climbing network and climbing assemblage into thematic sections. Although my theoretical approach embraces heterogeneity and complexity within and between networks, these thematic sections allow me to present the complex, messy and overlapping experiences of the climbers in a more structured and comprehensible manner. Researchers also need to construct boundaries for their projects to clarify what is being made absent and what is made present in their contributions (Law 2004). These sections tackle five aspects of the climbing network and their impact upon climbing: the co-production of climbing bodies, climbing

guidebooks as inscription devices, the climbing assemblage as a co-evolving hybrid network, the co-production of experiences of risk, comfort and security, and finally the co-production of the crag.

Chapter 7 concludes the thesis by providing a summary of the main findings in relation to my initial research questions. In light of my results I consider one last time how climbers as assemblages are enacted by the relations between themselves and their technology whilst climbing, and the implications of this for the wider literature. Finally, I introduce ideas for further research that have emerged from my empirical findings.

Chapter 2: Introducing hybrid climbing networks

2.1 Introduction

If we regard British climbing as a network, or series of networks, of people, things and places we see a heterogeneous activity with many people climbing independently according to their own intentions. The places where they climb vary according to personal preferences and circumstances, such as access, weather, personal economics, and time. Climbers also engage in a variety of climbing types as well as a range of other outdoor activities. These are conducted locally, nationally and internationally. Nevertheless British climbing has a strong culture, and its traditions and pioneers are highly respected around the world (Thompson 2010; Wells 2008). So what are the constituents of the multiple networks of this heterogeneous and largely independent pursuit? This section will explore this question and enable us to draw up a mental picture of the climbing network as messy, heterogeneous and amorphous, but also as connected, self-sustaining and durable (Law 2004). I intend to emphasise how, by looking at climbing as a network, we can describe it as a dynamically-malleable pursuit that is able to alter its form to accommodate outside and internal influences such as technological change and innovation, changes in climbing styles and practices, and fluctuations in participation.

2.2 The structure of the British climbing network

Rather than have a detailed glossary of terms in the appendices I intend to use this chapter to introduce climbing to the lay reader. In the spirit of my wider theoretical approach, I introduce British climbing as a network of things, people and places, all of which perform a role within it. I start with an overview of the bodies and organisations that form the climbing network and then move to a contextual overview of climbing, introducing the technology, techniques and terminology that are central to the pursuit.

The British Mountaineering Council

> Climbing is an anachronistic pastime and one of its great attractions is the lack of rules and structure. (Craggs and James 2003: 12)

The British Mountaineering Council (BMC) is a complex network in its own right. The BMC has the unenviable task of representing the rights and interests of the UK's

disparate climbing community. This is more difficult in a pursuit whose participants value independence, and are suspicious of attempts to impose organisation and rule (Milburn *et al* 1997). The BMC appears to operate democratically, with open regional meetings that feed directly into national meetings - allowing and embracing grassroots participation from the most junior or senior members.

The numerous roles of the BMC include guidance and support in the following areas:

1. Safety and skills
2. Equipment advice
3. Access rights and conservation
4. Guidebook production
5. Climbing walls
6. Climbing abroad
7. Climbing clubs
8. Climbing huts
9. Insurance
10. Competitions
11. Participation

(Source www.thebmc.co.uk)

These roles have a tendency to pull in different directions because different groups of climbers have strong views concerning the pursuit of climbing and its developments. This is reflective of the climbing network as a whole a feature that will be explored further throughout this thesis.

Climbing clubs

Climbing clubs have a long history in the UK and continue play a key role in recruiting and integrating new climbers into the British climbing population (Walker 2003). Clubs facilitate the learning of climbing culture and practice (Thompson 2010). Becoming a climber beyond the club, was until recently, achieved by an ad hoc, trial and error approach without tuition, or via the traditional 'climbing apprenticeship', whereby individuals interested in climbing are shown the ropes, by more experienced acquaintances. Climbing clubs have at times led the sport with elite groups of climbers such as Manchester's Rock and Ice Club pushing the frontiers of climbing (Perrin 2005; Wells 2001; Brown 1967). However the significance of climbing clubs is changing as climbing walls have become more common. It is argued that indoor walls increasingly fulfill some of the training and social functions that clubs once did (Thompson 2010). Consequently clubs are struggling to attract younger members (*ibid*).

Training organisations

In recent years a new route into climbing has become apparent - albeit one that seemed alien to my older interviewees. The traditional way to learn to climb was through informal social contacts, climbing clubs or trial and error. However, increasingly climbers learn the ropes via a new route, formalised training and qualifications, with participants increasingly receiving their first experience of climbing on an indoor wall (BMC 2006). Aspirant climbers may contact their local indoor climbing wall to inquire about a 'wall-to-rock' training day or contact a specific training body such as Mountain Leader Training England (MLTE) or hire an independent climbing guide. The implications of these new routes into British climbing are yet to be discovered, although some fear that it will weaken the bonds of established climbing culture because new participants will not be fully integrated into the climbing network. Others fear it is a sign of the rationalisation and professionalization of outdoor pursuits (Loynes 1998).

Climbing literature

Judging by the wealth of climbing literature available today, it is likely that armchair climbers outnumber actual climbers in the UK. This expanse of literature consists of expedition reports detailing successful ascents, or reporting the drama as an epic climb unfolds on a remote rock face. It encompasses biographical and autobiographical accounts of climbs, personalities, and the climbing careers of renowned climbers. Many of these accounts reproduce similar tropes about overcoming the challenge of a climb, the legitimacy and ethics of an ascent, of companionship, and of respect for the 'natural' challenge and the 'natural' environment. The autobiography of Joe Brown (1967) and posthumous biography of Don Whillans (Perrin 2005) typify such accounts. Although these British climbers' major accomplishments were undertaken fifty years ago, their words are as relevant to the pursuit of climbing today as they ever were. These books epitomise an era and style of climbing that has had long reaching effects on the British climbing consciousness. The new levels of climbing expertise that were pioneered by Brown, Whillans and their contemporaries, particularly given their comparatively basic kit, provided a benchmark 'climbing type' which influences how British climbers climb, and what they use to climb, today, particularly on the gritstone edges of the Peak District, but also far beyond (Thompson 2010). As a body of work, these seemingly ageless accounts of climbers past and present create a source of

reference, and shared beliefs, that continues to shape and influence the climbing population. It is also a resource that can be drawn upon for support when aspects of the pursuit are challenged.

Guidebooks

Guide books are an essential part of most climbers' socio-technical assemblage for a day climbing at the crag. Within their pages are pictures, descriptions and grades referring to the routes present at the crags that they cover. They stipulate the style of ascent required for the climber to be able to 'tick' the climb off their list according to the conventions of 'British Climbing'. Within their pages information about the pursuit's history and the geography of the region are included equipping the reader with a sense of something wider than a series of climbs. Guidebooks are integral to the pursuit of British climbing and the climbing networks and I will discuss their contribution later in the thesis.

Climbing websites and magazines

Climbing magazines contain routes, histories, accounts of recent significant ascents, climbing debate, gear reviews, comment and, of course, advertisements. Until recently they were the central resource for climbers to keep up with events and debates throughout the pursuit of climbing. However, in recent years climbing's popular media has expanded to include a range of web resources. These attract many climbers and are an increasingly important part of the climbing network that surrounds the pursuit, www.ukclimbing.com for instance, has over 50,000 registered users. In addition to general climbing websites that cater for all would be ascendants, there are specialist sites focusing upon sport, trad or bouldering climbing types. For an example see: www.UKBouldering.com. Meanwhile others specialise in a single rock type and/or region (for example www.yorkshiregrit.com). Not only do these sites contain the latest local, national and international climbing news, they are also highly interactive and include web-forums and climbing log books. It is this interactivity and the manner in which they unite climbers that makes them a particularly active part of the climbing network.

Gear shops

Climbers' kit is central to the pursuit of climbing and kit shops have always played an important role in the climbing network, for purchasing kit but also as social centres where climbers can meet and discuss their pursuit (Parsons and Rose 2003). In the UK

the climbing gear available in the shops is targeted towards the established mainstream climbing types. This represents a means of strengthening and sustaining the bonds of the established climbing networks. Climbing shops, where the majority of kit is purchased from, can be intimidating places - especially to the beginner who is yet to be initiated into the form, function and terminology of the vast array of climbing kit that is available (fig 2.1).

Figure 2.1 Typical climbing shop counter (source www.ukclimbing.com)

Climbing shops have acted as the unofficial 'gate-keepers' to the crags. Amateurs are barred informally until they develop sufficient knowledge and confidence via formal or social means of climbing training (Wilson 2007). However, the position and function of the 'gear shop' is changing as web-based mail order shopping has become more popular amongst climbers (*ibid*).

2.3 Climbing networks

To the outsider climbing is a mysterious pursuit that involves astounding feats of corporeal ability and resilience, climbers are the tiny coloured blobs on distant rock faces or individuals surrounded by mounds of ropes and rucksacks at the foot of the crag, or the heads that pop up from nowhere as you walk along the edges of the Peak District. Climbing is a situated and technologised practice and to fully understand such an activity the complexity of its constitution and its constitutive actors has to be

explored and understood (Callon 1986; Latour 1987; Haraway 1988; Law and Mol 2002; Michael 2009). In the following three sections I will outline the constitution and actors of the British climbing network. First, I will detail the differing climbing types. Second, I introduce climbers' kit. Third, I suggest some of the more popular techniques used by climbers as well as the crag features that co-constitute them.

2.3.1 Climbing types

Climbing is "inherently fluid" and "evolving" (Taylor 2006: 192). This fluidity is due to: progressive technological innovations and refinement that alters the practices and experiences of climbers; demographic shifts in the numbers of people climbing and their preferred climbing locations; and cultural disruptions deriving from the emergence and popularity of differing climbing types. All of these factors impact upon the continuity of the pursuit and the progression of its form. There are a number of distinctive climbing 'types' or 'varieties' visible within the British climbing scene as I will outline below. These 'types' are by no means static, nor by and large, do participants only engage in one specialism. The norm is that people climb in a variety of ways, and although they often have a preference, few have qualms about others' types of climbing and their socio-technical practices as long as they are undertaken according to commonsense and ethical guidelines. Climbing varieties include:

1. 'Traditional' or 'trad climbing' – Climbing from the ground up, placing protection in the form of 'cams', 'nuts' or 'slings' over or into features on the rock to which the rope is clipped. This allows the climb to be protected whilst not physically aiding the ascent.
2. 'Free soloing' - Climbing routes from the ground up without protection. This is regarded by some as the 'purest' form of climbing, because as the climber uses the least technology. However, to say the climber is not reliant upon technology would underestimate the technology that is used notably, sticky rubber shoes and chalk. Gear plays an important role, but there is a high degree of reliance upon skill, experience, and feel for the rock.
3. 'Bouldering' – This is similar to free soloing but usually undertaken on shorter routes or boulders, with a padded bouldering mat placed at the

foot of the climb, and a spotter to help direct the climber away from obstacles in the event of a fall.

4. 'Sport climbing' – In this type of climbing the climber clips his/her rope into preplaced bolts drilled into the rock face and secured with resin.

As well as these some of my interviewees were involved in 'Ice climbing' - Climbing on ice or a mix of ice and rock using dedicated ice tools and protection. Additionally most were to a greater or lesser degree involved in mountaineering, which can encompass some, or all, of the above types of climbing in a single outing, as well as walking and scrambling, in order to attain a predetermined summit.

2.3.2 A climber's rack explained

Climbers' technology (kit or gear), and its roles and contributions, is central to this study. However to the non-climber learning the range of climbing technology and its applications, terminology, and associated practices represents a study in itself. Therefore, in the following paragraphs I detail what a climber's kit incorporates and reveal the forms and functions of a climbers 'rack'. This will also note the practices and techniques that climbers perform that are often socio-technical. I have already mentioned the different types of climbing that my sample were involved in, to begin I will discuss the differing kit associated with each.

Trad climbing, as I introduced above, has the greatest array of kit which is used to protect the climb. Much of the gear that is used hangs from the climber's 'rack'. A rack is the gear that is 'racked' (organised) upon the gear loops of a climbers harness. Figures 2.2 and 2.3 show my own personal climbing rack. Figure 2.2 displays all of the kit before it is racked upon the harness, as well as my shoes, rope, helmet and harness. Figure 2.3 illustrates the same gear racked onto the gear loops of my harness ready to climb. My rack reflects the type of climbing I usually participate in, namely, single-pitch crag climbing. Compared to some of my interviewees my rack is limited, this reflects my relative inexperience, with climbers accumulating a greater range of kit being throughout their climbing careers. As part of my own informal 'climbing apprenticeship' I am learning what kit I need as I climb, through the guidance of experienced acquaintances. In addition to this I share the kit of my regular climbing partner.

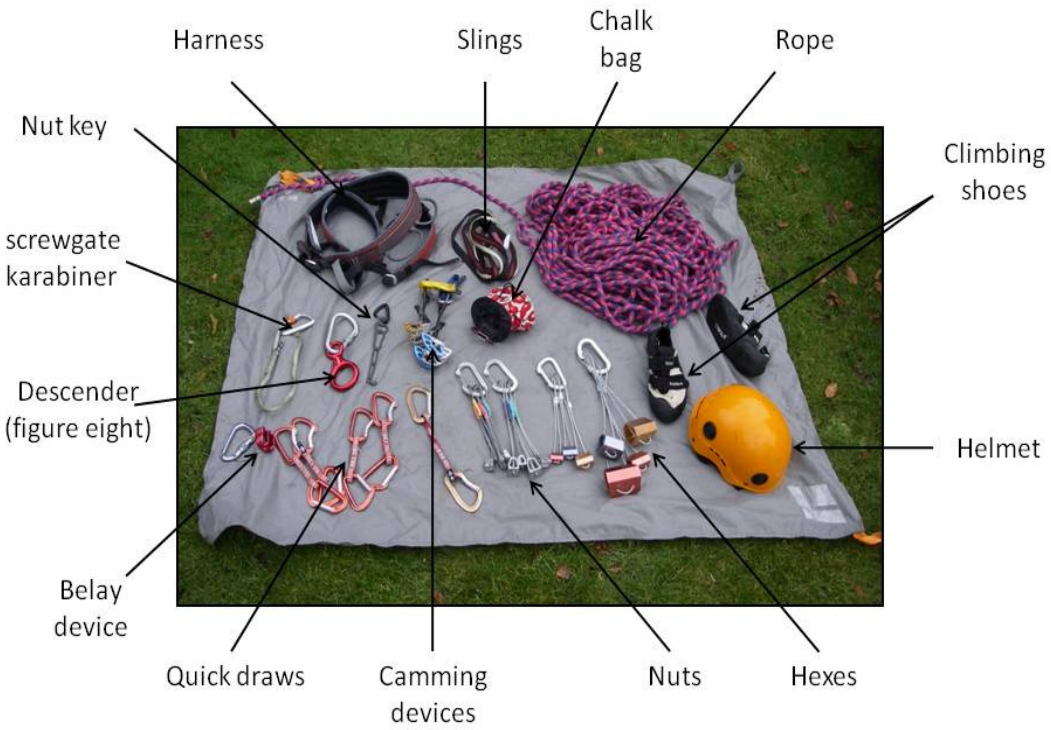


Figure 2.2 Climbing gear

Figure 2.3 Gear as racked on harness

The present day trad climbers' 'rack' consists of 'protection' or 'pro' - these are the devices that protect the climb. Pro includes 'nuts' (also called wires or rocks) which are probably the simplest forms of protection in practice, although their form and composition has improved with the use of modern materials and production practices. Nuts are metal wedges threaded on wire that are intended to wedge into cracks (fig

2.4) and support the weight of the climber on the rope in the event of a fall. The name is derived from the use of threaded industrial nuts in the 1950s (Pennequin 2001). They are also termed ‘passive pro’ as they have no moving parts, but rely upon their shape and good placement by the climber to stay in place. Another form of protection is the ‘camming device’ (also known as cams or friends). Unlike nuts, cams are ‘active’ and allow cracks with parallel sides (in which nuts are ineffectual) to be protected. They are placed by squeezing the trigger to retract the cams which are then placed into a crack, the trigger is then released and the spring loaded cam stays in place (fig 2.5). The more force that is applied to a well placed cam the stronger it will hold. A further type of pro is the sling - a loop of strong tape or rope that can be strung around features on the crag such as spikes or chock stones, and is then clipped with a karabiner (fig 2.6). The preferred type of placement achieved by a climber is referred to as a ‘bomber’ placement one that is ‘bombproof’ and will not be unseated in any situation, although climbers usually prefer not to test out the quality of their placements.

Figure 2.4 Nut

Figure 2.5 Cam

Figure 2.6 Sling

As well as holding much of the gear, a climber’s harness fits (fig 2.3) around the waist and legs of a climber and secures them to the ‘live end’ of the rope, the ‘dead/slack end’ is secured by the belayer. Belaying refers to controlling the tension in the rope up to the lead climber, paying it out and taking it in when required through a ‘belay device’ that uses friction to regulate when how fast the rope is paid out. The belayer stands at the base of the climb, or stance on a multi-pitch climb, and has the

responsibility to take in the rope and hold it firmly in the event of a fall to prevent the climber from falling.

Once the protection has been placed by the 'lead climber' they clip a karabiner and runner (or quick-draw), onto the protection into which the rope is then clipped. The climber in conjunction with both the placed protection, and belayer, is now secured up to that point. When the lead climber has reached the top of the route (or pitch), they set up a belay stance and secure it with several anchor points using the pro s/he has left. Now the climber who previously belayed the lead climber is able to 'second' the route. As the second climber ascends they remove the protection left behind by the leader placing it onto their own rack. If the gear is jammed into the rock they may use a 'nut key' (a metal lever) to help retrieve it. Once the second climber is safe they untie from the rope and both climbers return to the base of the crag to climb the next route, or alternately on a multi-pitch climb, the process is repeated from the upper belay stance. All the equipment that is placed must be collected so that the venue is left as it was found, this is a central feature of the British trad climbing ethic (Berry and Arran 2007).

Sport climbing requires a smaller rack usually consisting of quick-draws and a chalk bag. Sport climbing is based around permanent protection in the form of secured bolts, less gear is therefore required. The sport climber clips the bolts with quick draws into which the rope is also securely clipped. The bolts are placed by climbers on top ropes with the use of electric drills, the metal bolts further secured by strong resin glue. In the UK sport climbing routes are usually found on limestone crags that are harder to protect by traditional means. On the continent sport climbing is the 'dominant' type of recreational climbing. However, in the UK trad climbing is more common and there are ethical guidelines to prevent the bolting of trad venues and rock types. The practice of sport climbing differs to trad climbing because the permanent protection offers levels of security beyond that of temporary protection of nuts and cams. This security enables climbers to ascend faster and perform more technical and gymnastic moves that could not be risked without the security of permanent bolts. The belayer plays an active role in the climb paying out rope quickly for the climber to clip a bolt in awkward positions, or taking in quickly when a climber

falls or needs a rest. Because of this the belayer often uses a different type of belay device called a ‘Gri Gri’ which allows the climber to pay out and take in rope quickly and has a clutch that automatically secures the rope under the load of a fall. To add further speed to the process the belayer may run towards or away from the wall when more or less rope is required at an instant by the climber.

Bouldering is the practice of climbing short routes (problems) on large rocks or smaller crags. It was once seen as an offshoot of climbing undertaken for fun or training but has more recently become a pursuit in its own right. Popular bouldering sites include the Stanage Plantation and Burbage South Valley Boulders both in the Peak District (Barton and Davies 2005). Boulderers are accompanied on their climbs by several distinct pieces of equipment. First, are ‘bouldering mats’. These are crash pads that reduce the impact of a climber falling or jumping from height. They are also claimed to reduce erosion and vegetation damage at the base of boulders. Bouldering routes (or problems) often involve fewer, but more technical moves than other forms of climbing, and because of this boulderers require as much friction as possible from sticky rubber shoes. Another item of kit used to ensure maximum fiction is gained through the shoes is a small square of carpet that is used to remove moisture and dirt from the sole before the problem is initiated. These carpet squares often become highly valued due to their involvement in the pre climb ritual. To gain maximum grip between shoe clad foot and rock boulderers also use a ‘bouldering brush’ to remove green matter such as lichen whilst not damaging the rock. Bouldering has gained popularity over recent years with the development and normalisation of bouldering mats as well as the emergence of indoor walls catering specifically for boulderers.

Figure 2.7 Ice climbing

Ice climbing involves climbing up shear ice faces such as frozen waterfalls or rock coated in ‘verglas’, ‘water-ice’ or ‘neve’ (types of ice). Ice climbing is another gear intensive form of climbing. It also uses dedicated forms of protection such as ‘ice screws’ provided a ‘secure’ point to clip into. The ice climber (fig 2.7) is visibly a technological hybrid with arms extended by ice axes and feet by crampons both with sharp points which enable progress up sheer ice. The practice of ice climbing again requires distinct techniques and knowledges without which the practice quickly becomes exhausting and dangerous (Langmuir 1995). Crampons attached to the feet are kicked into the ice giving the climber a stable platform from where they drive their axes into the ice higher up. The climber can then walk up the ice in the crampons and then repeat the action to gain elevation.

As well as the gear used to climb, climbers also often wear climbing specific clothing this varies according to the climatic conditions and personal preference of the climber. However, like in other ‘lifestyle sports’ (Wheaton 2004), some climbing clothes are part of the commercial side of climbing with climbing specific brands allowing climbers

to ‘show off’ their identity as climbers through the way they dress both during and beyond the practice (Beal and Wilson 2004).

2.3.3 Situated hybrid climbing practices

I refer to climbing techniques as hybrid for several reasons. First, because technology is integral to the practice, even if indirectly thanks to its mediation of the situation. Second, because climbing practices rely upon skills learnt in conjunction with other places and technologies. Third, because climbing practices - although unique to the specific climb - will always be situated among numerous factors that impact upon the practice, including, the particular place, the weather, the geology and related characteristics of the rock. Therefore climbing is composed of hybrid socio-technical-environmental practices and I will outline some of these below.

Different climbing venues require differing techniques due to the local geology which affects the type of hand and foot-holds available, the type of physical obstacles to be overcome, as well as the presence of suitable features in which to place gear (Graydon 1992). The majority of the climbers interviewed for this study undertook most of their climbing on gritstone, due their proximity to the gritstone edges of Yorkshire and the Peak District. Consequently, I will focus upon this rock type and its related characteristics and techniques here to demonstrate the importance of situated factors to the practice of climbing.

Gritstone is a coarse type of sandstone commonly found across the Pennines in the form of highly weathered edges usually no more than 30 metres high (Craggs and James 2001). Gritstone is part of British climbing folk law and is regarded as the biggest test for climbing techniques (Longland 1997). The quote below indicates the regard for grit among climbers and the way that the rock itself adds to the climb:

> The solidity of the rock, its friction, and sureness of nut protection, generate a verve and confidence that boost achievement and encrust great days on grit with an indulgent layer of self satisfaction. (Cook 1973: 123)

The techniques required for gritstone climbing calls for precision and commitment (Craggs and James 2003). Three of the key techniques are ‘jamming’, ‘laybacks’ and ‘smearing’, with climbs on grit often calling for a combination of each. Jamming

involves inserting part (or all) of the body into a crack in order to make vertical progress. The 'fist jam' (fig 2.8) is the most common version where the hand is inserted into the rock and a fist created to hold it in place, then the arm is used as a lever as the climber moves upward to the next jamming position or hold. 'Laybacks' (fig 2.9) are a technique for climbing cracks where the arms and legs work in opposition the arms pulling and the legs pushing to instigate enough grip to walk hands and feet upwards. 'Smearing' (fig 2.10) refers to relying upon the friction of rubber shoes on the gritstone rather than evident holds. From my own experience of climbing on grit these moves are immensely satisfying when practiced correctly, but humbling and painful to learn - and often accompanied by the self explanatory climbing term 'gritstone rash'.

Figure 2.8 Fist jam

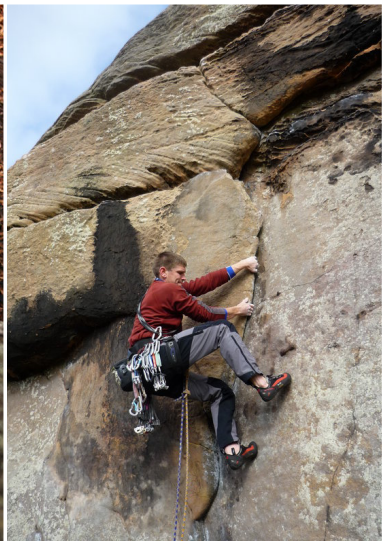


Figure 2.9 Laybacking a flake

Figure 2.10 Smearing on a slab

Gritstone's hand and footholds are also particular to the genre. Climbers refer to numerous holds I will outline the main one below. First, are 'slopers' which are ill-defined rounded holds that rely upon the friction of the hand on the rock. 'Flakes' (fig 2.9) are pieces of rock set away from the main face due to faults in the rock. They provide an edge that can be held. Next are 'Crimps' (fig 2.11), these are small and tenuous holds that require a great deal of finger strength. 'Pockets' (fig 2.12), are holes in the rock into which the climber can insert fingers to pull themselves upwards. Last, 'Jugs' (fig 2.13), these are large confidence inspiring hand holds, and 'buckets', similar holds to jugs but big enough for both hands.

Crag features involved with climbing techniques include, ‘chimneys’ which are cracks often running the height of the crag and large enough for the whole body. There are also ‘Slabs’ (fig 2.10) which are blank pieces of rock with little scope for placing protection that require balance, and delicate footwork and ‘smearing’ to climb. Last are ‘arêtes’, these are outward pointing rocks which can also often be climbed using the ‘layback’ technique. The final technique is ‘mantle-shelving’ often the last move of a climb where the climber has to negotiate the often blank rim of the crag. This can be a nerve racking and particularly un-glamorous move until mastered.

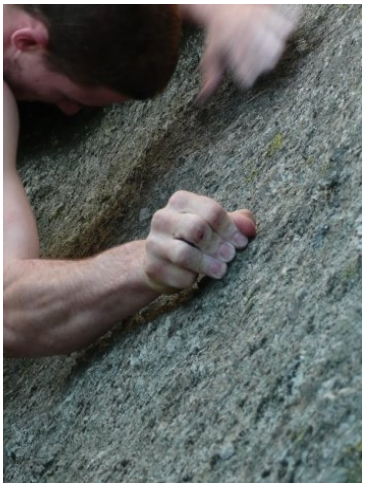


Figure 2.11 Finger crimp hold

Figure 2.12 Pocket hold

Figure 2.13 Jug hold

2.4 Summary

This section has introduced some of the major features of the British climbing, paying particular attention to how the pursuit can be viewed as a network of things, places and people. The climbing network contains a range of actors that only become associated through action (Latour 1988) - in this case the practice of climbing. Drawing upon Whatmore (2002, 2006) it can be said that climbers inhabit a hybrid geographical world in which their practices take on a more-than-human dimension - taking shape from the relation between themselves and the places where they climb, as well as the technologies they employ. This chapter is far from exhaustive and further knowledge about rock climbing can be sought from reference books on climbing instruction (Langmuir 1995; Graydon 1992; Berry and Arran 2007). Yet these pages introduce and contextualise those features of the climbing world that are of most relevance to my study.

Every piece of climbing kit has a function, a purpose that is described on the instructions that accompany them. In this chapter I have outlined the human producer defined ascribed functional affordances that climbing gear offers to the climber. In my later empirical chapters I explore the functions that emerge as the climbing assemblage produces the climb. I delve into the relations between climbers and their gear and assess how the non-human actors become "agents that unsettle the network" (Hinchliffe 2007: 58), bringing with them properties beyond that described by their human developers, to reveal these I need to explore and investigate the hybrid relations of climbing.

The next chapter charts the historical development of climbing and its technology from the pursuits antecedents in the late 1700s, through the establishment of British rock climbing in the 1880s, and its development throughout several distinct epochs in the twentieth century, and finally into its present incarnation.

Chapter 3:The historical development of climbing and its technology

3.1 Introduction

Figure 3.1 Grivel monster ice climbing axe (source www.grivel.com)

'Cyborgs' and 'Monsters' are the model names given to a range of cutting edge ice axes and crampons designed by Grivel (www.grivel.com) and Black diamond (www.blackdiamondequipment.com) respectively. Grivel (2006) declare their 'Monster' axe (fig 3.1) to be the "most efficient extension of their [climber's] own arm for hooking on the most difficult terrains". The names and proposed functions mirror Dixon's (2008) and Haraway's (1985) arguments about the blurring of bodily and technical boundaries and enacted capacities. Present day climbing technologies - as the developers, producers, marketers and customers are highly aware, connect to, and extend climbers' bodily limits in new, innovative and ever progressive ways, each incarnation representing a development on the last, be it in terms of function, style, performance, weight or a mix of these (Thompson 2010).

Progressive innovations like the examples above make it difficult to distinguish between the skills of climbers and the equipment that enables them. From the nailed boots of J W Putrell (1869-1938) in the late 19th century, changes to climbing equipment have progressed one after another, and sporadically the 'rules' of climbing have been thrown into turmoil by a revolutionary innovation (Parsons and Rose 2003).

In this progressive regard we could say that the climbers of earlier years were poorly equipped. However, this would be an over simplification (Parsons and Rose 2003). Undeniably by present day standards and expectations, past equipment left a lot to be desired. However, mountain climbing in the 19th century was a very different pursuit altogether, in comparison to that of the 21st century; the impetus to climb, the corporeal experience, and the technological apparel used were all markedly different.

In this chapter I will illustrate that climbers and their gear are part of a co-constructional network of the social, technological and natural, the human and the non-human. Climbing ability, technological enablement, risk and depth of experience are all products of this interdependent network which is constantly evolving through time. The history of the pursuit illustrates that climbing networks are dynamic rather than static, accordingly the socio-technical assemblages that makes up the climbing assemblage evolves through time, as the climbers, technology and rock all progressively change in this relational process. It is important that I report this information as the climbers interviewed for this study have climbed though some of the transitions in technology which I discuss in this chapter. Their practice is also informed and influenced by multiple scripts about the pursuit such as histories, (auto)biographies, club journals and guidebooks. I suggest that it is necessary to consider the interrelations of the social, technological and the natural to fully understand the historical development of present day climbing and its associated technologies. Law (1986: 236) asserts that "the idea that artefacts may be treated in isolation from, or at best as a function of social factors seems to me to be fundamentally mistaken". Accordingly this chapter will contextualise present day climbing in its historical matrix of the social, technological and natural, exploring how these elements ultimately fit together interdependently in a complex relational network (Whatmore 2002).

3.2 Structure of the chapter

The chapter chronologically progresses through the main epochs of British climbing in the UK as well as related activities abroad. This begins with a brief prehistory of climbing, noting the pursuit's antecedents, and the social, technological and economic conditions that led to its rise. Second, I move on to the Golden age of Alpine climbing,

a period where the perils of climbing with rudimentary equipment became highly evident. Third, I chart the development in British rock climbing in its own right from the 1880s to the 1950s, and the emergence of some of the organisations that continue form part of the British climbing network today. Fourth, I move on to a period marked by a surge in climbing and the development of dedicated climbing equipment initiated by the successful ascent of Everest in 1953. Last, I chart developments from the 1970s until the present day a period marked by several key innovations, and also by progressive refinements in the forms and functions of climbing kit (Parsons and Rose 2003; Wells 2001). This last section will also detail the emergence of climbing walls another socio-technical advance which has revolutionised climbing in the last 20 years, and become an important part of the climbing network (Milburn *et al* 1997; Pickford 2010).

3.3 A brief prehistory of climbing

> Mountains have been regarded as mysterious and aloof from the ordinary affairs of plain or city. Our ancestors looked upon them with awe and fear. Gods, devils, dragons, the spirits of the damned dwelt on their inaccessible summits ready to wreak vengeance on the rash intruder. They refused to plough; interposed barriers between peoples; they were of no commercial value; they were ugly. (Smyth 1946: 8)

Attitude rather than altitude inhibited the development of climbing, with early ventures into the mountains carried out for geographical, geological, commercial, scientific and military purposes rather than pleasure (Tyler 1930; De Beer 1930; Braham 2004). As the quote above illustrates, mountains were viewed with suspicion and disdain and were avoided by most of 'civilised' society (Cronon 1996). The majority of mainstream histories of mountaineering claim Petrarch's (1304-1375) ascent of Mont Ventoux in c.1335 as the first act of 'modern' mountaineering (Braham 2004; Macfarlane 2003). This was because it was undertaken for its own sake, for an appreciation of the aesthetics of ascension rather than for an alternative, tangible motivation or function (Carlson 2000). Petrarch's account emphasises the aesthetic, physical, emotional and spiritual aspects of the embodied practice of ascension. This

ascent continues to retain significance for its demonstration of modern outlook on climbing and "epistemological primacy of reflective thought" (Wylie 2002: 444).

The history of mountaineering is implicitly linked to the practice of walking, although 'pure' rock climbing is often regarded as a separate sub-discipline with a differing set of 'motivations' and 'pleasures' (Solnit 2002; Macfarlane 2003). The growing appreciation of the countryside through the eighteenth century acted as a precursor of climbing, by questioning the 'outdated' perceptions of mountain environments as places to be avoided (Cronon 1996). Peripatetic romanticists such as Wordsworth (1770-1850), Coleridge (1772-1834), Keats (1795-1821), Shelley (1792-1822) and Rousseau (1712-1778), cemented the view that human presence in landscape and wilderness was both desirable and beneficial to body and mind (Solnit 2002). The music, art and literature produced by these scholars expressed the strong emotional pleasure to be gained from encounters with *untamed* 'nature' (Knoepflmacher and Tennyson 1977).

The first historically recorded climb on the British Isles was undertaken by Samuel Coleridge during his ascent of Scafell Pike in the Lake District (1802) (Hankinson 1972, 1977; Macfarlane 2003). Coleridge's descent is the noteworthy aspect of this journey, for after gaining the summit, he saw a storm approaching and decided to 'wander' down in the direction he saw most appropriate. This led Coleridge directly to the difficult 'Broad Stands' route (a route renowned as an accident black spot by the present day Mountain Rescue Service) a series of sloping rock steps with the final step being a rock climb (Griggs 1956). Coleridge detailed the event describing his feelings of risk, exertion and elation that he gained from the climb and the pleasure of his surroundings (see Griggs 1956). It should also be mentioned here that other climbs will have preceded Coleridge's. For instance, Lake District shepherds would have climbed and scrambled during the course of their jobs as they rescued wayward crag-fast sheep. It was reported in 1826 in the Cumberland Pacquet and Wares Whitehaven Advertiser (1826 in Sparks and Brown 2003) that a shepherd John Atkinson had ascended Pillar Rock. Most contemporary histories of climbing overlook this ascent (Thompson 2010; Hankinson 1972) even though it predates the 'official' 'birth' of British rock climbing by almost 60 years. This highlights the numerous 'hidden

histories' that fail to accompany those that are widely documented in climbing like other historical accounts (Sibley 1995).

The gradually changing of perception of the outdoors gathered pace with the Grand Tour - a rite of passage for the young British upper class, which often brought them into contact with the mountains of Europe (Black 2003). The usual itinerary carried the traveller through Paris, Switzerland and Italy, via lengthy traverses of the Alps (Braham 2004). The purpose of the Grand Tour was the acquisition of cultural capital via exposure to the artefacts of classical civilisation and also subsequent highlights of medieval and renaissance art and architecture (Buzzard 2002, 2006). The Grand Tourists also encountered the natural wonders of the Alps (Thompson 2010). Such encounters were often disseminated via diaries and travel guides (Wyndham 1790). It was during this and amidst this cultural production that the philosophical term the 'sublime' was first utilised to describe mountain landscapes (Macfarlane 2003). For example, Dennis, an English dramatist and critic (1657-1734), gave an account of crossing the Alps in which he used the concept of the sublime to describe the visual beauty of the experience (see Dennis 1693). The sublime was a concept used for the aesthetic appreciation of nature, accounting for the feelings of awe and perhaps even fear that accompany the beautiful vistas of the wilder states of nature such as the mountain range (Carlson and Berleant 2004). Accordingly Dennis described the mountains as filling him "with a delightful horrour, a terrible joy" (Dennis 1693: 134). This perception represents a precursor to later climbers' experiences of risk, fear, and gratification; for these later figures, experiencing the 'sublime' represents an intrinsic desirable aspect of rock climbing (Hankinson 1977; Macfarlane 2003).

By the Eighteenth Century the cult of the sublime combined with interest in travel by social groups beyond Grand Tourists meant that the mountains became a major draw for tourists (Buzzard 1993; Black 2003). The glaciers and Alps drew crowds whose appreciation of these aesthetics were informed, and were often strictly directed by, detailed philosophical/travel guides (De Botton 2003). This tourism was enhanced by the rapid development of the European transport and tourism infrastructure. The expansion of the Swiss rail network which linked Zurich to Baden is regarded as the key to this expansion. This led to the construction of over one thousand new inns between

1845 and 1880, a third of which were located at altitudes above 1000 metres (Braham 2003). This facilitated the British (and others) with the means of transportation to, and accommodation within, the Alpine regions of Europe (Hansen 1995).

In the mid Nineteenth Century European exploration and Colonialism influenced the development of mountaineering as a distinct practice (Hansen 1995, 1996). Everest was 'discovered' and presumed the world's highest mountain by the British 'Great Trigonometrical Survey of India' in 1852 (the presumption was confirmed in 1856) (Gilman and Gilman 2001). In a typical colonial move Mt Chomolungma (Tibetan for Goddess Mother of the World) was named 'Everest', after the previous general surveyor of India. George Everest (1790-1866) was unenthusiastic of the imposition of his British name (Gilman and Gilman 2000). Thereafter, the Himalayas, bordering the northern regions of British India, became a symbolic target for British Mountaineering (Well 2001). In 1903/4 Francis Younghusband (1863-1942) used a military mission to Tibet for a secret reconnaissance of Everest (see Candler 1905). By securing the British precedence in Tibet, Younghusband also secured the mountain for British mountaineers (Gilman and Gilman 2000).

Before Alpinism became established as an activity in its own right, the majority of ascents were exploratory and made for scientific reasons, recording the geological, botanical and glacial (Braham 2004; Smyth 1946). However, the first ascension of Mont Blanc by Paccard and Balmat (1786) was undertaken for the challenge rather than scientific advancement, although the offer of a reward by Horace-Bénédict de Saussaure (1740-1799) (himself a keen scientist and Alpine traveller) for the first ascender aided their efforts (Flemming 2001). This climb led to a number of subsequent ascents and the beginnings of climbing as a "fashionable adventure" (Smyth 1946: 9). This trend was furthered by Albert Smith whose theatrical account of his own ascent of Mont Blanc in 1851 ran for six years at the Egyptian Hall in Piccadilly and led to a further surge in numbers climbing the mountain (Hansen 1995). The era that is now considered 'the Golden Age of Alpine climbing' is considered to be the cumulative result of these diverse stimuli (*ibid*).

This initial wave of activity not only provided a social stimulus for the acceptance of mountaineering it also, to some extent, provided a technical stimulus with innovations

coming together from the analogous activities. Technological developments were produced by the collaboration and influence of differing pursuits including warfare, science, polar exploration, and mountaineering (Flemming 2000). For instance, the polar explorations of Franklin (1786-1847), Parry (1790-1855), Ross (1800-1862) and others (see Parsons and Rose 2003, and Fleming 2000, 2002), led to technological developments in clothing and equipment for use in cold extremities, these were adapted for climbers. The mountain environments themselves prompted the gear needed to undertake the desired activities. Equipment was required to meet specific needs, to adapt the climber to the physical environment and its obstacles, as well as the geographically specific climatic conditions (Flemming 2001). For example, the use of furs which were suited to polar travel by sledge, were not suited to the more physical exertions needed for climbing in the Alps (Parsons and Rose 2003). Therefore different kit was required for differing climbing locations and their associated socio-technical practices and techno-natural engagements; these differences remain evident to this day (Cinnamon 2000; Graydon 1992; Langmuir 1995).

3.4 The golden age of Alpine climbing, the Alpine Club, and the development of modern day mountaineering

Mountaineering in its present form has been in development since the mid eighteenth century, and the wide mix of incentives and prompts outlined above ensured that mountaineering emerge with vigour. The Golden age of climbing between 1850 and 1865 represented a frenetic period of activity during which all the summits of the Alpine peaks where attained (Braham 2004; Wells 2001). The climbing was led by the English for whom the conquest of Alpine peaks meant a place in history, whilst maintaining Imperial pride and status (Fleming 2001; Hansen 1995). Of the 39 major peaks first climbed during this period 31 were claimed by the British with the support of their French and Swiss guides (Braham 2004). Sir Leslie Stephen (1909: 84) attributed that “the Alps, had fallen an easy victim to the skill and courage of Swiss guides, and the ambition of their [British amateur climbers] employers”.

In 1857 the Alpine Club was founded in London to share information, and record the achievements of the age (Band 2006). Acting as a central hub for British climbing activities the club brought organisation to mountaineering and was instrumental in the British successes during the ‘golden age’ (Venables 2006). Consequently this original

format was rapidly duplicated on an international basis and similar clubs were founded around the world (Nirmolini 2003). The Alpine Club also had a strong relationship to the Royal Geographical Society (RGS) and by utilising the current discourses of 'national pride', 'discovery' and 'exploration' the two organisations were instrumental in fostering interest in what we now know as 'mountaineering' (Hansen 1996). The RGS was initially skeptical about the scientific merit of mountaineering (*ibid*), however they and the Alpine Club subsequently collaborated on a number occasions, most notably the attempts on Everest in the early 1920s (Venables 2006).

The end of the 'golden age' was marked by Whymper's ascent of the Matterhorn in July of 1865 (see Whymper 1880). The successful ascent was followed by a disastrous descent where three of the party fell four thousand feet to their deaths (Braham 2004). Luckily for Whymper, the rope, that was allegedly weak domestic sash cord, connecting him and two others to the stricken quad suffered a catastrophic failure saving them from certain death (Wells 2001). Due to the lack of dedicated climbing equipment during this period climbers had to make do with the technology available, often adapted from industrial or agricultural machinery. Consequently, incidents of this nature were common place (Parsons and Rose 2003). This event on the Matterhorn was followed by media led public outcry denouncing the loss of life as senseless. On July the 27th 1865 the Times questioned "why ... the best blood of England [was to] waste itself scaling hitherto inaccessible peaks". The controversy surrounding the Matterhorn incident is claimed to have held back British mountaineering by several decades (Flemming 2001). British mountaineering continued in the Alps during the latter half of the nineteenth century, despite public criticism although with a marked decrease in participation (Smyth 1946). The development of British climbing was also held back by the traditions and ethics of the emergent climbing culture that eschewed certain types of technological aid as unsporting (Gilman and Gilman 2001). This prevented British climbers from using pitons, bolts and fixed rope all required for safety by the 'continental style' of ascension on ever more technical routes (Parsons and Rose 2003). As a result of this the development of British climbing and its technology was set back. It has been argued that this created the conditions to allow British climbing and its associated

technologies and socio-technical practices to develop differently to that of its continental counterparts (Thompson 2010).

Figure 3.2: Edward Whymper (Source www.apline-club.org.uk)

The popular image of the 'golden age' mountaineer was an idealised Whymper-esque figure of a climber with a knap-sac over one shoulder and carrying an alpine axe (fig 3.2). They appeared as a walker out for the day, rather than climber equipped for the mountains. Parsons and Rose (2003) suggest that such images of the era, including those of Victorian women climbing in skirts, are misleading and merely accorded to reserved moral Victorian expectations. Rather they claim that Victorian mountaineers were much more dynamic and highly involved in the design of their mountain apparel. This is supported by Wells (2001) who suggests that Whymper was equipped with climbing irons (primitive crampons), sturdy leather boots, and goggles to prevent snow-blindness. With mountaineering in the spotlight after the 1865 'Matterhorn incident', new safety measures were required. These were organised by the Alpine Club who issued minimal standards for climbing ropes and guidance for axe design (Parsons and Rose 2003). For example, the Alpine Club instigated standards for hemp ropes incorporating a strand of red thread indicative that it met the clubs standards and was fit for the purpose of climbing. This standard remained in place until the 1950s when hemp ropes began to be replaced by nylon ropes. However, the socio-

technical techniques appropriate to this new 'safer' kit remained undeveloped, for instance, rope work remained an unrefined art, and, as in the case of the Matterhorn tragedy, if one climber fell often they all did (Wells 2001).

Climbing and mountaineering in the second half of the nineteenth century was the domain of the upper classes who could afford lengthy holidays, mountain guides, and were deemed to have the intelligence to appreciate the mountains and the practice of mountaineering (Cinnamon 2000). The Alpine Club itself was a self-confessed gentleman's club (Band 2006). The culture and development of Victorian mountaineering has been explored by Hansen (1995, 1996) who suggests that it was constructed by the upper classes as a way to assert masculinity and national virility, such sentiments circulated wider realms in Victorian Britain. John Ruskin (1819-1900) for example, declared that, "experience of distant peril" and "habits of quick calm action" are requisite in the "formation of manly character" (quoted in Knoepflmancher and Tennyson 1977: 114).

3.5 Interwar mountaineering

By the Edwardian age all the alpine summits had been achieved, and attention turned towards more difficult technical routes within the Alps and to the mountain ranges of the Caucasus, Himalayas, Rockies and Andes (Wells 2001). Mountaineering activities were temporarily halted by World War I with many mountaineers volunteering for active service, and many never returning (Gilman and Gilman 2001; Hankinson 1977). The interwar years were also quiet in terms of Alpinism, apart from the efforts focused upon 'Everest' (Macfarlane 2003). The Alpine Club and RGS were drawn towards the Himalayas, and the possibility of bagging the grandest summit of all, Mt Everest (Gillman and Gillman 2001). Attempts at its summit were made in 1921, 1922, 1924, 1933 and 1938 all of which ended in failure and numerous deaths of both mountaineers and their Sherpa porters (Smyth 1946). Of these the attempts most notable was George Mallory (1886 - 1924) who, along with Sandy Irvine, disappeared from view on the upper reaches of Everest on his third attempt to summit in 1924 (Gilman and Gilman 2001; Smyth 1946). This example, one of many, explicitly indicates how the development of mountaineering was explicitly linked with the culture and

language of imperialism and exploration, in which possession and conquest of far away mountain tops spoke volumes (Hansen 1996; Braham 2003).

The quest for Everest's distant summit has been the focus of academic debate concerning the suitability of the equipment used by Mallory and Irvine (Parsons and Rose 2003). Investigations suggest that Mallory and Irvine's kit was adequate for them to make the summit in good conditions, but the clothes could not cope with the climatic extremities that can occur on the world's highest peak (*ibid*). The death of Mallory and Irvine and debate about whether or not they achieved the summit before succumbing to the mountain, is argued to have led to improvements in equipment and technique by the time the 1930s expeditions were mounted (Nelsson 2007).

Interwar climbing was influenced by the aggressive politics of the era, whereby the Germans, Italians and British flexed their muscles via the medium of mountaineering, funding ascents and expeditions on unclimbed peaks in the Dolomites, on the Eiger, Everest, and Mount Kenya, respectively (Band 2006; Harrer 2005, Hansen 1996). Climbers such as Mackinder (1861-1947) were able to lever large amounts of funding for climbing expeditions, the scale of the projects in terms of technical and physical support often ruled out failure, with the purpose of making strong political statements by ascension (Wells 2008; Hansen 1996). No statement was stronger than the race for the first ascent of the North Face of the Eiger, for it was widely believed that the first to ascend the Mordwand, would receive gold medals from Hitler at the Berlin Olympics (Salkeld 2008). During this period, continental climbers developed technologies and techniques beyond those of their British counterparts who were content with the challenges posed by home rock (Parsons and Rose 2003; Milburn *et al* 1997; Hankinson 1977; 1972).

3.6 The Birth of British Rock Climbing: the 'Suburban Mountain Range'

Whilst continental climbing focused upon climbing long and increasingly technical alpine routes using fixed pitons and bolts, British climbing, its techniques, technologies and venues, undertook an alternative trajectory (Parsons and Rose 2003). With a semi urban location, overhead pylons and outlook over the post industrial landscape of the Don Valley steel mills, Wharncliffe is a crag that has now fallen from favour (Byne

1951). However, when you step up onto the rock, the purpose of climbing drowns out the noise of passing traffic and motocross bikes, and you step into what is widely regarded as the birthplace of British rock climbing (Rockfax.com 2009; Hoey 1989). The nailed boots of J.W. Putrell, the fabled founder of the 'black art' of 'gritstone climbing', now regarded as the pinnacle of traditional climbing (Bisharat 2008; Wells 2008), scraped the rocks on many of the first recorded ascents of these crags from 1880 to the early 1900s. Due to its situation near the main Sheffield to Manchester rail line and road, Wharncliffe, was the busiest crag of the early twentieth century (Hoey 1989). According to commentators the crag was turned into a "veritable gymnasium" (Byne 1951: 55).

Rock climbing in Britain – as distinct from Alpine mountaineering - did not emerge as a sport in its own right until the 1880s (Hankinson 1972). It was undertaken as mainly a summer pursuit in the Lake District and Peak District spreading to Snowdonia in Wales in the early part of the twentieth century (*ibid*). British climbers, including the young Everest hopeful George Mallory, began to hone their skills on home shores (Gilman and Gilman 2001). Here they readied themselves for challenges abroad. It was during this period that the subtleties of British rock climbing genre first emerged (Nelsson 2007; Hankinson 1977; Gilman and Gilman 2001). This pre-war epoch was marked by enthusiastic activity on many of the UK's crags - notably in the Peak District, Lake District and Wales (Hankinson 1972, 1972). Unlike the climbers of today, the only thing that distinguished late 19th century climbers from hill walkers were a pair of heavily nailed boots, and a length of hemp rope (Thompson 2010). Although some climbers had used rubber soled Plimsolls on dry rock their use did not become widespread as they were deemed to 'not give the rock a chance' due to their superior grip (Wells 2001). Despite the lack of gear the climbers were prolific ascendants, as can be seen from numerous first ascents from this period that are documented within present day guidebooks.

Climbing at this time was still regarded as intellectually elitist and a 'rich man's sport'. The Climbers' Club president C.E. Matthews declared that, "climbing is a sport that from some mysterious causes appeals mainly to the cultivated intellect. 'arry or 'arriet would never climb a hill" (Mathews quoted in Bryant 1898). Unsurprisingly Matthews

himself was eulogised as: “a man of many intellectual interests of great cultivation”, an indication of the ingrained class culture of British climbing in the early twentieth century (Slingsby 1907: 16). It took another fifty years until an open and non-elitist organisation took over the interests of British climbers (Milburn *et al* 1997).

The interwar years were quiet in terms of British Alpine mountaineering on the continent, but saw an explosion of interest on home soil and rock (Wells 2001). There was a growing appreciation that outdoor activities were beneficial to all, notwithstanding class background (Morris 2009; Matless 2001). This interest was fostered and encouraged by emerging groups such as the Boy Scouts movement (started in 1907) and the Youth Hostel Association (set up in 1930), and the Outward Bound movement (initiated in 1941). In my specific case study area of Yorkshire and the Peak, there were a number of active groups; notably, the Rucksack Club formed in 1902 which acquired and opened the first climbing hut in 1912 and organised meets throughout the Peak District for climbing and walking (Beatty 2002). Ramblers’ clubs also existed in the surrounding cities of Manchester and Sheffield basing the majority of their excursions in the Peak (Nelsson 2007). At this time tensions between land owners and the burgeoning population of ramblers culminated in the mass trespass of Kinder Scout (1932), in an attempt to clarify access laws for walkers (Rothman 1982). This relaxation in access allowed Clubs such as the Sheffield Climbing Club and Derbyshire Pennine Club began to emerge and explore the gritstone crags of the Peak District and Yorkshire (Byne 1951).

Traditionally most clubs like the Alpine, and Climbing Clubs were restricted entry accepting men only (Walker 2003). Female climbers were keen to leave the encumberment of the dress and moral codes of the Victoria era well behind, and thus, Emily Kelly (1872-1922) and Eleanor Winthrop Young (1872-1958) set up the Pinnacle Club in 1920 (Thompson 2010). This was a National club for women in its own right and it remains strong and active today (Birkett and Peascod 1990). Although gender divisions were rife, class exclusiveness, which had been so prominent at the turn of the century, began to lose significance as urban populations, in search of active repose from their industrial existence took flight to the ‘suburban mountain range’ of the Peak District (un-named author 1903 quoted in Nelsson 2007: 17).

The advent of formally organised climbing clubs bought a semblance of order to the more sporadic and occasional nature of climbing (Hankinson 1977). This more structured approach to climbing produced arguably the most important piece of equipment carried by climbers past and present, namely, guidebooks (Graydon 1992). In a newly emerging sport all equipment will be 'new' and mark a change with potential resistance from participants, climbing guidebooks were one such item. Hankinson (1977) suggests that the problem people had with guidebooks was due to the mountain areas of Britain being small and few, in comparison to the Alps which were large enough to accommodate newcomers to the emerging sport, whilst maintaining a feeling of remoteness and solitude. British climbers also feared that guidebooks represented a threat to what they saw as two vital components of British climbing; 'route finding skills' and 'an urge to explore the unknown' (*ibid*). The producers of the books were dubbed 'commercialists,' for ruining the primacy of experience for climbers who should be discovering a new, rather than being guided to, routes (Gilman and Gilman 2000).

Haskett-Smith's (1894) guide 'Climbing in the British Isles' is one of the earliest British rock climbing guidebooks and charts the emergence of the pursuit. Haskett's book emphasises the dexterity, judgment and skill required for climbing. Furthermore it introduces the development of climbing terminology through a brief glossary of technical terms referring to 'chock-stones', 'chimneys' and 'ice axes'. He also details by description, rather than name, the techniques of lay backing and bridging, thus bringing orthodoxy to the pursuit. Technologies and the practices required to use them are also detailed in this guide, although rope work technique consisted of instruction to loop round the waist with protection provided via hooking the rope around crag features, rather than use dedicated protectional devices, as they were yet to be invented. In comparison to contemporary guides there is a greater emphasis on the description of the crag, its features and characteristics, again reflecting the lack of dedicated climbing technology. For instance, referring to the rock at Wasdale Head in the Lake District, Haskett-Smith (1894: 133) states:

> Rocks are of splendid grippy quality: rough as a cows tongue, it would be difficult to make a slip on them.

Although the grip of the rock remains important in present day climbing it is often the grip of the technical climbing shoe that is emphasised and championed by climbers.

The consolidation of climbing continued in the first half of the Twentieth Century, with the creation of an organised Mountain Rescue Service. Mountain rescue in England dates back to 1928 (Kirkman 1978). This followed an accident on Laddow Rocks where the use of a field gate as a makeshift stretcher and consequent delays, resulted in the climber having his injured leg amputated (EMRT 2009). A committee was set up to design a light weight stretcher suitable for use in the mountains. The stretcher they devised after is still used today be some rescue teams (Bell 2009). This committee subsequently evolved nationally through climbing and mountaineering clubs. With the increase in outdoor activity post World War II the Mountain Rescue Committee (MRC) came into being becoming a registered charity in 1950 (Kirkman 1978).

Alongside the development of the MRC there was another important development in UK climbing that would help to further diminish the class based divisions that were present within the British climbing establishment – the creation of the BMC (Milburn *et al* 1997). Class divisions remained rife during the first half of the twentieth century especially notable in the Alpine Club, where climbing ability was low on the list of qualifying priorities, with social standing taking precedence for membership (Connor 2002). The BMC (British Mountaineering Council) was set up in 1944, to take over from the Alpine Club in recognition that a club with restricted membership, based largely upon class, could not represent the rights and breadth of British climbers (Milburn *et al* 1997). In addition to this World War I had created the need for such an organisation in order to provide information about mountain equipment and training for warfare in mountainous regions (*ibid*). BMC membership was open to all regardless of race, religion or political party, and became the body that represented and spoke on behalf of all climbers in Britain (*ibid*). The membership included women, who at this time were still often excluded from the masculine sport of climbing. Even Valerie Brown, the partner of the legendary Joe Brown, was barred from the Scottish Mountaineering Clubs climbing huts in the early 1950s (Brown 1967).

Geoffrey Winthrop Young (1876-1958) climber, alpinist and Alpine Club president, identified that Britain's post war climbers would be a new generation, utilising new

materials and equipment and developing new techniques to match (Milburn *et al* 1997). For example, it was not until this time that karabiners became widely available in Britain, quickly making its precursor, the agricultural 'bull-ring', redundant (Parsons and Rose 3003). The rock climbing equipment available in the 1940s was predominantly World War II military surplus; it was poor and barely fit for purpose.

> Little short of useless, if not dangerous. There were boots which heeled over to one side after a week or so of wear, paper thin cotton anoraks, ice axes with sharp steel edged heads that wore through gloves in a few hours or so, and karabiners that opened under low stress. (Milburn *et al* 1997: 17)

One positive innovation to come out of the Second World War was the moulded rubber sole, but it would take a while longer for the benefits of rubber soles to gain orthodoxy amongst British climbers (Parsons and Rose 2003). In light of these changes in technology and technique in 1947 the BMC made the 'investigation of the value of new equipment' and the 'provision of instruction' part of their mission statement (Milburn *et al* 1997). These roles have greatly influenced the development of climbing technology and its use whilst climbing greatly (*ibid*).

3.7 'Cragrats': The Founding Fathers of a British Trad Ethic?

"Well George we've knocked the bastard off", is how the laconic Edmund Hillary (1919-2008) reported the news that Everest had been conquered (see Hunt 1954 and Hillary 1975). The ascent added further vigour to the British climbing scene and represented a catalyst facilitating a renaissance in British climbing and mountaineering and also further technical innovations (Parsons and Rose 2003). This marked an end to the interwar doldrums in British mountaineering abroad and the beginning of renewed activity leading to impressive achievements on Alpine and Himalayan peaks (Wells 2001). Parsons and Rose (2003) term this the 'golden age of innovation' a period of climbing innovation led by small scale climbing producers, many of whom were climbers themselves and thus understood the technological requirements of the pursuit, such as Troll, Mountain Activities Limited (MOAC), Clog and Mountain Equipment. Troll was one of the first specialist manufacturers of climbing gear, set up

by two ‘do it yourself’ climbers-cum-gear makers operating out of a garden shed. Troll had a clear vision of what the sixties climber required stating that:

> Only the bold ventured far into the unknown but then, unlike now, the leader had little other than his own abilities to rely on. To venture onto the ever-steepening walls needed not finer nerves, but better equipment. (www.troll.com 2009)

A generation of working class climbers termed ‘crag rats’ due to their often disheveled appearances, dominated British climbing during the nineteen fifties and sixties (Wells 2001; Perrin 2005). Renowned amongst this group were two Mancunian plumbers Don Whillans (1933-1985) and Joe Brown (1930-). Between themselves and their counterparts, new standards in British climbing were set. Yet this was not notwithstanding the limits of their ‘kit’, which remained basic, still consisting of nailed boots, with climbs protected using chock stones, slings round spikes and hemp rope (although nylon rope was becoming available at this time)(Milburn *et al* 1997). It was common for falls and fatalities amongst inexperienced climbers with makeshift equipment such as ‘washing lines’ for rope (Nelsson 2007)! The infamy of Whillans and Brown is partly due to their lack of sophisticated gear and to the real risk of death or serious injury they courted not only due to a falling, but also the potential for catastrophic equipment failure (Thompson 2010). This is no longer a feature of present day climbing with its rigorous scientific testing and safety standards (Binney and McClure 2008). However, even with today’s kit climbers struggle to repeat the bold lines first ascended during this period, a feature I will return to in the empirical chapter.

Improvements in public and private transportation during the late 50s and early 60s allowed climbers to climb more often, enabling them to improve their technique and physical strength (Brown 1967). Set amongst this backdrop, Brown and Whillans, as well as other members of the Manchester based Rock and Ice Club drove British climbing forward on the national and international stage, setting the foundations for the present day sport (Wells 2001). Better equipment was to emerge from the climbers themselves (Jeppesen 2001). For example, Whillans is accredited with a number of innovations during his climbing career. Perhaps the most notable of these

in terms of rock climbing was the Whillans Harness, which revolutionised comfort and safety. This was the first to have integral leg loops that helped dissipate the weight of the climber in the event of a fall, or whilst resting attached to the rope. The exiting harness belts of this period offered little support and a fall could lead to asphyxiation (Parsons and Rose 2003). The harness revolutionised safety, and comfort at other times. Troll, the producers of the Whillans Harness, refined it further adding a belay loop and the modern (safe) style sit harness was born. Up until this period there were few UK based producers of specific climbing kit for leisure purposes. This began to change with climbers, often from a mechanical employment background, setting up small scale firms to produce developmental climbing gear (Pennequin 2001). It remains de rigueur within the climbing industry for key practitioners to be highly involved in product design and innovation, usually through sponsorship deals (Parsons and Rose 2003).

The development of rubber moulded shoes was another offshoot of the Second World War (Milburn *et al* 1997). However, it wasn't until the 1950s that these began to gain orthodoxy and acceptance over their nailed counterparts amongst traditionalist climbers (Parsons and Rose 2003). Rubber soles eventually gained widespread acceptance. In the following paragraph Joe Brown (1965: 177) illustrates his initial skepticism.

> I want to lead all the way up and try out these Vibrams', I said to Don. Whillans [Don] had been at ease in Vibrams for some time... My feet scraped wildly on the rock; I could not make the new boots stick on small holds at all. The edges of the soles were perfectly square but they rolled off nicks in the rock that I could stand on in nails. The climb reduced me to a bag of nerves and I was unable to decide whether it was due to my physical condition or the boots. I certainly had no confidence in them. Don said that Vibrams, like any other kind of footwear, required practice before the technique for climbing in them was learned. He was right.

Climbing footwear is an area of technology that has changed tremendously over the last 60 years (Wells 2001). Up to the 1950s most climbers climbed in boots with nails in the sole, to provide extra grip (Parsons and Rose 2003). Nails were regarded as vital for

grip particularly in wet conditions and the move to a blank rubber sole ruled out wet weather rock climbing in Britain. Vibrams were soon superseded by 'PAs' the fore-runner of the present day tight-fitting rock boot and became the choice of the elite climber (Wells 2001). I will outline the implications of shoe evolution on the climbers' experiences and ability to climb later in this thesis.

Often omitted from climbing's nostalgic and idealised annals of the fifties and sixties was the widespread use of permanent and semi-permanent fixed protection in the form of 'aid climbing' (Thompson 2010). Climbs often relied upon pitons hammered into cracks to protect exposed sections of climbs that were otherwise un-protectable. Although frowned upon due to the damage they caused, and deemed unethical by some climbers, they were a requirement on the rack of the 50s and 60s climber as there was simply no alternative. Situ pegs were often homemade and their placements uncertain, requiring climbers to have, as Titt (2008: 2) comments "a healthy aversion to falling off!"

British mountaineering had trailed behind its continental counterparts in the first half of the Twentieth Century, due to the aforementioned Matterhorn incident and climbing ethics that restricted the use of certain technological aids (Perrin 2005). British climbers developed differing relations with technology and rock and as a result the technologies and techniques they employed as climbing assemblage progressed differently to those of continental climbers (Parsons and Rose 2003). Another consequence was that many technologies that are taken for granted by contemporary British climbers, were created or refined without British involvement (Connor 2002). The Germans were particularly prolific, creating advanced Ice tools, such as crampons and ice screws. They also led the way in the development of lightweight nylon rope technology (Parsons and Rose 2003). Nylon ropes represented a massive step forward due to their great strength to weight ratio, and because they stretched under loading which meant that falling climbers came to a gradual arrest, rather than a jarring and potentially life threatening halt (Wells 2001). The introduction and normalisation of the nylon rope led to a step change in climbing safety which impacted upon the climbing experience and abilities of British climbers (Thompson 2010). The impact of

nylon rope on the climbing assemblage is another interesting case study that I will return to.

A common climbing practice in the 1950s was the use of 'chock-stones', whereby rocks found at the base of the crag were lodged into inverted cracks on the climb (Perrin 2005). These were the then threaded with cord to protect the climb. This practice evolved during the 50s and 60s by climbers experimenting with pre slung industrial nuts, which after having their threads removed (to prevent abrasion to their cords) were then threaded with cord and lodged fissures in the rock face (Parsons and Rose 2003). Climbing legend has it that a certain climb on 'Cloggy', Clogwyn Du'r Arddu on Snowdon, that could only be protected by the use of a nut from the track of the Snowdon railway (Wells 2001). No one is accredited with the first use of nuts (as this type of protection became known) as their emergence is regarded as 'spontaneous practice' of the many climbers from industrial backgrounds that were active at this time (Pennequin 2001). The first production model nut available for climbers was the Moac and its 1962 entry to the climbing scene introduced a greater level of safety than ever before (*Ibid*). Climbers instantly took to nuts perhaps in part through their gradual evolutionary introduction and also due to their simplicity (Parsons and Rose 2003).

Akin to the period that preceded it the developments in climbing culture, technique and technology can be charted through the medium of the guidebook. Guidebooks of this period such as by Byne (1951) include early advertisements for new innovations such as nylon ropes and newly emerging climbing equipment supplier F. E. Brigham (now known as Ellis Brigham Mountain Sports). Byne's guide book includes grades, descriptions and more sophisticated language concerning the bodily techniques required to overcome the challenges of the route. Overall there is little mention of the gear that climbers are using during route descriptions, unlike the latter incarnations of climbing guidebooks. The 1950s guidebook, like earlier incarnations remained focused upon the physical features and geology of the rock rather than the socio-technical practices required to climb them.

The fifties and sixties were important decades for British climbing whereby the organisational infrastructure of climbing was already in place and a number of small climbing specific equipment companies were established. Improved technology also

became available from abroad along with the techniques and practices required to utilise them to good effect (Parsons and Rose 2003). These technological advancements slowly found their way onto the racks of British climbers improving safety, which promoted confidence and climbing performance (Thompson 2010). Climbing guidebooks and instruction manuals emerged in greater sophistication and the technical ability of climbers climbing as constituent parts of evolving climbing assemblages began to change rapidly (Wells 2010).

3.8 The 1970s and onwards: A sporting revolution

From the 1970s to the present, British climbers, in all genres, have continued to climb progressively harder routes, thanks to a mix of technological developments as well as physical improvements and conditioning (Thompson 2010; Pickford 2010; Wells 2001). Present day climbing commentators believe that British climbing is currently in the grip of a sporting revolution due to the highly graded climbs that are now being achieved (Pickford 2010). The 1970s mark a period when, climbing emerged in its modern form. However, for this to occur climbing has had to subsume a several more key technological developments. Dennis (quoted in Barry and Shepherd 1988: 116) explains the manner in which the actor network of climbing was progressively changing during this period.

> The climbing world has adjusted the 'rules' somewhat in that strange way that the climbing world does... a sort of process of subliminal consensus.

Dennis' sentiment refers to the widespread adoption of new climbing technologies in the seventies; a rapid progress in 'kit' which was adopted into the sport as the majority of climbers put their climbing ambitions above ethical concerns, over the changing experience of climbing (Thompson 2010). Building on the foundations of the crag-rats, British climbing saw a renaissance in the 70s and 80s and crags teamed with exotically-coloured Lycra clad climbers, with a host of innovative kit swinging from the gear loops of their harnesses (Wells 2001). It was a period when much of the kit familiar to today's climbers emerged in a recognisable form, with later development representing minor refinements in materials and function (Parsons and Rose 2003).

Perhaps the most popular pieces of equipment dangling from climbers' harnesses in the 70s and 80s were their nuts. As mentioned above nuts evolved from the nineteen fifties practice of placing pebbles in cracks of decreasing size which were then threaded with a sling to help protect the climb (Perrin 2005). Nuts in their present form arrived in the 1970s and have changed very little since, apart from slight functional and cosmetic refinements in shape, material composition and colour. Nuts are termed 'passive pro' as once placed, as they have no mechanical moving parts and, unless fallen upon, they cause very little abrasive damage to the rock. Due to their simplicity they are sometimes referred to as 'natural protection' reflecting their passive nature and the manner in which they work with the 'natural' geological features of the rock (Pennequin 2001). The language of 'passive' and 'natural' is also evidence of dualistic modernistic terminology that pervades climbing and its debates. Nuts are central to the trad climbing rack and a style of climbing that contemporary climbers call 'clean climbing' where the climbing venue is left how it is found, a major principle in the British trad climbing ethic (Donnelly 2003; Berry and Arran 2007).

The term 'clean climbing' comes from Chouinard Equipment. Yvon Chouinard (1938), the company's founder, began as a producer of pitons, semi permanent protection that's hammered into cracks and fissures in the rock (www.patagonia.com). When he realised that the popularity of pitons was damaging the rock on popular routes he made the first of many environmentally driven decisions and phased them out (*Ibid*). Subsequently he moved towards what he termed 'clean climbing', making the following strong statement of intent in his 1972 equipment catalogue:

> There is a word for it, and the word is clean. Climbing with only nuts and runners for protection is clean climbing. Clean because the rock is left unaltered by the passing climber. Clean because nothing is hammered into the rock and then hammered back out, leaving the rock scarred and the next climber's experience less natural. Clean because the climber's protection leaves little trace of his ascension. Clean is climbing the rock without changing it; a step closer to organic climbing for the natural man. (Robinson 1972)

Chouinards' 'clean climbing ethic' resonated with that of the British traditionalists. It also became increasingly influential on both sides of the Atlantic in the search to find new modes of protecting climbs without damaging the rock. The answer came with an Anglo American partnership and the creation of 'friends' (www.wildcountry.com). Friends were developed by Ray Jardine a US climber. Jardine was unable to get a US backer for his invention so approached Mark Vallance, an entrepreneurial climber from the Peak District (*ibid*). Their 'Friends' were produced by Wildcountry in a factory in Tideswell, a small Village in the Peak District. Rab Carrington (2010: 2) the current president of the BMC was climbing in the 1970s and comments on the introduction of cams:

> We'd all heard rumours about a secret device which was going to revolutionise climbing. And it [cams] did climbing became safer overnight.

Up to this period in climbing equipment was not relied upon unless it was needed to avert a fall. The presence of reliable rope, karabiners and protection changed this (Thompson 2010). Climbers could now, if they perceived it ethical, weight their gear to rest or aid the ascent. This went against the traditional climbing ethic and an ascent that requires gear to be weighted is classed as a 'dogged' ascent and not awarded as a clean traditional onsight – the trad ideal.

Trad climbers accepted nuts and cams as progressive and innocuous due to their simple technology and adherence to the 'leave no trace' ethic (Parsons and Rose 2003). Perhaps more surprising was the uproar surrounding the 'the great chalk debacle of 1978' (Milburn *et al* 1997). The use of chalk (magnesium carbonate) is intended to aid climbers' grip by absorbing perspiration, it is believed to have spread from gymnastics and was championed by US climber John Gill (1937-), himself a gymnast, in the 1950s (Wells 2007). Gill applied many of the principles of gymnastics to his climbing and training, and was the first to specialise in bouldering. Bouldering involves short physically demanding routes that are climbed using acrobatic and dynamic movements (*ibid*). Chalk use was received critically by the British traditionalists for a number of reasons (Wells 2001). First the chalk resulted in increased grip which reduced the 'natural' challenge of the climb. Second it produced a visual aid diminishing the challenge by mapping the route. Third it left marks that for

some people ruined the aesthetics of the crag. The somewhat ostensible UK based 'clean hand gang' of the late seventies were highly critical of climbers using chalk, and proved their point by climbing the hardest routes without using it (Barry and Shepherd 1988). The use of chalk remains another of climbing's unresolved ethical dilemmas, albeit one with a potential technological fix in the form of 'liquid chalk' in the late 1990s which performs the same function but leaves a lesser trace on the rock (Wells 2001).

According to the annals climbing in the seventies was synonymous with 'sport climbing' and the controversy surrounding the use of permanent bolts on British rock (Milburn *et al* 1997; Wells 2001). Facilitated by the introduction of cordless drills, 'bolting' is when permanent bolts are placed into rock to protect a climb (Thompson 2010; Wells 2001). Bolting is arguably the most contentious issue within British and international rock climbing (see Messner 1971; Robinson 1972; Ward 2006) and there is perceived to be a conflicting trad-sport dichotomy (Lewis 2001). Ward's (2006) account of the bolting of Harpur Hill typifies the ongoing debate concerning sport climbing and bolting in the UK. Bolting allows rock to be climbed that cannot be, or at least cannot 'presently' be, climbed or protected by traditional means. Yet the permanent nature of bolt protection prompts controversy. Some climbers have very strong views that no rock route should be bolted as this takes away the challenge and the possibility that future climbers could ascend the route by traditional means. The BMC (1992) has longstanding guidance on the use of bolts which asserts:

> It is the policy of the BMC that the use of bolts and other drilled equipment is only legitimate on certain locally agreed quarried crags and agreed sections of certain limestone crags. The BMC is firmly opposed to retrospective bolting (i.e. changing the character of a route by placing fixed equipment where none was previously used). Climbs should only be re-equipped on a basis of common consent established at open forums.

However, despite this the debate continues, fed by accidents caused by bolt failures, miss-interpretations of guidance, the appearance of bolts on, or next to, trad routes, and the removal of bolts by anti-bolt activists (Ward 2006).

Climbing on bolted routes is termed 'sport climbing'. It is a form of climbing that focuses upon gymnastically pushing the physical limits of the body (Cinnamon 2000). Consequently falling is more common and thus reliable permanent protection is required. Sport climbing has always been popular in the rest of Europe but in recent years has been gaining popularity on British rock, particularly on limestone and quarried rock which is difficult to protect by traditional methods and technologies (Milburn *et al* 1997).

Figure 3.3 Indoor climbing wall (source www.rockcity.co.uk)

In the late 1980s completion climbing emerged in the UK and it was recognised that this type climbing necessitated training on artificial walls (fig 3.3) exclusively, or in addition to, climbing outdoors (Wells 2008). British climbing has altered dramatically as a result of this (Pickford 2010; Milburn 1997: 88). Indoor walls first emerged in the late seventies and in recent years have become ubiquitous in British cities (Wells 2001). Indoor walls were initially developed to allow climbers to train in all weathers and to act as an arena to teach beginners the skills of rock climbing. However, they have become a type of climbing in their own right with some people only climbing indoors (Cinnamon 2000). Furthermore, climbing walls have enabled climbers to train harder than ever before on steeper walls with smaller holds (Pickford 2010). They are part of the technological infrastructure that has led climbers to new levels of achievement in recent years (Barry and Shepherd 1988). The rise of indoor climbing

can also be viewed as a socio-technical response to the progression in climbing technology from nailed boots to smooth soled rubber climbing shoes. This change in technological preference dramatically increased climbers' grip on dry rock but reduces it when wet. Consequently climbers, reliant on the grip of sticky rubber soled shoes became fair weather athletes in need of a wet weather venue. This requirement is catered for by the indoor climbing wall.

The most recent addition to the assemblages of climbers is the bouldering mat - large portable foam mats used to protect climbers landings from bouldering problems. These mats when introduced, like the sport itself have been met by a certain amount of bemusement by the climbing establishment due to the fact that previous climbers never saw the need to name and package this practice as anything other than climbing (Wells 2007). Bouldering mats have, more clearly than other pieces of equipment, made climbing safer. This has led to problems for existing grading systems which partly base the grade of the climb upon the severity of a fall from it. For example, a relatively simple bouldering problem that has a poor landing becomes a larger psychological problem, whereas if the risk of a poor landing is removed by a mat, then so is the psychological barrier. Hence debates about how these material items are changing the nature of climbing. I will return to and explore this complex corporeal and technological issue within the empirical chapters later in the thesis.

Contemporary climbing and its technology are all about refinement. Climbers fine tune their bodies (Pickford 2010) whilst gear producers fine tune their kit (Parsons and Rose 2003). Some climbers follow strict dietary and physical regimes to condition their bodies using an array of training technologies as well as climbing on rock (Moffatt 2009). Likewise the gear producer fine tunes their products saving weight, improving ergonomics and function where possible. There has not been any major innovations in trad climbing protection since friends became commonplace on the climbers' racks in the early 1980s. Although this is not to say climbing technology has stood still. From the high-tech camming device to the mundane karabiner, all kit has been refined in some way (Parsons and Rose 2003). Much refinement has been undertaken to serve those who seek out the lightest gear usually to enable them to move freely and allowing them to carry more. Climbing gear has decreased in weight dramatically over

the years, and is continuing to do so as there are advances in the raw materials used to produce it. Most notably recently there have been prototypes of carbon fibre karabiners which would reduce their weight (in comparison to lightweight aluminium karabiners) by approximately forty percent (Scott 2009).

By charting the evolution of British climbing through the medium of the climbing guidebook, stark differences with the preceding periods are apparent. These are not only due to changes in the pursuit of climbing but also societal and technological changes beyond the sport. For example the introduction of digital photography and editing software has had an impact upon the appearance and content of the contemporary climbing guide. A brief investigation of a guide from this period (Craggs and James 2003) illustrates that the content of more recent guidebooks has a wider range of detail on access, grading and equipment and the language. These are used within the guide to provide details of the full range of embodied and socio-technical techniques commonly used by the present day climber. Techniques, such as, smearing, jamming and lay-backing are all of methods of climbing which are semi-dependent upon the synergy of body technology and rock. In addition to this more technologised approach to climbing technique, it is evident that route descriptions include a greater level of information about the kit and how it can be used to protect the respective climbs, as well as detailing the physical barriers. This is a feature unique to this period which along with the range of technology mentioned, was noticeably absent in the previous eras. I will return to climbing guidebooks and their contribution to the climbing assemblages of British climbers within the empirics to illustrate how as intermediaries (Latour 1999) they are central to both the progression and durability of the pursuit.

3.9 Summary

This chapter has demonstrated that technological development in climbing is heterogeneous, driven by a range of historical contingent factors. This fulfils Latour's (2002: 5) assertion that, "humans and non-humans are engaged in a history that should render their separation impossible". British climbing has evolved progressively with technological developments and innovative breakthroughs followed by long

negotiations and refinement within the elements of the relational networks all bearing an impact.

This contextual history of climbing and the development of climbing technology has illustrated the ways that climbing is a relational product of the pursuit's wider network. Through the technological development, the actor network of climbing has been shaped and evolved enabling climbers to tackle routes that could not be accessed before. Steep, strenuous and un-protectable routes beyond the physical tolerances and socio-technical capacity of the 1960s climber can now be tackled by the present day climbing assemblage. Hence the new entities of the rock that climbers desire to ascend can be tackled by the technologically enhanced climbing assemblage. This is a work of heterogeneous engineering between the social, historical, natural, technological, human and non-human, reminiscent of Law's (1987) study of Portuguese naval expansion. It is the actor network of climbing that I go on to explore within the empirical chapters with an understanding that the differing actors human and non-human cannot be reified and understood outside of their relational network. I will discuss what I deem to be important and practical to the study, but ultimately there will be many absences, these are intentional, and will make those present clear and understandable (Law 2003, 2004). This is because the complexity of any given network is incomprehensible without boundaries in place (Law 2004). For instance, I mentioned above that the development of private modes of transportation heavily influenced how and where people climb, but it is beyond the scope of the project to dedicate a chapter to the socio-technical transport solutions of rock climbers.

As detailed above, present day British climbing is embedded in its specific historic background which has impacted upon how and where climbing takes place. Climbing's history is strewn with debate and controversy and much of this centres around the style of ascent and the technologies used. This type of 'ethical' and 'traditionalist' stance upon the development of climbing and its gear is one that runs throughout the history of climbing in many guises, and has ultimately shaped the present day climbing scene. These controversies involve the inter play between climbers, crags, technologies and experiences. Notably these have included the use of bolts, chalk, cams, and more recently bouldering mats. All of these have had impacts upon climbing

that have enabled some climbers, but in doing so, others have seen them as threatening the deep personal experience of climbing, a topic I return to in later chapters.

Some climbers fear that they will see the "murder of the impossible" by the technological rather than the human (Messner 1971). A fear that the progression of climbing technology will lead to a lesser, but probably safer, experience allowing 'direttissimas'- ascents that ignore the character of the rock.

Improvements in climbing are not just about enabling inanimate artefacts. There is also a synergy between technical innovation and bodily competence in utilising technological innovations. Bodily training has improved not least due to indoor climbing walls. This allows the urban climber to hone body and skills in preparation for the 'real' challenge of climbing, in all weathers and in urban areas devoid of, or sequestered from, outdoor climbing opportunities.

In the following chapters I will explore climbing and its theorisation with this contextual history in mind. Many of the respondents interviewed have climbed through these technological changes and experienced the changes they have made to their pursuit. Others have started climbing more recently and are unaware of the matrix of relations from which their shiny rack has emerged, although they gladly receive all the functional benefits. I will explore what climbers themselves bring to this matrix, their feelings and relationships with the gear that ultimately their life is dependent upon.

The next chapter consists of a review of the theoretical contributions that underpin the investigation of the climbing assemblage. This focuses upon the concept of embodiment, and new approaches to materiality. Particular attention is given to theories that conceptually embrace and explore hybridity such as ANT which allow the roles and relationships between humans and non-humans to be explored. The second part of the chapter assesses theoretical approaches towards risk in congruous outdoor pursuits.

Chapter 4: A mediated world: theoretical frameworks for studying hybridity

4.1 Introduction

> Things happen through hybrid *collectifs* and not as a result of pure thoughts (Hinchliffe 2007: 53).

The idea of the rock climber as a climbing assemblage, a virtual technological hybrid being, is the central theme of this project. This study aims to explore the corporeal complexities of the techno-natural assemblages involved in the pursuit of climbing (Michael 2006). This focus will help explain how things happen through a 'hybrid collective' and in particular identify the active roles that technologies perform within the climbing assemblage. From this perspective three enmeshed and interdependent elements of this study can immediately be drawn out, namely; the climber, the corporeal entity with embodied mind; the technology, the *gear*, all the material artefacts that a climber needs to climb in their desired manner; and the rock and wider environment that are the venue for the pursuit. Embodiment, materiality and the experience of place are all concepts that have received a great deal of theoretical attention recently and relevant literature comes from a diverse range of sources, both within and beyond human geography. This thesis requires a theoretical approach that allows me to synthesise these elements meaningfully in order to encompass the complexity, and to explore the relationships, synergies and interdependencies between these differing elements of the climbing assemblage.

The theoretical framework for this thesis is provided by Actor Network Theory (ANT). ANT developed from the field of Science and Technology Studies (STS) in the mid 1980s and is an approach that allows the contribution of human and non-human actors to be explored and investigated (Latour 1999 2005; Law 1986; Callon 1986; Murdoch 1997a). I will also encompass ideas from other related, and to some extent congruous debates that surround these concepts, namely, hybrid geographies and relational geographies (Whatmore 2002; Hinchliffe 2007) - both of these approaches draw heavily upon ANT's

conceptual framework alongside wider contributions from STS, such as technoscience, which examine networks of technically mediated human – non-human interactions (Michael 2000,2001,2006; Haraway 1997, 1991, 1985). This section will outline emergent concepts of hybridity (Dixon 2008; Whatmore 2006; Haraway 1997), materiality (Miller 2005; Dant 2005; Graves-Brown 2000), and the ideas of new materialists (Miller 2008; Turkle 2007). Particular emphasis will be placed upon the importance of material *things* to how we live our lives and their involvement in our relationships to places (Latour 1999, 2005; Miller 2008, 2005; Law 2002).

4.2 The structure of the chapter

I begin this chapter by discussing the nature-culture dualism, and how it pervades much of modernist thinking, producing difficulties when talking about embodied practice, the role of humans and non-humans, and the 'wild'/'natural' spaces of climbing. This leads on to a discussion of Actor Network Theory (ANT) the central theoretical inspiration of this thesis and its key contributors and concepts. I will illustrate how others have utilised ANT, or what is more broadly known as the relational or hybrid geographical approach. A critique detailing the shortcomings of ANT and how some of these have been countered will be provided. Following from this I outline the contribution of embodiment to geography. This is an area of research that theoretically represented a departure from one of the main presuppositions of the nature-culture debate, the disembodied mind and has allowed geographers and others to study people's experience of places in greater sensual and emotional detail.

In the next section I outline how Haraway's (1991) 'cyborg figure' helps conceptualise how bodies and technologies merge blurring the boundaries that have traditionally separated the technological from the organic. I will then discuss studies of technological hybridity from geography and beyond. In the following section I consider developments in theories of materiality and their gradual move towards theorising the fusions between material artefacts and the body (Wheaton and Dant 2004). I then explore approaches that have conceptualised the spaces and places that are congruous of climbing activities, and the perception of such environments. This section continues to discuss relations with nature and how they are altered by technology.

The literature review concludes with a review of differing approaches to risk. This includes contributions from social psychology and anthropology as well as attempts to materialise risk for its inclusion within ANT. Throughout the chapter the focus will be upon how I can draw from the differing studies and their theoretical approaches and related insights, in order to extend wider debates with my own findings and contributions.

In addition to the topics above, the pursuit of climbing has received a small but significant amount of attention from academics based in geography, psychology, anthropology, sociology, leisure and tourism studies, and cultural studies. These academic contributions will be interweaved within this chapter with the aim of drawing together useful theoretical and practical insights concerning climbing, climbers and their technology. However, as academic literature specifically focusing upon climbing is limited I will also draw upon a few studies outside of climbing which have comparable elements, most notably risk and engagement with the outdoors.

4.3 The nature-culture of mountains

> Mountains stand tall in the quest for understanding nature society interactions (Blake 2005: 527).

Mountains were long considered 'pure' and 'natural' 'wildernesses' untouched by human hands and culture (Macfarlane 2003; Brady 2003). Paradoxically the opposite view now holds as we believe, there can be no "untarnished perception of things" (Wylie 2009: 276), and that mountains, like other landscapes, are always observed through situated, historical, technological and cultural contexts (Cosgrove and Della Dora 2009; Cronon 1995). The traditional concept of the nature-culture binary, in which all 'things' are assigned as inherently belonging to the 'natural' or the 'cultural' spheres is entrenched in modern day thought and social consciousness (Murdoch 1997a; Wilson 1992). This dualism, has its roots in various movements, including the romantic movement of the late 18th century, and European exploration and colonialism, where a nature-culture distinction was used as a simplified way to express the differences between a 'cultured society' and the 'uncivilised' or 'savage' 'wilderness' that was being mapped, conquered or explored at the time (Tuan 2004; Livingstone 1992; Driver 2001) (Section 3.3). The powerful and unequal discourses of

this era fed directly into the nature-culture binary with things classed as, or associated with, culture, perceived as superior to those deemed natural (Hinchcliffe 2007; Whatmore 1999a; Cronon 1995). This shift can ultimately be regarded as culture and human action taking precedence over nature and all things considered 'natural', or, as Butler (1995: 97) contends, it is "a historical privileging of the conceptual over the corporeal". Castree and Macmillan (2001: 208) contend that to many, and traditionally "the distinction between society and nature is so familiar and fundamental as to seem unquestionable".

Contemporary thought in geography and cognate fields has seen a resurgence of interest in nature-culture debates in recent years. Latour (1999, 2005), Castree and Braun (2001), Ingold (1992, 2000), Hinchliffe (2008), and Whatmore (2002) are all critical of outdated dualistic thinking, and regard the terms 'nature' and 'natural' as constructs rather than fixed entities. These authors and others argue that what is observed as 'natural' is mediated through our minds in light of our shared and unique cultural experiences. The result is that the term 'nature' becomes a problematic concept which requires a critical understanding of its differential social constructions, particularly as such binaries often become, and remain, taken for granted divisions which ignore the complexities and politics of their social construction and maintenance (Murdoch 1997a). Recognition of this problem led Neil Smith (1990) to distinguish between 'first', 'second' and 'third' 'natures' - to distinguish between 'natural' 'god given' natures, socially produced natures, and technological 'virtual landscapes' respectively. Such a perspective proves useful in identifying the social construction of nature, but still perpetuates the problem of the cultural categorisations of nature.

Poststructuralist logic tends to view the nature-culture dyad as a construction of the modernising Western World, especially evident during the 18th and 19th Century as a means of procuring colonial advantage (Strohmayer 2005). Poststructuralists are therefore committed to unraveling the two, and the dominant discourses that inform and sustain the dyad. The aim of this is examining the world and all its 'human' and 'non-human' elements free from a framework that infers the superiority of one over the other (Whatmore 2002; Castree and Braun 2001; Murdoch 1997b). In essence poststucturalist logic as conveyed through Science and Technology Studies (STS)

positions itself as a science of the production of knowledge examining the influence of society on science and technology, and the influence of science and technology on society (Foucault 2003; Latour 1999).

The binary construction of 'reality' and 'representation' is another factor that has been problematic to the discussion of 'nature' (Whatmore 1999a). This is referring to the manner that 'social constructionalist' accounts of nature have tended to regard 'nature' as an artefact of the social imagination created through human interpretation and thus a representation (Whatmore 1999a). However, most people are aware that representations of the world, whether personal impressions, maps, news reports, or suchlike, do not always match the reality they are supposed to represent because they are constructed with a purpose and viewed through a cultural lens (Hannah 2005: 151).

Work from science and technology studies (STS) and notably from Bruno Latour (1999), has targeted the constructions of representations and knowledge created by 'science'. Latour's (1999, 1988, 1987) studies emphasise that even under strict laboratory conditions, representations of reality and the construction of knowledge do not mirror a 'pure truth', but rather a negotiation of the truth from the various actors involved. Latour (1987) considers the laboratory-style binary construction of nature and culture as inherently flawed because the 'objects' under study should not be regarded as lifeless and devoid of agency, rather they should be considered as 'actants' accredited with agency, and prone to deviation and influence.

Latour (1993) argues that the boundary between nature and culture is imaginary, used by certain modes of western thought to dominate through ascription. However he suggests that humanity and nature are infused materially as hybrids. This is the central aspect of Whatmore's (2002: 3) analysis of hybrid geographies, where she proposes an:

> Upheaval of binary terms in which the question of nature has been posed and a re-cognition of the intimate, sensible and hectic bonds through which people and plants; devices and creatures; documents and elements take and hold their shape in relation to each other in the fabric of everyday life.

The Actor Network approach is particularly suited to the dissolution of the socially constructed binaries that pervade modernist thinking (Latour 1993). ANT acts to rewrite the constitution of western modernist thinking by "defining a new way of thinking about society–nature–technology relations which aims to go 'beyond' dualisms" (Murdoch 1997a: 733).

Whatmore (2002), Latour (1999) and others may have problematised the complex and entangled relatedness between culture, nature and technologies, however, they are yet to address the conscious engagement with risky environments for pleasure and exhilaration. Neither have they explored how entanglements are changing through time, nor have they considered what the implications of these changes might be. This study will therefore add to nature-culture debates in this area by focusing upon the changing pursuit of climbing.

4.4 Actor Network Theory: Exploring the relations and agency of things

Contributions on nature-culture debates, embodiment and materialism discussed later, point towards a theoretical shift away from reductionist and dualistic thinking, and the unequal and differentiated treatment of subjects and objects. These are moves that have led me towards ANT as a theoretical approach to study climbing assemblages. Actor Network Theory is a poststructuralist approach to the study of technology and society that *situates* knowledge in a relational rather than a modernist logocentric manner (Strohmayer 2005; Pratt 2000). In this section I outline the fundamental concepts of ANT which will contribute to the subsequent analysis empirical analysis.

> Consider things, and you will have humans. Consider humans, and you are by that very act interested in things. Bring your attention to bear on hard things, and see them become gentle, soft, or human. Turn your attention to humans, and see them become electric circuits, automatic gears, or softwares. We cannot even define precisely what makes some human and others technical, whereas we are able to document precisely their modifications and replacements, their rearrangements and their alliances, their delegations and representations. (Latour 2000: 20)

Central to Latour's thinking on Actor Network Theory (ANT) is the idea that we are inherently entwined with technology. Actor network theory emerged in the 1980s from science and technology studies (STS) with particular reference to the work of Michel Callon (1986) Bruno Latour (1987) and John Law (1994). STS aims to reveal how scientific method is situated and how the knowledge created by 'science' both reflects and is embedded in its social, cultural and technological context. STS has become particularly rich in providing conceptual frameworks for examining the realities and possibilities that new technologies bring. ANT emerged from STS as a way to deconstruct the practices of science and knowledge creation, whilst maintaining a sense of the wider network and complexity of even the most controlled scientific environments (Latour 2004). Such study is undertaken by examining the relations and relationality amongst networks of things.

In recent years Actor Network theorists have become particularly influential amongst geographers (Demeritt 1996; Murdoch 1997a 198b; Hinchliffe 1996, 2000, 2007; Whatmore 1997, 2000; Laurier and Philo 1999). Notable is Whatmore (2002). She uses the term 'hybrid geographies' as she examines technology and nature, and the multiple narratives involved to explore the existence, composition and governance of social, natural, human and material relations in time and space. More recently Hinchliffe's (2007) approach to nature, also influenced by ANT, emphasises how nature is enacted and co-produced with society rather than by it. These authors embrace Latour's ideas due to the way in which they allow them to unfold the complexities of space and the fluidity of its ongoing evolution. Murdoch (1998: 357) states that, "ANT is a useful way of thinking about how spatial relations come to be wrapped up into complex networks". The approach has even attracted non-representational theorists for whom ANT usefully problematises representations of space and in doing so, representation itself (Thrift 1996, 1997, 2008).

In ANT, agency is afforded to non-humans as well as humans; therefore networks can contain humans, machines, and any other animate or inanimate material artefacts. Agency is gained via the semiotics generated through, and by, interactions and relations with others within the network. For Latour (1992: 241) actors are "entities that do things" and in consequence everything matters (or at least everything

consisting of matter matters). Humans and non-humans are (initially) treated equally and defined relationally in the networks they inhabit. These networks are built via acts of heterogeneous engineering, by diverse and numerous relations and associations within, and between, the many different actors and networks which bond the multiplicity of connections from which the physical and social world is created (Law 1987). ANT investigates such networks "by investigating links rather than distinctions" (Murdoch 1997b: 321-322). Haraway (2003: 4) notes "the relation is the smallest unit of analysis", and for her it is these small and subtle relations that ANT is able to draw out by embracing the complexity of networks and assemblages.

The durability and maintenance of networks relies upon what Latour (1987) terms 'immutable mobiles'. These are entities that can be transported but do not change form allowing their associated networks to remain stable and durable. In networks of humans, technologies, and matter in general, humans are not the only beings with agency, not the only ones to act. Immutable mobiles are entities that are materialised into semiotic signs, and reinforce existing relations, acting to stabilise and maintain networks, but may also disrupt them (Latour 1999). For example, Law (1986) investigated how the Portuguese developed and sustained a network that enabled them to control their empire. He demonstrated how a network of ships, sailors, sails, navigation methods, cannons and currents, each element an immutable mobile, aided the durability of the empire in some way. The manner in which these immutable mobiles are aligned produced what Latour (1999) terms 'circulating reference' which acts to reinforce networks by producing enduring meaning and identity as a result. The immutable mobiles themselves are likely to consist of mediators and intermediaries, nodes that influence and tie networks together by relational means (Latour 2005).

Other immutable mobiles such as inscriptions are more clear articulations or translations of the material world. Inscription is the process by which entities become materialised into different forms (Latour and Woolgar 1986). A good example from climbing would be a guidebook that transforms the physical crag into a digest of climbable routes. Inscription helps us understands how knowledge is created and formalised. Thus an exploration of the inscription is revealing in determining how and

why knowledges are created and the role that they play in the durability of networks (*ibid*).

ANT also provides a means of explaining how technology shapes peoples' practices. Latour's (2000) paper on the Berlin key explains how the design of a lock modified the behaviour of its users. He explores how people adapted their routines and practices to fall in accordance with the locks' functioning. The key acts as an intermediary by transporting the meaning of the lock - which in this case signifies the security of the home. The key also has a political meaning, as the locks are used by tenants, thus the key functions according to the terms of the property owners. For Latour, technologies carry meanings rather than fabricating them. However, Latour also explains that meaning does not precede technology. Hence forth, the key takes on the appearance of a mediator. As Latour (2000: 19) explains, "from being a simple tool, the steel key assumes all the dignity of a mediator, a social actor, an agent, an active being". The locks and their human users then co-evolve whereby both the technology and the practices of its use become altered. For instance, by physically altering the key, the tenant can make it behave like a 'normal' key, as a means of reasserting power and breaking free of the materially imposed order. ANT implies that all technologies need to be analysed in the contexts of their networks as their mediatory effects are derived through and from these.

The example of the Berlin key introduces the idea that we co-evolve with technology we use in everyday life and the idea that humans and non-humans co-produce each other. Co-production occurs when the actors within networks mutually exchange and enhance their properties (Latour 1999). Latour (1988) demonstrates this in reference to an analysis of Pasteur's viral vaccine discovery. In this example, by revealing the complexity of Pasteur's laboratory work by network analysis, Latour (1988) demonstrates that Pasteur's discovery was in part reliant upon silent and heterogeneous others, including, the bacterial growth, the technical tools of the laboratory, and the societal need for a vaccine. Exemplifying Latour's co-contructionalist mode of analysis, Murdoch (2001: 118-119) argues that "it is the co-construction of a complex socio-natural assemblage or network that allows the (natural) substance (and also the great scientist) to emerge". The actors in Latour's

network have been treated ‘symmetrically’, the ‘social’, the ‘natural’ and the ‘human’ and ‘non human’, this situation allows a co-construction to take place and to be identified in a relational non-dualistic manner (Murdoch 2001). Similarly I approach climbing by exploring the socio-natural/technical assemblages of climbers as networks of symmetrical actors; I identify what each actor contributes to the pursuit. Furthermore I intend to show that co-production is not a static concept and drawing upon Hand *et al* (2007) to illustrate that people (climbers) and devices (kit) co-evolve through their technologised practices.

4.4.1 A critique of Actor Network theory

Notwithstanding the contribution that ANT has made to the study of the relational agency between humans and non-humans the approach has attracted criticism from some theorists. Notably Mclean and Hassard (2004: 494) assert five critical issues in regard to the production of ANT accounts. These include; ‘the inclusion and exclusion of actors’; ‘the treatment of humans and non humans’; ‘the nature of privileging and status’; ‘the handling of agency and structure’; and ‘the nature of politics and power in heterogeneous engineering’. These five factors are in many ways interrelated, however, I will outline the ANT response and the implications in terms of my study separately below.

Feminist and postcolonialist scholars have argued that ANT fails to apprehend the experiences of subjects who are marginalised by the scientific and political structures of representation (Strathern 1996). This problem may be further exacerbated because inclusion and exclusion of actors in ANT studies is dependent upon what the researcher deems relevant to the study. This, critics argue, could lead to the marginalisation of minority actors. Mclean and Hassard (2004: 499) suggest that inclusion and exclusion “involves a continual process of deciding which actors to follow and how to represent them”. Such an approach without could lead to problems of research bias or gendered accounts, requiring the researcher to scrutinise every assumption or decision s/he applies. However, rather than perceiving this as a criticism, Law (2004) deems exclusion and inclusion as an inevitable consequence when studying complexity and heterogeneity. For Law (2004) the ANT author should make clear their rationale for inclusion/exclusion and absence/presence and understand that networks, although it is useful for shedding light on complex issues in

non dualistic terms, an ANT account can never fully describe the messy heterogeneous world. To ensure the ANT analysis is not too unwieldy, detailed, mundane or overly complex Law recognises that certain aspects may have to remain either absent or be 'black boxed', the Latourian concept referring to the way in which effective scientific and technical systems obscure their internal complexity (Latour 1999). The issue of which actors to include in my research on climbing is one that I have given a great amount of thought (Chapter 5).

Mclean and Hassards' (2004) second issue is that social constructionists consider ANT's treatment of humans and non-humans as fundamentally wrong, because material objects are shaped by humans, hence the social is always distinguished and differentiated from the material. Accordingly, when people interact with things under the constraints of social construction, even in complex ways (see Bijker 1995, and Bijker *et al* 1987), it is always nevertheless in unequal and dualistic terms. As Law (2000: 4) puts it, for social constructionists, "humans are human and non-humans are non-human, even if they live together". However, critics such as Collins and Yearley (1992) regard the symmetrical treatment of the human and non-human as mistaken. This is because ANT tends to provide human centred accounts, so the researcher must act as the spokesperson for the actor in the network. Collin and Yearley regard this as inevitably human centred.

In response to this concern scholars have sought to engage with other areas of theory, including work derived from Feminist science studies, which shares with ANT a relational conception of agency, examining how humans are shaped by and shape others through relations (Haraway 2008). The symmetrical treatment of humans and non-humans is deemed necessary from an ANT perspective in order to distinguish and explore relations, and to make sense of the messy and complex world, where they believe social life would not be possible without interactions with, and mediation by, non-human counterparts (Latour 1999; Law 2004). ANT sees humans and non-humans as entities that are not fixed, but that gain their attributes from relations to other things within the network. In support of the counter criticism Whatmore (2002) contends that social constructionist accounts perpetuate the divisions between the human and non-human. Her hybrid geographical approach recognises the need to de-

centre social agency and decouple the subject-object boundary. The resulting process is summarised by Thrift (2008: 24):

> Technical artefacts can clearly define the role played by others within the network – Both humans and non-humans. In other words, the 'material' and the 'social' intertwine and interact in all manner of promiscuous combination.

The promiscuous combinations Thrift refers to are the relational hybrid entities that are the focus of this thesis.

Continuing Mclean and Hassards' (2004) critique, the privileging of non-humans as actors has also been questioned, as has the rationale for endowing the material with the potency of action (Collins and Yearley 1992). They are critical of Latour's (1992) political call for the enfranchisement of the non-human 'missing masses'. To Latour (1999, 2005) ANT affords the non-human ontological status of actors with the purpose of removing the *fixed* status of what is 'natural' and what is 'social' in order to understand the world in non-dualistic terms. In regard to this study such an approach is necessary to chart the contributions of the climbers' entire hybrid techno-natural assemblages. Thus entities achieve their form as a consequence of the relations in which they are located and performed; that is, in, by and through these relations (Mclean and Hassard 2004: 507).

Latour (1992) argues that people do not precede and constitute technology but emerge with it. In the same way as texts and images can inscribe an event so too can a technology (Latour 1999). For instance, using the example of the automatic door closer, Latour (1992) demonstrates how closing the door is 'shifted out' from human intention to the mechanical. Other actants may become enrolled into these socio-technical networks, making them more complex, as well as the co-evolving socio-technical practices which emerge within such networks. These are themes that are central to the exploration of my empirical study.

The fourth criticism highlighted by Mclean and Hassard (2004) is ANT's focus upon the local and contingent which ignores possible influence from broader social structures. In response to such claims Latour (1999) suggests that the urge to look for macro level

influences leads to abstraction, as does the sole focus on local. Latour (1999a: 17) regards ANT as:

> …simply a way of paying attention to these two dissatisfactions [the micro and the macro] not again to overcome them or to solve the problem, but to follow them elsewhere and try to explore the very conditions that make these two opposite disappointments possible.

Thus ANT explores the structures of the social in its local context traced through networks of connections and mediations. These contingencies need not be localised they can be distant as they are effects of the relational condition. Consequently, ANT traces and emphasises topological networks of relations rather than geographies of scale (Latour 2005).

The final point raised by Mclean and Hassard (2004) is how ANT fails to detail the moral and political issues underlying technologies and how the ANT author is not separate from "the politics of everyday life" (Mclean and Hassard 2004: 511). ANT has been criticised for recounting neat plausible stories via a 'subjectively directed' network of heterogeneous engineering, rather than revealing a messy complex tangle (Lee and Brown 1994). Commentators suggest ANT reliance on descriptive accounts and chains of relations fails to explain social changes. Critics of ANT propose that it is the researcher who brings the network into being and is always at risk of following endless chains of association to draw out relations. Thus, it is the researcher's application of ANT that is used to explore the story of its relational composition (Law 2000). The author makes actors present or absent, to enliven and highlight differing aspects of the network, rather than to tackle complexity. These traits of the approach leave it open to such claims. ANT is descriptive rather than predictive, because advocates of the method seek description rather than determinism, therefore, the integrity and transparency of the author is key (Law 2004).

In sum, despite the criticisms of the ANT approach it is suited for a study of present day climbing. Climbing is a sport that is changing; progressive technological change has meant that climbing itself is an evolving experience. The ANT mode of analysis allows me to explore the complex network of the climbing assemblage to explore the

subtleties of these changes. My account will attempt to engage with this complexity whilst remaining transparent. This will be done by highlighting artificial separations of the networks I study, ensuring the voices of marginalized climbers are heard, and by making evident purposeful absences and presences that are required for both clarity and defining the scope of the project.

4.5 Embodying the outdoors

> The human body is not just flesh and blood. An object for the mind to use at its will. The body is an active and reactive entity which is not just part of us, but is who we are. (Butler 1999: 239)

The body as both a corporeal entity and our means of interacting with the environment has drawn much attention within and beyond human geography, and many scholars have used the concept of embodiment to critically examine the complexities of the interplay between the bodies and places (McDowell and Court 1994; Longhurst 1995; 1997; Rose 1995; Pile 1996; Nast and Pile 1998). Feminist theory is central to contemporary understandings of the body and embodiment. This is particularly notable in the feminist critique of the body-mind division and its dualistic counterparts: nature/culture, male/female, rational/non-rational. As Butler's quote above illustrates, the feminist approach conceives the corporeal self as comprised of an irreducibly entwined body *and* mind. For Feminist theorists such as Grosz (1998) the body itself is a boundary concept which can disrupt given identity and refuse the application of dualistic association. As a consequence of this the body demands that we reconceptualise notions of what bodies represent. Grosz (1998: 43-44) defines the body as the following:

> By body I understand a concrete, material animate organization of flesh, organs, nerves and muscles, and skeletal structure which are given a unity, cohesiveness, and organization only through the physical and social inscription as the surface and raw materials of an integrated and cohesive totality. The body is, so to speak, organically/biologically/naturally, "incomplete;" it is indeterminate, amorphous, a series of uncoordinated potentialities which require social triggering, ordering and long term administration.

Although we can define the body and be sure of its materiality, the body retains an un-definable and un-knowable potential that undermines attempts to bound and theorise it as a site of research (Pile 1996; Longhurst 1995).

Feminist contributions on the body are particularly important when considering a gendered pursuit such as rock climbing. Robinson (2004, 2008) has examined rock climbing and the climbing body as a gendered, paying particular attention to masculine identity. She argues that male climbers reinforce their identity via risk taking, by being injured, and through possessing a honed climbing body. Dilley (2006) identifies climbing femininities as different to climbing masculinities. She argues that differences are largely due to the sport's domination by men, and also because the physicality of the sport is at odds with traditional notions of femininity. However, as Young (1980) contends tradition notions of femininity and feminine comportment need not be odds with the reality of femininity. Young (1980: 138) is critical of the way that certain modes of bodily comportment become regarded by some as traits and attributes of a natural or eternal "feminine essence". Alternatively she suggests that the ways in which the feminine body conducts itself in comportment or movement may be revelatory of the structures of feminine existence, rather than a virtue of their being biologically female.

Both Robinson (2004, 2008) and Dilley (2006) provide evidence to support Young's claims, suggesting that the climbing style of women which requires 'balance' and 'nimbleness' are qualities that were often de-valued by the male preference for routes that demanded physical strength. For Young an understanding of the structures and conditions that delimit *typical* gendered comportment would make it possible for some women to transcend it. Dilley supports this assertion suggesting that climbing offers the women in her study a chance of 'developing alternative femininities', such as, strength, skill and the competency to engage with nature and enjoy it in a physical way.

From a geographical perspective, Nast and Pile (1998) recognised a need to examine the relationship between bodies and places and their contribution to spatial relationships. They argue that empirical research on embodiment is valuable to understanding peoples' experience of the environment, both at subjective and

conceptual levels. The move towards an 'embodied geography' is regarded as an approach that "connects to the 'felt' dimensions of nature in everyday life" (Macnaghten 2003: 81-2). Ideas of embodiment represent a welcome departure from epistemologies that have given primacy to the mental and visual experiences of the world, thus also offering a challenge to the longstanding dualism of the Cartesian mind and body (Longhurst 1995; Rodaway 1994; Rose 1993).

Continuing to consider geographical thought on embodiment from a feminist perpective, Rose (1993) recognised that science and knowledge creation were traditionally corralled as 'masculinised activities', whereby masculinity was paired with rationality, and purposefully distanced from the human-emotional and value laden body. Developing this, Longhurst (1997: 491) considered this 'disembodiment' of thought to be a way of asserting a masculinised, rational, objective scientific gaze which purported to be "autonomous, transcendent and objective; mess and matter free". For these theorists the concept of embodiment represented a means of questioning this manner of thinking by reconnecting the mind and body and questioning the legacy of another established dualism (Longhurst 1997, 1995).

Authors' uses of 'embodiment' have made significant contributions to understanding how people interact with and move through places, particularly the outdoors, through walking and hiking (Wylie 2003, 2005; Lorimer and Lund 2003), caving (Cant 2003), naturism (Morris 2009) and climbing (Lewis 2001, 2004). In his study on climbing, Lewis (2001: 77) illustrates the embodied geographical approach.

> The climbing body advocates a sensuous appreciation of the human body and the physical world. Sensual knowledges provide the informational content of knowledge utilised by climbers to 'make sense' of the world, as an embodied self in nature.

Lewis (2001) highlights how the climber relies upon embodied sensual knowledges, drawn from their tactile climbing experiences, to tackle new physical obstacles. This focus upon embodiment including body-consciousness is valuable as it elicits details of embodied experiences that are rarely noted in previous geographical research. Continuing, Lewis (*ibid:* 71) suggests that the tactile hands of a climber play a pivotal

role whilst climbing. He states that “climbers feel their way up a route via tactile navigation”. Lewis perceives the hand as a ‘mediator’ and a ‘conduit’ which processes information whilst climbing. He suggests that touch replaces sight as the main means in which the climb is understood and experienced. To Lewis, hands, unlike shoe clad feet, “have an unmediated relation with the natural world” (2000: 72). However, his approach did not engage with the socio-technical elements of the climb, for example, how most climbers use chalk to enhance grip, as well as finger training devices used in preparation.

It is important not to focus solely upon the body in terms of its physicality and contact points with the environment. Kiewa’s (2002) study of climbing identified climbers’ need for self control in stressful situations. She recognised self control as a quality that climbers liked about the experience of climbing but failed to identify technology as having a role in the climbers’ feelings of being in control and safety. Cant’s (2003) study of caving as a deeply intimate sensuous encounter underground also typifies the depths and insights that can be achieved by examining embodied geographies. She reveals speleologists’ particular physical, embodied, emotional and thoughtful geographies, and how these are at odds with masculine stereotypes present in many other outdoor pursuits. In reference to caving Cant (2003: 67) refers to the “tug of danger”, of pushing the limits of the senses beyond the normal physical and emotional limits, as a positive experience. She considers cavers to have an innate human love of adventure. In this research she also touches upon how the darkness is mediated by cavers’ use of cap-lamps, and how barriers are overcome by the use of flexible ladders and distinct bodily techniques.

> The relationship between cave and caver is practised – it involves intentions, encounters and particular bodily movements, methods and equipment – and above all, it centres upon embodied experiences. (Cant 2003: 73)

This study demonstrates a pursuit that is far more than a mere physical exertion to its participants, but I feel it underplays the significance of the relational agency of their equipment. Following Cant’s (2003) and Kiewa’s (2002) studies, my examination of the embodied experience of climbing, will include the range of emotions as well as the

senses, placing emphasis upon the manner in which they may be extended, enabled or alternatively suppressed through the climbing body's alignment with technology.

The embodiment literature shows us that we are capable of experiencing places in a variety of multi-sensual and intelligent ways through, and because of, our bodies (Grosz 1994). Macnaghten and Urry (2001: 2) also suggest that material artefacts used in conjunction with the body also have the ability to "sensuously extend 'human' capacities". However, while the literature on this emerging field raises useful questions about the roles of these technologies in constituting hybrid bodies, more research is needed on how these technological innovations are transforming the corporeal boundaries of endurance, skill and safety in practices like climbing. My latter analysis explores the complexities that constitute the present day climber including what Michael (2006: 5) terms their "socio-technical assemblages". Therefore, although I draw inspiration and insight from the embodiment literature I will focus upon the interplay between the body and technology drawing upon ANT's recognition that the body and mind become entwined with the material through repeated, tactile and emotional relations (Latour 2000, 1992, 1988b; Haraway 1997, 2008).

4.5.1 The climbing body, modernity and rationalisation

Continuing with the focus on the body Lewis (2001) studied British climbing and modernity from the perspective of a British trad (or as he terms it 'adventure') climber. Lewis draws heavily upon dualisms to differentiate the 'climbing body' from that of the 'metropolitan body' (the standard urban body) of modernity. He suggests that the body of the climber is a site of resistance to modernity. He continues by arguing that the medicalisation of 'death' has removed it from public view, and valuably, climbing experientially returns the possibility of death and the sense of the body as fragile and organic by providing significant 'marginal' moments. Lewis (2001 :77) also suggests that the use of technologies such as bolts decreases risk and hence the experiential risk of death which is vital to his 'ideal' of climbing as "modernity's quintessential embodied ritual of resistance". I will explore these claims by looking at technological change across all aspects of climbing rather than dichotomising sport and trad climbing, and climbers, which from my theoretical perspective fails to capture how technological changed is manifested.

Heywood (1994) also considers climbing against the context of modernity by examining how innovations in climbing technology serve to rationalise the sport. Drawing upon Ritzer's (1993) Macdonaldisation thesis, he argues that recreation, even when undertaken with escapist intent, often succumbs to rationalisation. Thus rather than regarding sport and trad climbing types as distinct (like Lewis 2001, 2004), he suggests that their differences are due to "degrees of rationalization" rather than marked experiential distinctions (1994: 191). Heywood distinguishes three factors that have increasingly rationalised the sport in recent times; first, guidebooks whose grading systems, diagrams and descriptions offer predictability; second, climbing gear, which is progressively improving offering greater safety, predictability and control; and third, training, which has become more specialised due to home and indoor aids and walls. He suggests that climbers have a choice and, "can have their activity raw, medium or well done, according to how they feel or what they want from the sport" (1994: 187). However, Heywood's approach ignores how improvements in technology do not necessarily sanitise or domesticate the climbing experience; rather, they also push the climber towards more demanding challenges (Csikszentmihalyi 1975).

In a later paper Heywood (2006) argues that the commodification and commercialisation of climbing, as well as the regulation and standardisation associated with insurance, are additional factors placing pressure on climbing and other outdoor pursuits to become more rationalised. By applying an Actor Network approach I intend to extend Heywood's debate particularly focusing upon the rationalising effect of technological innovation, by focusing upon the active relations between the climber, kit and crag to explore how the pursuit is rationalised and the environment is domesticated by kit changes, or if indeed there are alternative outcomes and explanations.

4.6 Materiality

This section focuses upon the theoretical contributions from literature on materiality. Social and cultural geography has been enlivened by its recent (re)engagement with a "profusion of materialisms" (Anderson and Tolia-Kelly 2004: 672). The thrust of this comes from the realisation that we are living in a "more-than-human" world

(Whatmore 2006: 604), in which new materialities are problematising traditional ways of theorising and analysing spatial relations. This section represents an overview of how, in a relatively short space of time, these theoretical approaches to materiality have begun to shift wider debate towards a more relational approach of material artefacts.

The quote below is representative of traditional materialist thinking regarding the material as a quantity, I replicate it here to support my argument that materiality is more than what can be counted, measured, and observed.

> As you climb up hills and mountains in the UK... you find a falling away of human society that is marked by a change in material culture. In the valleys, stretching up into the lower hills, are roads for vehicles, fields with crops, plantations, collections of farm buildings and houses, telephone wires, fences and walls. As you go higher the socially provided amenities that support modern material life disappear and are replaced by septic tanks, soak aways, calor gas, diesel powered electricity generators and fresh water wells and springs. Buildings become more isolated, the land less cultivated, crops give way to grazing animals, roads are a layer of aggregate rather than tarmac. A 'tree-line' marks the point above which production on the land ceases. In England this point is usually reached at about 450 metres where the grouse moors and open land begin. Once the dry stone walls have ended. Often the only buildings are occasional lines of rough shooting butts. (Dant 1999: 3).

Dant's paragraph is quoted in full as the imagery it conjures is stark and clear, especially to those who have spent time in the mountainous areas of the UK. I agree with the description to a point, but feel it fails to understand the complexity of the materiality of the landscape that Dant describes. His description ignores how mountainous regions are shaped by people and technologies in the UK such as game keepers, farmers, walkers and climbers. Theories of materiality have in the past fallen foul of these over simplistic interpretations of material culture which ignore the differing perspectives and uses of the material world (Graves-Brown 2000).

Recognition of this has led materialist thinkers to move away from looking at material artefacts as 'out there', and bounded by reductionist and socially ascribed definitions (Dant 2005). For Miller (2005), the term 'materiality' needs to encompass a wider set of theoretical and philosophical uses. Materiality can simply apply to the material artefact in terms of the quantity of objects, however, more recently studies of material culture have recognised the need to study the material in relation to the body, particularly in light of the unprecedented speed and complexity of material culture in modern society (Dant 2005; Mitchell 2004). Studies of materiality have charted the progress of technology and have begun to analyse the affordances that they generate for the users (Michael 2000). People interact with material objects everyday and their lived experience is almost constantly mediated by myriad devices that they may or may not be aware of (Mitchell 2004; Latour 1992). Theorists concerned with this intense level of technological mediation have begun to reveal the impact that such complex, but also mundane, and often invisible technologies, are having upon us (Michael 2006; Latour 2000).

Returning to Dant's quotation at the beginning of this section, the presumption of my research is that as the rock climber steps onto the crag, rather than leaving the technological world behind, a diverse and vital set of material relations will become stark and apparent. Reliance upon material technology, as well as the skills and experience to utilise them proficiently, are likely to come to the fore. I intend to explore the relations between the climber and the gear that he or she uses to enable their climb. Therefore my analysis of materiality does not examine it in isolation from its intended context. Rather, I plan to examine the mundane and extraordinary technologies that come together with the body and the physical environment to enable the climb to take place. This approach can be seen in the work of Dant and Wheaton (2007). They examine the windsurfer as a material hybrid whose experience is changed through developments in windsurf technology.

> Getting the sailboard to move requires a fine interaction between the sailor's body and the kit; there is a complex 'material interaction' between the material capital that is in the objects of the kit and the embodied capital that is in the body of the sailor. (Dant and Wheaton 2007: 10)

They also argue that a windsurfer's kit becomes a 'prosthetic extension' of the body. This is likely to be true in climbing as well, notably the sticky rubber shoe which produces friction and grip between the climber and the rock. However, I also want to uncover how the technology climbers use, alongside expanding physical capabilities, also enables climbers to surpass the mental challenges associated with climbing, namely overcoming the risk.

4.6.1 New materialist thinkers

Rock climbing is not solely about being physically enabled, it is also about overcoming the related mental challenges and barriers of these environments. I also intend to examine how a climber's kit enables these challenges to be met. In relation to this aspect I have drawn upon new materialist thinkers such as Turkle (2007) and Miller (2008). These authors have bought a different perspective to studies of materiality, theorising how, and why, people align themselves with objects as a means of providing comfort and self identity. The new materialist approach focuses on the micro and often mundane level, such as the ornaments found in people's homes, in order to understand how people are enabled by specific physical objects (Chapman 2006; Michael 2006).

Miller (2005) puts forward a theory of objectification, the projection of conceptual elements onto things, suggesting that individual consciousness is brought into being by its close relations to the material world. Drawing upon Miller's theory of objectification, Wilford (2008: 649) states, "materiality participates in the constitution not just of society but of individual consciousness as well". These ideas are similar to ANT conceptions of co-construction whereby objects and people are mutually constituted through their relations (Murdoch 2001).

Turkle (2007) believes that even the simplest of everyday objects, from 'vacuum cleaners' to 'ballet slippers', can be emotional and intellectual companions. Similarly, Miller's (2008) recent book 'The Comfort of Things' explores the manner in which material artefacts enrich the lives of a number people living separately in a London street. Miller places particular emphasis on the importance of the trivial and mundane material artefacts found in the home. He argues that people align themselves in their homes with things that bring comfort and meaning to their lives. One of the

householders in his study valued her collection of Macdonald's Happy Meal toys, not merely for their aesthetic qualities, but as a mental trigger of memories, and a positive identification of herself as a parent (Miller 2008).

The new materialist perspective stresses the following. First, that objects and subjects are interdependent and are significant to each other in terms of their mutual relationships (Latour 2004). Second, that we need to study such relationships, and therefore, subjects and objects cannot be studied in isolation from each other, if we wish to investigate co-constructive meaning (Whatmore 199b, 2002; Murdoch 2001). Finally, that object-subject relations are situated and thus context specific (Miller 2008; Turkle 2007). This does not only refer to the geographic location but also to specificities of scale and time (Law 2004).

Much of the recent materialist theory research is inspired by the work of Actor Network Theorists, indeed Latour himself has recently been termed a 'new materialist' (Wilford 2008). This is because ANT has provided the materialists (Dant 2005; Miller 2008) with a means of looking at materiality that is no longer something 'we stub our toe against', and likewise moving theorists on from the misconception that the body is the centre of our 'sensuous' existence (Miller 2005). What Latour (1999, 2005) and others have provided through ANT is a theoretical framework that is able to transcend the dualism of subject and object to produce a theory that affords humans and non-human alike equability and agency through their dense networks of relations. My analysis will draw parallels to this new materialist research, examining the possibility that climbers relate to their gear and that in some way it provides comfort and confidence from its *presence* rather than, or in addition to, its actual function. This will allow me to explore if familiar material relations are an important part of climbing in relation to the empirical information gathered from my sample.

4.6.2 Materialising the research agenda

There have been several calls for social and cultural geography to engage with the material (Philo 2000; Jackson 2000). Some writers have responded (see Whatmore 2006; and Dixon and Whitehead 2008), but their contributions remain largely based on autobiographical accounts rather than empirical research (Section 5.3). From a leisure studies perspective Haldrup and Larsen (2006) have highlighted that although people

interact corporeally with a range of objects including maps, boots, and paths, other studies have failed to understand the broader significance of materiality and objects in the analysis of leisure pursuits. This thesis addresses these issues by focussing on rock climbing's array of non-human aids and interactions.

Haldrup and Larsen (2006) argue that the past theoretical focus on human consciousness ignored the notion that 'nonhumans' such as objects and technologies 'enable' human agency and are crucial in making leisure geographies "happen-able and performable" (2006: 278). They stress that activities in the environment are not merely a human achievement and that objects have a 'use-value' that enhances the physicality of the body and it enables it to do things and sense realities that would otherwise be beyond its capabilities (Haldrup and Larsen, 2006: 276). However, the term 'use value' perhaps suggests a single use, or a closed and bounded value. This is at odds with recent writing on materiality and ANT which see artefacts, people and their practices as co-evolving in multiple ways (Hand *et al* 2007). This assertion resonates with Whatmore's (2002) hybrid geographies approach which regards culture as a relational outcome of everyday interactions between humans and non-humans.

4.7 Cyborgs

The aforementioned examples indicate how certain strands of materiality and embodiment research has been influenced by ANT. This new research focus has been largely concerned with the relations between humans and material artefacts given Latourian claims that they are an essential element of the experience of life. Donna Haraway's (1987) concept of the 'cyborg' further develops this conceptual fusion between the body and the material by prompting a dialogue that discusses heterogeneity and human – non-human hybridity. Haraway (1997) points to an implosion of dualisms; the natural and the artificial, nature and culture, subject and object, machine and organic body in contemporary society. This implosion has led to multiple transgressions of boundaries, largely through material semiotics (the simultaneous relationships of and between material objects and semiotic concepts), a multitude of differing 'technonatures' and 'technocultures' and a resultant 'cyborg' population.

Haraway's ideas are central to my project's aims of exploring how the technologies of climbers transgress the boundaries of the body. The implication of this is that technologies merge with the corporeal to create a hybrid techno-body. Haraway's (1991) cyborgian thesis will help me to explore how the enabling benefits of technology are realised, and what the experiential consequences of these developments are. Haraway uses the metaphor of the cyborg, borrowed from science fiction, to explain how new beings are co-constituted fusions between the organic and the artificial. She suggests that cyborg figures "are the offspring of implosions of subjects and objects and of the natural and artificial" (Haraway, 1997:12). Haraway's cyborg allows us the possibility to find "a way out of the maze of dualisms our bodies our tools and ourselves" (1991: 181). Unlike ANT, Haraway uses the term cyborg from a critical feminist perspective, and utilises macro-sociological concepts to explain the manner in which technologies, such as networked personal computers, are forced upon certain social groups in a manner that renders them work-based cyborgs (Haraway 1997).

The term 'cyborg' has since been used as a way of conceptualising new positions between the body and everyday technologies (Michael 2000, 2006). Haraway likens the progressive relations between humans and technology as akin to a techno-scientific experiment of which the outcomes are unknown, she optimistically sees them as "promising monsters" (Haraway 1997: 52). This is how I view my climbers, as promising monsters, whose co-constructive relations with their kit are evidence of the complexity of their 'enabled' climbing experiences. They are beings who through repeated, close and emotional contact with their gear become cyborgian.

Like Haraway, Mike Michael (2000, 2006) studies techno-science, the social context of science and everyday life. Michael (2006: 41-42) takes the embodiment theory further arguing that:

> embodiment is no simple matter – the body as it is performed in everyday life is realized through its interactions with its environment, an environment populated by the material and cultural products of technoscience.

Specifically, Michael has specialised in the minutiae of the mundane, the unremarkable but often widespread technoscientific product, for example walking boots, Velcro, mobile phones, and post-it notes. Michael's contribution suggests a number of directions that this research could utilise. First, is the notion that "technoscience is 'mundanely manifested' in the practical and unnoticed technologies and expertises that cohabit everyday with us" (Michael 2006: 33). This leads me to question what technologies climbers take for granted from amongst their techno-social assemblages, and if technologies have developed in such a way that their functions have become invisible or unnoticed? Michael (2000: 25) also states that:

> Technologies are not simple intermediaries, but also messengers that subtly alter their messages, and this alteration is mediated through the ways in which they enter into, sometimes unexpected, relations with other human-non-human ensembles.

The interpretation of this quote is threefold. First, changes in the design of technologies will alter how they mediate. Second, specific situated relations (familiarity/reliability/unreliability/fear/safety) between the climber and their technology will lead to the co-evolution of both climber and gear. Third, changes within the climbing community about the acceptance, or not, of certain climbing technologies will inflect these relations. This is also similar to the claim of Hand *et al* (2007: 280) that "technologies and practices co-evolve". Their work is based on the domestic sphere, but it usefully demonstrates how changes in practices lead to changes in technology and vice versa.

4.8 Geography and technology in a more than human world

Increasingly geographers have sought out ways of engaging with the complexity between people, things and places. The study of the connections between geography and technology is an emergent, vibrant and diverse research area (Dixon and Whitehead 2008). Dixon (2008: 671) uses the genre of critical Bio-Art to illustrate the increasing capacity of various technologies to re-order materials into new combinations and assemblages. She is suggesting that in this arena new monstrous art-forms mirror new monstrous life-forms. This move again reflects the influence of ANT, which has opened up the idea of the body as porous to technology and technological

change. Be it 'cyborg', 'monster' or 'hybrid', it is clear that humans, through their relations to the technical non-human are always 'more-than-human' (Whatmore 2006).

Whatmore (2006: 602) has recognised a shift in human geography in relation to technology whereby the:

> Indifferent stuff of the world 'out there', articulated through notions of 'land', 'nature' or 'environment', [is now connected] to the intimate fabric of corporeality that includes and redistributes the 'in here' of human being.

This, she continues, has opened up vocabulary and practice that allows human geography to theorise this 'more-than-human' world. Alongside showing us how people interact corporeally with place, studies have begun to research the technologies that are involved with experience of place, especially the outdoors experience; for instance, cycling (Spinney 2006; Jones 2005), windsurfing (Dant and Wheaton 2007), walking (Michael 2000; 2001; 2009) and socialising (Hitchings 2007).

These studies examine how specific technologies are aligned with the body in some way, and therefore, alter the embodied experience of the activity they are undertaking. Jones' (2005: 822) study revealed how the bicycle could reconstruct his body as a hybrid, with the potential to disable as well as enable.

> Stranded in the middle of a road packed with vehicles capable of speeds in excess of 100km per hour, the bicycle in the wrong gear was no longer a seamless extension of my body, it was a heavy, unwieldy object hampering my movement. Until I could struggle the bicycle into motion and a more practical gear, I was a cyborg chastened by a defective limb.

Drawing upon another outdoor assemblage Michael (2009) hyphenates 'the-cellphone-in-the-countryside' to emphasise that it is an assemblage rather than a separate distinct technological entity. He emphasises the connected but geographically bounded assemblages that make up the mobile phone in the countryside, and how they are co-constituted through their relations. This is in line with Hinchliffe (2007: 38) who defines an assemblage as "an active combination of technologies, ways of

proceeding, their arrangements and their ongoing, unfolding nature". Michael (2009) argues that the cellphone-in-the-countryside has spatial implications in making places, suggesting that it "serves at once to mediate and subvert such spaces as the private and the public, the rural and the city, the safe and the risky" (Michael 2009: 86). When specifically focusing on mobile phone use in outdoor pursuits, he recognises that the mobile phone has the potential to "undermine the 'wilderness,'" and act as safety net whereby rescue services can be alerted in the event of an accident or extreme weather event (*ibid*). Thus, he argues participants may not perceive the need to be 'fully' prepared for such eventualities. He further argues that:

> …the mobile phone serves to cognitively corrupt these would-be-walkers – by extending a temptation that they seem unable to resist. Indeed, this complaint implies that such behaviour entails illegitimate ironization of rural space such that it also becomes 'soft', full of conveniences and service. (Michael 2009: 91)

Thus like Latour's (1992) door opener shifts physical practice from the human to the mechanical – the mobile phone in the countryside shifts potential notions of risk, safety and outdoor competency from the human to the technological domain. This is an aspect I explore later to examine how climbing technologies have changed the experience of climbing.

Crang (1997) argued that it is important not to separate humans from technologies using the case study of the camera, and how it acts to suppress 'bodily experience' by focusing attention on the visual. He argues that technologies have the potential to change the ways in which people experience the world, in that their world becomes framed by technology. I will extend this notion by looking at how other technologies merge with the body to potentially suppress or enliven differing experiences of climbing. Crouch and Desforges (2003) also look at the 'sensuous encounter' of the outdoors. Following from Crang (1997), they pay particular attention to how mediating technologies are involved in touristic encounters, suggesting that bodies and technologies become linked through "technologized practices" (Crouch and Desforges 2003: 13). They also point to technologies of mobility such as the car and train, looking for ways in which technology has a role in the sensuous experience. Again, this account

focuses on the visual rather than the range of senses that are suppressed or enlivened by the artificial speed that both technologies facilitate.

4.9 The spaces and places of climbing

The focus of this thesis is technology and its active role in mediating the experience of climbing. Evidently what is being mediated is the climber's experience of space and place. However, like the 'technology' and the 'climbers', I do not want the 'spaces' of climbing to be viewed as a priori distinct. Rather such distinctions that relate to modernist nature-culture binaries are avoided by adopting a relational approach. Thus when I talk about the spaces and places of climbing I do not want the reader to think of them as 'natural' places rather I want them to regard them as places that are enacted through co-production, a dialogue between the human, non-human, and the technological in which place is included (Hinchliffe 2007). This is supported by Wilbert and White (2009: 7) in their definition of the conception of 'technonature':

> "Technonatures" seek to highlight a growing range of voices ruminating over the claim not only that we are inhabiting diverse social natures but also that knowledges of our worlds are, within such social natures, ever more technologically mediated, produced, enacted, and contested and, furthermore, that diverse peoples find themselves, or perceive themselves, as ever more entangled with things – that is, with technological, cultural urban and ecological networks and diverse hybrid materialities and non-human agencies.

The theoretical lineage that I review in this chapter is reflected within this quote. Accordingly I will not offer a bounded definition of the space and places other than that places are particular, and spaces more general (Strathern 2002). Casey (1996) and Strathern (2002) propose that due to our embodied existence, our experiences are always 'emplaced', and particular places act as the meeting point for the 'complexities' and 'details' of such experience. This view of place affords for an integrated networked approach that allows the qualities of specific places as well as those brought by the occupants of such places, to be explored. Thus, the contributions of both place and its occupants are charted. Cresswell (2005: 37) states that "places are constructed by people doing things and in this sense are never 'finished' but are constantly being

performed". To this must be added the co-constitutional element of places, as well as the material things bought to place, as explained by Wilbert and White (2009) above.

Eden and Barratt (2010) escape the need to engage with the culturally charged terms of space and place by using the concept of "environmental engagement" to explain the situated practices of anglers and climbers. They avoid the indoor-outdoor space dualism, by instead focusing upon 'individual engagement with the environment'.

> It is not that they (fishing and climbing) occur in indoors or outdoors spaces that matters, but how they relate to the human experience, character and development, through diverse individual engagements with environments. (Eden and Barratt 2010)

Eden and Barratt recognise that anglers/climbers and their technologies play a role in making, reading and domesticating the environments in which they fish or climb. This is in line with the ethos of ANT which identifies joined up networks rather than places. Latour (1998: 4) describes this suggesting that, "the notion of network helps us to lift the tyranny of geographers in defining space and offers us a notion which is neither social nor 'real' space, but associations".

4.10 Perceiving the environment

It can be construed from the discussion within the historical context section that the perception and appreciation of the mountain and crag environment has been informed via a number of discourses (Section 3.1). It is also clear that a climber's perception of the environment will almost always have been informed by a host of past experiences. Climbers are often judged by their biography of climbs (Wells 2008), and on each of these, however minor, or non-technical an ascent, valuable lessons will have been learnt. As well as informal experience gained through practice, there is a certain amount of formal knowledge which is required by the climber. At its most basic this can represent a means of navigating safely to the base of the climb. Therefore, it is likely that the climber will be pre-equipped with a map and guide, giving him/her a sense of the topography that s/he will face, and more often than not, a route to follow (Chapter 6, Section 6.3). Thus the climber's initial perception of the crag or mountain is

informed and prepared accordingly – potentially eliciting a notion of the sublime from what is known to be out there, rather than the unknown.

The above is particularly true for authors such as Ingold (1992) who contend that, perception and action are inseparable, and Crouch (2003) who considers that perceptions of landscapes and nature are created through the everyday practice of lay persons. Before entering into the complex relational body-technology-nature interaction of the act of climbing, this section will briefly examine perspectives concerning the perception of the environment and how this relates to climbing.

For Crouch (2003) people develop preconceived ideas of what nature is through practice. Thus nature is not developed outside of the self via scientific knowledge, notions of the sublime, or shaped by popular culture, it is developed though practical encounters. In the climbing world, although popular culture and historical traditions and norms exist, it is likely that conceptions and perceptions of the environment are largely developed, and sustained through, the act of climbing itself. Similarly, Ingold (1992: 40) suggests that, "persons endure through continuous intercourse with their environments". In an attempt to substitute the constraints of the nature-culture binary that would contend that persons can neither know nor act upon their environments directly, but only indirectly through the medium of cultural representations, Ingold proposes an approach in which people acquire direct knowledge of their environments in the course of their practical activities.

Ingold's (2004) paper 'the culture on the ground' focuses upon how the world is perceived, and how people relate to their environments through the act of walking. Drawing critical inspiration from Darwin, Ingold argues that the discourses and indeed the physical action of walking are influenced a great deal by our cultural environment, through physical practice rather than more passive means. He recognises the tendency for western cultures to give primacy to the visual sense and intelligence over the more physical sensations involved in moving around the environment. He also recognises that an infrastructure is in place to maintain these distinctions, such as boots to constrain the foot and paved streets to enable easy passage. Ingold claims that much of this primacy is directly related to delineating culture from nature. He explains this by describing how Darwin considered that bipedal posture liberated the hands for intelligent use,

whilst the shoe constrained the 'nature' of the foot for mobility, a supposed "triumph of intelligence over instinct" (Ingold: 2004: 336). This acted to map the nature-culture debate onto the body and produced another strong discourse sustaining human dominance of nature.

This Darwinian theory would result in a climber perceiving the environment with a preconceived notion of their dominance over what they survey. However, much climbing and mountaineering differs from walking, because it requires movement involving the hands, feet, and the complete absorbing attention of the mind. Additionally, the use of walking poles and ice axes transforms the human act of movement from bipedal to quadrapedal, favouring the kinaesthetic act of movement over intelligence or rational thought. For Ingold practices such as climbing are sustained and developed through the practice itself and also through the physical environment in which it takes place. To this I intend to add the technological dimension suggesting that technologies, places and practices, co-evolve and co-produce each other through their relations to and between each other (Hand *et al* 2007). The agency of climbers is interconnected and entangled with all manner of equipment and rock forms encountered whilst climbing.

4.11 Relations with nature

Several authors have examined the relationships with 'nature' that risky pursuits foster (Abramson and Laviolette 2007; Laviolette 2006; Bell and Lyall 2002; Stranger 1999). The body in close proximity with the rock in a potentially marginal position produces a special relationship between climber and environment physically and experientially (Lewis 2001, 2004). To Laviolette (2006) activities like rock climbing provide protagonists with a great respect for 'nature'. Commenting upon surf culture, Abramson and Laviolette (2007: 8) note that members of extreme sports:

> ...tend to laud the cultivation of sustainable relations with natural forms and flows suggesting that, in their extremely intimate bodily relations with natural spaces and substances, players of new high-risk games necessarily embody moral and even spiritual relations with the environment as well as experiential relations with their inner bodily persons.

As well as the notion of environmental stewardship fostered by the close relationship with the environment (Laviolette 2006), there is also the notion of a spiritual

relationship performed through leisure practices. Whitney-Sanford (2007) examined white water kayaking as a religious experience, and found that kayaking functioned as an 'aquatic nature religion' for participants. This was disclosed in the language used to describe kayaking experiences. She suggests that "everyday and existential tensions blur in the performed encounter with moving water" (Whitney-Sanford 2007: 876). This relates to the kayaker's kit, whereby, Whitney-Sanford describes paddling as a ritual practice of an embodied encounter with the sacred.

Extending the role of technology in the body-nature relationship, Cater and Smith (2003) argue that during commercial 'extreme experiences' participants' relations with nature are decreased by the prominence of 'brash' technologies, for example, jet boating and bungee jumping. This suggests that there may be acceptable limits of technological mediation, for an 'acceptable' and meaningful body-nature relationship. This is a notion that I will explore later in Section 6.20. In a related manner Bell and Lyall (2002: 116) have coined the term "accelerated sublime" in order to examine new relations with nature through outdoor activities and their associated technologies. They suggest the following:

> The landscape that is the site of what was the sublime ascent (mountain climbing) or sublime descent (base jumping) is static. It has been overwritten by a new speed of consumption by the acceleration and activation of the viewing platform.

They argue that increasingly pursuits are subject to 'accelerated technical evolution' which progressively speed up or enact the pursuit thus changing the experience. The 'accelerated sublime' is another term that is highly relevant for my study, because new climbing technologies like cams, enable the climber to spend more time climbing and less time placing gear, thus speeding up (as well as reducing the risk of) the climb which could lead to potential experiential differences.

4.12 Bodies and technologies on the move

Recently authors within geography have been assessing how landscapes are constructed and understood through the embodied experience of moving through environments (Macnaghten 2003, Spinney 2006, Wylie 2002, 2005)**.** Cresswell (2006) argues that people and objects that are moving are agents in the production of space both hybrid and dynamic. There have been several studies that have examined the socio-technical assemblages of people moving with technology.

In pursuit of the more-than-human world on the move, Michael (2000, 2001) investigated the mundane technology of the walking boot. Here he highlights how technology plays a key role when aligned with the body in its performance of embodied practices. He recognises that technology has the power to shape human relations with nature, both physically and representationally. Michael details how the boot, like the camera, suppresses some of the sensations of engaging with nature and removes the distraction and discomfort that lie between the walker and their appreciation of the environment. He states: "boots are invited, indeed, sometimes necessary guests in the heterogeneous dialogue between humans and the environment. They at once mediate this dialogue and transform it" (Michael 2001: 114). The walking boot works so well because it seemingly becomes '*invisible*', affording the user passage through the environment without the distractions that less capable footwear would cause (*ibid*). As such he argues that "boots are simple tools that quietly expand the capacities of the body, and thus the affordances of nature" (: 116). However, drawing on Serres (1982) he also details how a poorly fitting or un-broken-in pair "materially intervene in what should be a smooth flow of communication between nature and body", becoming 'parasitic' to the user's perceptive attention, in this case turning a descent of stunning vistas into a toe jarring experience of pain. Michael (2000) identifies walking boots as part of the material semiotic network involved in the body-nature interaction as 'quasi object' due to their ability to interpolate influence on the interaction. He describes the multiple roles and methods of intervening between humans and nature and how they do so in heterogeneous ways.

Michael's study indicates how technology seamlessly and invisibly mediates experience. However Wylie (2005: 244) is critical of his focus on the invisible and the body as the centre of experience contending that:

> The surrounding environment is wholly eclipsed in the shadows of the footsore body. In painful walking, however, externalization is extended beyond one's body to extension itself, the surrounding great outdoors.

The differences of Michael and Wylie's accounts suggest technology is free to play a variant role as mediator and communicator within the outdoor assemblage of varied pursuits, and when doing so impacts upon how the environment is experienced and/or perceived.

A further study of the technical hybridisation of the body that does take into account the external and internal was undertaken by Spinney (2006). Spinney examined how the conjoining of the person and bicycle, and the resulting embodied rhythms and kinaesthetic sensations of cycling, are "constitutive of the character and meanings of particular places" (2006; 709). Drawing upon Ingold (2000) Spinney describes the kinaesthetic pain and motion of the alpine cycle climb to explain how meaning is produced through direct physical involvement with the landscape.

The above studies provide inspiration and ideas on how to examine climbing. To Michael boots clearly modify and hybridise the body whilst walking, as do the assemblages that (sometimes) allow mobile phone communications in the mountains. In the pursuit of climbing, boots and phones are just a couple of the many technologies which expand the corporeal capacity of the climber as an assemblage. Thus, I intend to extend such approaches to investigate the complexity and detail of climbers' socio-technical assemblages. The range of enabling and hybridising technologies available to climbers will be explored as well as their impact upon the experience of climbing. Drawing from Spinney (2006) and Michael (2000, 2001) I also intend to explore the experiences of the hybrid (climber) and technologies' role in the creation of meaningful spatial relations.

4.13 Mediating the climb

Lewis (2004) draws more attention to the role of technology in the changing pursuit of climbing. However I feel that this analysis is limited by his study's narrow focus upon climbing's supposed trad-sport dichotomy. His approach draws out experiential differences between trad and sport climbing due to the differing technologies that are used. Sport climbers are able to perform gymnastic rock climbing moves due to the mediation of the secure permanently fixed bolt found at regular intervals on the climbing route. Trad climbers are required to move in a restrained and controlled manner for fear that their gear placements might dislodge or fail. Thus, dichotomising trad and sport climbing as opposing genres of differing merit merely serves to delineate two differing types of climbing rather than adding to academic debate. Furthermore, Lewis' writing suggests that his analysis is subjective bias towards the merits of the British trad climbing ethic. For instance, in the extreme, Lewis (2004) positions sport climbers as 'metropolitan modernists' comparable to those who ascend mountains via railways. This is clearly an unfair parallel to offer given the dedication and risks that sport climbers also give and take respectively. Consequently this research fails to capture the changes that are occurring within the pursuit where each type of climbing is changing as a result of changes to the climbing network and the specific climbing assemblages utilised for each type of climbing. For instance, by focusing upon the differences between sport and trad climbing the impact upon climbing of the introduction of camming devices is not addressed. These devices have allowed trad climbers to protect routes that had previously been un-protectable and therefore un-climbable for most, dramatically changing the experience of climbers. A demonstrable shift in safety through innovation in line with the modernist rationalisation that Lewis (2004) contends is the sole concern of the sport climber.

Bearing this criticism in mind Lewis does make a useful contribution to the debate about technology as enabling climbers and its potential to change the experience of climbing. The following paragraph explains this.

> From its enabling powers to 'open up' new horizons of space and time, to its disabling effect upon the human capacity to sense the distinctive spatial and

> temporal horizons within human environments, modern technology becomes a double edged sword. (Lewis 2004: 73)

Jankovic (2009) considers how participants in mountain sports benefit from high-tech fabrics in terms of their increased sense of comfort, whatever the weather. He declares that the comforts brought by breathable and flexible fabrics such as *Gore-Tex* could spell "the end of weather" (Jankovic 2009: 173) for outdoor enthusiasts. This argument fits well with my proposition, as Jankovic notes "with technical garments, however, we transcend weather with an additional assurance of higher performance" *(ibid).* Jankovic recognises that material artefacts extend bodily capacities (See also Macnaghten and Urry 1998). His focus is solely upon performance in terms of the ability of people to withstand extreme weathers. By contrast I will look at the range of interdependent benefits that are co-produced between climber, technology and the environment during climbing. Another aspect he refers to is the role of equipment as a 'symbol of competency'. The validation or invalidation of this claim of kit providing competencies is particularly pertinent to my research questions.

4.14 Academic approaches to risk and risky pursuits in outdoor leisure

Rock climbing is a 'lifestyle sport'; a sport that tends to reflect how participants associate themselves, their identity, and the socio-historical context in which the activity emerged (Wheaton 2004). Most climbers favour lifestyle over other recent 'tags' such as 'extreme sports' or 'alternative sports' (Rinehart and Sydnor 2003). By contrast Robinson (2004: 117) classifies climbing as an extreme sport, due to the potential for injury and exposure to risk, but suggests that the 'exceptional' or the 'extreme' become 'routinised' and 'standardised' to regular participants. Consequently those involved in activities like climbing do not define themselves as excessively risky or extreme. Rather, pursuits such as climbing represent normal lifestyle experiences (Palmer 2004). For Palmer "these once alternative sports are now fully incorporated as part and parcel of popular culture" (2004: 55). Furthermore, Abrahamson and Fletcher (2007) recognise that rock climbers differ from 'adrenalin junkies' who celebrate insecurity and risk, as climbers tend to go to great lengths to minimise insecurity through preparation and the use of protection. However climbers still recognise the seriousness of every 'move' and 'decision' in terms of the potential for injury or even

death. The serious implications of such sports leads Lewis (2004: 70) to claim that their study should be integral to "narrate modern life world experiences", as they provide the potential for further and greater insights than the study of mundane everyday experiences. For Lewis, rock climbing as a historically embedded cultural practice, is ideally suited to illuminating broader social, cultural and technological transformations in society.

4.14.1 Motivations to climb: 'flow experiences' and 'deep eco play'

For Csikszentmihalyi (1975) risk is what makes climbing worthwhile. He considers rock climbing to be a flow experience which he defines as "the total involvement of body and mind with a feasible task which validates the competence, indeed the very existence of the actor" (1975: 99). Due to its danger and lack of discernible rewards, rock climbing is an excellent example of a flow activity. Csikszentmihalyi (1975: 99) contends that:

> In climbing, danger draws the actor into physical and mental concentration. In each case, the person discovers a state of being which is rare in normative life. For a climber this state of being includes a heightened sense of physical achievement, a feeling of harmony with the environment, trust in climbing companions, and clarity of purpose.

Technology is missing from this analysis and I intend to remedy this by exploring its role and relationship to climbers and climbing, examining what technology adds when it is given the status of an actor. Flow states are likely to be achieved by bodies and technologies working in harmony, both rhythmically and kinaesthetically.

From an anthropological perspective Abramson and Fletcher (2007) examine why people climb. Starting from Mallory's (1886-1924) infamous quote on the rationale for climbing "because it's there" (1923 quoted in Wells 2008), they draw upon sociological theory to examine climbing and its growing popularity. They emphasise that as a result of improvements in equipment, climbing is now safer. They also identify that the sport is becoming more accessible due to 'new' and 'safer' climbing variants, such as indoor climbing and bouldering. They recognise how the present situation differs from climbing's marginal origins where many participants regarded their climbing as a

'counter cultural' pursuit (Lewis 2001, 2004 Wheaton 2004). Abramson and Fletcher contend that the late twentieth century growth in climbing is due to the 'playful' element of the sport, rather than solely adding value through the positive implications of overcoming 'epic' risks. Drawing upon Geertz (1973) and Csikszentmihalyi (1975, 1997) they conclude that climbing is evolving into a form of epic practice; a deep 'eco-play' in which innovations in climbing, as well as changes in the way some climbers climb, have reduced the seriousness of participating in the sport and is opening it up to a larger participant base. This is clearly in line with my proposition that the experience of climbing has changed due to technological innovations. However, it must also be noted that climbing, although safer due to appropriate technologies, remains for most people, a pursuit with real risks and consequences. This differs from many other adventure tourism activities which are based on the search for 'fear' and 'thrills' rather than actual risk (Cater 2006).

4.14.2 Theorising risky activities

Mainstream theories of risk have tended to focus upon the management and assessment of risk in relation to technological and natural hazards (Giddens 1990, 1999; Beck 1992). Beck (1992) regards risk to be the most defining characteristic of our age. He identifies societies as 'risk adverse' and thus considers that risk should be managed and avoided, rather than courted. Giddens (1999) argues that society's preoccupation with the future and safety generates notions of risk. Therefore climbers' desire to voluntarily take risks is at odds with Beck's (1992) 'risk society' thesis and because of this commentators have identified voluntary risk taking as representing a significant gap within the risk literature (Lyng, 1990; Lupton and Tulloch, 2002). The few studies that have examined voluntary risk taking, have tended to focus upon the so called extreme sports, such as, climbing (Csikszentmihalyi 1975), sky diving (Lyng 1990), surfing (Strange 1992; De Breton 2000), and cliff jumping (Abramson and Laviolette 2007).

Following Csikszentmihalyi (1975), Lyng (1990) wanted to provide an explanation and understanding of why people place themselves at risk, a phenomenon he termed 'voluntary risk taking'. Yet sociological inquiry had "a complete absence of research on voluntary risk-taking behaviour" (Lyng 1990: 852). Lyng's explanation of voluntary risk taking is centred around the concept of 'edgeworking'. Edgeworking is a concept based

upon the activities, skills and sensations involved in voluntary risk taking. Edgework activities involve threat to physical and mental well-being with failure resulting in death or injury. Edgeworking skills are classed as the specific capabilities that are required to perform risky activities. Lyng defines edgework skills as "the ability to maintain control over a situation that verges on complete chaos, a situation most people would regard as entirely uncontrollable" (Lyng 1990: 859). Therefore, although the act is characterised by spontaneity and impulse, the enactment requires skills and practices that are constrained and normative to the act.

Edgework sensations that risky experiences produce, such as, 'self-determination', 'self-realization', and 'self-actualization' are accompanied by the threat of death and associated fear in the anticipatory stages. In the latter stages, "fear gives way to exhilaration and omnipotence" (Lyng 1990: 860). Another aspect of the edgework sensation is the alteration of perspective to only those factors that immediately determine success and failure (Lyng 1999). The passage of time consequently may shrink or expand as time becomes extraneous to the immediate situation. Lyng also suggests that the "focused perception correlates with a sense of cognitive control over the essential "objects" in the environment or a feeling of identity with these objects" (Lyng 1990:861).

The heightening of sensations and emotions through risk taking is similar to Csikszentmihalyi's flow concept. Lyng similarly documents how climbers may intensify risks and thus rewarding sensations by manipulating the situation. For example, mountaineers declining oxygen on a high altitude climb are increasing the risk of the activity, whilst gaining satisfaction from an unaided ascent. Lyng suggests that this facet shows the commitment of edgeworkers to "get as close as possible to the edge without going over it" (1990: 862).

Lyng (1990) is widely quoted by contemporary writers on risky activities (Le Breton 2000; Lupton and Tulloch 2002, 2003; Simon 2002). The rationale of Lyng's inclusion here is to emphasise that voluntary risk taking activities such as climbing are experiences characterised by spontaneity, impulse and subjective personal motivations and benefits. This moves away from explanations that focus upon risk taking to invoke a subversive or deviant fear and arousal of the reality of death.

Stranger (1999) focused upon the thrill derived from risk taking activities. Rather than seeing risk taking as a cathartic act, Stranger argues that danger is an integral component of high-risk leisure. For Stranger (1999) Lyng's 'edgeworking' theory downplays the embodied experience of risk taking. He also suggests that aestheticisation plays an important role in the beneficial experiences gained. He contends that the surfers in his study are attempting to achieve an embodied aesthetic ideal in their communion with the environment through surfing. He considers extreme sports such as surfing, which involve a close communion with the environment, as a "postmodern incarnation of the sublime which distorts rational risk assessment" (Stranger 1999: 265).

Le Breton (2004: 2) investigated risk taking in adolescents who undertake extreme activities. He found that:

> [Risk taking] is rooted in general suffering and a confused feeling that something is missing in their lives. There is no intention in actually dying, but rather of testing out their personal determination, of finding an intensity of being, a moment of supreme being, giving voice to a cry or expressing suffering, and sometimes all this is intermingled with a quest which often only takes on meaning in the aftermath of the event.

The majority of climbers are not adolescents, however, it is highly likely that by exposing themselves to risk, valuable personal meaning is gained (Lewis 2001). Le Breton continues by suggesting that by pursuing risk participants are seeking freedom which he terms "narcissistic restoration" (2004: 2). Unlike other authors who regard risk taking as a more subversive source of risk in society (Lewis 2001), Le Breton suggests that risk taking should not be confused with a 'desire to die'. Rather he suggests risk taking is a search for subjective meanings and personal significance. Le Breton suggests "awareness of death may add spice to the act" (2004: 2). However, I would propose that in many instances death is not considered, or is ignored, through ambivalence, and that feelings of risk are more likely due to a natural subconscious feeling of vulnerability brought on by the act or the anticipation of the act. In this respect I would suggest that the fear of risk is a non-representational response to risk stimuli created through climbing (Thrift 2008).

In reference to 'risky sports' Le Breton (2004: 2) contends that the "danger one puts oneself in is minimal and, in principle, controlled by the technical skills acquired and ability to assess the dangers at hand". This is clearly the case in rock climbing as many incidents and fatalities are caused by people placing themselves in situations beyond their technical skill and experience (Langmuir 1995). Le Breton's (2000) study of 'extreme' sports suggests that individualistic sports such as rock climbing attract highly committed supporters who aim to improve their resistance and ability.

Le Breton (2000: 5-6) recognises that intense physical activities that accompany flow experiences supply a jubilation that is enhanced by risk, exertion and commitment.

> The association between taking risks and experiencing stress that has a value is a means of personal fulfillment, requires that the individual has the freedom to choose whether to submit to it or refuse it... A deal is symbolically made with death, with the body as the currency, nature as the site of the event and death respected only remotely, metaphorically solicited rather than approached for real, even though sometimes it arrives on the scene with a reminder that it is the one limit that can never be exceeded.

Le Breton argues that "the physical limit has come to replace the moral limit that present day society no longer provides" (2000: 10). The more intense the suffering and risk, the more achievement and personal significance is experienced by the participant. Without the risk the activities would not produce the enjoyment or generation of meaning (*ibid*).

4.14.3 Technological mediations of risk

Parsons and Rose (2003) suggest that innovation and the usage of climbing technologies are driven by the assessment and management of risk. They suggest that this is not merely risk in the conventional sense (climbing being risky in general), rather in the sense of choosing which bit of kit or combination of gear to take on a trip for greatest safety, in a given set of circumstances (*ibid*). For example, for an alpine summit attempt involving technical climbing, gear selection would represent a balance between being warm enough to be able to perform and survive on the mountain, but

also light enough to be able to climb quickly and effectively without over exerting oneself.

There is also the potential that reliance on technology may encourage risk takers to take risks that would not have been attempted without the 'added security' of the new piece of clothing or equipment. This is a situation of 'reflexive modernization', where new technology both creates risk and controls it (Beck 1993). Adams (1995) illustrates this utilising the example of compulsory helmets for cyclists suggesting that some considered that their enforcement may give riders a false confidence leading to more accidents. In support of this Hillman (1993) suggests that climbers and other sports people at risk pursue their sports more carefully when they are undertaken without safety aids. Evidence suggests that the increasing use of cycling helmets has had no influence over the type and severity of cyclist casualties (Franklin 2000). This aspect further confuses the role that technologies play in our environmental engagements, and is currently being explored by the British Mountaineering Council in relation to climbing helmets (Middleton 2007).

Simon (2002: 186) suggests that the growth in mountain technology has led to a commercialisation of the sport. He argues;

> The growth of interest in climbing has been seen a decidedly mixed blessing by the core members of the more traditional climbing culture. The revenues generated by commercial tours, gear sales and media coverage allow more climbers to win endorsements and employment opportunities that allow them to climb professionally. For others the opening of climbing to a much larger audience of less committed enthusiasts risks diluting or even destroying, the special features of climbing as a largely self regulating community.

This argument resonates with debates in climbing at the moment and although I do not focus upon this changing scenario, I will examine how technological innovation could add to the dilution of the risks, as well as the skills of climbers. For instance, it has recently been suggested that communications technologies such as mobile phones are playing a major role in the 'culture of rescue' that is becoming apparent on the

UK's mountains (Bunyan 2007; Michael 2009) although as I mentioned in the introductions climbing incidents seem to be the exception to the trend.

4.14.4 Materialising risk: the case of the 'virtual object'

> Risk is a potential coming-into-being, a becoming-real. Hence the 'presence' of risk can never be completely objective but has to be mediated in some form. (Van Loon 2002: 54)

Our daily lives and practices are composed of negotiating risk in varying inexact, contingent and continually negotiated ways (Lupton and Tulloch 2003). Although we are becoming more attuned to the present day legal responsibilities to assess and regulate risk through the mechanisms of formal, legally-framed risk assessments (Baker and Simon 2002), it is suggested that risk is increasingly mediated by technology and other "modernist systems of prediction and control" (Lash *et al* 1996). Yet in general, and beyond the formal workplace risk assessment documentation, risk remains a notoriously difficult thing to conceptualise, represent and engage in conceptual and theoretical registers. We struggle to quantify it; we often fail to represent it. A study of climbing focusing upon climbing technology, whose main purpose is *risk control*, is required to engage with the risks that are inherent to the pursuit.

Risk is not a concept that ANT is intended for. This is because actor networks are populated by tangible actors - be they human or non-human. Thus the abstract subjective and situated feelings of risk that climbers feel is problematic for ANT thinking, unless we either materialise risk in some way, or we conceptualise risk as something produced and sustained by relations from within the climbing network. Lyng's (1992) study of 'edgeworking' emphasises the abstract nature of risk in a context like climbing. The 'edge' that is being worked is that between risk and safety, a subjective, malleable and intangible edge, beyond which may be injury or death.

Van Loon (2002) has attempted to find a way of incorporating risk into actor networks. He identified that the work of Latour and other ANT thinkers frames risk in ways that "...cannot contain the contingencies [that] their social and symbolic organisation sets into work" (*ibid*: 45). Yet later he admits that in:

> ...the work of Beck [...] risks are indeed nothing but 'realisations'. Risks are happenings, not of the bads or catastrophes that they refer to do, but of a 'coming-into-being' of a probability of harm, sometimes indeed in the form of anticipated annihilation. (Van Loon 2002: 48)

The future threat of risk, then, cannot be represented in orthodox ANT theory; risk is abstract it does not exist and therefore doesn't fit the established role of an actant, intermediary or mediator. To Van Loon it becomes an absent presence. Rather, in ANT, the presence of risk can never be completely objective but has to be mediated in some form. He outlines how this might appear:

> ...risks have to be visualised, which is more than the provision of images; they also require an imaginative actualisation. Second, these visual objects have to be named, that is signified [and finally] they have to be valorised, that is, their 'meaning' has to engage particular exchange relationships, be it economic, political, symbolic or moral. (Van Loon 2002: 61)

To this end, Van Loon discusses how risk might be rendered 'visible' in ANT. He discusses the nature of translation between actants and their constitution of a network; he also outlines the concept of 'immutable mobiles' - those elements that make connections between different actants in a network. Further, he describes how humans complicate notions of risk by 'actualising' risk in disparate ways. He offers a scenario of immutable mobiles flowing between unstable and shifting human and non-human actants, weaving webs of connection and flow continually as we, the mobiles, and technological objects constitute our becoming worlds. In this conceptualisation of ANT Van Loon sees accommodation for risk.

While Van Loon uses the BSE crisis to explain his point, my concern is with *voluntary* practices and risk-taking, with the conscious identification and the creation of risk for pleasure and satisfaction (Simon 2002). Yet Van Loon talks of the risk of BSE being 'transformed and multiplied' into a range of ‘virtual objects’ as the risk turns into a threat and flows through the network of actants (in this case political, industrial and economic risks rather than solely the epidemic ones). This is akin to a fall from the

crag; the personal threat is realised by the fall and translated to the ropes, cams, grip and gravity that are all thrown into mutually-constituted action and shift.

Van Loon (2002) conceptualises risks as 'virtual objects' (Law 1995; Mol 1998) that are revealed only in time by the various technologies with which they are enmeshed. Risk following this interpretation is the virtual actant awaiting its role; an absent present ready to act. This approach offers a way to draw risk into my ANT frameworks. Risk is always the tangibly absent, yet always present, latent in the network but ready to act in the event of failure. It is a constant element of climbing that is always anticipated and incorporated into the climbing process via kit and caution and techniques such as placing gear and rope work.

Van Loon concludes by highlighting the problems with ANT and why it fails to accommodate the immaterial and unquantifiable, like risk, as becoming actants. For ANT everything is made in the present. By contrast Van Loon regards risk, as an absent but ever-present element of the network. This means that risk is a constant presence, a 'virtual object' that is revealed only in time. ANT struggles with anything non-present; it stumbles with failures, concealment and otherness (Maclean and Hassard 2004) (Section 4.4.1). Law (2004: 84) recognises this suggesting that, “manifest absence goes with presence. It is one of its correlates since presence is incomplete and depends on absence. To make present is also to make absent”. Following Van Loon it could be argued that risk as an ever-present element of climbing and is not concealed. It is, rather, a latent actant - anticipated and ready to play a role in the network once the climber is falling.

4.14.5 Co-producing risk

It is the control and management of risk that adds to the exhilaration, to the satisfaction and drive of the climb (Robinson 2008; Csiksentmihalyi (1975); it is the enhancement of life and the lust for life which Van Loon describes that motivates climbers. The 'virtual objects' of risk holds this danger in check and the delicate balance between these actants is part of the sustained pleasure of climbing and, indeed, many other adventure sports (Lyng 1992). However a caveat is required, this is because Van Loon’s interpretation of what represents a ‘virtual object’ differs from Law (1995) and Mol (1998). Mol’s ‘virtual objects’ are atherosclerotic blood vessels

which lie beneath the skin but whose presence is enacted by the practices and symptoms associated with its diagnosis. Hence its presence is virtual outside the body, but its existence is tangible in that it physically exists in a body.

Because of my conceptual concerns about Van Loon's (2002) application of ANT I will also examine risk as the outcome of climbing practice, rather than an actor within the network. In this way I can examine risk as part of the practice – immanent and contingent rather than prior and independent of context. By utilizing this approach risk will be explored as a creation rather than a pre-existing entity or an absent presence.

4.15 Conclusion

To conclude this chapter, it would seem that many aspects of the world are being propelled towards hybridisation of some form or another, be it human-machine cyborgs, cloned sheep, or genetically modified crops. However, although the hybridisation of beings has become more complex in recent times it seems clear that technologies and bodies must have also merged and transgressed each other's boundaries in the past. The current focus upon hybridisation arises from the uncertainty produced by some of the more complex fusions that are being produced at the moment rather than any newness in hybridity per se (Shaw 2008). What is clear is that the conceptual boundary that has separated the 'natural' from the 'artificial', 'technical' or 'scientific' in discourse is now increasingly transgressed - and yet modernist thinking denies or rejects this. In our present day situation not only does the nature-culture dualism seem dated to some, for others it is unable to cope with the proliferation and sophistication of hybrid beings. Thus our academic approaches need to create a different continuity between the social and the natural that allows us to grasp what is happening in our hybridised worlds (Escobar 1999; White and Wilbert 2009). Dixon (2008) sums up this poststructuralist response, proposing that users of technologies are "inherently plastic, topographically diffuse, multiply constituted assemblages that undermine an easy demarcation between the organic and the mechanic, the body and the bios" (Dixon 2008: 606). With this in mind, later chapters explore the pursuit of climbing utilising the analytical and theoretical insights outlined in this chapter, a pursuit undertaken in a hybrid and contingent world where "humans

enter into symbiotic relationships with machines" (Krull 2002: 287) where "everything is data" (Latour 2005: 133).

This review of academic work has also focused on contributions theorising climbing and other risky pursuits. There is a great deal of synergy amongst this literature, which both indicates the growth of climbing and similar activities, as well as a greater importance placed upon understanding contemporary developments within risky pursuits at both the commercial and individual level. Part of the value in my research is to extrapolate insights to other modern life-world experiences as Lewis (2004) and Csikszentmihalyi (1975) contend. But also at the subjective level of the individual there is potential to unearth rich insightful accounts of climbers' deep valuable entangled relations with their kit, as part of the assemblages through which they fulfill their passions.

There are several notable gaps within the literature reviewed above. First, voluntary risk taking is a scantly covered topic especially in relation to role of technology. Likewise the role of technology in co-producing the climb is also patently lacking from previous academic studies. However, in other areas it is clear that there is burgeoning recognition that technology has a pivotal role in mediating our experiences and relation with the outdoor environment (Jankovic 2009; Michael 2009; Lewis 2004). The brash technology of the bungee jumper may 'accelerate the sublime' but it also appears to rupture the meaningfulness of the body-nature relationship or co-evolution (Cater and Smith 2002). The search for fear and thrills (whilst protected by technology) but not risk is another shift in practice that is producing a different type of extreme activity (Cater 2006). For me it is left to question how climbing and its array of technologies are presently situated when taking into account such arguments - Is today's climber a thrill seeker rather than a risk taker? Do the enabling technologies of climbing detract from the experience and rewards, or do they experientially distance the climber from 'nature'? Finally, have the incremental improvements in climbing technology rationalised the sport and domesticated the mountains? These are some of the questions that this thesis investigates through the analysis of my empirical findings. However, in the chapter that follows I detail the methodological approach I

have undertaken to obtain the empirical information required to answer my research questions drawing from the theoretical approaches outlined above.

Chapter 5:Methodology: encounters with rock climbers and their kit

5.1 Reflexive thinking

I begin this chapter by giving a reflexive account of my status for the purpose of transparency, and in order to examine, and acknowledge, what I, as the researcher bring to the research process (Mercer 2007). The account will illustrate my position in relation to my research subject and participants (Hammersley and Atkinson 1995). In accordance with McDowell's (1992: 413) feminist perspective, I intend to, "make visible my own critical positioning within the structure of power". This is important in climbing, a sport that is dominated by white middle class men, with a minority, albeit increasing level of female participation (BMC 2006), and a further tradition of less affluent working class involvement (Allin 2003; Parsons and Rose 2003). The recognition of differences and commonalities within climbing will not only aid my own reflexivity, but it will also afford the reader an important insight into my personal involvement and situation in regard to the study, all of which represent values that will in some way permeate the research process (Moser 2008; Rose 1997).

At the beginning of the project I was a thirty one year old male who had climbed at the local climbing wall, and had been climbing outside a handful of times with a more experienced friend. Beyond climbing I considered myself to be an 'outdoorsy' type of person, having been bought up in a town on the edge of the Peak District and spending much of my spare time walking, running, and mountain biking along the gritstone edges, up and down valley sides, and enjoying the corporeal and aesthetic effects of gravity in both directions. From my knowledge of the UK mountain biking scene I knew that participants of particular outdoor sports do not form orderly, homogenous groupings, all neatly attached to clubs, groups or the variant styles of the activity. Personally, for example, I favoured cycling alone or in small groups rather than within the competitive peloton of my local cycling club; I preferred long cross country single track routes as opposed to the hedonistic pleasures and risks of down-hilling. My cycling background also raised awareness of sport specific jargon, whether relating to 'gnarly' off-road techniques, or the science and technology of bike (and biking apparel) design and use. Although at this time I did not know the academic terminology, I was

aware of the synergistic pleasures gained from the apparent conjoinment and co-production of bike and rider (Spinney 2006; Jones 2005). Therefore, I was approaching the world of climbing as a relative outsider, but with an insight derived from membership of another 'outdoor' community.

When I began my research I therefore appreciated the need for, and importance of, furthering my knowledge of climbing and climbers, and accordingly immersed myself in both the activity, and surrounding culture (Wolcott 2005). My starting point for this was the media. I read books, watched climbing movies and documentaries, bought magazine subscriptions, and joined websites and blogs, receiving regular updates via my web-based RSS reader which I set up to receive and extract aggregated feeds related to my study's climbing interests. Climbing is a pursuit that encourages self reflection of the subjective motivations to climb as well as the embodied, emotional and enabled experiences of the pursuit. Many of these reflective accounts are documented and have filled the pages of climbing journals, letters, magazines, autobiographies and other media sources throughout the history of climbing. The enthusiasts' literature is rich and diverse and full of deep personal insights concerning risk, pleasure, pain, death, aesthetics, ethics and achievement. Several of these accounts would sit well in academic studies of risk or embodiment as a source of prose to illustrate theoretical musings.

Additionally, I attended climbing events and competitions, lectures, mountain festivals and trade fairs. These activities were all conducted to enable me to begin to understand some of the subtleties and complexities of the climbing scene. In regard to the physicality of climbing itself, I purchased an annual pass to the local climbing wall, with a bursary from my department's research support fund, and continued to climb outdoors with established friends and new acquaintances, many of whom resulted from contacts made during the research. Three years on, I have slowly learnt to 'lead climb' competently up to 'Hard Severe' (HS, see section for an explanation of climbing grades) which I feel is more than enough of a physical and mental challenge. I have also accumulated my own rack of gear, to which I am developing quite an attachment! Thus in essence I have altered my 'positionality', and in accordance with Shoenberger (1992), reduced the differences between interviewer and interviewee, and by

extension I have reduced the mutual power relations too (Smith 2006; Bradshaw 2001). I felt that this was important in a sport with a persistent degree of elitism and a number of barriers (jargon, technology, technique, physique and competence) to the complete novice (Bullock 2008).

5.2 Sampling climbers

Alongside my own involvement in climbing, for this thesis I wanted to incorporate the views of a range of other climbers through interviewing them. First I will discuss how I found and selected climbers for interviewing, and in the following section, I will discuss the process of interviewing and doing participant observation with them. Constructing a sample of climbers to interview was a priority during this study as there is not a population list to draw from or to assess representativeness. This is something that I anticipated from a pursuit whose participants are potentially seeking to escape their everyday (working) lives, and spend time in the countryside through their climbing (Lewis 2001). Nevertheless, a degree of sample stratification was required in terms of gender, age and preferred climbing type and existing surveys offer partial data to support this. Although the British Mountaineering Council (BMC 2006), the body that represents climbers' interests in the UK, states that there has been no systematic attempt to measure the UK climbing population, non-systematic attempts have included the Mintel – Active Leisure Pursuits Survey (2008). This survey cannot outline the composition of the UK climbing population for my purposes as the survey's 'rock climbing' category refers to 'climbing walls and mountaineering', rather than disaggregating these as separate categories. In addition many of the respondents in Mintel's sample had stated that they had climbed, but had done so only once as a 'one off event'. This did not suit my purposes as my research wanted to investigate regular climbers. Data from the Office for National Statistics also suffers from the same type of validity problems. Thus, these sources could not be used to accurately profile the types of people who regularly participate in 'outdoor climbing'.

More promisingly the BMC (2006) have produced a participation survey that, although based on only 1000 of its 63000 members, does constitute a recent overview of the climbing population from an established body. Thus I feel it is the most reliable data set concerning the UK climbing population available. Therefore, sample stratification

was based upon this source in terms of age and gender (see table 5.1), with minor alterations, allowing for identified potential discrepancies in representation. For example, the BMC statistics over represent climbers in the 45-64 and 65+ age groups because many of these climbers remain affiliated to clubs but are no longer active climbers, whereas, younger climbers are underestimated potentially due a lack of awareness of the BMC, or as Johnson (2006) identifies, younger people have a more laissez faire attitude towards issues of insurance (a benefit of BMC membership), or have less disposable income for membership fees.

	Male	Female	<18 or not disclosed	18-25	26-44	45-64	65+
BMC	75% (approx)	25% (approx)	1%	8%	49%	34%	8%
Sample	77%	23%	0%	13%	56%	26%	5%

Table 5-1 BMC and Study's sample age and gender composition

5.2.1 Gendered climbing

It is clear that climbing is a highly gendered sport dominated by white middle class men (Robinson 2008; Allin 2003; Dilley 2006). The BMC (2006) and Office for National Statistics (1996) suggest that the proportion of male to female climbers is 3 to 1. Although given this female participation is claimed to have risen 9% in the six years preceding 2006 (BMC 2006). However, a casual visual inspection of the gender of participants at popular crags would suggest a smaller proportion of female climbers, a view that has been supported by several male and female interviewees during the course of this research. Despite this, the lack of reliable statistics means I have to stratify my sample in accordance with the BMC statistics, considering gender to be an important stratification as women's voices are often missed or marginalised by a focus on masculinity within sporting research (Wheaton 2004). As my sample is proportional to the approximated population of male and female climbers I hope to be able to report a balanced view that allows the views of both genders to be reported and explored in relation to my research.

Furthermore, studies have shown gender differences within climbers that are directly relevant to the study. Studies of risk taking indicate that levels of voluntary risk differ markedly between genders (Lois 2001; Lyng 1990). They show that men are proportionally three times more likely to be involved in a mountain incident than women, and are also more likely to take risks than women (Sharp 2001; Byres *et al* 2001; Lupton and Tulloch 2002). Lois (2001) studied the gendered, emotional response to risk of search and rescue volunteers. Drawing on Lyng's 'edgework' theory, Lois traced the emotional responses of rescue volunteers to risk through the sequential phases of rescues. She found marked differences in the ways that men and women experienced and managed the emotions provoked by risk. Men tended to be 'confident' and 'excited' about the prospect of risk, and although upset by negative outcomes were 'stoic' in response. Women on the other hand were more 'fearful', 'trepidatious', and 'expressive' with emotions. Lois argued that a 'hegemonic masculinity' within the culture of the rescue service meant that the presence of certain 'more feminine' emotions were regarded as potentially disruptive to operations. Instead, this masculine culture became a sustained and dominating pressure over the female members of the team. Holt and Thompson (2004) also view risk taking as inherently masculine, and regard the pursuit of risky activities as a means of regaining masculinity in the face of recent emasculating socio-economic changes.

Climbers, like other sports-people, are dependent upon technology and develop competencies with their 'kit' through experience (Dant and Wheaton 2007). In particular a climber's use of, relationship with, and attitude towards, their gear will develop with age and experience as they become proficient with its use and develop their preferences. Consequently, I considered that it was important to diversify the sample by both age and experience of climbing. Variation in experience was gained by asking potential interviewees in advance, how many years they had been climbing, and to a certain extent this tallied with the age stratification, as most climbers had started climbing in their teens or early twenties. Towards the end of the field work respondents were selected purposively to fill socio-demographic gaps in the sampling frame, for instance three respondents representing beginners were selected who where only just building up their own racks and other climbing related gear.

5.2.2 Socio-demographics of climbers

In addition to the socio-demographics of climbing, another consideration for sampling is climbing style or type (Section 2.3.1). UK climbing has four main distinctive styles; trad climbing, sport climbing, bouldering, and soloing. Alongside these are the mix of rock climbing methods that are adopted within mountaineering, as well as the more specialised activity of ice climbing and dry tooling. Each style is distinguished by specific kit, methods, ethics and experiential aspects. Initially I thought these divisions might be a suitable method of stratifying my sample. However, I soon discovered that it is very hard to put climbers 'into boxes'. Resultantly, when the project moved from planning and theorisation to implementation, I found these divisions to be highly blurred, and often contested, rather than the sharply defined categories articulated by the UK climbing media. Illustrative of this were the responses to an initial interview question which asked ambiguously; "how would you define yourself as a climber?" Responses included; "casual"; "old, not bold"; "bold"; "obsessive"; "evolving"; "it's changed throughout my lifetime"; "lead climbing, mainly"; "gritstone boulderer"; "sport climber at the moment"; "I'm a holiday bolt clipper", "fair weather climber", "a climber who prefers routes requiring stamina and technique rather than strength", "I like trad but I climb sport cause all my friends do", "an aspiring soloist, who usually climbs trad due to fear and lack of confidence" and many others. Only rarely did interviewees respond with an unequivocal climbing type.

From these responses it was clear that climbers often climbed in a variety of styles, which fluctuated according to, the weather, the climber's social, personal and financial circumstances, as well as their location in relation to climbing venues. In all my interviews I found only one climber who claimed to have remained faithful to a single climbing style. My conceptual sampling frame based largely upon climbing type was therefore modified at an early stage. However, as I was still keen to examine the different experimental aspects of various climbing styles and their associated technologies, I sought respondents with a preference and/or experience of differing styles of ascension. The recognition that a varied and comparable account of differing climbing styles could be offered by individuals who "just love climbing in all its many guises" (Phil 66), prevented me from enforcing a typology on the sample that artificially dissected the climbing population.

A third criterion for sampling was location. The gritstone and limestone edges of the Peak District and Yorkshire are the sites where many UK climbers cut their climbing teeth. The area has a rich history in British and International climbing annals, with guidebooks detailing a myriad of first ascents accredited to acclaimed rock climbers and mountaineers of the past and present (Thompson 2010; Wells 2008) (Section 3.7). Some of these classic routes act as rites of passage to new and aspiring climbers. A consequence of this is the area, and its rock, has an almost mythical status for climbers (both UK and abroad), and for some, the ghosts of their legendary presence infect the atmosphere of its crags (Cook 1973).

Further, the accessibility of the cliffs and crags of the Peak District, West Yorkshire and North Yorkshire to their extensive conurbations has resulted in the region becoming a favoured area for UK climbers, casual and professional, to be based. Sheffield, widely known as Britain's Climbing Capital (Berry *et al* 2005; Moon 2009), has a particularly strong climbing community. This is physically distinguished by an extensive climbing infrastructure within the city itself, including several large and well used climbing walls and training facilities (Climbing Works, The Foundry, The Edge and the Legendry School Wall), as well as some of the busiest local crags in the UK, including Stanage, Curbar and Froggatt. There is also an extensive climbing and mountaineering library (The Alan Rouse Library), a mountain film festival (Sheffield Adventure Film Festival (Shaff)), and numerous dedicated climbing shops and small scale kit producers. Wells (2008) emphasises the perceived ubiquity of the climbing scene in Sheffield, jovially suggesting that in London you are never more than three metres from a rat, whereas the Sheffield equivalent is famous climbers. Wells (2008) suggests that at least 20 percent of the UK's 700 most influential climbers have either lived in, or have a strong affiliation to Sheffield. Indeed climbers throughout the Yorkshire and Peak region remain active locally, nationally and internationally in a variety of climbing and mountaineering activities. Consequently, my proximity to this area, and its large and varied population of climbers made it a logical source of participants for the study. Two of my sample lived outside of this area one in Durham and the other Macclesfield. The Macclesfield climber undertook all of his climbing in the Peak District, and the climber from Durham had also climbed in Yorkshire and the Peak District and also fulfilled socio-demographic targets for my sampling quotas.

The sampling of climbers based in Yorkshire and the Peak District was undertaken using a variety of methods; adverts were placed at climbing walls and kit shops; appeals for volunteers were made on dedicated climbing websites; email requests were also sent out to all climbing and mountaineering clubs across my target area via the British Mountaineering Council. I also approached people directly at crags, climbing walls, and other venues across my target area where climbers were present. Mountain Rescue Services, the BMC, and representatives from Mountain Training and Activity providers were contacted directly in the Yorkshire and the Peak District, and also at national headquarters, such as, the Mountain Leader Training England (MLTE) in Plas y Brenin, and the BMC in Manchester. From the initial interviewees and contacts I also snowballed to other climbers who fitted my sampling frame, which helped me access people who were less willing to put themselves forward through these other routes (Flowerdew and Martin 2005). Initially 30 interviews were planned; in the end 40 were conducted and digitally recorded (Table 5.2). In addition to these numerous and often unplanned in-depth conversations took place whilst out climbing, or anywhere else that I came into contact with climbing and climbers. The pertinent details of these conversations were recorded as separate field notes.

Name (Pseudonyms)	Age	Gender	Years climbing	Preferred climbing type
Jason	21	Male	4	Sport/Trad/Indoors
Conner	23	Male	6	Trad/Solo
Rob	24	Male	6	Trad/Sport
Gavin	26	Male	5	Solo/Trad
Ted	27	Male	7	Trad/Sport
Alex	28	Male	7	Trad/Sport/Indoors
Leo	28	Male	9	Trad/Sport
Gary	30	Male	8	Trad/Boulder
Mat	32	Male	11	Trad/Sport/Indoors
Neil	34	Male	6	Sport/Boulder
Chris	35	Male	25	Boulder/Mount/Ice/Trad
Tim	38	Male	14	Boulder/Indoors
Jez	38	Male	22	Trad/Sport
Liam	39	Male	14	Trad/Boulder/Sport
Todd	40	Male	26	Trad/Boulder/Sport/Mountain
John	40	Male	18	Trad/Indoors/Mountain
Adrian	41	Male	22	Trad/ Mountain
Simon	41	Male	25	Trad/Mountain/Ice
Ron	41	Male	5	Sport/Indoor
Mark	42	Male	15	Sport/Indoor/Ice
Mick	45	Male	25	Sport/Indoors
Carl	46	Male	20	Trad/Solo/Boulder
Keith	47	Male	28	Trad
Sam	49	Male	35	Trad/Ice/Sport/Indoors
Nigel	53	Male	37	Trad/Sport/Indoors
Colin	55	Male	41	Trad/Mountain/Indoor/Sport
Nick	55	Male	35	Trad
Finlay	56	Male	38	Trad/Mountian/Ice
Derek	59	Male	44	Sport/Trad/Indoor
Bob	62	Male	46	Sport/Solo/Trad/Indoors
Phil	66	Male	53	Sport/Trad
Silvia	20	Female	2	Sport/Boulder
Megan	23	Female	9	Trad/Sport/Indoors
Sue	24	Female	4	Sport/Trad/Mountain
Gemma	29	Female	11	Trad/Boulder/Sport
Penny	30	Female	6	Trad/Indoors
Beth	36	Female	10	Trad/Sport/Indoors
Pat	38	Female	12	Trad/Soloing/Boulder/Sport
Hannah	42	Female	12	Trad/Indoors
Shirley	69	Female	51	Trad/Boulder/Sport

Table 5-2 Sample Details

5.3 Interviewing climbers

I now turn to the process of interviewing itself. The creation and formalisation of knowledge is a theoretical and philosophical, as well as a methodological concern within human geography (McDowell 1992). It is also central to Science and Technology Studies (STS), a field that also informs this research (Haraway 1988; Latour 1991; Law

2001). Accordingly, I have produced a methodology that attempts to be sufficiently reflexive to satisfy all aspects of these approaches (Law 2000, 2003, 2004; Cloke *et al* 2004). This project has relied upon a qualitative methodology due to the nature of the data sought, and also due to its theoretical underpinning. Emphasis is placed upon the role of agency which requires an intensive qualitative methodology as a means of research (Cloke, Philo and Sadler 1991; Peet 1988). Taking an Actor Network approach, this research examines the relational agency of non-humans, as well as humans, to examine how agency is created and sustained through relational networks. It is recognised that although the qualitative research method is an established manner of conducting research, that due to new theoretical approaches such as ANT:

> There are changes in the way these methods are being conceived and carried out, and related to this there are transformations in the way these methods are being used to make claims to understanding and intervening in the world. (Davies and Dwyer 2007: 257)

In this research I am using the data gained to uncover relations and networks between and amongst 'humans' and 'non humans' rather than exploring the role of human agency solely.

This study has utilised the situated experiences and knowledges of climbers, to examine the manner in which humans and non-humans are aligned as climbing assemblages, allowing the potential for the more-than-human climber to develop, and grant passage to otherwise inaccessible vertical spaces (Haraway 1988; Whatmore 2002). This relational mode of study initially affords humans and non-humans equal status, however, I have had to rely upon the humans to reveal their relations to the non-humans in their climbing networks (Law 2000). The associations and networks explored therefore relate to the subjective perceptions of the interviewees, yet partial as it is, this data would not be available using more structured quantitative methods.

Much of the work that has looked at embodied or technologically mediated experiences has been based upon autobiographical research (Spinney 2006; Jones 2005; Michael 2000, 2001). The resultant lack of empirical studies of technologically mediated engagements between people and places was one of the rationales behind

the research. The substantive element of the fieldwork was undertaken via a series of in-depth semi-structured interviews. This is a method that is:

> Sensitive and people orientated, allowing interviewees to construct their account of their experiences by describing and explaining their lives in their own words. (Valentine 1997: 111)

The semi-structured interview can access the required subjective understandings of groups and individuals (Valentine 1997). This is illustrated by Burgess (1982: 107) who argued that semi-structured interviews allow the researcher:

> To probe deeply, to uncover new clues, to open up new dimensions of a problem and to secure vivid, accurate, inclusive accounts from informants based on personal experience.

Interview topic guides (see Appendix 1) were produced to help my semi-structured interviews flow and remain on topic. These were informed by my theoretical and contextual literature reviews as well as by the wider reading. Several pilot interviews were conducted with local climbers to ensure that participants responded well to the prompts, and that the data gained from the interviews was relevant to the project's expected requirements. The experience and results from these interviews fed directly into revising the interview topic guides as the research progressed.

When arranging the interviews I purposefully allowed my interviewees to select venues that they deemed appropriate. This was to ensure that they felt at ease in their surroundings. This reflects Herzog's (2005) assertion that locations play an important role in knowledge production and therefore must be considered during the design and implementation of research. Consequently, venues included, respondents' homes, climbing walls, crags, pubs and cafes. The additional benefit of interviews conducted at the crag or the respondent's home was that I could see the respondent's kit and they, in turn, had something tangible to talk about which quite often stimulated further discussion. In venues where respondents didn't have their own gear, I bought along my own rack as a tactile prompt for discussion (Crang 2003). The inclusion of the non-human actants into the interview process was theoretically inspired with the aim of stimulating climbers to respond as climbing assemblages making their accounts less

human centred. By meeting the kit of my interviewees I increased the sampling to non-human entities – some of which are detailed later in the thesis via photographs and discussion.

The link between theory and method was critical for this research. The choice of a relational theoretical approach has had several distinct implications for the methodology and the subsequent analysis of the data gathered. The purpose of the research was to uncover those networks and associations between the climber and gear that create, sustain and modify the climbing experience. This has comprised a complex mix of various elements, human and nonhuman, taking into account the manner in which they are aligned in creating and sustaining the present day climbing experience of my respondents. For Law (2003: 3), ANT research needs to be:

> Messy and heterogeneous, because that is the way it, research, actually is. And also more importantly, it needs to be messy because that is the way the largest part of the world is. Messy, unknowable in a regular and routinised way. Unknowable, therefore, in ways that are definite and coherent ... clarity does not help. Disciplined lack of clarity, that may be what we need.

Law is suggesting that too strong an adherence to standardised research guidelines, although traditionally deemed useful, may act to distil, rather than engage with, the mess of the unknowable. The choice of semi-structured interviews allowed interviewees to divulge insight into their messy climbing networks. Through a grounded theoretical approach to the analysis of my various data sets, I have engaged with the messy heterogeneous world of climbing in a manner that is critical and coherent, but not sanitised of the complexities that exist. For instance, in an attempt to capture some of the complexity of climbers' accounts as well as digitally recording transcripts I detailed the physical gestures made by my interviewees as they were acting out climbing moves and/or procedures. I also collected photographs of interviewees and their gear. This additional data acted as an aid memoir reminding me of interviewees' characters and contributions (Livingston 1987). These elements helped bring my data back to life with added complexity during the later analysis process (Law 2004).

During the field work there were a number of practical issues encountered and overcome. Initially, it was difficult to grapple with the terminology utilised by interviewees, this led to a certain amount of clarification as well as infuriating 'Google' searches based upon my phonetic interpretations of my respondents' technical jargon. I compiled a glossary of exotic (to me) and historic terms for kit and techniques to help me overcome these problems. These issues were eventually resolved as the desk research and interviews progressed and I became more accustomed with the language and technologies that climbers used.

Another problem relating to terminology was how to word questions so that climbers didn't automatically exclude a proportion of their kit. I found that using the term 'gear' made climbers refer to their 'pro' (protective hardware, cams, harnesses, ropes), rather than looking more broadly at the range of non-human objects taken to the crag for the purpose of climbing, especially clothing and aspects such as technical footwear were often omitted. The term 'kit' prompted a wider discussion of non-human objects, but again elements of equipment, such as guidebooks and chalk, were still overlooked. Consequently, I began to refer to, 'climbing technology' and clarified that as, 'anything you bring to the climb other than yourself, including your clothes, your shoes, your chalk, your protection, everything'. This as Flowerdew and Martin (2005: 87) suggest prevented me from "making assumptions about the meanings of terms that might differ from the respondent's frame of reference", as the items overlooked, where often deemed to be important later within the interview. Quite often this sparked a discussion in itself about the mundane, often forgotten artefacts that accompany the climber, and their relevance to the climbing experience.

The semi-structured interviews were conducted as conversations driven by themes and/or open questions, allowing respondents to develop them according to their own interests (Marshall 2006). Prompts were utilised when conversation strayed off topic, but often when the conversations did stray, other interesting details were gained. As the interviews progressed I began to understand jargon and with greater ease, and gain richer insight from my respondents.

> There is a progression from interview to interview, even when the same topics or questions are introduced each time. In our dialogue with our

> respondents, our thinking was changed and sometimes in ways that were only contingently related to the planned relevancies that guided interview topics. (Smith 2002: 27)

Inevitably the interviews changed during the course of the research. Initially I suffered, or perhaps benefitted, from the nerves of interviewing an unfamiliar topic into research. As the researcher, I questioned myself, as to the point of my questions and their relevance; how would they be received? Would they produce responses both useful and interesting? This changed as the research continued and I became more familiar with the topic, the jargon and the interviewees. The conversations became more animated, and I was better able to maintain them on interesting and relevant topics for a greater duration (Miller and Crabtree 2004). My critical awareness of this process helped me remain reflective ensuring that I didn't proficiently steer my interviewees into returning, would be, text book answers and transcripts (Flowerdew and Martin 2005).

5.4 Participant observation at the crag

As well as interviewing and personal experiences, participant observation contributed valuably to this study. Although it was not the central method of data collection it provided me with a great insight into the embodied, social and technical experience of climbing. I arranged in advance to meet climbers at specific crags to climb with them and watch them climb. Spending time at the crag allowed me to observe other climbers and their socio-technical assemblages in action. But it wasn't all about climbing - in between climbing routes and whilst setting up the gear to climb there is a great deal of social time and this time allowed me to chat through my ideas with climbers and gain their valuable insights which I feel were given in more depth due the context in which they were discussed. Climbers had all the physical prompts to hand - whether it was the gear or rock faces – so that climbers could, for example, succinctly demonstrate their bodily techniques on rock and how say climbing boots worked in conjunction with both the foot, rock and technique of the climber.

My participant observation was undertaken in an overt manner, often because I was climbing with interviewees who I had informed about the study. The participant observation gave me opportunity to directly question climbers on their experience of

climbing as assemblages. I used this to clarify issues and themes that had arisen in the more abstract situation of the interviews. The most valuable aspect of the participant observation was the embodied experience of climbing as an assemblage. I gained a strong realisation whilst climbing that I could ascend routes as an assemblage that I could not have done without the support of my kit. One particularly notable experience occurred on a route on which I had realised half way up that I had forgotten to wear my helmet. This realisation disabled my ability to climb which up until the point of realisation had been progressing well. I was hindered to the extent that I felt the need to find a secure stance on the crag and untie myself from the rope in order to drop down an end for the belayer to attach my helmet. Tied in again and clad in my helmet I felt secure and confident and was able to continue. It was experiential aspects such as these that gave me greater insights into my respondents' accounts of climbing as assemblages. I had experienced firsthand the enabling relations between climber and technology. These were made evident to me in a manner in which a verbal account alone would have left me questioning the validity of the account (Livingston 1987).

Research upon active body technology relations is often based upon autobiographical research (see for example Michael 2000, 2001; Spinney 2006). Clearly, the autobiographical approach has its merits, such as when attempting to understand and represent the corporeal complexities of experience within relational networks (Thrift 2008). However, Mercer (2007) notes that the absence of transparent ethical, methodological and institutional safeguards exposes authors of autobiographical research to potential personal, situational and reflexivity problems. For example, Mercer suggests that autobiographical research is "never only about the self, others are implicated" (*Ibid*: 575). He argues that subjective accounts are not subject to invalidation leading to potential bias and representational difficulties. Thus, although my work is in part informed by my ethnographic experiences as a participant observer and my positionality, as outlined in the introduction of this chapter, it is primarily based upon a series of in-depth semi structured interviews.

5.5 Applying grounded theory

My raw data was in the form of interview transcripts, field notes, and excerpts from secondary data sources such as books, selected threads from internet discussion forums, and relevant articles from the climbing and wider media. The datasets were all transferred to NVivo in a more or less raw format with the occasional paragraph highlighted in a different colour. This all required processing and analysing and this procedure was greatly aided by the NVivo software which allowed me to view codes across the diverse material. Computer assisted data analysis systems such as NVivo are designed to aid the management of qualitative data in the manner of a sophisticated database. Gibbs (2002: 11) suggests that "qualitative software can make qualitative analysis easier, more accurate, more reliable and more transparent". To an extent this can be true, however, the data codes and rationales for coding remain ultimately dependent upon the researcher. Furthermore as the programme, does not read, interpret or analyse the inputted data it is ultimately the researcher who governs the transparency and research quality (Fielding and Lee 1998). In order to prevent bias and maintain transparency I coded my data utilising grounded theory – letting my respondents' data speak for itself (Glaser 1992).

The coding of interview transcripts marked the move from data collection towards analysis. To Charmaz (2006: 45) "coding is more than a beginning; it shapes an analytical frame from which to build the analysis". Through the creation and refinement of codes using grounded theory themes begin to emerge which will ultimately become the basis for analysis (*ibid* 2006). An identified problem with relational analysis of this type is that networks and relationships are too easy to identify with a clear hypothesis in mind (Law 2004); logical connections spring to the fore front of the mind, and I found it would have been easy to impose prejudgements onto the raw data amidst the excitement of the long awaited analysis of my field work. Instead I began by reading through each interview or field note individually, searching for themes and examples that were relevant to both the climbers I had interviewed and my research. I allowed the data to speak for itself, with initial broad themes slowly becoming apparent as they were repeated and/or emphasised by respondents within the same, or separate interviews (Gibbs 2007; Charmaz 2006). Corbin and Strauss (2008) advise that the temptation to code and analyse simultaneously should be

restrained to prevent the analytical tainting of the grounded theoretical approach. Consequently, as analytical themes began to emerge, they were noted separately from the NVivo file.

The codes summarised the data and was given short related names, usually directly from the words of interviewees. For example, I devised codes for commonly mentioned types of technology such as nuts, cams and shoes. I also had a code for 'enabled by technology' which I used when an interviewee described how kit enabled them. After coding 5 interviews I began to revisit the codes in order to prevent duplication, and to begin to cluster codes according to wider themes to aid clarity and understanding, of the coded data. For example, the code for enablement was subdivided into different categories that explained the different ways that kit enabled and what type of kit was referred to as enabling. In total I had approximately 120 codes although this fluctuated throughout the coding process as NVivo nodes were combined and rationalised. I maintained a theoretically-informed reflexive awareness that complexity, transparency and mess were all part of the study's theoretical underpinning (Law 2003, 2004). From the coding the analytical frame could be fleshed out via the integration of the theoretical approach to the empirical study.

5.6 Ethics and risk

The choice of a qualitative methodology inevitably encompasses a number of ethical issues that required addressing within the research design and implementation (Cloke *et al* 2004). The project's methodology adhered to departmental ethical research procedures, developed to meet British Sociological Association Guidelines and the ESRC Research Ethics Framework. Ethical issues concerning the risks associated with climbing were addressed in a detailed risk assessment undertaken within the University using existing protocols (see Appendix 2). The ethical issues identified and addressed included:

1. Informed consent - I ensured that participants were given informed consent to take part in the study and explained the aims and objectives of the study and the interview.

2. Right to withdraw – Participants were informed of their right to withdraw from the study at any point.

3. Anonymity of information disclosed - I advised participants that their data would be made anonymous by the use of pseudonyms, or presented in an aggregated form that would not reveal their identities.

4. Explanation of participant data use - I informed participants how the data divulged would be utilised.

These ethical issues were addressed by the production of a consent form (see Appendix 3). This provided an overview of the project's aims and an explanation of participant's rights. On occasions some of my respondents divulged deeply personal and moving accounts concerning the loss of friends and close family through climbing incidents and how this had impacted upon their own climbing and relationship with their gear. In these circumstances I tried to remain sensitive to their emotions but allowed them to divulge their stories.

5.7 Summary

Climbing and climbers have made for an entertaining and often surprising research subject and topic; even when you feel you have heard it all, another novel, mundane or extraordinary piece of kit comes to light with an interesting tale to accompany it. The advantages of the qualitative methodology have been used to the fullest to allow participants to tell me their own stories and experiences, rather than ones distorted and/or limited by a structured, closed and inflexible approach. This has been greatly aided by my respondents' passion for their 'sport' and their eloquence and eagerness when sharing this with someone who is willing and interested in listening.

My final sample is an illustrative cross section of climbers from within Yorkshire and the Peak District, representing diversity in age, experience, gender, and climbing styles. Despite having some similar outlooks and ethics, all the climbers have had their own personal motivations, and climbed routes and rock that suited their personal preferences and climbing styles. My interviews with representatives from climbing related agencies and organisations have also added greatly to my understanding of the sport and its participants. My mix of methods that included semi-structured interview,

participant observation and desk research has allowed me to embrace the complexities of climbing that are vital to a relational approach (Law 2004).

I also used my interviewees and my own kit to help then non-human actors of the climbing assemblage speak out. The use of tactile prompts whilst interviewing was also theoretically motivated and contributed to the quality of my interviewees' accounts. The use of climbers' kit during the interviews instigated discussion as well as adding a different dimension to the interview process. This allowed visual bodily observations to be made, rather than relying upon verbal accounts about climbing as an assemblage. This has enabled a deeper understanding of the networks that make up present day climbing.

In the next chapter I explore the climbing assemblage utilising the empirical information that I have gathered through the methods detailed above. The chapter artificially separates the climbing assemblage thematically to manage complexity in order to succinctly demonstrate how the different actors present in the climbing network stabilise, change and enable the pursuit of climbing.

Chapter 6:Enabling assemblages: co-producing the climber and the climb

6.1 Introduction

> Gear is one of the three factors, yourself and the rock being the others. You are the main one but it's every much as part of the formula as the others. It's how you react with the rock and how you react with your gear. It's what means you get up, or means you don't get up something. So it's crucial. And I say it's part of it, placing gear is climbing, as much as grabbing a hold and pulling, because it's an essential skill, an essential part of the formula. (Carl 46)

It is widely accepted that new technology "increasingly affects/infects the minutiae of everyday life and corporeal existence" (Grosz 1998: 48), and that operating as assemblages, or with 'co-agents', bodily abilities are altered (Michael 2000, 2009). As Carl above emphasises, without technology climbers wouldn't be able to access the vertical worlds that they crave. In climbing the technological enablement is seemingly stark and apparent; shoes grip, harnesses secure and ropes ensure safety. However, I contend that beneath the surface of this activity lies a more complex situation where networks of technologies subtly enact the climb. The climb is an outdoor hybrid assemblage comprised of the climber, objects, and mundane technologies that enable the extension of human corporeal capacities. The information from my interviewees illustrates that due to the focused nature of the pursuit, climbers have a deeper awareness of the important roles played by technology that in other situations would be rendered invisible by its mundanity and invisibility (Michael 2001). This sagacious consciousness of specific embodied technological relations sheds light on the wider significance of the unremarkable beyond the realm of climbing and into the sphere of everyday assemblages. This is because we are all technologically enabled beings whether we realise it or not (Shaw 2008; Mitchell 2004).

By examining how co-evolutional technologies combine with the body, extending its performative ability to climb this chapter explores the relation practice of climbing further. I intend to develop the theoretical contribution of authors in this field such as Urry (2001: 4), who claims:

> Various objects and mundane technologies facilitate this kinesthetic sense as they sensuously extend human capacities into and across the external world. There are thus various assemblages of humans, objects, technologies and scripts that contingently produce durability and stability of mobility.

Like Urry, whilst formulating the research proposal I had certain preconceptions concerning how the climbing body was enabled with technology. My preconceptions were centered upon the striking figure of the ice climber (fig 6.1). The ice climber is clad in high-tech gear: high wicking base-layers that draw the sweat away from the body, removable mid layers enable the climber to regulate his/her core body temperature, and breathable outerwear that allows perspiration to pass outwards, whilst protecting the climber from the elements. Thick gloves keep the hands warm in the constant presence of ice. The hands and feet of the ice-climber are physically extended by ice axes, and crampons attached by leashes and step-in bindings respectively.

> …every [axe] placement you get this lovely squeak squuechy scewtchy noise – you can hear and feel that it's secure. A brittle clink or clank and it might dinner plate [shatter]. It's the riskiest but most rewarding type of climbing. You're literally connected to your kit you feel *bionic*. (Finlay 56).

These were the extensions that drew my initial attention. The ice climber is physically enabled by this technology. They become a hybrid whose limbs are extended by technological prosthetics that appear seamlessly fused in an ergonomic and functional relationship, allowing the climber passage as an assemblage which it would be incapable of alone.

Figure 6.1 Ice climbing

Like other forms of hybrid figures (Haraway 1985; Whatmore 2006), I considered the ice climber as the archetypical 'cyborg climbing figure' or 'more-than-human-climber'; it was such stark relations between kit and climber that enact the performance of extraordinary feats that I desired to research and understand in more depth. However, my research almost immediately led me to a differing, yet equally significant, set of enabling relations. In addition to the functional and ergonomic relations with technology that I had expected, I found a far more complex climbing assemblage. In this climbing assemblage, enabling relations were built upon familiarity, superstition, traditions, risk, security, comfort, safety, personal ethics and desired relations with the environment.

Mr Stripey is one example that typifies this. Mr Stripey (fig 6.2) is a knitted mouse - figure 6.3 is his owner Kenton Cool a leading British alpinist climber. Figure 6.4 is a picture of them together upon the summit of Mount Everest. Cool is a professional climber who is so driven to achieve his objectives in the mountains that he has been

known to cut the labels from his climbing kit in order to remove all but the functional weight from his assemblage in order to give himself the best possible chance of achieving the summit - yet he still takes Mr Stripey. Cool's reasoning for this, which contradicts many aspects of his 'rationalised' approach to climbing, is that Mr Stripey and he have a functional relation in the mountains. The knowledge of Stripey's presence, the feel, or sight of him, is a psychological crutch that calms Cool's nerves, gives him comfort and can mentally transport him away from the mountain. As Cool himself admitted to me, "even if it's just for a moment – it helps". Mr Stripey, is to Cool, a vital part of his socio-technical assemblage that enables him to climb.

Figure 6.2 Mr Stripey (Source: www.everestchallenge.org.uk)

Figure 6.3 Kenton Cool (Source www.everestchallenge.org.uk)

Figure 6.4 Kenton Cool and Mr Stripey on the summit of Mt Everest (Source www.everestchallenge.org.uk)

The examples above support my relational approach that not only examines the physical function of the climber's enabling technology, but also examines the complete relational, corporeal fusion. In this chapter, I want to examine in detail these connections between climbers and kit in much more detail, drawing on my own empirical work. To relationally read the 'cyborg' figures of contemporary climbing, examining how the emotional relationships between climbers and their kit whilst

climbing - relations such as those between Cool and Mr Stripey, that are every bit as enabling as a jagged ice axe or crampon point driven deep into ice. This research explores the functions, roles and synergies that lie beyond product instruction manuals, yet nevertheless enact the pursuit of climbing.

Given the multiplicity of relations that enable and enact the pursuit of climbing, the following sections in this chapter examine how climbers, technologies and places interact and co-produce each other within climbing networks - how actors within networks "mutually exchange and enhance their properties" (Latour 1999: 125). In climbing such exchanges are complex and contingent processes involving a range of actors. The analysis of co-production is further problematised by the impact of 'absent actors' during the practice of climbing on rock (Law 2004). These are items of a climber's socio-technical assemblage that are central to the pursuit but absent from the actual practice of climbing, for instance guidebooks. It could be argued that the *complexity* of the climbing assemblage renders a full understanding of the practice beyond representation, due to the inability of established representational forms to capture all of the contingencies of the practice (Thrift 2008; Laurier and Philo 2006). However, by using a relational approach and drawing from the insights of climbers, plus my own experience of climbing via participant observation, a great deal of this complexity and contingency can be explored and detailed.

To avoid a technocentricity which would invalidate my relational approach, my analysis embraces the notion that it is through the body that people encounter the world around us; they sense it through their eyes, ears, nose and skin as they navigate its ever changing milieux (Rodaway 1994). However, the embodied and the technical will be considered equitably in recognition that now, and increasingly, people sense the world through and with technology (Michael 2001), developing skills and competencies in conjunction with technologies (Ingold 2000). In all spheres of life our bodies and the places they go are technologised, and these new technologically mediated engagements are becoming ever more complex and subtle (Mitchell 2004). I will investigate this by exploring the differing ways that climbers and their kit co-evolve with, and co-produce, each other within the climbing network.

6.2 Structure of the empirical chapters

For the sake of clarity I will artificially separate five aspects of the practice of climbing. First, I will look at the co-production of the climbing body through the practice of climbing as well as through the use of training aids and indoor walls. Second, I will examine how climbing guidebooks have a role in producing, formalising and commoditising climbing routes through inscription, and how they co-evolve through progressions in climbing practice and technology. Third, I move on to climbing practice to explore how climbers, and their gear as an assemblage, co-evolve dynamically, and how progressive innovations alter the relationship between climber and rock. Fourth, I will consider the experiential dimensions of this technologically mediated engagement in relation to notions of risk, comfort and security. Finally, I examine the impacts of climbing upon the venues of the pursuit. In doing so, I demonstrate how the climber and their pursuit are produced by the constituent actors of the extended climbing network.

Co-producing the climber

6.3 Introduction

The climbing body plays a key role in the climbing assemblage as the human actor with the intention of climbing. The climbing body also represents an entity that has been increasingly moulded and shaped by a range of socio-technical devices and practices that are associated with contemporary climbing. Indeed the body has been conceptualised as having plasticity due to is co-constituted formation amidst complex assemblages (Dixon and Whitehead 2008). This initial section will explore the co-constituted dimensions of climbing bodies.

6.4 The physiology of a climber

The climbing body is (if you exclude non-climbing activities) co-produced in conjunction with many things, including the rock of the crag during the practice of climbing (Lewis 2001). The act of climbing is physically demanding and produces a honed and muscular physique in those for whom climbing is a regular pleasure. Repeated exertion increases bodily strength and endurance, building muscle tissue and increasing the torsional capacity of the tendons in relation to the skeletal structure of the body. At the same time the range of movements used whilst climbing are stored as muscle memories as they are repeated time and again - the body's fine motor skills becoming attuned to a variety of climbing-specific movements and postures that require balance, restraint and finesse. Climbers divulged to me the need to acquire and maintain such fine motor skills through climbing regularly; they felt that these were quickly degraded by spells of inactivity.

The practice of climbing on rock also elicits specific modifications to the external appearance of the climbing body, most notably to the hands. Lewis (2001) identified the hands and the sense of touch as pivotal to climbing. For Lewis (2001: 74):

> The climbing body is worked upon through the very act of climbing: it is recast, moulded and shaped, transformed and, in substance, created through the act of climbing and embodied engagement or immersion with rock.

When seeking out my interviewees at prearranged non-climbing venues, one of my tactics for identifying them was to look at people's hands. Hands immediately exposed

a commitment to climbing because repeated exposure to rough abrasive stone while using a range of techniques to remain in physical contact with the rock conditions the hands of the climber distinctly. Finger ends are stubby from crimping, finger nails are likewise worn short by the rock. Climbers' hands are eroded and reconstructed by climbing, and like any other piece of climbing equipment they often require servicing and maintenance (fig 6.5). Several of the climbers I spoke to undertook a regime of cleansing and moisturising to prevent calluses and dry skin, but climbers largely regarded their 'climbing hands' (with their associated wear and tear) as a 'source of pride' or a 'badge of honour' that marked their commitment to the pursuit. For instance Tim (38) was particularly proud of how his hands identified him as a dedicated gritstone climber; holding them in front of me he said, "you can buy your identity as a climber through clothes and kit but you cannot buy a pair of hands like this". Other interviewees disclosed how years of climbing had toughened up their skin and shaped and strengthened their hands into better "tools for climbing" (Nick 55). This supports Lewis' (2001: 45) commonsense assertion that, "the practice of rock-climbing cultivates the body towards a better configuration for climbing".

However, Lewis (2001) fails to recognise how climbing gear is involved with producing and reconfiguring the climbing body. If we continue with the example of climbers' hands we see that technology is used to both enable and protect. The fingers on the hand in figure 6.5 are taped so that the climber can continue climbing despite injuries to the pulleys and tendons within the fingers. The hand is also coated with a layer of chalk to enhance its grip with the rock. Both the tape and chalk are modifying the body in a way that mediates and changes the engagement with rock whilst climbing. These examples of subtle but essential body-technology enhancements demonstrate why we must include technology in an analysis of climbing practice. Read simply, the term 'climbing body' fails to explain the complexity of what a climber is, and what they can do. Rather, we should look at the climber as a hybrid assemblage who is relationally co-produced and enacted.

Figure 6.5 The climbing hand (Source: www.ukclimbing.com)

6.5 Propagating the climbing body

Human - non-human interplay is ubiquitous in climbing. In even the most gear-free types of climbing such as free-soloing, the seamless synergy of the body and the climbing shoe, or the chalk-veiled hand, are essential to the pursuit. Many of these synergies between climber and gear appear so seamless to climbers that they blur the boundaries between the 'body' and 'technology', the 'artificial' and the 'natural' (Haraway 1997). As the boundaries between the body and technology become ever more blurry, it is increasingly important to try and understand new hybrid forms (Wilbert and White 2009). The following information embraces the hybridity between humans and non humans, and is critical of the reductive study of bodies and technologies in isolation and the way in which this fosters outdated dualistic ontologies (Murdoch 1997a). My data suggests that the body of the climber cannot be revered as a pure natural form, rather, it is purposefully co-constructed through climbing and the use of artificial training aids that are specifically designed to propagate a more effective climbing body.

Figure 6.6 Rockcity climbing wall (Hull) (Source: www.rockcity.co.uk)

6.5.1 Climbing walls and training aids

There is no doubt that the climbing body and particularly the hand is co-produced in conjunction with the rock. Yet in recent years the climbing body has been refigured and refined in a new setting, by a further range of new technologies and associated practices. Climbing walls (fig 6.6) and home training devices (fig 6.7) have become increasingly popular amongst British climbers and, in turn, have contributed to the co-production of the climbing body.

Climbing walls are significant because they provide climbers with accessible all weather climbing that enable climbers to train and hone their bodies to a greater intensity than ever before. In particular, this allows climbers to focus upon particular aspects of their body or climbing technique, such as finger strength or upper body strength, by climbing particular indoor routes or by using training devices that work specific areas of the body. The climbers that I interviewed had no doubts that climbing walls had increased the strength and physical capacity of the British climbing population. They argued that stronger climbers, who had trained indoors, in conjunction with modern technologies and climbing competencies, are able, or as I would argue *enabled*, to push their bodies and technical climbing to new levels of performance. Climbers were lucid about the benefits of indoor training for climbing. For instance Chris said:

> Being able to climb indoors has certainly improved my climbing. You need to climb at least three times a week, every week to improve. It's the only way to

> develop all aspects of your climbing - your strength, technique, balance and perhaps most importantly your confidence. When you climb regularly you develop a feel for it that you just don't get when you're not. (Chris 35)

As noted earlier, hand and finger strength are key components of climbing. Hands require conditioning to enable them to grip tenuous slopers, crimp small edges or to hold a 'mono' (a hold that requires a single finger to take the body's weight) (Section 2.3.3). There is an array of training devices that aid finger and hand strength and development. These devices hone specific parts of the body by mimicking the extreme stresses placed upon the body when climbing. Hanging boards (fig 6.7) for example, can be attached to domestic walls to offer varying holds that work and exercise differing parts of the fingers, hand and arm. The market also offers foam balls, putty balls, and sprung devices with differing resistances; many of these were initially designed for physiotherapy and injury rehabilitation, but have since been adopted by climbers in their search for finger strength. The campus board (fig 6.8) for example, was invented by Wolfgang Gullich in 1988 whilst training for 'Action Directe' in Germany, a route renowned as requiring extreme dynamic finger strength (Hepp 1994). His use of artificial training devices to prepare his body to climb is accredited as redefining the bodily boundaries of climbing (*ibid*). Campus boards represent an extreme side of the regime of preparation in which the body is co-produced and refigured to support its weight on the finger's end. Indeed, Gullich's campus board and training regime has been widely adopted in the upper echelons of the pursuit and they are now common place at climbing walls. The strength required to use and benefit from such equipment means that the tortuous benefits of the campus board's wooden rungs are only accessible to climbers whose bodies are already developed enough for its use. This emphasises that the new training technologies of climbing do not release their 'benefits' to all - they require dedicated training. This view differs from those who perceive artificial climbing as a lesser pursuit marked by predictability and instant gratification (Lewis 2004).

Figure 6.7 Paul Barratt struggling to support his own body weight in his breakfast room

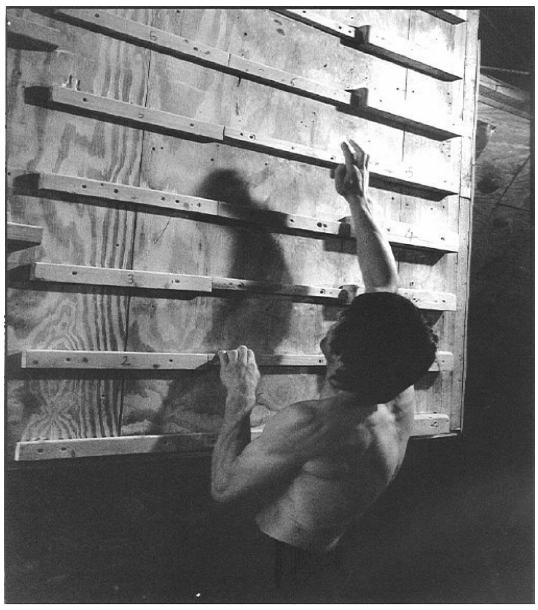


Figure 6.8 Ben Moon on the Schoolroom campus board, Sheffield (source www.ukclimbing.com)

Although for some a leisure practice in its own right, indoor climbing was for 34 of the 37 climbers interviewed primarily a method of training for the outdoor pursuit. Indoor walls allowed climbers to climb whatever the weather, or when they did not have time to climb at an outdoor venue. As Liam (39) notes:

> I have to fit my climbing in when I can [around other commitments], and that often means fixing a date well in advance. Unfortunately, you can't fix the weather, so we always have to use the climbing wall as a back-up.

Yet while climbing walls increase climbers' physical exertion by providing a climbing experience when crags cannot be climbed, as mentioned above, they also provide opportunities to work on particular parts of a climber's body. This was especially appreciated by 'serious' climbers (Heywood 1994). Consequently whereas some climbers climb a range of routes whilst at the wall to maintain general fitness levels, the predictability and consistency of the climbing wall allowed others to train specific parts of their body to improve differing aspects of their climbing. For example, Nigel (53) told me how he had been to the climbing wall to train for a specific type of route before departing on a climbing trip to Spain. He said:

> We came down here [to the climbing wall] a lot before heading off to Spain to do some long mountain routes with some serious overhangs. We kept repeating

> this one easy route on the overhang over and over again until our arms were beat. We knew it would build our strength for the trip, so it was purely for training rather than the challenge.

The predictability and consistency of these new spaces of climbing have produced a new 'regime of preparation' for the climbing body and there was general agreement amongst my sample that the strength of the British climbing population had improved because of this. However, there was also agreement that indoor climbing and training was very different to outdoor climbing. This was largely attributed to the 'predictability' and 'consistency' of the indoors, which the outdoor climber was unlikely to encounter. For instance Jez (38) considered that:

> Climbing walls tend to train people towards thinking every five or ten feet you *must* have gear. And it's a great ideal but often [outdoor] climbs aren't like that.

Further, some climbers argued that indoor climbing did not therefore develop the full range of subtle skills and techniques necessary for outdoors climbing, nor did it give climbers a chance to familiarise themselves with technological 'protection' - a key facet of the outdoor genre (Milburn *et al* 1997). The quotes below illustrate the perceived differences between the indoors and the outdoors, placing the emphasis on the transition of climbers' skills and strengths:

> There's a gulf between the indoors and outdoors - on 'real' rock, and particularly gritstone, everything is a potential hold. It's not marked out so you have to try out different moves and holds, learn to read the rock. You may be able to climb 7a indoors but if you've never climbed on rock you'll struggle at 4a outside. How can a climbing wall prepare you for jamming on grit? I'll tell you - it doesn't. (Keith 47)

> Indoor climbing is certainly responsible for some of the increasing standards, but it's also responsible for holding a lot of people back. There is a tendency to focus on strength training at the wall, and I think that is holding people back who are trying to transfer to the outdoor sport. They think 'I can't do that so I must train harder to make myself stronger so I can make that move', where as indoor and outdoor climbing is totally different. So newcomers are often strong but they

> don't have the subtleties of technique that climbing outdoors requires. (Conner 23)

Thus the bodily skills and capacities co-produced in more complex and contingent climbing practice at the crag are missing from the indoor pursuit. Climbers develop different capacities with the co-agents of outdoor and indoor assemblages as well as the spaces themselves. This emphasises that both the technical and the spatial are implicated in ordering and disordering our environmental engagements (Michael 2001). Chris for example, realised that he could climb a lot harder indoors and he liked that. He found that the relative safety offered by clipping into bolts allowed him to push his physical limits in a way he could not when he was climbing by his preferred outdoor trad style (see Section 2.3.1). Chris (35) explained:

> I find the [indoor] environment conducive to really pushing my limits technically, I don't think that I am incredibly bold so I think I hold myself back a little bit when I trad climb, because I could maybe technically do stuff, but I get a bit scared if I am above my gear.

Climbers commented that the new "climbing wall generation" (Todd 40) has missed out on the 'traditional climbing apprenticeship' at the crag. Instead, they have learnt to climb on the coloured resin holds of indoor climbing walls, which requires different physical skills and competencies. Thus although the bodies of climbers had been physically enhanced in conjunction with climbing walls, these benefits could not always be realised on rock due to a lack of *experience* of climbing outdoors. Indoor climbing assemblages differ from those of the outdoor climbing not merely in place but in bodily structure. This suggests that indoor climbing represents a new rationalised form of climbing with parallels to Ritzer's (1993) Mcdonaldization thesis, whereby indoor climbing increases the commoditization of climbing with its 'pay to climb' structure, and the climb becomes a standard and predictable product. This, some climbers feared, could ultimately be detrimental to the climbing community and its culture. An 'indoor-outdoor' dualism has emerged as these new socio-technical practices and regimes of preparation have been incorporated into the pursuit of climbing (Eden and Barratt, in press).

In sum, climbers were uncertain about the impacts of the burgeoning pursuit of indoor climbing upon the pursuit's culture and traditions. The claims made by some traditionalists were often framed in a bemused or derogatory manner and did not recognise it as a legitimate pursuit either in its own merit or as a route into the outdoor pursuit. There were fears that indoor climbing would in some way weaken the culture, practices and traditions associated with British climbing although climbers were unable to substantiate these claims. Indoor climbing is perceived as a lesser pursuit and unsuitable for learning the skills and subtleties of the outdoor genre. Advocates of the indoor wall told a different story. They were aware that it was in many respects altogether different to the outdoor pursuit but considered it had a place in British climbing. They lauded the strength and training benefits that could be gained and the convenience of the venues in terms of locations and for when the weather rendered outside climbing unfavourable.

6.6 Co-producing gendered climbing bodies and movements

One particular aspect of bodily structure is how this is gendered. Robinson (2008) has undertaken detailed study into the gendered aspects of the pursuit of climbing paying particular emphasis to the embodied aspects of the sport. Some of these themes were evident in my sample which reflected the approximate gender divisions of the pursuit. The muscular climbing body and capacity for climbing was regarded as a highly masculine trait – although one that is rife with ideological assumptions (Robinson 2008) (see section 4.5 'Embodying the outdoors'). The presence of skilful muscular males at the crag and particularly the climbing wall was cited as intimidating by several female respondents from my sample. This claimed intimidation and feeling of inadequacy was similar to Tim's display (mentioned above) whereby he asserted that the attributes of the climbing body could not be purchased, rather, they had to be earned and developed in conjunction with the rock. Some female climbers, who felt that they lacked some of the skills and bodily capacities of the male climbers around them, did not always feel at ease. However, the female climbers in my sample also tended to accept their own bodily characteristics, abilities and competencies - viewing some male and muscular masculine types with disdain, rather than admiration and prestige. For instance Sue (24) said:

> Impressive maybe but all that sweat and grunting is a too much for me. Intellectually stimulating climbs with delicate moves and style is where I'm at. But I would say that wouldn't I.

In line with Sue's comment there appeared to be gendered assumptions about how males and females climbed (see section 5.2.1). It was assumed that males were more likely to focus on strength orientated routes that required less skill and finesse. Whereas female climbers were considered more adept at technical climbing routes that called for technique and consideration. This echoes the work of Robinson (2004, 2008) and Dilley (2006) who both suggested that the climbing style of women required 'balance' and 'nimbleness', and that these were qualities that were often devalued by the male preference for routes that demanded physical strength.

These were gendered climbing qualities that I observed at the crag when watching climbers with similar levels of experience. Male climbers often appeared to be reliant upon strength in order to overcome obstacles on routes, whereas female climbers tendered to rely upon technique. However, this is quite a simplistic reading of this gendered aspect of the embodied practice of rock climbing. By constructing a dualistic typology of gendered climbing types essentialist and naturalised notions of climbing styles are exacerbated. As Gagen (2000) warns, naively attributing performances to bodies sustains conventional gender norms. Rather, she suggests that we should explore how bodily movement becomes stylised as gendered. The gendered aspects of climbing noted by my interviewees supports Gagen's proposition. The situation described by my female interviewees whereby they felt uncomfortable climbing alongside muscular males (often in a state of partial undress, clad only in shorts and shoes), could exacerbate gendered notions of climbing styles and capacities. This is because the areas where female climbers felt excluded mirrored the areas where greater strength could be developed through training (and where climbers could be viewed, and often heard, demonstrating these characteristics). These areas included steep overhanging sections of the indoor wall, as well as highly physical and technical bouldering problems. Consequently, females' feelings of exclusion from these spaces could exacerbate assumed divisions, and also prevent them from developing bodily

strengths and capacities of their male counterparts - unless the dominance of training spaces is questioned and/or challenged.

6.7 Injured bodies

The climbing body is shaped through experience, positively enhanced through the effects of training but also negatively through injury both having an impact upon how climbing practice is performed (Robinson 2008; Horne *et al* 1999). The most serious modification climbing can make to the body is through injury, some of which are permanent - physically and mentally scarring the body and affecting its capacity to climb. Minor injuries such as sprains or pulled tendons were common. While the climber nursed their injuries, they rested afflicted areas by climbing routes that did not use the injured body part. For instance, when Tim had injured his elbow he refrained from climbing overhangs and spent a period climbing on slabs whilst his injury healed. Injured and injury prone climbers also tended to avoid indoor climbing walls. This was because the type of climbing that they promoted was regarded as technical and hard on the body.

Indeed, whilst exploring this topic with my interviewees they explained that although injuries could cause disablement in certain aspects of climbing, this could often be compensated by improvements in technique. Some of injuries suffered by my interviews were permanent, such as the loss of fingers and permanent ligament damage. Yet over time even these serious injuries could be mitigated by better technique. For example, Derek (59) who had lost the fingers off one hand as a result of a "bloody accident" argued that there was very little that he couldn't do now that he could before.

> As a result of my accident I now use slightly different technique. I have improved my footwork, improved my body position and it works. If I'd realised how important footwork was when I did have a full set of fingers I might have been a much better climber.

Derek had also adapted the way he racked his gear in response to his injury.

> I have a ritual in terms of the way I rack gear. I always like friends on this side, nuts on this side, and quick draws here. Nuts at the front quick draws at the back

> so I know where everything is. I'm a sport climber as well and I have a particular way of racking the quick draws on either side, because of the lack of fingers on this hand I need to clip in a slightly different way with my left hand.

Such serious injuries also impact upon the climber's psychological ability to climb. Derek found that when faced with situations similar to his accident he often found himself (understandably) scared, and he struggled to continue.

> A year or two after I lost my fingers I was nervous whenever I came to a block or a piece I thought might come off. I've climbed through it and come out the other side. It took a while it is just a case of getting your confidence back.

Derek managed to overcome his fear by continuing to climb. He faced his fears and rebuilt his relations with the rock in a manner that psychologically enabled rather than disabled him. Another of my interviewees Leo (28) was recovering from a broken back and fractured skull as the result of a serious fall. Although he was keen to continue climbing, he was easing himself back in psychologically by climbing indoors, and seconding single pitch routes outdoors. These examples show how climbers rebuild their skills and confidence that develop through practice (Ingold 2000). Both these climbers were keen to climb again not because they enjoyed the risk, far from it, they both stated that they were more cautious on their returns. This is contrary to those who view climbers as seeking masculinised rewards (Robinson 2008) although this could be due to the severity of these specific examples.

During my participant observation at the crag I severely sprained an ankle falling from a bouldering problem at Almscliff, Yorkshire. My toe slipped from a polished hold and, ironically, I sprained it on the edge of the bouldering mat which was placed below the climb to protect me. The pain was immense and the recovery slow. As a result of the accident I lost a lot of confidence in my footwork and found it hard to read, and rely upon, the friction generated by my shoe-clad foot against the rock. Like Derek and Leo I have largely overcome the problem by continuing to climb. Three years on and many climbing trips later the memories of the pain lingers, and it makes me think hard before trusting my footwork. This has affected the relations between my body, technology and the rock in a debilitating manner. The foot-shoe-rock assemblage,

through relations with a negative consequence (a sprained ankle) is now, although physically healed, less effective at climbing. This example, and those above, further demonstrates how the acquisition of climbing skills are relational and developed through practice (Ingold 2000). They also suggest that practice can be deskilling and disabling in certain circumstances, such as accidents.

The injured or permanently disabled climbing body starkly indicates how fragile bodily relations with rock and technologies can be (Lewis 2000). By altering the places where climbers climbed and making subtle alterations to gear most climbers were able to alter their climbing to in accommodate their injury. However, the relations between climber, technology and rock are shaken and altered by the trauma of an accident or injury. These new relations may hinder the climber by disrupting the beneficial and enabling relations of the climber-gear-rock assemblage.

What this and the previous section illustrates is that different forms of climbing are all analytically the same whether they are undertaken by man, or a woman, who is injured, or fully fit, they are assemblages that shift and change according to the situation.

6.8 Branding the body: The role of kit in creating the climbers' identity

Another way that climbers distinguish themselves as climbers is through consumption. To Wheaton (2004) consumption can represent a means of forming a sporting identity. In addition to bodily characteristics, climbers are also shaped by the technical assemblages that are worn and carried about their person. A visual reading of their kit often reveals what type of climbing they do, as well as what type of climber they are. Several respondents told me that making assumptions about climbers according to their gear was a common pastime at the crag: "you can tell a lot about a climber from their rack" (Gemma 29). For Sam (49) gear "says whether they are a traditionalist and whether they believe that those guys in the 50s were really good". Sam is referring to climbers who are not swayed by trends and keep their racks simple - mostly relying upon nuts, hexes and slings which, despite refinement in design and composition, remain the closest comparable kit to the 1950s crag climbers.

> I think for some people they almost want to buy an identity and so they will always have the latest thing and they want to see themselves right a the cutting edge. (Gavin 26)

By contrast, Gavin reports a trend echoed by several of my interviewees - that gear becomes part of climbers' identity within the climbing population, and they liked to be seen with the 'right' gear for the venue (see Beal and Wilson 2004). Or for Alex:

> You can see people who obviously love their gear and they always have a big rack, they may only be climbing a 30 ft route but they have a rack with about 15 friends and 35 nuts round them. All gleaming and shining in all the new colours. Some people are gear freaks there is no doubt, and there are others who have been climbing for thirty or forty years and still got the gear that they bought then – You have to respect them for staying true to their roots. (Alex 28)

The gear people carry, and the way they climb with it, can inspire and influence other climbers (Beal and Wilson 2004). The examples above illustrate that for some (particularly traditionalists) it is not about having the best equipped rack with the latest gear; indeed, limited gear often implies a greater level of skill and achievement. But these values and debates are sustained through the practice of climbing and interactions at the crag. Thus the climber-equipment assemblage and the manner in which it climbs is an immutable mobile that supports the type of climbing that is being demonstrated.

6.9 Summary

This section has demonstrated that climbers' bodies are co-constituted during the preparation for, and the practice of, climbing. Thus the climbing body is realised not only through both the practice of climbing outdoors, but also through the use of artificial indoor training aids and regimes that replicate moves to develop the muscular strength required for climbing outdoors – they mediate in shaping the climbing body. However, indoor walls do not accurately replicate the practice of climbing on rock, as they are constructed from hard board and colour-coded resin holds. The indoor climbing space is spatially and technically different; it requires differing kit, skills and competencies to climb. This further highlights the complexities of the climber's

relationship to the climbing environment, as even before the climber steps onto rock his/her body may have been reconfigured for the practice by a range of places and technical-assemblages that make the act of climbing ever more contingent. Therefore, as I have demonstrated, before we consider the hybridity of the practice of climbing itself, we need to consider the hybrid construction of the climbing body.

The bodies of climbers are being recast through new socio-technical practices of climbing. This results in climbers with strong bodies and technical abilities (on indoor walls) which are different from those of their predecessors. However, even with new enabling technologies and assemblages, these skills do not necessarily transfer to outdoor rock faces. New modes of training the body will thus have an impact upon the abilities of outdoor climbers, however, there will be a certain ambiguity caused by increased strength paired with a potential lack of outdoor attuned skill and technique (Moffatt 2009).

These insights are comparable with other simulated environments such as running and rowing machines in the gym, or flight simulators for pilot training. In all cases the complexity of the real world environmental engagement is lost at the potential cost of the ability of the practitioner to apply their training to a real world situation. This is similar to Michael (2009) who noted that outdoor enthusiasts that were reliant on mobile phones for security were cognitively corrupted by their technology. My research suggests that the presence of technologies (in terms of training climbers) provides potential for greater climbing capacity but this ability is, for some, negated in the outdoor climbing situation. However, in combination, by climbing and training both indoors and out (as the example of Wolfgang Gullich demonstrates), bodily limits on rock can be pushed further than ever before. In this example the 'Macdonaldisation' (Ritzer 1993) of climbing offered by indoor walls and training devices, are an addition to traditional climbing that can boost climbers' bodily abilities to climb.

Importantly, this section has emphasized that different forms of climbing are all analytically the same whoever they are undertaken by. The climb is produced by a climbing-assemblage and these shift and change according to the situation. Finally, I have suggested that the kit that climbers carry can reveal details of the climber who is

clad in it. However, the range and sophistication of kit nor its condition, does not in itself infer prestige, as often it is the climber who ascends with the least kit who is deemed to have the greatest skill.

Co-producing the climb: guidebooks

6.10 Introduction

There are many constituent actors involved with creating a climb. Some are directly involved with its performance, such as 'shoes' and 'chalk', and others are placed during the climb to protect it, including nuts and cams. However, as the section above on co-producing the body has highlighted there are also wider networks and assemblages that are integral to climbing practice. In this section I consider the role of guidebooks in light of the information gained from my respondents and my theoretical approach. Established geographical thought recognises that guidebooks, like other texts, are cultural products composed of signs that simplify the complexity of life and landscape (Duncan and Duncan 1992). Climbing guidebooks are no different and translate and transform the world through the author's embodied experiences, for the purposes of other climbers' enjoyment.

Climbers have been said to judge guidebooks as important as ropes, to a successful day's climbing (Heywood 1994). This was certainly the case within my sample of climbers, who all included a guidebook as an essential part of their 'normal' climbing assemblage. Guidebooks are absent from the situated practice of climbing on rock, but are used differently to other pieces of climbing gear that are physically utilised during the act, yet they were disclosed as a vital and highly valued component of the climbing experience. They are consulted before and after the climb, but are not present in the space-time of the climb itself. This emphasises the role of the 'absent others' (Law 2004) of the climb, and also the heterogeneous spatialities and temporalities of assemblages (Law 2006). The logical way to begin a chapter discussing the role of climbing guidebooks would be to look at how they, and the climbs, within them come into being. I will do this by examining how a climb is created; why the author chooses the routes and other information that will be included in the guide; and also how climbs are produced and formalised into a format that is compatible with the requirements of a guidebook.

6.11 Creating a climb

Climbing routes are (in)formally 'created' by the first climbers to ascend them. They are the first to identify the route as a desirable line to climb, perhaps led to it by the

presence of a crack that could be climbed using a jam and protected by cams (sections 2.3.2 and 2.3.3). They are also the first to tackle the route - working out the crux moves and the presence or not of gear placements and sufficient holds for hands and feet. The first ascent earns them the privilege of naming the climb. Route names might be themed according to nearby routes - such as 'Eeny', 'Meanie' and 'Mo' at Stanage; or may relate to the features or moves on the climb, for instance, 'Straight crack' and 'Beech layback' at Curbar. Other climbs will be named randomly, for amusement, or after the first climber; such as 'Brown's Eliminate' at Froggat Edge, named after Joe Brown. The first ascendant will also suggest an appropriate grade for the climb. This will be based upon their knowledge of the grading system and experience of climbing routes of a similar grade.

First ascents are now uncommon achievements in the UK. This is because the most desirable routes have already been climbed, and those that are left are either very difficult, or unappealing. Thus new routes are often on less favourable and/or remote climbing areas such as sea cliffs, quarries or undeveloped climbing areas. In the UK new routes also tend to be at the top end of the pursuit where climbers can use the benefits of new technologies and training techniques to their upper limits, beyond those climbable by previous climbing assemblages. The climbing guides that document these achievements and catalogue those of past climbers are a major feature of British climbing and one that mediates the experience of contemporary climbing to a great degree.

Climbing the route is, however, only a minor part of producing the 'climb'. If the first ascent is not recorded formally by the lead climber, or a witness, it is unlikely to find its way into a guidebook. This is unless another climber ascends the route and claims it for themselves. Therefore, first ascents require recording and formalising. This is done by contacting the climbing guide producer for the area, or adding it to an online data base such as on www.ukclimbing.com (a website that provides information about all aspects of climbing provided by professionals and amateur via forums, logbooks, news updates and databases). The climber contacts the guidebook producer with an account of the route. This includes its location (both the crag and the specific location of the climb in relation to other routes nearby), a name for the climb, a grade for the climb, the type

of climbing used to ascend it (sport/trad/boulder/solo), a star rating, a thorough route description, and any other miscellaneous information that maybe of importance. It is then up to the guidebook author to judge the climb's worthiness for inclusion in their next guide.

6.11.1 Editing the climb

Climbing guidebooks are produced for specific places, regions, rock types, and climbing types. These books therefore support and reproduce the current and dominant genres of climbing in the locations that they address by promoting the replication of existing practices. For example, a UK gritstone guidebook will predominantly (if not solely) be comprised of trad climbing routes, because that is the way in which that rock type is traditionally climbed in the UK. When guidebooks were first developed at the beginning of the twentieth century their role in 'inculcating norms' was a contentious issue (Taylor 2006; Gilman and Gilman 2000). This controversy has long passed, as they have become normalised through mass adoption like many other aspects of climbers' socio-technical apparel (Shove and Southerton 2000; Shove 2003a). During my interviews I talked to two authors of climbing guidebooks and several others who had contributed photos and other information to guidebooks. It was interesting to hear how they felt about the books that they had produced, and how they hoped they would be consumed by climbers. Todd (40) was keen to actively 'steer' the climbers who read his books and he explained how he tried to give them a more interesting climbing experience to what he considered to be the norm. He said:

> They're [guidebooks] inspirations, you try and open places up and get people away from the common places onto the more adventurous stuff. You try and suggest differing ways of going about your day out. I put these things in called bouldering circuits, bouldering problems to do at crags where people don't go very often, try and give them a different experience. From the very basic of going to the Plantation or Almscliffe and doing a few boulder problems, you hope that by doing what you do, people will have more interesting experiences than they would have otherwise.

Todd also admitted to excluding certain routes because a "telephone book sized guide" was not practical. He suggested that he included all the 'better' routes and a

range of grades in the guides, but often left out some of the easier climbs, because he felt climbers could spot these, and climb them easily without guidance. Bob, another guidebook author, also liked to shepherd his readers, relying on the trait of climbers to choose climbs on the grade irrespective of the quality of the climb. He felt that many climbers like to climb at, or slightly beyond, their personal grade limits in an attempt to constantly improve. Because of this he tried to 'sell' the really good routes through his descriptions. Bob (62) argued:

> You know some climbers will only climb VSs or the early E grades. Doing that they could be missing some of the best climbing there is. The routes in guides I contributed to have a 'star grading' which says something about how enjoyable a route is to climb. I back this up with an over-attractive description to sell the route, and I may even leave out any nasties that might put the punters off!

These two quotes emphasise that climbing guides do not merely attempt to catalogue climbs. Guidebooks shape the choices that climbers make and how they perform the climb, in terms of their bodily movements which attempt to replicate the moves and trajectories that are described in the words and images - they become co-agents of the climb (Michael 2000). Guidebooks play a more active role in the climbing process this is somewhat at odds with their standardised appearance and seemingly factual content. This is suggestive of a greater appreciation of the content by experienced climbers with a wider knowledge of climbing culture. This was supported by Todd who insisted that his books were not solely about going climbing and always included a degree of background information about the venue such as the geography and geology, and items of specific historical interest. He also ensured that the books provided a sense of their place within the wider historical and cultural context of climbing, including information about the early pioneers of the crags in his guidebooks. Todd (40) told me what he thought the value of including background information like this in the guide was:

> If you write in a description 'one of Whillans' hardest leads blah blah blah...', you'd like to think that someone reading that would think, 'when was this done?', '1957', 'I wonder who Whillans was?' How the fuck did he do that then?

> It gives them different aspects rather than it just being a product. It is also tells something about the broader [climbing] world.

This supports the notion of guides as ideological texts in which the author selects and edits the information to draw the reader's attention towards features that they feel are important to the pursuit - in this case an appreciation of the cultural background of climbing. This adds further support to the idea of guidebooks being active constituents in the pursuit of climbing. Another respondent, Conner (23), also recognised the manner in which these texts were influenced by wider social changes such as environmental concerns:

> The environment is the big issue - every time you get a new guide there's always loads more bumf on the environment, you know, erosion, litter, breeding birds and all that. I think by and large climbers respect the climbing environment because they know they're only spoiling it for themselves no one else. But we are the biggest environmental hypocrites - every climber I know has a massive carbon footprint from driving up Scotland for a day's climbing and flying off to Greece a couple of times a year.

Another interesting feature gleaned from the guidebook makers was the impact of new technology on their practices. Digital photography had enhanced the appearance and ease of getting shots at the crag and it was easier to transfer them into topos (photographic maps) of the crag. Bob (62) also explained that the people using his guides often used them in conjunction with websites:

> People go on the UKC website the day before heading to the crag. You can search the crag database look for any access restrictions, like nesting birds, or loose blocks. You can check the weather. Print out a map and read recent feedback left from other climbers about the routes and conditions. It's a whole new medium and we have to link together.

Therefore editing a guidebook is not as simple as documenting a series of routes. A climbing guide is a cultural product and includes, and extols, the values of its author (Botton 2003). However, the climbs are the main content of the book, and each climb cannot be documented in full. A complete account of the embodied experience of a

single route, without taking into account the theoretical implications of non-representational theory (Thrift 2008), may fill several pages, as could recreating every gear placement, or rock feature, either by graphical or textual means. Thus, in order to convey an adequate amount of information to the guidebook user, the author needs a system for transforming the physicality and situatedness of the crag. For this s/he is reliant upon a series of 'inscriptions' (Latour 1999).

6.12 Inscripting the climb: transformation and classification

Having discussed what guidebook authors wish to achieve from their guides I will now turn towards the guide's content, the differing types of information included and the manner in which a climb becomes a number of 'combinable inscriptions' (Latour 1999). For Latour (1999: 306) inscription refers to "all the types of transformations through which an entity becomes materialized into a sign". Climbing guidebooks play an important role in the process of 'inscription'. Guidebooks use a number of combinable inscriptions to transform sections of a crag into 'climbing routes' for climbers. They represent fascinating inscription devices because not only do they reproduce the crag pictorially and textually, but each specific route is designated a subjective grade for difficulty and severity, as well as accompanying symbols that translate the specific qualities of the crag, and the bodily attributes and skills needed to climb the moves particular to the route. A single inscription alone would not be sufficient to guide the climber as each one selects and transforms only partial aspects of the climb. It is only when all the aspects are transformed and combined that they can recreate the information required for a climber to be able to climb a specific route.

Before continuing to the differing methods and types of inscriptions used by guidebook authors it would be useful to acknowledge and revisit two other ANT concepts which are important and related to the inscription process (Section 4.4). These are 'black boxing' and 'immutable mobiles'. Climbers use black boxes as shorthand information, while the pursuit's complexities remain invisible to the outside world. By un-packing the black boxes of climbing the dynamic-complexity of the climbing network becomes more apparent, making evident the complex networks that obscure their internal complexity behind accepted ideas and concepts that are seemingly beyond debate (Latour 1999). As Law asserts (2002: 95) "complicated things

come in simple packages", and perhaps there is nothing that seems as simple and ubiquitous in climbing as the guidebook. However, the guidebook is merely a vessel and what is 'black boxed' are the methods in which the climb is transformed in order to commoditise the climb. Guidebooks summarise a wealth of embodied experience and subjective judgement (often from numerous individuals) into a single definitive outline that can be followed. Contestations concerning ethics, the first ascender and mode of ascent are ignored or edited out. Complexity is simplified so that the information is standardised and can be followed (Latour and Woolgar 1986).

The ANT framework allows me to illustrate the role that guidebooks play within climbing – how they become 'immutable mobiles' - entities that can be transported between crags and that support and reproduce specific climbing practices, which allows the climbing network to remain, to an extent, stable and durable (Latour 1987) - and the function and consequences of the black boxed information that is contained within their pages. I will also comment on guides' mutability in recognition that climbs can change, routes get regarded and the climber adds their own comments to the guides. Can the immutable also be mutable (Law and Mol 2001)? This analysis will help to demystify the unique role that climbing guidebooks play as an integral part of climbers' socio-technical assemblages.

Latour (1999) demonstrates how important inscriptions are to our understanding of the world. He does this by drawing upon how differing inscriptions are used by science to understand and interpret the physical and biological landscape. Without maps, reference tags, vegetation sampling methods and classification systems, the landscape and its 'meaning' from the perspective of the scientist remains abstract and unclear. Only by the application of a number of methods of inscription does the landscape become transformed into 'scientific knowledge'. Similarly without climbing guides climbing would be a very different pursuit. Todd (40), the guidebook author I spoke of earlier, exclaimed that:

> Climbing would be very different [without guidebooks], things are commodified, everything as popular as climbing is commodified. Guidebooks are the central receptacle for all that with all the numbers, tick lists and things.

Todd referred to the way that guides commodified and transformed the climb and the practice of climbing into something more tangible that would otherwise be ordered, and made sense of, by climbers. I now explore the differing types of inscription used to produce guidebooks and how they enable the climber to 'know' and 'ascend' the vertical worlds of the crag.

6.12.1 Reproducing the crag

The first inscription I shall explore is the graphical reproductions of the crag known to climbers as topos. Guidebooks often use field sketches, as can be seen in figure 6.9, to reproduce the crag, simplifying a site with a potentially infinite number of routes to several subjectively desirable lines. These sketches simplify the reality of the crag, reproducing its outline and emphasising the structures that will be of most use to climbers, notably cracks, flakes, arêtes and chimneys. These are features that the climber can use as holds, or to place gear into. The topo is marked with numbers and dotted lines that depict the suggested route of each climb up the crag. Each line simplifies the diversity of the practice of climbing such as exact placings for gear, hesitations on the route, reversals when progress is stopped and other movements that the climber may perform in reality. Between the numbers the climber has to judge their own route based upon the features present at the crag unless dotted line are presented to prevent ambiguity.

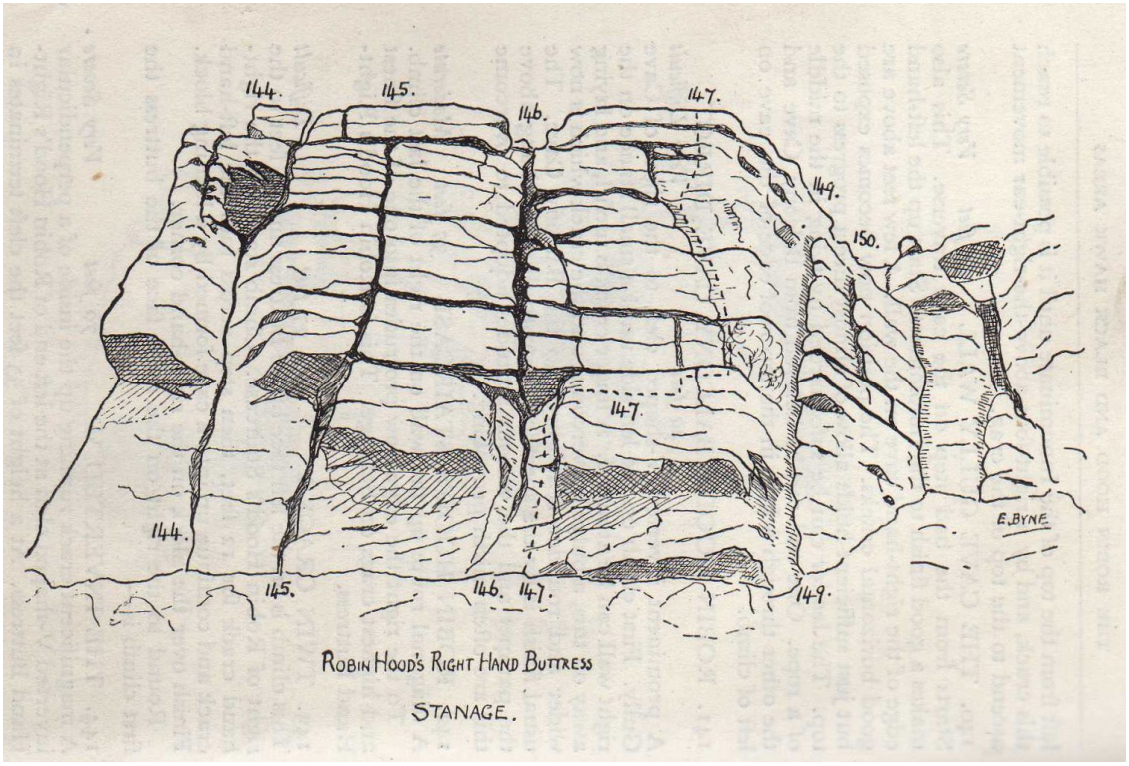


Figure 6.9 A guidebook 'field-sketch' representation of a crag (Source Byne 1951)

On its own this graphic illustration is virtually useless. The climber needs more information for the rock to be transformed into a potentially climbable route. Only when the picture is combined with the other inscriptions from the guide does the rock become a climb. The picture in its context within the guide becomes the instant reference for the climb, but other information is required. This includes the geographic location, the grade and textual description. Without such information the climb becomes a different proposition, perhaps more reminiscent of the first ascendant's exploratory experience. For the conceptual and embodied recreation of the climb constant reference is needed between each inscription in order for the versed practitioner, 'the climber', to 'know the world' in their desired manner (Latour 1999).

6.12.2 Grading the climb

The transformation of a climb into a numerical grade is perhaps the clearest example of 'black boxing' within the pursuit of climbing. The chart below (fig 6.10) shows the UK grading systems for trad and sport climbs. Climbing grades are subjective interpretations of a climb that indicate the problems that will be encountered, and the skills and experience necessary to complete it.

Climbing grades in the UK include an ‘adjective grade’ and a ‘technical grade’. The adjective grade is used to describe two elements, ‘how protectable’ a climb is, and ‘how strenuous’ it is. The adjective grade sequentially runs from ‘Mod’ (moderate), ‘Diff’ (Difficult) ‘VDiff’ (Very Difficult), ‘HVDiff’ (Hard Very Difficult), ‘Severe’, ‘HS’ (Hard Severe), ‘HVS’ (Hard Very Severe) ‘E’ (Extremely Severe). The ‘E’ grade is subdivided in an open ended fashion using numbers. The higher the number the more severe the climb, in terms of the boldness, and/or the strength/stamina necessary to climb it. The hardest confirmed climb is ‘Rhapsody’ climbed by Dave MacLeod in 2006 at E11, although the hardest confirmed on-sighted climb is an E9 (Wells 2008).

The ‘adjective grade’ can be seen as a transformation of a number of different physical features. The grade may relate to the presence, or not, of suitable places for protection, such as, parallel or inverted cracks. The grade could also indicate a poor landing area strewn with boulders that increase the potential for injury in the event of a fall. Alternatively, the climb may be technically easy and well protected, with a high ‘adjective grade’ given because the route ascends a strenuous overhang. Without the information provided from other inscriptions from within the guide, the adjective grade (as an interpretation of the crag) is little more than a suggestion of the competency required to climb the route.

The ‘technical grade’ relates to the technical difficulty of the hardest move on a route (not taking risk into account). This is again an open ended grading system starting at ‘1’ with each ascending number subdivided as ‘a’, ‘b’ and ‘c’. The lower grades beneath ‘3’ are seldom used as they offer little challenge to the majority of climbers even as amateurs. Like the ‘adjective grade’, the ‘technical grade’ is a transformation of the crag pertaining to features on the crag that make it technically easier or harder to climb. For instance, the presence of suitable hand and foot holds at regular intervals would lead to a low technical grade, in comparison with a climb with few which would be graded higher. Once again even if the ‘technical grade’ is paired with the ‘adjective grade’ it remains an abstract figure without the other inscriptions of the guidebook in place.

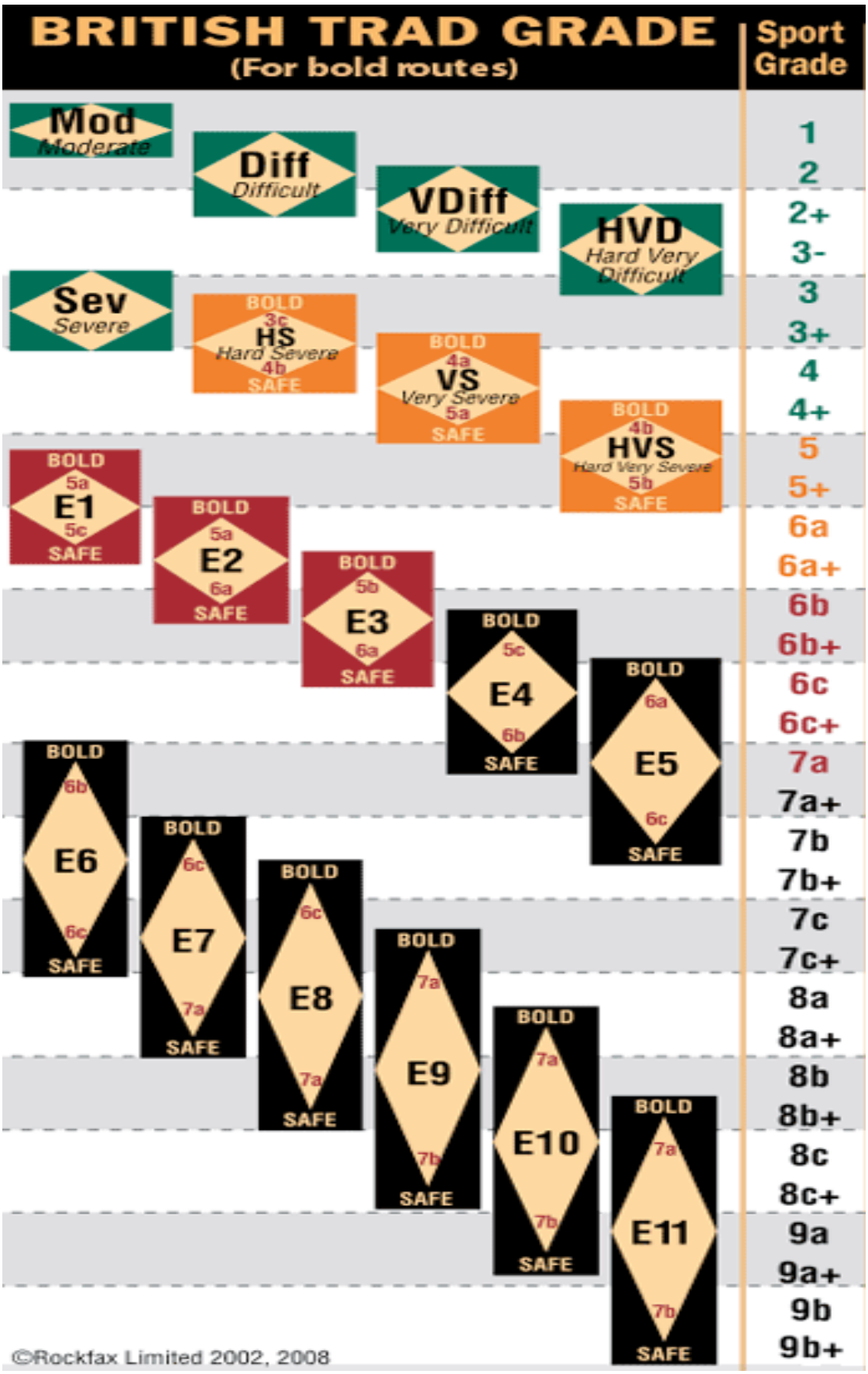


Figure 6.10 Table showing the UK Climbing Grade System (Source www.rockfax.com)

According to the logic of the grading system, climbs are graded (and regarded) by climbers' subjective interpretation of the climb through their embodied experience of climbing the route and knowledge of the grading system. Therefore, qualitative differences exist between climbs of different grades that vary according to the presence or absence of certain physical features on the crag. The grade may also vary due to the qualitative differences of the climbers, their bodies and kit. The grade is therefore a subjective evaluation of the crag created relationally in accordance to the grading system, other climbs of comparable difficulty and the climber.

Unlike many other classification systems that people take for granted (Bowker and Star 2000), climbing grades are often questioned in terms of their reliability and accuracy. They provide a rich source of debate in British climbing. Climbers are chastised for suggesting that their climbs are harder than they actually were, or are perceived to be by others, or for the 'specific' manner in which they were, or were not, climbed. For example, climbs that are practiced on a top rope or with pre-placed gear (head-pointing) are not recognised as valid ascents by all climbers. In addition to this, if a climb is practised on a top rope or climbed with pre-placed gear the grade that it is given is said not to reflect a 'true' onsight (first time) ascent. However, these types of debates are not included within guidebooks. Indeed the contemporary pursuit often disregards that such practices are not new to the pursuit. Climbs such as 'Brown's Eliminate' at Froggat, first climbed in 1948, was along with many others in the era climbed with pre-practice on a top rope. Climbers' nostalgic memories of this era are selective and romanticised (Boyn 2001). Climbing guides do little to challenge this, and continue to promote standardised 'ethically' correct climbing styles, purported by the emission of details that challenge the favoured climbing type – selective inscriptions acting as immutable mobiles in the climbing network (Latour 1998a; Law and Mol 2001).

Nevertheless most climbers are reliant upon climbing grades to direct them to climbs within their ability. The grading system therefore remains an 'invisible force' whose complexity remains 'black boxed' (Bowker and Star 2000; Latour 1999). Although graded, a climb's ease or difficulties are not pre-determined – the climb is made through the experience, not prior to it. Because climbers are individuals with different

climbing abilities, skills and experience, and varying bodily characteristics of height, reach, balance, strength, and stamina, a climb will give a different experience to each potential ascender. Therefore, a climbing grade will always be subjective and open to debate, rather than precise. For example, a tall climber is likely to find a VS climb with long reaching moves easier than the equivalent shorter climber. On the other hand a shorter climber's compact frame may make it easier for them to ascend a VS chimney problem. Todd explained how he graded climbs within the guides he produced:

> As a rule of thumb you just use what was in the guide before - that makes it easier – I'll have climbed a lot of them [the routes] so I can tell if they've been graded about right –well they're never exactly right you know what I mean? In some cases the grade may need changing if a hold has snapped off it or a gear placement gone. Some routes are hard to grade; I might find something easy that someone else finds hard – add to that I'm grading for beginners too who could get out of their depth easily - it's a tricky business. Over the years you get a feel for some grades though, I can say that's a solid HVS 6a or E1 you just know after years climbing. (Todd 40)

Todd explained that climbing grades build upon older grades and may gradually become more standardised over time, as more climbers climb them and feedback their comments to guidebook producers. He also emphasised the subjective nature of the grading process and how his grades relate to his own climbing skills, attributes and experience – as a unique assemblages at the crag in whatever varied weather conditions had occurred. Finally he describes how he has built up an intuition about grades through experience. Thus like other aspects of climbing, the body becomes attuned to grades and the 'body consciousness' of a climber is able, during the climb, to judge the grade of the climb in relation to its past experience. Todd's climbing experience is black boxed by the grades of climb, but not only through his own experiences, but his expectations of the experiences and capabilities of a range of imagined others.

6.12.3 Semiotic symbols

To help cater for these issues of subjectivity, climbing guides include an array of symbols (fig 6.11). These indicate if a climb includes moves that suit specific climbers. The symbols represent another layer of inscription that describes route specific requirements for the climber. They illustrate the embodied characteristics of the route which may require specific techniques, or bodily qualities such as height, powerful arms, strong fingers, or the psychological strength to climb a route which may not be difficult but has little protection. By looking at the symbols below even the non-climber might understand that an ascent tagged with, say a 'fluttery heart' symbol indicates the 'big fall potential' of a route. However, to a bold climber, that may be the symbol that highlights the route as the challenge that they want to overcome.

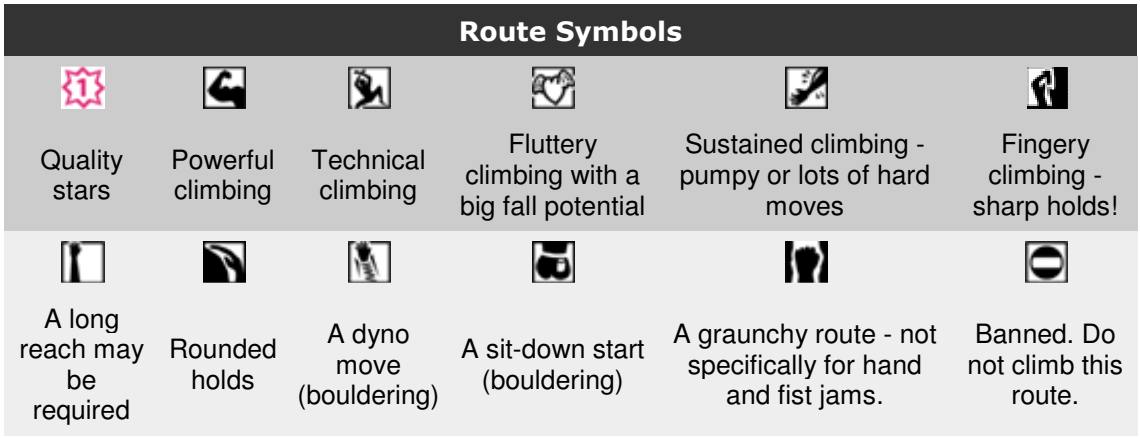


Figure 6.11 Guidebook route symbols (Source: www.rockfax.com)

Accompanying the route specific annotations are more symbols that describe the crag itself (fig 6.12). These transform geographic information into a format that can be understood at a glance. These symbols include the type of climbing present at the crag, when the crag receives sun, and whether the rock seeps water after wet weather. These symbols require observation of the crag during differing seasons and weather types. The guidebook uses the symbols to shape the climb and they influence the choices and the performance of the climber - enabling the socio-technical practices of climbers to be recreated.

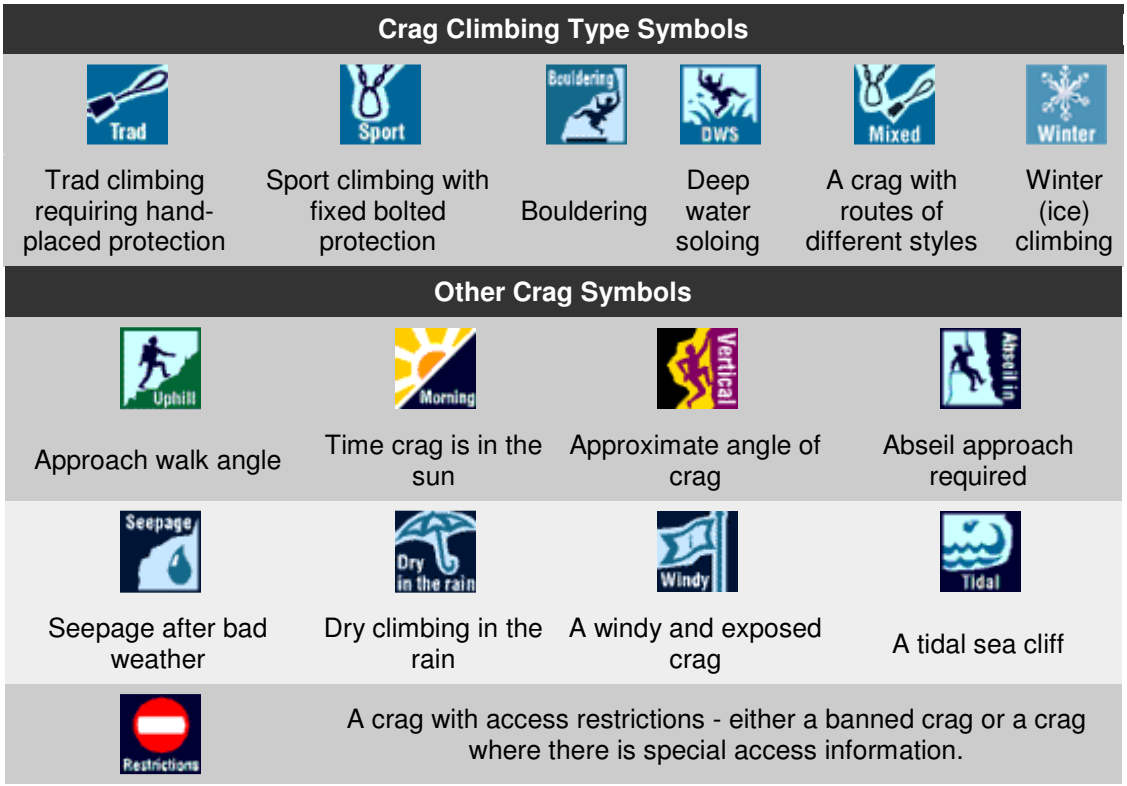


Figure 6.12 Guidebook crag symbols (Source www.rockfax.com)

With every additional inscription that is added to the guide, more of the climb is brought to life. However, because the transformation uses general rules and guidelines something of the locality is also lost as the multiple systems of inscription 'black box' aspects of how the crag is transformed into a climb. This transforms the problem faced by the first to ascend the route into a 'standardised' and 'commodified' proposition for the guidebook user. The individuality of subjective rich embodied experience of the original climber is bypassed by the layers of inscription, and guidebook user is given the knowledge to tackle the routes within their ability. Consequently, given the range of information the climbing guidebook offers the climber, the romantic notion that climbers explore virgin rock faces with little more than a brief visual reconnaissance from the base of the crag, becomes incomprehensible. Equally, the idea that climbers ascend by sensuously reading the rock following its 'natural' lines that allow upward progression is also discredited.

However, it is true that every climb undertaken will have its own peculiarities that the climber will have to face on their own unique ascent. The climbers in my sample have

overwhelmingly stressed that the rationale for climbing a route is usually based upon an interpretation of the climb found within a guidebook rather than a visual inspection of the crag. Because of guidebooks' central role in the climbing process, climbers become quite obsessive about them, and for many, an evening spent thumbing through a guide planning the next trip is as much part of the fun of climbing as the climb itself.

6.13 Enacting the climbing by consuming the guidebook

This section will explore how climbers consume their guidebooks and the impact of this on shaping their climbing practices. For many of my interviewees a day at the crag was initiated the night before, on the 'sofa', 'toilet' or 'in bed' with their guidebooks. From the comfort of their homes climbers often determined the venue/s where they planned to climb according to weather reports, the time available, what they felt like climbing alongside a whole host of other subjective criteria. The guidebook is often consulted to ensure the location of the climbing trip will have a suitable number of climbs to satisfy the ability of the climbers, taking into account the inevitable peaks and troughs of performance and confidence throughout the day. For Gavin looking through the guidebook was a good way of preparing himself for a day at the crag:

> I sit in my armchair at home looking for routes that I haven't done before. It fires up my imagination. I picture the moves in my head, or even do a 'mime climb' [Gavin waves his arms about to illustrate his 'mime climbing'], consider what gear will go in. If something looks bold but rewarding I'll start to get excited - it's like a bubble that wells from your stomach. I probably won't dare to climb it when I get there but it really fires me up. (Gavin 26)

Gavin's quote describes how his climbing guides formalise routes into tangible things in their own right - each with its own story and character, and each enlivened by its grading, textual descriptions and picture. They allow him to consider the particular technologies, skills, moves and bravery that are required to climb specific routes. The details reproduce the potential complexities of the climb even before he has reached the crag – in addition they whet his appetite for further exploration.

6.13.1 Understanding a climb: the case of 'Destination Earth'

I will now look at a specific example of a route – Destination Earth (fig 6.13). The topo has routes marked in red dotted lines numbered for order, and coloured for grade. Crag information is adorned indicating that the site receives afternoon sun, has a ten minute walk in, and may have areas of slippery green rock. Route number seven 'Destination Earth' is numbered in black - indicating that it is an E grade climb. Moving to the route's description (fig 6.14) the grading is confirmed as E7 6b, a highly-graded climb that rules out a trad onsight ascent by anyone other than a professional climber. This is supported by the symbol that indicates the need for a high degree of technical climbing ability. The route is also awarded two stars referring to the subjective 'quality' of the climb, according to the guidebook's researcher and past ascendants.

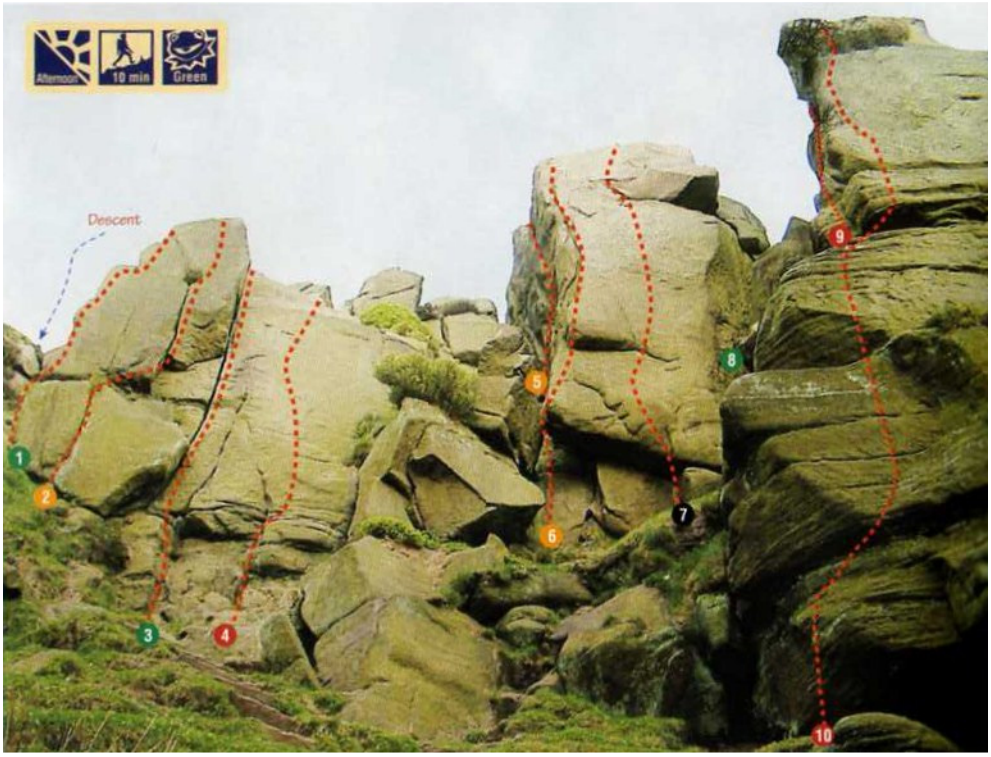


Figure 6.13 A guidebook representation of a crag (Source: Craggs and James 2003: 50)

7 **Destination Earth** **E7 6 b**

12m. The slab is bold and precarious; a side runner (placed on route) may stop you repeating the first ascensionist's bouncing but then the route is only worth E4

FA. Simon Nadin 1984

Figure 6.14 A guidebook route description for 'Destination Earth' (Source: Craggs and James 2003: 50)

The name of the route, 'Destination Earth', suggests the risk of plummeting back towards the base of the crag, a feature highlighted by the 'fluttering heart' symbol. The description confirms this, warning of a slab that is "bold and precarious to climb", on which the first ascender fell. The description also indicates that for any ascent, other than an onsight ascent, the climb should receive a lesser grade, emphasising the subjectivity and situated nature of the grading of a climb, as well as its desired mode of ascent by a traditional onsight lead. Lastly, the climber who pioneered the route is named as Simon Nadin (1965-), for those who know, a renowned Peak District based British climber, winner of the first indoor climbing championships in 1989, with a high number of notable climbing achievements to his name (Wells 2008). This is clearly a climb of some caliber with the potential to become a notable 'tick' in the climber's log of climbs.

6.13.2 Promoting conformity: logbooks and tick-lists

The climbing guide as an example of an immutable mobile (Latour 1999), and as such can been seen as a means of transporting the heterogeneous collection or climbers and devices that make up British climbing practice from one site to another (Law and Mol 2001). The information about a climb is presented as a bite sized chunk within the guidebook. It can be used solely to climb but also provides the opportunity for climber to consider how, when and by whom, the climb was first ascended. This may lead them to consider the style of the ascent, and the kit used, all of which impacts upon their climbing. Climbing guidebooks tend to promote existing types of climbing practice by reporting the genre of established climbing that is dominant at the locations covered by the guides. This 'promotion' of established socio-technical climbing practices is also demonstrated by the way climbers use their guides, as I mentioned above, to 'tick-off' the climbs that they have completed. A 'tick-list' has now been incorporated into the design of some recent guidebooks to record successful ascensions. 'Rock Fax' guides, for example, offer three classes of ascent/tick for aspiring climbers to conform to. The following extract indicates how a 'full' tick is achieved:

> 1st Class – A clean lead, on-sight [first try], bottom up, no preplaced gear, no weighting the gear.

> 2nd Class – Led with a fall but returned to the ground. Led after pre-practice on a top rope (headpoint). Followed the route (seconding or top roping, first try without weighting the rope or gear).
>
> 3rd Class – "Covered the ground". Sat on a runner. Top roped with falls, winched (relied upon gear)
>
> (Craggs and Allen 2003: 40).

This extract is from a gritstone guide - a type of rock that, in the UK, is normally climbed in the trad style. This style of ascent is supported by the guide's 'tick-list' system, as the more closely the climber adheres to the trad ethic and climbing style, the higher class of ascent can be 'ticked off'. Some of the climbers that I interviewed were quite obsessive and particular about their 'tick-lists' and for some only a 'clean on-sight' climb would do. Other types of ascent, such as on a 'top rope', or having 'weighted the gear' (even if only slightly), were often considered a failure. Liam's (39) quote below describes the subjective nature of a good ascent and demonstrates what others might aspire to:

> I wouldn't tick off a route I'd top roped, although I would put it in the book. I only give the full tick if it is done on the lead. But I'm not fussy enough that I mind leaning on the gear if needs be. Which I guess for some people is the test, it's about do you lean on your gear and if you do it's not pure. Certainly one of my climbing partners is like that.

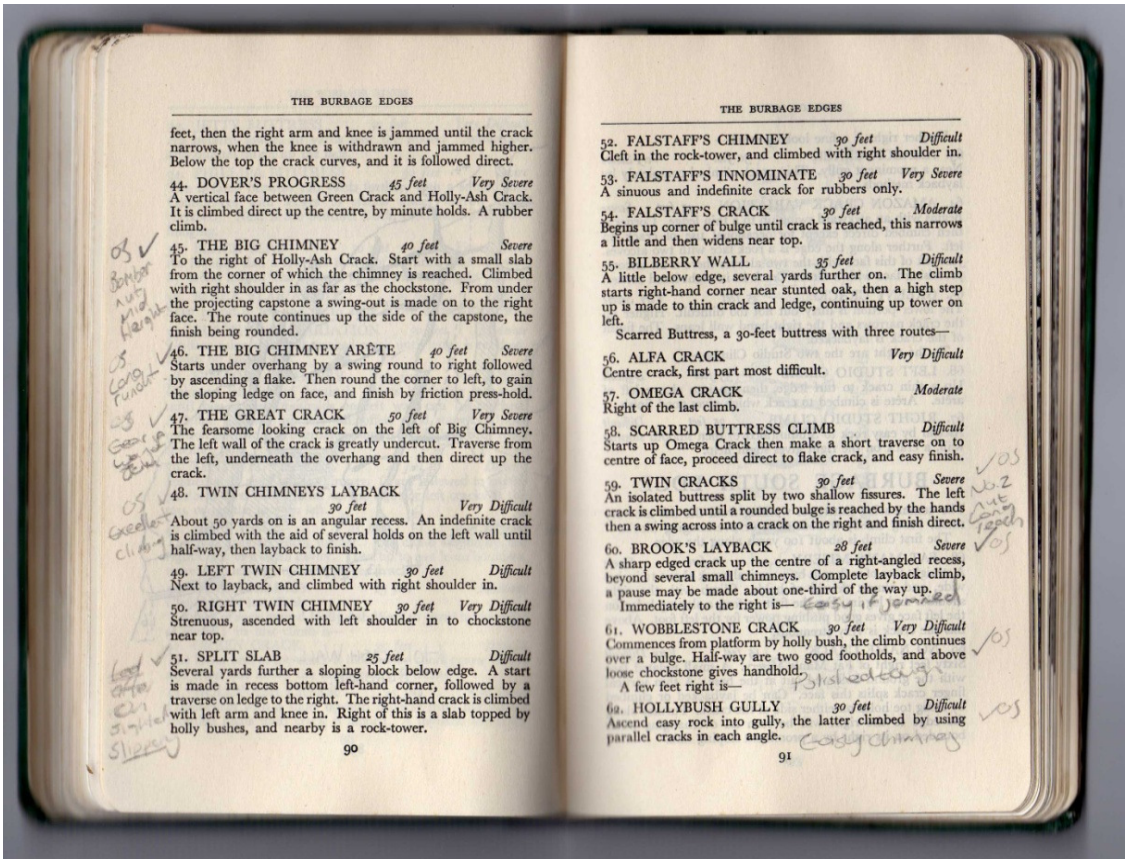
Accordingly climbers' interpretations of the 'rules' of the tick list vary according to personal ethics and commitment. As in 'Munro-Bagging' some climbers deviate from scripts and devise their own rules (Lorimer and Lund 2003).

> I would only top rope something [at a trad crag] that I *really* want to climb, but know I'll never be able to [due to lack of climbing ability] in this life time. Perhaps a real classic route that I haven't got the balls to lead. I'd never go out for a day's top roping, I don't see the point, the challenge, and it would be embarrassing. (Adrian 41)

Climbers like Adrian did make exceptions to these ethical protocols when they really wanted to climb a route that was otherwise beyond their skills. Exemptions were also made for beginners climbing at the crag. However, the general ethic of leading the climb from the ground up on trad routes, was a preference adhered to by all of the climbers that I interviewed. This is a tradition that I suggest is supported and promoted by climbing guidebooks. Adrian stresses the conformist tendency by suggesting that using a top rope at a trad crag was 'embarrassing.'

Guidebooks are also consumed differently after the climb. Before the 'tick list' was adopted by guides, climbers marked off their ascents and jotted down notable comments based on their experiences in guidebook margins. For my interviewees this added to the personal worth of their guidebooks. For instance Nick (55) considered his guidebooks as treasured possessions and whilst reflecting about whether or not he might lend one to a friend he said the following:

> My guidebooks are almost like diaries to me. I've got the dates when I did routes, any interesting points about the climb, good jams or a tough crux move. When I buy a new book I transfer all that information religiously, and I just wouldn't want to risk losing one.



THE BURBAGE EDGES

feet, then the right arm and knee is jammed until the crack narrows, when the knee is withdrawn and jammed higher. Below the top the crack curves, and it is followed direct.

44. DOVER'S PROGRESS *45 feet* *Very Severe*
A vertical face between Green Crack and Holly-Ash Crack. It is climbed direct up the centre, by minute holds. A rubber climb.

45. THE BIG CHIMNEY *40 feet* *Severe*
To the right of Holly-Ash Crack. Start with a small slab from the corner of which the chimney is reached. Climbed with right shoulder in as far as the chockstone. From under the projecting capstone a swing-out is made on to the right face. The route continues up the side of the capstone, the finish being rounded.

46. THE BIG CHIMNEY ARÊTE *40 feet* *Severe*
Starts under overhang by a swing round to right followed by ascending a flake. Then round the corner to left, to gain the sloping ledge on face, and finish by friction press-hold.

47. THE GREAT CRACK *50 feet* *Very Severe*
The fearsome looking crack on the left of Big Chimney. The left wall of the crack is greatly undercut. Traverse from the left, underneath the overhang and then direct up the crack.

48. TWIN CHIMNEYS LAYBACK *30 feet* *Very Difficult*
About 50 yards on is an angular recess. An indefinite crack is climbed with the aid of several holds on the left wall until half-way, then layback to finish.

49. LEFT TWIN CHIMNEY *30 feet* *Difficult*
Next to layback, and climbed with right shoulder in.

50. RIGHT TWIN CHIMNEY *30 feet* *Very Difficult*
Strenuous, ascended with left shoulder in to chockstone near top.

51. SPLIT SLAB *25 feet* *Difficult*
Several yards further a sloping block below edge. A start is made in recess bottom left-hand corner, followed by a traverse on ledge to the right. The right-hand crack is climbed with left arm and knee in. Right of this is a slab topped by holly bushes, and nearby is a rock-tower.

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THE BURBAGE EDGES

52. FALSTAFF'S CHIMNEY *30 feet* *Difficult*
Cleft in the rock-tower, and climbed with right shoulder in.

53. FALSTAFF'S INNOMINATE *30 feet* *Very Severe*
A sinuous and indefinite crack for rubbers only.

54. FALSTAFF'S CRACK *30 feet* *Moderate*
Begins up corner of bulge until crack is reached, this narrows a little and then widens near top.

55. BILBERRY WALL *35 feet* *Difficult*
A little below edge, several yards further on. The climb starts right-hand corner near stunted oak, then a high step up is made to thin crack and ledge, continuing up tower on left.

Scarred Buttress, a 30-feet buttress with three routes—

56. ALFA CRACK *Very Difficult*
Centre crack, first part most difficult.

57. OMEGA CRACK *Moderate*
Right of the last climb.

58. SCARRED BUTTRESS CLIMB *Difficult*
Starts up Omega Crack then make a short traverse on to centre of face, proceed direct to flake crack, and easy finish.

59. TWIN CRACKS *30 feet* *Severe*
An isolated buttress split by two shallow fissures. The left crack is climbed until a rounded bulge is reached by the hands then a swing across into a crack on the right and finish direct.

60. BROOK'S LAYBACK *28 feet* *Severe*
A sharp edged crack up the centre of a right-angled recess, beyond several small chimneys. Complete layback climb, a pause may be made about one-third of the way up.
Immediately to the right is—

61. WOBBLESTONE CRACK *30 feet* *Very Difficult*
Commences from platform by holly bush, the climb continues over a bulge. Half-way are two good footholds, and above loose chockstone gives handhold.
A few feet right is—

62. HOLLYBUSH GULLY *30 feet* *Difficult*
Ascend easy rock into gully, the latter climbed by using parallel cracks in each angle.

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Figure 6.15 Climber annotated climbing guide (source Byne 1951: 90-91)

Liam (39) also recognised how his notes added to his guidebooks. He reflected whilst flicking through a well used Chatsworth guide:

> Skimming through my notes brings back some great memories. I know every change of pen was a different day. You remember days of strong confident climbing a dozen routes ticked off at the top of your grade – most aren't like that but these scribbles help them stay with you.

Nick and Liam's quotes serve to emphasise how guidebooks are central to British climbing and play a crucial role in producing both the climb and the climber. In this manner, climbers and their guidebooks co-evolve - the climbing guide releases its information to the climber who invests his/her time in reading about the climb and then selects and attempts to climb routes s/he deems appropriate or desirable. Following the climb, the climber adds comments and data that will influence the routes undertaken in the future (fig 6.15). These notes become as important as the print, a personal log and aide-mémoire of enjoyable days at the crag. Similarly to Mol's (2001) study I have shown how climbers' uses of guides turns them from immutable to

mutable and unique objects. They both perform and sustain the network (Law 1986) and whilst it is the same in all places, it is modified through use (Mol 2001).

6.13.3 Guided by the grade

As noted in section 6.14.2 grades are a key feature of British climbing. They are used to record and describe the subjective difficulty of climbing routes and provide a scale for climbers to measure their performance. Climbers often become preoccupied with this and constantly strive to "push their grades" (Carl 46). In this section I will describe how the climbers in my sample interpreted and used the grading system within their guidebooks. This avenue into interpreting the guide has been selected because it is quite often the grade which determines the route that a climber will undertake; this often overrides all other information contained within the guidebook. Indeed grades are so significant to climbers that, of those who I interviewed many claimed that at points in their climbing careers they had largely ignored everything but the grades in their climbing guides. This was either because they could only climb routes at certain grades, or because they strove to improve their grade. Likewise the climbers that I interviewed who were relatively new to climbing were very also much directed by the grades that routes were given.

Silvia (20) for instance would only select a climb if it was a Diff or V/Diff. She explains this below:

> I can climb V/Diffs. It [the V/Diff grade] means there will be decent gear, and if not, and I struggle to place gear, I am pretty sure that [because of the grade] I'll be able to climb my way out of trouble because the climbing won't be that difficult.

Silvia deferred her decision making for choosing routes to climb, and was led by the expertise of the grading system within her guidebook. Climbers with greater experience than Silvia also relied upon the grading systems to guide them. Some that I interviewed were very driven to improve their grade. To these climbers, their grade became an important part of their identity. On several occasions when I asked interviewees what type of climber they were they would include their grade in the answer. Nigel (53) replied:

> A competent club climber I suppose, I have never climbed to a really high level, lots of E1s some E2s a couple of E3s when things were going well. So the sort of level that a lot of people get to. But I don't despise low grades. I climb with people on a lot of VDiffs and things. So it's not a problem particularly if I am carrying an injury.

For climbers like Nigel the grading system is embedded within a wider frame of description valued within British climbing acting as an internal culture of metrification (Bowker and Star 2000).

To experienced climbers the grade represents more about the climb, but it was very much used in combination with the other inscriptions in the guide. Before climbing a route the climber consults each aspect of information to "tease out what was hidden within the grade" (Conner 23). Keith (47) said:

> Understanding a grade is not straightforward – The grade won't... doesn't tell if it is a one move wonder climb, or if it's solid [difficult] start to finish. I consult the guide carefully otherwise if I miss a vital bit of info and find myself off route, and out of my depth, I only have myself to blame. It sounds stupid but I always take a look at the route [on the crag] to prepare for the unexpected. It's crazy but some take the guide as gospel and don't.

Keith was explaining that the grade cannot reveal exact information about the climb; for example, the grade for difficulty may just relate to one move on the route, or perhaps every move. He advocated reading all the information in the guide carefully to extract all the guidance, as well as combining this with real world observation. There was a trend within my sample that more experienced climbers regarded the grade that they climbed at as decreasing in importance as the determinant for route choice. Mat (32) explained:

> I choose [routes] from guidebooks, and I have tended over the last couple of years to move more towards a 'right let's do the starred routes' attitude, just because before I was choosing routes too much based on their grade, and so if it was the only E1 or E2 at the crag, well then I had to do that one, 'cause that was the handy one. Whereas it's become more about getting all aspects of the climb

in balance, and just doing nice moves on rock, or solving that problem, that tricky overhang, or that tricky finger lock, or whatever. It's more about a satisfying climbing experience.

Climbers like Mat were keen to enjoy all aspects of climbing and, through experience, they had learnt that the most enjoyable climbs were not necessary the hardest (even though great satisfaction was still to be gained by the completion of a highly graded route). It was evident that the information contained within the guide helped these climbers along with their use of differing inscriptions to guide their climbing was evident. In Mat's case the guide had enhanced his climbing experience as well as his relationship with the rock.

6.13.4 Guiding inscriptions

The grade is only one of the inscriptions that transform the climb into a guided route, there are also others and their roles differ. The field sketch topo (shown earlier in fig 6.9), was used until recently in many guidebooks and was particularly effective for locating routes. This was because the simplified lines indicating geological faults and weathering were easy to identify, especially with the other potentially distracting details of the crag removed. More recent guides have begun to use digital photographs (fig 6.13). These produce better, more accurate representations of the crag, but, surprisingly, are not necessarily more effective for their purpose, as they are not simplified representations. However, photographs do offer the climber greater detail allowing them to see the quality of the rock, the presence or not of vegetation and whether the rock is green with dampness or slippery lichens. From my experience of climbing, not only is the graphical representation important for locating a specific climb, it is also extremely useful for locating the climbers' general bearings in relation to the crag. It is a common sight to see a climber holding the guidebook up to the crag at a distance, comparing the features on the page with that of reality in order to determine their general, rather than exact location. Guidebooks are both technological parts of the climb when absent, consulted at home or prior to the climb, but they are also part of the climb when present, in the climber's rucksack and through shaping perception.

The climber will consult the topo at the base of the climb to establish the chosen route of ascension. This is important because for the route to be 'ticked off' it has to be ascended by the 'right' line. The route of the line is sometimes self evident, particularly if it follows a crack or *arête*. More likely, though, more information will be required at the base of the route. This is provided by textual description of the climb.

The textual description of a climb contains information that cannot be conveyed by a general symbol or grade or is indistinguishable from the picture. The text will inform the climber of specific features, for instance, how to overcome the hardest move or how to stay on route. The textual account thus removes hidden barriers and surprises from the climb, which may disrupt the climber's progress. The text will also often suggest a move or technique that would not immediately be considered on an unguided ascent. The climber, as a matter of course, will study this route description as much as the diagrammatic representation of the route, equipping him/herself with knowledge that will enable the ascent. The route description is a rich inscription that details complexities of the climb that lie beyond the other more standardised genres.

6.13.5 Reinscribing the route whilst climbing 'Vector'

I will now examine a climber's ascent of a single climb, Vector, to indicate the important role that guidebooks play as mediators in the pursuit of climbing. Alex's (28) quote below details a climb that was right at the top of his 'tick list'. He considered it to be "rite of passage" during his evolution as a climber as it was a "classic route" at "the top of his grade". His quote below demonstrates how the guide helps him reinscribe, reinterpret and perform the climb, using cumulative impacts of all the information from the guide, as well as his wider knowledge of climbing culture.

> I did Vector which for donkeys' years was the route I wanted to tick, it's a Joe Brown route, it's E2 5C, it's four pitches. On the second crux pitch, you traverse along and come to a sort of groove. You've got really shoddy, well it felt like shoddy gear. You've got a really small cam and a really small nut, and you've got to commit to this groove. The guidebook says 'commit to it and you get good laybacks' and another guy said to me at the bottom earlier when he was talking about the route, 'on that last pitch boldness pays dividends'. I was stood psyching myself up to go into this, and I eventually did, and sure enough it all

was great. But subsequently when I think about it, if that hadn't have been Vector I don't think I'd have done it. In other words you get one sight of doing it onsight. If it had been some other random route somewhere that I didn't really 'know' so well or whatever, but because it was Vector because it was this 'historic route', I thought it was worth the risk of moving into a groove above gear that I wasn't too happy with.

The climb is detailed in the guide Alex shows that every time it is performed it is re-established through the embodied experience of the ascender. Alex's extract illustrates how his climbing world is shaped by his guidebooks and wider knowledge of the pursuit's history. Grades, pictures, descriptions, historical facts pull together - the guidebooks and mountain literature that he has read act as 'immutable mobiles' that shape his practice though the values and practices they promote, even when they are absent from the performance of the climb. The personal significance of the climb, partly gained from the guidebook, alters his relations with his gear, and the risks that he is prepared to take. Because it is Vector he is prepared to move above his 'shoddy gear'. The climbing guide represents part of the assemblage that enacts this bold achievement. Through his climbing performance he becomes what Latour (1999, 2005) terms a 'mediator' whereby he extols the virtues of his approach to climbing, sustaining and reproducing it amongst his climbing colleagues. He becomes a complex, ever changing human node in the climbing network.

Alex's example of climbing Vector also tells us that there are limits to guidebooks. Climbers do not simply perform the details that they are provided with by the guide they draw upon other sources of information, as well as other technologies and practices to perform the climb. Activities like climbing may appear scripted and disciplined but they also involve improvised, continuous adjustments as they are performed (Lorimer and Lund 2003).

6.14 'Grade Creep' and the impact of technology

Given that the focus of my interviews was centered upon climbers' use of, and relationship with, technology, I was keen to understand the impacts of technology upon the grading system. It was clear that the socio-technical practices of climbing had an impact upon the grade of a climb. For instance if a trad climb was climbed via a top

rope it reduced the risks associated with the grade and hence there was no requirement for an adjective grade, because there was no risk remaining nor boldness required. However, I had presumed that improvements in climbers' technology would have made certain routes easier, resulting in a need to revisit the current grading system. Yet information from my interviewees was contradictory, when I asked whether grades were 'creeping up' or 'creeping down' with the technologies, socio-technical practices and the passage of time.

Chris, for example, was convinced that routes were being downgraded because new technology was enabling more climbers to climb harder routes. He explained how new technologies (such as stickier rubber, and new designs in climbing footwear), alongside greater climber strength (derived from the 'new spaces of climbing' section 6.6.1), had made certain routes accessible to greater numbers of climbers. Rather than leaving the grade the same, Chris (35) suggested that often they were lowered to take the socio-technical changes into account:

> Classic boulder problems like 'Brad Pitt' - 8b when it was originally done - now they've given it 7c. So that's four grades it's gone down. It's not [a 7c], it's a classic 8b, it's had hundreds of ascents at 8b, and then all of a sudden it's, 'no it's too easy I can throw reps on it blah blah blah'. But the problem is the technology in climbing shoes have progressed, the heels have become a lot better for using. Heels are better at hooking etc etc… Obviously climbers have become more powerful from the advent of the steepness of climbing walls. And through using the different technologies and manufacturing procedures, tech is better. People are training better, becoming stronger, much more adapted to that type of climbing. And therefore more people are doing it - so their philosophy is 'well if more people are doing it, it must be easier can't be particularly that hard'. But it's because hundreds of people are getting stronger climbing at that ability, because the technologies are there in place for them to climb like that.

Chris provides insight into how changing technology is impacting upon the experience of climbing and also how the climbing grading system responds to this. Nick (55) on the other hand contradicts some of Chris' comments. From his long experience he had

noticed that some of the route grades from his earlier guides have been revised as *harder* than their original ones. Nick (55) explains:

> Grades have changed, this is an old Stanage guide from the early seventies, the grades were less reliable then, so some climbs have been upgraded. They have been mainly upgraded, very few have been downgraded. You would automatically think things would be the other way round in a common sense world with the progress in kit. Climbs were bolder back when I started. I did the harder routes in that guide book in the 70s and they're easy peasy now everybody's doing them but not many have been downgraded. But you wouldn't feel particularly pleased with yourself, you wouldn't feel, 'wow it's good I've done that', because you've widened the goal posts. The routes that have been upgraded are the ones that *can't be protected even with modern kit*, bold ones with long run outs. *Back in the day people were prepared to climb them, nowadays if it can't be protected people don't want to climb it* [emphasis added].

Therefore, although kit has made some routes easier through greater strength, better protection, and enhanced performance, the grades for these climbs are not consistently lowered to reflect this. Arguably, the added performance and security that kit now provides has increased some climbers' dependence upon it; in turn, this decreased their willingness to climb routes with a greater psychological challenge, or as Nick terms, them "bold routes". This is another example of changes in climbing practices due to the 'cognitively corrupting' impacts of supposedly enabling technologies (Michael 2009), indicating that there is not a simple relationship between new technology and improved performance, as the climbing network is more complex. Further, for these changes to impact upon the grading system in guides, feedback is required and this is provided via the web-based databases of routes, comments and grading suggestions that are becoming more integral to the pursuit of climbing. This becomes a part of what Latour (1999) terms 'circulating reference' feeding back into the chain of transformation allowing the guide to become more standardised reflecting the socio-technical changes evident in the climbing network.

6.15 Circulating reference: from crag to guide and back again

The previous sections demonstrate that climbing guides are peculiar in that they are as much about assembling what is present, as they are about assembling what is absent. They are designed to be used in conjunction with the crag via a visual inspection from its base, but are often consulted away from the crag in preparation. The guide makes present the upper limits of the climb that cannot be felt or observed from the base of the route. Hence there is a co-presence both within the format of the guidebook, and in the way the climb is represented by a number of overlapping inscriptions, as well as the reality of the crag. This is an example of what Law (2002) terms heterogeneity, which he refers to as:

> The oscillation between absence and presence. It is about the way in which whatever is not there is also there but also how that which is there is also not there. Heterogeneity, then, is about the differences that reside in connection and disconnection, or, more precisely, it is about distributions entailed in dis/connection. (Law 2002:122)

In figure 6.16 I have detailed the (dis)connection in the chain of transformation from the reality of the crag and the act of climbing, to its transformation into a guidebook that is then used by other climbers. From the above examples of the 'transformation of the climb into a guide' and its 'consumption by climbers' we can see that it is indeed a heterogeneous system. The climber and his kit (corporeal and the technological) are absent from the pages of the guidebook – as Law (2002: 98) proclaims: "There is no room for sweat in formalisms".

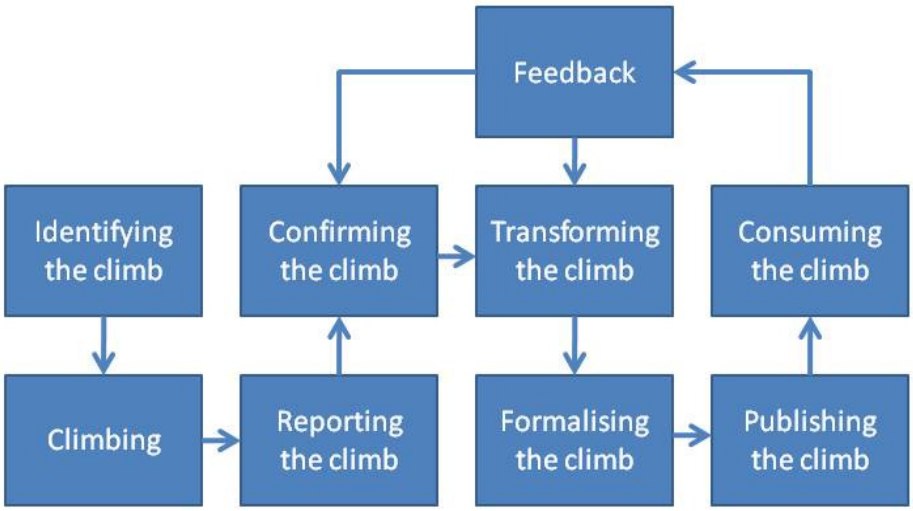

Figure 6.16: The chain of transformation of the climbing world

My diagram illustrates the process by which a climb is transformed from a physical crag to a route in a climbing guide. It shows the various stages that are undertaken, from the first ascent through to guidebook publication and use, as well as the process by which feedback is gained and grading systems become standardised. For Latour (1999), it is vital to understand these stages to see what is gained and what is lost through the chain of transformation. The physical act of climbing the crag becomes translated into text, pictures, grades and symbols. Any one of these inscriptions alone lacks authority, and leaves the climber in doubt as to whether they are able to climb the route, locate the route, or whether the route would be enjoyable. Information is taken from the crag and transformed via grading systems, digital photography, computer editing, and universal symbols. The local information of the crag is taken away, and reconfigured to return to the crag with the climber in a usable format. My diagram lacks the complexity of the numerous inscriptions I have mentioned in this section, likewise climbing guidebooks remove and distill the complexities of climbing, not only due to the lack of space and a need for clarity, but because they are entities that are performed through the climb, not in the guide. Together the absent and the present co-produce the crag as climbable.

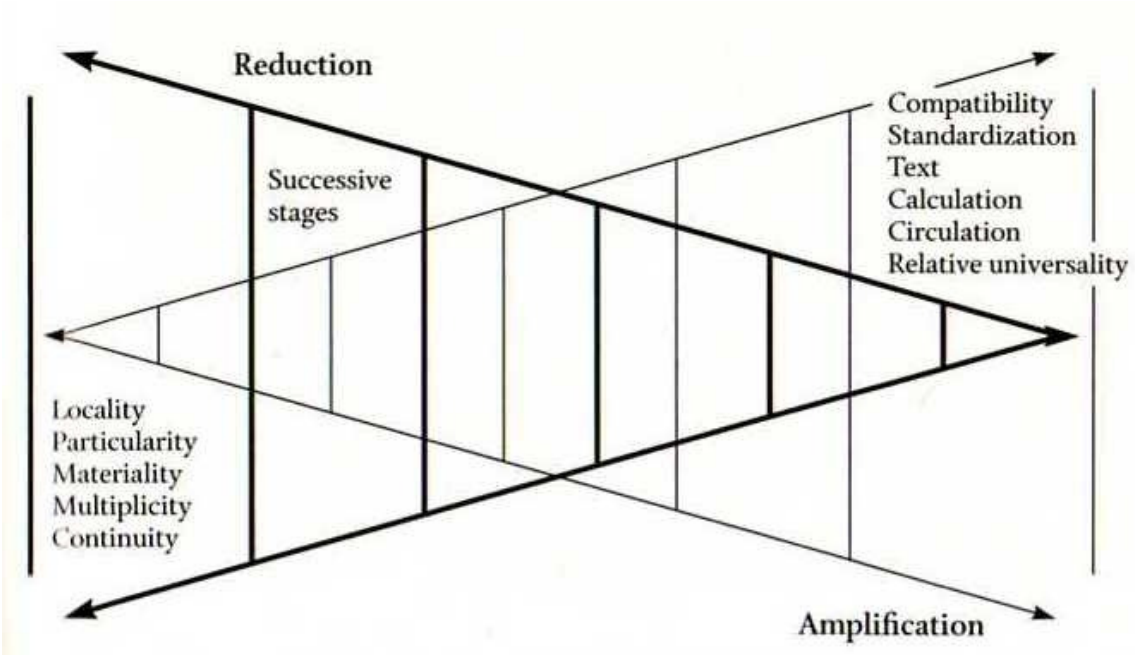

Figure 6.17 Transformation at each step of reference (Source Latour 1999: 71)

This process echoes Latour's (1999) concept of 'circulating reference' whereby the transformation of the world is undertaken via a number of practices. Each successive practice or stage in some way takes the place of the original situation, be it a photograph or numerical grade. For Latour (1999: 71) with each stage there is a loss. If we look at the model above (fig 6.17) the loss is "locality, particularity, materiality, multiplicity and continuity". However, there is also a gain relating specifically to the successive stages and their associated practices. The gains are "compatibility, standardisation, text, calculation, circulation, and relative universality" (*ibid)*. This is similar to Law's (2004) assertion that simplicity 'creates absence' but 'relies upon presence'. In my example the series of references undertaken throughout the chain of transformation finally appear as a climbing guidebook, where all the combinable inscriptions fit together seamlessly, to allow the climber to master the crag. As the climber becomes more skilled and experienced, they open up the black box of standardisation and simplification so that the inscriptions and chains of transformation become more evident, and through the medium of the guidebook they are able to follow the chains of reference back to the material worlds. The climbers may also change those inscriptions as well, through feedback or their own notes and amendments to their guides. Ultimately the guidebook is an immutable immobile that is also mutable in the circular, rebounding process of change. As Latour (1999: 74)

suggests: “To know is not simply to explore, but rather it is to be able to make your way back over your own footsteps, following the path you have just marked out”.

This is clearly the point of the climbing guide: to allow climbers to digest their knowledge in and between differing locations, but also to be carried to the base of a single climb that is documented within it in order to reproduce, or as my this thesis argues co-produce, an ascent. It is the transferability of the black box, of the (im)mutable mobile that makes them so useful and central to British climbing. Carried to the crag the guide’s information allows climbers to ascend the right route, through the interpretation of the combinable inscriptions. However, unlike the scientific text or field report, of Latour’s (1999) study, the climbing guide caters for a variety of consumers that range from adept climbers with years of experience, to beginners struggling with basic aspects of the pursuit. Here we see guidebooks being used differently. The beginner defers responsibility to the guidebook to enlighten their worlds, directing them to low grade climbs within their ability and correct climbing etiquette. Whereas the experienced climber, to whom the black boxed knowledge of the grading system is understood and opened up, s/he is able to take this wider understanding and apply their skills to technical and abstract rock problems, pushing their limits in the quest for improvement. Respective advantage is taken of the amplification and reduction of the crag.

6.16 Summary

This section has revealed that guidebooks and the practices that surround them co-evolve as the assemblage into which they are interlinked also changes and evolves. From an Actor Network perspective guidebooks are similar to the charts in Law’s (1986) study of navigation, representing texts that evolve in relation to other actors in the networks in which they are situated. Climbing cannot be understood without looking at the contributions, interdependencies and co-evolution of these different technological, cultural, social and natural actors. Climbing guides bring all the disparate climbing actors together and represents histories, people, places, techniques and technologies.

> Guidebooks are the central receptacle for the commoditisation of climbing with all the numbers, diagrams, tick-lists and things. If somewhere gets a bad write up

> in a guide no one goes there, it's as simple as that. What can you say other than *guidebooks are climbing* [emphasis added]. (Todd 40)

This is reflected between the covers of guides with content that is revised and refined in newer editions in line with feedback from climbers enmeshed in ever changing socio-technical assemblages. This supports Taylor's (2006) assertion that successive climbing guidebooks present the reader with a technical and cultural record of climbing and wider society. The case of guidebooks also emphasises the need to focus attention towards the hybrid assemblage of the climb rather than studying each actor in reified isolation. It also supports the assertion that an understanding of hybrid leisure-worlds contribute to our understanding of wider life (Lewis 2004; Wheaton 2004). As an integral part of the network guidebooks co-produce culturally and technologically assimilated climbers, they also represent a way of commoditising the climb itself. New routes are formally recorded and detailed using standardised procedures that according to the guidebook's stipulations mediate and enact the British climbing population (Bowker and Star 1999). Not only does the climber need to understand the rock, and the techniques required to climb it, but they also require an understanding of texts, diagrams and grading systems that help them to interpret the phenomena of the climb. These simplified inscriptions of the crag via the medium of guidebooks circulate through climbing networks (Latour 1999). As such guidebooks represent a central mediator in the sustained and durable (but changing) relations between rock climbers and the environment.

Guidebooks demonstrate a different dimension of how climbers are enabled and enacted by their kit - differently to, say, a cam or climbing shoes. The guidebook is an inscription device that transforms the physical face of the crag into a format which the climber can understand. The climber is directed to climbs that are within their technical and bodily ability – or to those which will push them to their limits. The increasing sophistication of the climbing guide and their combinable inscriptions produce a grading system which constitutes black boxed knowledge that the climber is unlikely to question (Uprichards, Burrows and Byrne 2008). Consequently, whereas early twentieth century climbers were discovering new routes and demonstrating skill and judgement in determining what to climb, and if they could climb it, the majority of

contemporary climbers are dependent upon guidebooks to perform this function. The guidebook then represents a bundle of black-boxed information (grades, symbols, and abilities) that, construct an (im)mutable mobile that can then travel between climbing spaces and between climbers, but can also be changed by them.

Climbing guidebooks and the grading systems within them are not the only black boxes or immutable mobiles of climbing. To understand climbing in more depth it must be understood as a heterogeneous assemblage of practices, technologies and spaces, sustained by the situated activities of the non-human and human actors of climbing, that remain hidden behind the terminology, technologies and practices of the pursuit. The climber is in part reliant upon the presence of holds on the rock, also the enabling and securing kit, as well a sub culture that values his/her achievements. To paraphrase Murdoch (2001) it is the co-construction of a complex socio-technical assemblage or network that allows the route to be climbed and the achievements of the climber to be recognised.

Co-producing the climb: climbing kit

6.17 Introduction

This section will focus upon the relations between climbers and their kit whilst climbing. At the beginning of the section on guidebooks I illustrated how the first ascender 'formally' creates a climb. However, an ANT approach suggests that the practice of 'creating a climb', is one where it is the climber-technology assemblage that co-creates the climb in conjunction with the crag. Whereas the previous section explored the contribution of climbing guides to the co-production of climbing, the aim of this section is to further un-wrap the complexity of the climbing assemblage and the relational enabling bonds with kit, that extend climbers' bodily limits, and opens up otherwise inaccessible places.

In everyday practices, people are also clad in, and surrounded by, an array of technology, much of which is mundane or conceptually and experientially invisible (Michael 2006). In addition to this there are claims that users of technology are 'inherently plastic' and that this plasticity makes it hard to understand where the body ends and technology begins and vice versa (Dixon 2008). I explore the applicability of these assertions to the case of climbing concentrating upon the interactions between humans and non-human devices in climbing, and suggest what the technologised experiences of climbers can tell others.

In this section I will also examine how the climbing assemblage is brought together, co-constituted and developed through the material practice of climbing. I will explore the impact of climbing amidst a progressive, rather than static, socio-technical assemblage and practice. As well as gradual and progressive technical changes I will assess how step changes in technology have altered the experience of climbing as well as where climbers can climb. I will then talk about the relational performance of the climb and how the functionality of climbers' technology is immanent to the practice and how climbers develop skills and competency through experience gained by moving as an assemblage on rock. This section will question how through practice technologies perform beyond the properties ascribed to them within instruction manuals and packaging. I also intend to focus upon a specific assemblage, the 'foot-climbing-shoe-rock' assemblage, to illustrate how technology acts as a communicator and mediator

between the body and the rock, and also how the body and rock change as a result of the practice. Next I turn towards the range of climbing technologies that corporeally co-enable the climber even though they do not enhance physical performance in a 'traditional' sense. Last, using examples from kit manufacturers I look at how climbing kit is represented within the climbing media, and how they draw upon discourses of hybridity and agency.

6.18 The climbing assemblage

There is a climbing adage that it is the natural geology of the rock that directs the climber's route of ascension (Lewis 2001). This is challenged by my approach that acknowledges both the increasing skills and strength of climbers, in addition to the increased technological innovation and refinement that is changing the pursuit. To illustrate how climbing kit is enmeshed in the socio-technical practice of climbing, I briefly describe an account of a typical single pitch ascent.

Before the route is tackled there is negotiation between the climbing assemblage in accordance with what s/he is willing to climb, given the potential protection available and the technical difficulty of the climb. This is information, as I have demonstrated above, that is usually gleaned from the pages of a guidebook rather than the climber's reading of the route (although this is also important). The climber, clad in loose fitting clothes, harness and shoes will now prepare themselves for the climb, checking the rack of gear is sufficient and accessible for the climb, tying into the rope and chalking their hands. The belayer, also at the foot of the crag, attaches themselves to the rope via a harness, karabiner and belay device and gives the call 'climb when ready', to which the climber replies 'climbing'. This call initiates the ascent and its related socio-technical practices. Once the climb is underway protective gear used to prevent serious falls can be inserted into appropriate places in the rock. The climber spies a placement and judges what type of protection s/he will be able to place, and whether they are in a suitable position to safely place it. If safe and suitable, the protection is placed to which the climber clips a quick draw. The climber calls for slack on the rope and the belayer pays it out until the tell tale noise of a 'click' from the karabiner indicates that the rope has been secured to a higher point. If the climb is easy then little protection is required; yet extra gear may be needed if the climb is difficult. The

climber moving above his/her final piece of protection, tentatively mantels the summit ledge of the route, calling 'safe' to instruct the belayer that the route is complete.

This simplified account of a climb emphasises how gear, environment and climber mutually constitute each other during the practice of climbing, with every move or placement contingent upon each different situation encountered by the climbing assemblage. These is a dialogue between the differing actors in a network brought together to enable the practice of climbing, and this is enlivened further by co-produced experiences of exertion, elation, risk and relief. The alignment of the artefacts within the climbing assemblage enact the performance promoting, physical ability, awareness, comfort, security and confidence that allow the climber (as part of the assemblage) to overcome the challenge of the climb.

6.19 Co-evolving with assemblages

The climbing assemblage is not static, it incorporates changing technologies as well as the associated socio-technical practices that accompany them. The rope-work and gear-placement of climbing practice represents a good example of the co-production and co-evolution of gear and climber. As discussed in the Chapter 3, ropes and protection have evolved greatly over the past 60 years (Parsons and Rose 2003). Climbers from my sample who had climbed through this period remembered the kit that they started climbing with, in the 60s and 70s:

> I started pretty young. The kit then was, *in comparison to now* [emphasis added], really very poor, a lot of people would have hammer heads strung on a piece of string, there were no harnesses, there was 20 ft of heavy Italian hemp rope around your waist, which was a painful and unpleasant business. (Phil 66)

Phil notes how the kit used on today's crags is comparatively 'better'. This is an important point to make, but to draw a distinction between, 'new' and 'old', 'reliable' and 'unreliable', 'safe' and 'unsafe' climbing kit would be simplistic, and undermine my theoretical approach (Murdoch 1997a). Rather we should look at climbing and other practices and their socio-technical developments as changing pursuits with evolving networks. Bob and Colin continue with their comparative views on their early kit:

> I think the first krab [karabiner] I had weighed a pound and a half. With a ton of Italian hemp [rope] you could barely move, and there was a *real* [original emphasis] risk it would snap. If you ask me, which you are, that [additional risk] gave us a greater respect for the challenge. (Bob 62)

> I can remember climbing at one stage when if you had wires or slings you clipped them on your back jeans pocket as there was no other way of carrying them, and the minute you had a harness with gear loops on it made things so much simpler. (Colin 55)

These quotes help illustrate that progressive technological developments throughout the intervening period have enabled climbers and changed the pursuit in a number of ways. Reductions in weight have allowed climbers to carry more gear and rope so they can climb longer pitches (Langmuir 1995). Better reliability and durability has reduced the risks posed by falling on ropes and gear, and greater functionality means that protection can be placed more easily and into a greater range of places in crags (Wells 2001). Hence the climber is part of a shifting complex assemblage and this has changed, and is changing, the way in which climbers approach and undertake climbs, and opened up previously unprotectable routes.

However, the relations that develop between climber and kit are situated in the context in which they develop, and because climbers have entered the pursuit at different times, with the kit of the age, they have developed different relations with that kit – they are socialised into particular technological relationships through their relationship with technical co-agents (Mitchell 2004; Michael 2000; Latour 2000). My interviewees told me that these variant relations are sometimes sustained throughout their climbing career. For example, several climbers from my sample who had begun their climbing on hemp ropes with rudimentary protection retained a fear that their gear would fail. They felt that these anxieties limited their own climbing, even though climbing kit was now more reliable. This suggests that insecure relations formed with unreliable kit can have lasting impacts upon how climbers climb. This is emphasised by Nigel (53):

> I learnt [climbing] *with* [emphasis added] kit that was state of the art for 1974! A Whillan's harness, Hawkin's Masters shoes, and no protection. That's not how kids learn these days there's no chance of falling using modern kit. Plus they'll often learn on a top rope. Is it any wonder they [younger climbers] seem like a different breed of climbers to us [older climbers]. I still remember that climb [his first ever] - clinging on white knuckles – I certainly had a healthy respect of the risks and I still don't put weight on my ropes – Youngsters don't get that now do they?

Climbers within my sample generally agreed with Nigel's sentiment and referred to the traditional climbing apprenticeship of the outdoors as a 'harsh but effective' way to learn climbing that was perhaps harder to undertake at the present time in the litigious society we inhabit (Baker and Simon 2002). The quote suggests that the limited kit, its properties, and the way it was used, promoted an awareness of risk that is unknown to climbers from more recent times, who climb with ropes that are unlikely to snap, and protection that is unlikely to fail.

Some climbers felt that over time their insecure relations were replaced with relations of certainty and reliability, as they became accustomed to greater reliability and durability of present day kit.

> The first weeks climbing I ever had was in the Lake District. I remember all I had was six slings with six screw-gate karabiners. I didn't have any nuts or friends or anything. This was in the 1960s and basically if we didn't find a spike to hang a sling over, or a chock stone to thread it round, we didn't have any protection, we had a rope but it wouldn't have held a serious fall. It's all changed now - if people can't protect a climb, they won't climb it, because they are used to the security of modern reliable kit. It's less risky now, but I'll tell you I'd never climb on hemp again, blow the thrill of the fear! (Bob 62)

In line with the idea that climbers develop and sustain varied relations with their kit I found that older climbers preferred the kit (or its modern equivalent) that they had used throughout their climbing careers. Virtually all the climbers surveyed preferred a particular type of protection. Generally, but not always, older climbers liked the

simplicity and predictability of the nut, whilst younger climbers liked the versatility and ease of placement of the cam. My interviewees generally considered that these preferences were derived from familiarity. There was agreement throughout the age range of my sample that younger climbers were entering a pursuit where the use of cams was "normal not novel" (Mat 32), and they considered the protection they offered as being as good as nuts when placed correctly. Nick and Jason's use of, and relationships with, their cams and nuts is illustrative of the age related trend among my sample. For experienced Nick (55):

> If you've placed a nut well, there is very little that can happen to it. If you've placed a cam, there are still a few things that can go wrong - they could spin or walk. That's why I'll always place a nut first.

Whereas for younger Jason (21):

> If I can, I just bang cams in, rather than mess around putting nuts in. It definitely makes a difference if you get to a really tricky move and you can put some gear (a cam) in quickly, it makes that move safer and it does gives you confidence.

Younger climbers who regularly climbed with older climbers were well aware of the age based protection preference. They found that their senior counterparts were highly proficient in placing nuts: "it's no wonder they prefer nuts [older climbers] they're so damn good at placing them. To me it's just easier to place a cam" (Alex 28). Beth (36) also emphasises the skills of experienced climbers with their nuts:

> I climb with a guy who was one of the top climbers in the Sixties. We go climbing and every six to nine feet he'll put a nut in and climb on [moves hands to show effortless placement]. I'm going in and I'm putting nuts in and tugging hard on them and putting another one in tugging it [hand gestures are used again to mimic the process]. He tuts a lot whenever I do that. He puts in much less, and seems to rely on it much less. But I just think in his era you didn't rely upon gear so much, and that's in his core and compared to him I feel very gear dependent.

What emerges from these interviews is that older climbers are not 'Luddites' resistant to technological change, but rather that they value and enjoy placing nuts, and feel

safe relying upon this protection. Further as Beth suggests (supporting Bob's earlier comment) older climbers come from an era where gear was relied upon less.

None of the climbers interviewed had a strict 'ethical' issue with the use of cams on most routes, but some felt they would rather place a nut as a mark of respect for early ascenders or, because they regarded that placing a nut required greater skill. Nick (55) sometimes used nuts rather than cams on older routes to relive the experience of the first ascendant: "I've always got this mental attitude that if a route has been done before a certain time, well I don't need that modern kit because it's been done without". Nick was keen not to let new technology deprive him of the experiences that he considered vital to "real climbing". This indicates that for some climbers, the use of, and reliance upon, more 'simple' or 'traditional' technologies co-produced what was considered to be a more authentic climbing experience (Lewis 2001; 2004). This emphasises the complexity of the relations between the constituents of the climbing assemblage.

The terminology used to describe traditional protection also drew on modernistic dualism concerning 'new' and 'old' technologies and practices. Some climbers referred to 'traditional' climbing gear as 'natural protection' because of the way it passively fulfilled its function using the 'natural' properties of the rock. This 'naturalisation' terminology was common in my interviews. Often simple traditional forms of climbing kit (particularly what was termed 'passive protection'), and climbing types, were referred to as 'purer', 'natural' or 'organic', as opposed to other types of gear and climbing (active, but more so permanent protection), such as 'bolts', 'large cams' and 'sport climbing', some of which involved the permanent modification of the environment, or top roping.

Lewis (2004) suggests that trad climbers are resistant to rationalising practices because they enjoy risk as a vital experiential element of climbing. They resist the perceived certainty of safety that sport climbing offers. He also suggests that "by assessing technological innovations within a corporeal and experiential framework, adventure [trad] climbers demarcate an optimal limit to which technology should transform the cliff environment" (*ibid*: 88). This assessment is in agreement with Nick's preference to what he regards as 'traditional kit'. However, Lewis' argument disregards how all

climbers' kit has changed over time. This is because although he considers radical changes in technology and practices he ignores how all climbing kit gradually evolves. Climbing kit, like any other technological assemblage, changes as it undergoes innovation in design, construction materials, and the changing socio-technical practices that accompany them (Law 1986, 1987). None of the climbers I encountered had categorically stated that they would not use any of the new technologies that had been made available to trad climbers whilst they had been climbing – even though they recognised that they had noticeable effects upon the experiential aspects of climbing notably risk, comfort and safety.

Figure 6.18 A rack of cams (Source: www.wildcountry.co.uk)

6.20 Enabling technologies

In this section I explore climbers' relationships with the technologies that they considered 'enabled' them to climb. In many cases the enablement was disclosed as 'only apparent during the practice of climbing' illustrating that the function of climbing kit is immanent to the practice (Ingold 2000). Among my sample, cams were unanimously regarded as the 'most' enabling items of equipment that had been introduced during their climbing careers, which had transformed the pursuit. Mick, Gemma and Sam's quotes below emphasise this, and are representative of the general views of my sample:

> I think if I was to pick one piece of gear that has really made a difference to most people's climbing it would be cams. I think that they have made the biggest

> difference because what used to be bold routes, because there was no gear on them are suddenly nice routes, because there is gear on them. You have it a lot on gritstone where you have horizontal slightly flared cracks where you couldn't put a nut of any sort into it, whereas now you can stack them full of cams. So I think that has made the biggest single difference. (Mick 45)

Mick illustrates how cams have been particularly effective on gritstone crags opening up new routes for those not bold enough to climb them with limited protection.

> Friends [cams] have opened up a load of routes in the Peak that used to be, you know, completely death! You know death routes - if you fell off you were going to hit the ground hard, whereas now they can be very very well protected. You can imagine if you only had nuts and you were half way up a route and there was this horizontal break and there was nothing you could put in it, the fact that you have got something [with the advent of cams] is helpful definitely. (Gemma 29)

Similarly to Mick, Gemma recognises that cams make risk routes safe which reassures her.

> I was climbing when they were introduced, and there was a big change in what I could do before and after. So once cams came in and I owned some - which was in 1982 - then I felt there were certain routes I could go on that were no go areas for me before. (Sam 49)

These quotes and many others illustrated to me how cams and more recently still 'micro-cams' (cams for smaller placements) have revolutionised crack climbing and enacted climbing on routes which were previously un-protectable and thus un-climbable to most. However, the gain of being able to climb new routes is also accompanied by a loss because some routes are no longer considered 'bold' and 'risky,' they become 'safe' routes. Utilising Lewis' (2001) approach cams represent a modernist rationalisation of the pursuit of climbing although one he fails to identify with his fixation on the trad – sport dichotomy.

Cams have become a staple part of climbing kit; they are hugely popular with most contemporary climbers. This popularity even spills into a slightly mystical status for

some climbers. Megan's view was indicative of climbers' popularity towards cams: "I know it's a bit sad but I'm a 'gear freak', I call it the 'magic cam' cause it literally goes on every route, every single route" (Megan 23). This is reminiscent of Shaw (2008: 2), who contends that:

> Technology often appears magical in its operation and application because the development of new technologies increasingly overtakes the ability of lay persons to understand the principle of their functioning.

This was not the case amongst my sample who often had a detailed understanding of how their kit worked. Several respondents, like Megan above stated that they had a 'magic cam', and as they told me this they seemed to have a look of mischief or slyness about them, as if they revealing a secret advantage, that they alone held over other climbers. In a manner they were, because they were disclosing the enabling relations between themselves and their gear that helped them to climb, but that were often unique to the individual. Six of the forty climbers interviewed described some or all of their cams as 'magic' without being prompted to do so. Self described cam fanatic Mat told me that he had his 'magic three', his size 1, 2 and 3 cams. Mat (32) told me that he had initially been wary of cams, but had developed a trusting relationship with them on a trip to Yosemite where, he said, they were literally the only way of protecting the wide granite cracks.

> Since then I'll always use them over a nut, they are quick to place, so they allow your climbing to flow, the more my climbing is broken up by fiddling with gear, the more likely it is I'll start to lose confidence, or realise how far from the ground I am.

He liked his 'magic three' because he thought they mimicked the way he used his hands on the rock. As he pulled the trigger of one of his cams to show the device's range of movements, he formed a range of hand and finger jams that mirrored it with his other hand, and said: "Whether it's hand or cam the principle's the same – I place my cams like I place hands, it just comes naturally now". This strongly echoes Haraway's (1991: 151) assertion that technology has made thoroughly ambiguous the difference between the distinctions that used to apply to organisms and machines.

Mat is suggesting that body and technology become interchangeable, and while climbing the same consideration goes into placing technology, as that which is involved in embodied movements. To Mat the cam is a true extension of his corporeal being. However, this is not a prosthetic extension like a climbing shoe or ice axe, nor is it one that in Macnaghten and Urry's (2001) terms acts as sensuous extension. Once the cam is placed well, it performs its function in the assemblage quietly, and the climber is enabled by the knowledge of its presence as a constituent part of the climbing assemblage that is ensuring safety.

For other climbers, the speed and functionality of cams made them particularly valued elements of the climbing assemblage. Gary (30) emphasised their role within the climbing assemblage:

> Cams are great. You can see the science behind their design. The harder you pull the tighter they hold, they're faster to place and more versatile than nuts. That's what you need when your arms are pumped and you need to get moving.

Gary mentions how the speed of cam placement reduces the physical stresses placed on the body in comparison to nuts. The additional climbing speed enhancement produced by the cam's ease of use and versatility is clearly very different to the 'brash technologies' identified by Bell and Lyall (2002) when talking about the 'accelerated sublime' (section 4.11). However, the quotes above demonstrate that cams subtly change the climbing experience, they take less time to place, less skill to place than a nut, they are more versatile fitting a greater range of placements, all these features enact the climb in a different way to the 'pre-cam' climbing assemblage. Gary also identifies how he can "see the science" of cams working and understand intimately how they function independently, and in conjunction with himself, the drag of the rope running though the safety system, and the rock. This type of insight into the functioning of kit was of importance to climbers and provided them with confidence. This interest (common amongst my sample) stemmed primarily from kit's role in protecting the climbers from death or injury in the event of a fall. There were *two* different sources of information about climbing kit that climbers felt was required for an effective and safe climbing enactment. First, information from technical manuals and instructions, and second, information from direct experience with the technology

built up from numerous climbs on differing climbing routes. I now will discuss these two sources, and how climbers consider them valuable in relation to binding the climbing assemblage together.

6.20.1 Beyond an ascribed value: 'more-than-a-karabiner'

Figure 6.19 Karabiner

In this section I demonstrate how climbing gear performs and functions beyond the abilities ascribed to it within instruction manuals. Figure 6.19 is a karabiner, the most ubiquitous and utilitarian item in the climbing assemblage. A karabiner is simply a connector with a lockable and spring loaded gate that is used amidst the safety system of the climbing assemblage. Its roles are multiple; they connect climbers' gear to their harnesses, act as a link between protection and rope (as in fig 6.19), hold the belay device in place, and the list could go on. However, on purchasing a karabiner the novice climber begins to discover the complexity that belies the apparent simplicity of the product. Figure 6.20 below represents the instructions that accompany a single 'Wild Country' 'lock-gate karabiner'. The instructions detail the following information:

- Technical standards and specification
- Prior training requirements
- How it should be used
- How it shouldn't be used
- Warnings
- Materials used in construction and their capacities and tolerances
- Accreditations

- Regulation compliance
- Storage instructions
- Temperature thresholds
- Cleaning instructions
- Maintenance instructions
- Transportation instructions
- Markings
- Country of origin
- Obsolescence guidelines

The immense detail supplied here is partly due to potential litigation given the inherent risks of climbing (Simon 2002). Equally it also satisfies the desire of climbers to intimately understand how their gear works. For my purposes it illustrates the functional complexity of the climber's most basic companion. Likewise every other piece of equipment on a climber's rack has to be understood in line with the same interdependent complexity. I was surprised by the in-depth knowledge that climbers accrued about the technical specifications of their gear. Some could tell me the weight in grams of different bits of their rack, or the Kilo-Newton force that would cause a piece of kit to fail. Often climbers were able to relate this information to real world climbing practice. Gary, even knew the optimum camming angle of a cam (fig 6.21), a detail which is a key to how the device works. Again, climbers told me that command of this type of technical information contributed to their confidence in their kit whilst climbing as an assemblage.

Figure 6.20 Instructions and guideline accompanying a single Wild Country karabiner (Source www.wildcountryy.co.uk)

Indeed, climbers' thirst for knowledge about the technical and scientific workings of their gear seems to draw responses from climbing kit manufacturers. For instance, Figures 6.21 and 6.22 are taken from climbing technology manufacturers' websites and product information. They indicate the forces that are applied to a curved nut that hold it in position, and the optimal camming angle of a cam (as Gary mentioned). Figure 6.23 displays all the different components from a 'Wild Country' cam. Each component is numbered, and its material type, method of construction and innovative qualities are detailed. These scripts allow the climber to understand the technical detail and the 'science behind the design' of these products. Climbers told me that this information reassured them as they climbed, but also meant that they could apply the appropriate scientific principles to their placements. Jez (38) briefly but succinctly illustrates this viewpoint: "An understanding of the principles and mechanics of kit eliminates doubt -if the rock is sound and the placement of the gear correct - it *will* hold".

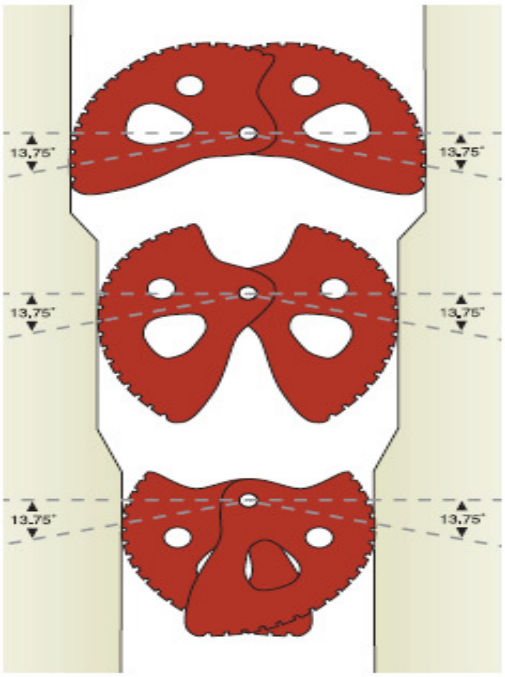

Figure 6.21 Optimal camming angle (Source: Foster 2009: 11)

Figure 6.22 Diagram showing the forces placed on a nut (source www.wildcountry.co.uk)

With this knowledge at their disposal climbers told me that they built deeper relations with their climbing kit. Moreover, this knowledge provided confidence through the mutual exchange that occurred through repeated practice and applications of the principles behind the design of their kit. This, my interviewees claimed, enhanced their

capacity to climb whilst they concurrently strove to discover both the limits of the technology and also their own limits as a constituent parts of the climbing assemblage.

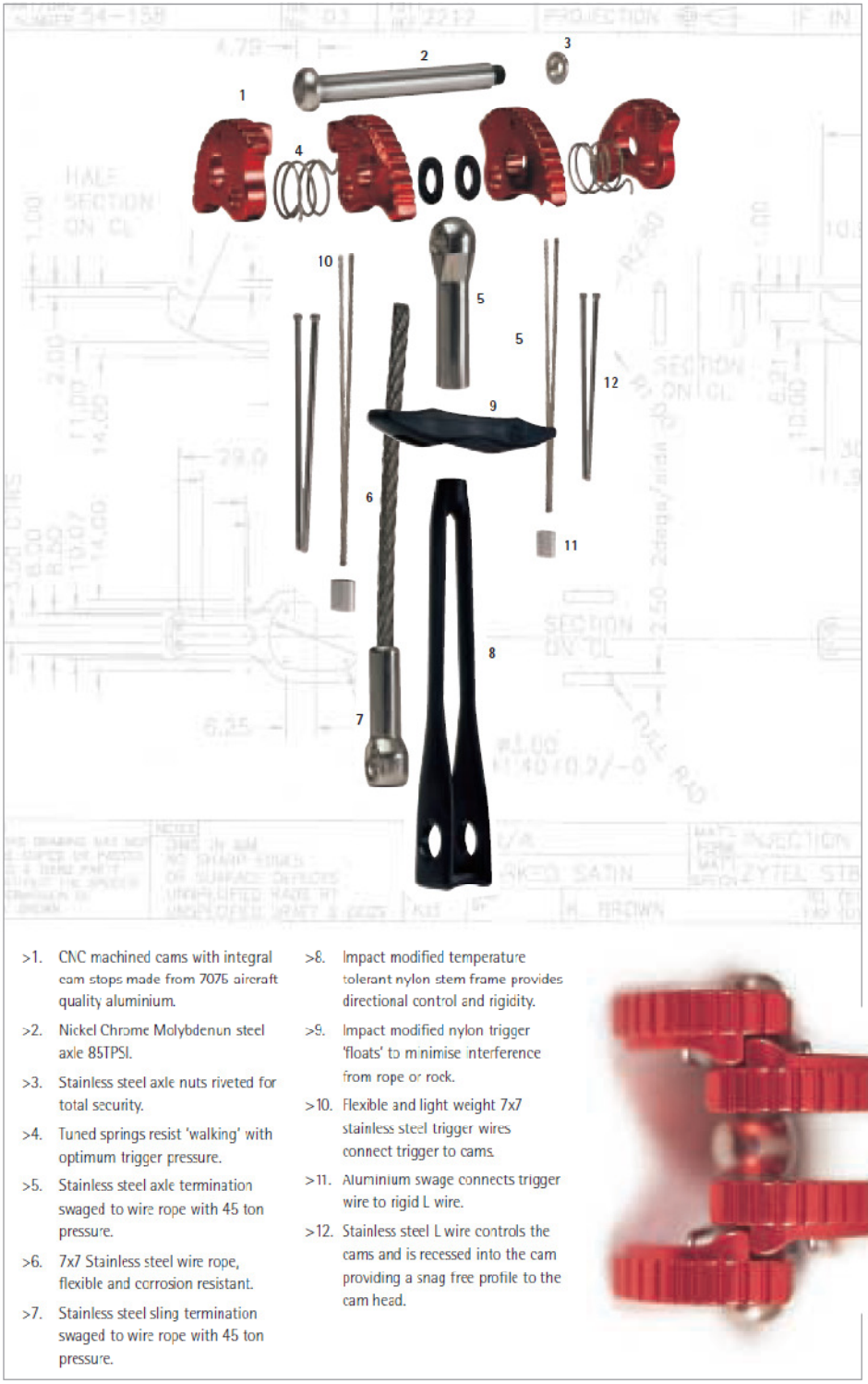

Figure 6.23 The composite part of a cam (souce: www.wildcountry.com)

6.20.2 Experience moving as an assemblage

The second source of information that is drawn upon by climbers as they built relations as a climbing assemblage is that which is accrued through the *practice* of climbing. Training either formal or informal was considered vital to climbing safely, and to understanding how the varied kit worked whilst climbing. Experience gained as a 'climbing assemblage' at the crag, was perceived as pivotal to how climbers understood and related to their gear and the climbing environment. This could be considered an application of the technical manuals and product instructions – but in reality the climber as a climbing assemblage is much more than a functional, or technical being. Rather, the climb is enacted by more than the defined and bounded 'use values' promoted within instruction booklets of climbing products (Haldrup and Larsen 2006). Climbers' relations with their kit are co-evolutional and develop during the practice of climbing.

Ultimately, in terms of learning to use and rely upon kit and understanding how it worked, climbers argued that there was no replacement to time spent climbing at the crag. This was because climbers move as assemblages and need to gain experience of how each part of the assemblage acts and reacts in the varied contexts experienced whilst climbing. However, there was a realisation throughout my sample that the traditional climbing apprenticeship (which taught climbers how to use their kit amongst other things) was being increasingly replaced or at least supplemented by more formal tuition. For instance Shirley (69) thought that formal training was too formal and narrow:

> Climbers do need to know the basics, how to place a nut or a cam, how to tie in and set up a belay – for sure. But if that is all they know, the sum of their kit related knowledge, how are they going to react if something doesn't go to plan? Formal coaching doesn't teach that – how to bodge a belay in a hurry, or how to rescue a crag-fast friend. I've seen it happen several times at Stanage – people stuck fast to the crag because their knowledge of gear and more so-to-speak informal methods is lacking.

For Shirley, the professionalisation of climbing training was failing climbers. This was because informal socio-technical climbing methods that deviated from those learnt for 'normal' climbing situations weren't being taught. Some of the older climbers perceived this 'professionalisation' of climbing as bemusing. They felt that climbers choosing such a route into the pursuit were "wasting their money" (Pat 38) and were "bypassing important lessons in self reliance" (Finlay 56). This is particularly interesting seeing that Finlay was a climbing coach and mountain guide. However, climbers did confess these 'important lessons in self reliance' could be quite haphazard and dangerous. Nick for example undertook his first climb using only slings and a rope, his poor methods and lack of rope-work skills with his limited gear led him into a risky situation teaching him an important lesson in self reliance, after which he taught himself how to tie knots and use climbing gear. Similarly, Colin (55) learnt with peers in a climbing club:

> I went through the then traditional way of getting into climbing which is just going out with a group of mates, joining a club, initially the climbing section of the boys club, then eventually the Nottingham Climbing Club, I was in a couple of college clubs for periods, a very very traditional way in. *No one* [original emphasis] would've contemplated the idea of formalised training, it might be, 'no no you're not gonna do it that way, try doing it this way', that was about the limit.

These accounts suggest that traditional climbing apprenticeships taught climbers 'self reliance' and to appreciate risks through 'character building' events. These were elements that these climbers feared would be lost by formal training.

Climbers were also concerned that the transfer of climbing cultures to younger climbers through the climbing apprenticeship would be diluted by this formalised route into the pursuit. I asked Finlay (56), a mountain guide and climbing coach, whether he mentioned the history of the pursuit during his sessions:

> People have paid to learn how to climb, not to have a lesson in history. You hope that once they're interested in climbing they will pick up on the tradition and history. If we are climbing a classic route I will tell them the first ascendant, it's a

> good way of figuring out if they're into climbing. Some people just don't get why people pay to climb – they don't realise that climbing is popular and not everyone is lucky enough to have a peer group [who are] into the sport.

Cultural fears aside, most climbers thought that a certain amount of formal climbing guidance was not necessarily a problem, because it ensured that the basics were learnt correctly.

By contrast, those who had benefitted from this formalised induction often celebrated it. The climbers in my sample who had undertaken formal training valued the guidance provided and suggested that their lessons earned greater gravitas because they were provided in a structured manner from a qualified practitioner. For example Megan (23) said:

> I went to Plas y Brenin [National Mountain Centre], and it was like I could belay and things and I could lead indoors so I could do all that, but I didn't really know how to translate it to outdoor rock. I knew a little bit because my Dad had taught me but I wanted to learn it for myself, and practice it. Basically it is how to place gear and how to set up a belay, how to do it safely, which is the most important thing. How to abseil, how to set up an abseil, and then also just practising. I picked up loads of useful tips that I still use. You learn the basics and then you go practice, and the more you climb the more it becomes second nature.

For Megan formal training acted as a supplement to a traditional climbing apprenticeship and helped her make the transitions between the indoors and outdoors.

Placing gear (well) was regarded as one of the most satisfying aspects of climbing, and proficiency at this aspect could only be gained through experience. As noted earlier climbers told me that it was only from using and relying upon technology whilst climbing that they learnt most about their gear, and I will now move on to discuss these relationally acquired skills in more detail.

6.21 Enabling assemblages in practice: placing gear climbing's 'craft skill'

Figure 6.24 A number 8 nut placed in an inverted crack

As Megan suggested the finer points of climbing can only be learnt through experience. A key skill to be acquired in this manner was 'placing protection'. This was considered to be the 'bedrock' of the pursuit of climbing, the aspect that had to be mastered by anyone aspiring to be a good climber (Cinnamon 2000; Graydon 1992). Climbers derived particular pleasure by placing nuts (fig 6.24), and from their nut's tactile qualities. For instance, Gary (30), sorting through a well worn set of Wildcountry Rocks (a brand of nuts) told me:

> They're [nuts] not exactly things of beauty but they definitely have an aesthetic quality, the cold aluminum feels nice in your hands, they're tactile - kind of like those executive stress toys. I suppose they are in a way. Find a good placement where it just seats itself - now there's stress relief and satisfaction.

Gavin (26) describes how he found that the skill required to place nuts enhanced his climbing experience:

> I get a lot of satisfaction from placing nuts. Everybody knows how they work it's simple physics – but placing it is the real skill, and more skill is required to place nuts than cams. It's about knowing where your stuff is on your rack, selecting the right piece for the placement, placing it, clipping in, and climbing on. When you first start you're all fingers and thumbs, trying several bits of gear, fumbling with the karabiner gate. This is all accompanied by the nerves of the predicament. Every fumble uses energy that could cost you the onsight.

Both Gary and Gavin felt that the security obtained from placing a nut well from a potentially marginal situation enhanced the pleasure and satisfaction of the climb. Gavin also indicates that over time climbers become more aware and proficient at moving as an assemblage. As they become more familiar with their kit they are able to place it more efficiently and effectively. This notion of skill and its development during the practice of climbing as an assemblage is reminiscent of Ingold's (2000) work on skill acquisition. To explore this further, with the intention of highlighting how the acquisition and application of climbing skill is relational, I will apply Ingold's five critical dimensions of 'skilled practice' to the pursuit of climbing as articulated by my interviewees.

First Ingold argues that "intentionality and functionality are immanent in the practice itself, rather than being prior properties, respectively, of an agent and an instrument" (Ingold 2000: 291). Similarly, gear placement is reliant upon the prior knowledge of how the protection (cams and nuts) works, and the types of feature (e.g. parallel crack) that would act as suitable locations for the protection. However, in practice gear placement is contingent to each situation, due to variations in rock structure and composition, as well as the differing angles between each piece of gear that are placed, and the associated drag of the rope through them. This requirement to read the rock while placing protection was outlined by an interviewee who described the differing elements she considered before placing and relying upon a piece of gear:

> Something I like about traditional climbing is that you have to look at the rock, you have got to read the rock and be careful where you are going to position your feet, and your hands, and you search for where you are going to put the gear. So there's more brain work to be done really. I suppose that is what I like

> about it really. Rather than just clipping a bolt, when there's a bolt the thing that you aim for is the next bolt. When if it's traditional climbing the thing you aim for is the next sort of relatively good resting place, where you can stand, have a breath, and perhaps put some gear in. It's a bit more, there's a bit more to be done with the mind and I quite like that. You have to think about how you place the gear, you know the angle, and if you fall how it is perhaps going to take the gear off, or leave it where it is, when you use a bolt you don't have to think about that, you just clip it and that's it really. It's the physics of it all that I quite like. (Hannah 42)

By comparing trad climbing to sport climbing Hannah is able to distinguish that as a trad climber she moves on the rock as an assemblage. This wider sense of being part of an assemblage enables her through constant negotiation with herself the rock and the gear. She also emphasises the philosophical idea of intentionality, highlighted by Ingold (2000), by recognising that the objects of climbing exist both in being understood by the climber conceptually, as being material functional objects, factors that are immanent to the practice of climbing as a skilled pursuit. Neither intention nor function pre-exist the climb, the kit becomes functional as an assemblage through the climb.

Second, Ingold suggests that, "skill is not an attribute of the individual body in isolation but of the whole system of relations constituted by the presence of the artisan in his or her environment" (Ingold 2000: 291). In line with this I suggest that the skills and capacities that some would regard as centred upon the climber as the conscious being, are alternatively spread amongst the actors (both human and non-human), that constitute the climbing assemblage. For example, as you belay, a particularly tricky pitch, the rope becomes more than a safety aid. It becomes a cord of communication as it flows from the lead climber down through the protective gear and into the belay device. Subtle messages can be felt through the rope and these indicate differing levels of urgency, according to its tension or the speed of its movement. This example from my participant observation demonstrates how the functions of the rope are co-produced during the climb.

Third, Ingold suggests that, “rather than representing the mere application of mechanical force, skill involves qualities of care, judgement and dexterity” (2000: 291). Such skill is central to the practice of climbing. As noted, my respondents were highly knowledgeable about the mechanical properties of their kit and its ‘ideal’ applications. However, they also recognised that while climbing they were unlikely to find ‘ideal’ placements, or that ‘ideal’ placements would still be effected by other extraneous factors. Thus care, judgement and dexterity were crucial to optimising the kit and its uses.

> It’s more fluid [gear placement with experience] it involves more skill but that becomes easier, you repeat things and they eventually become second nature. Certainly I found as I became more experienced, I became less hung up about having to place gear regularly. Early on I would get to the point, here I must place some gear, and if there wasn’t any gear placement there in front of me I would start to panic “*arrghh I must get something in!***”** Whereas now I have better judgement, now I am much more, “well there’s nothing here so there is not point hanging around here”. I move on, or I get back to reading the route and say - “well I’m still not far above my last bit of gear but it looks like it will be pretty blank for a while so I stick something in now and then stick something in above”. (Jez 38)

Jez illustrates how through repetition the skills of climbing become ‘second nature’ and intuitive. This is again something that develops through experience as the climber, as part of an assemblage is able to draw upon more experience to make judgements about when to climb onwards and when to place gear in order to climb effectively. These are judgements made as an assemblage, because the negotiations are bound up between the actors that make the climb possible. The climber is also changed through this assemblage, they respond to kit and to the experience of climbing.

Fourth, as I have mentioned on several occasions, Ingold (2000: 291) argues that, “it is not through the transmission of formulae that skills are passed from generation to generation, but through practical, ‘hands-on’ experience’”. Only in this way can climbing assemblages reveal their full potential of complex co-constituted capacities – skills of climbers, skills of kit, skills of the climbing assemblage. Accordingly, the

climbers I interviewed, even those who had undertaken formal training, admitted that there was no alternative to learning the skills required to climb outside, other than by climbing outside. These skills were enshrined in the traditional 'climbing apprenticeship' and were felt to be threatened by other modes of learning. Consequently, some of the climbers I interviewed felt that indoor climbing, which was increasingly undertaken as opposed to the outdoor pursuit, and was increasingly a route into the outdoor sport, could in time lead to at least a partial dissolution of outdoor climbing skill. Mark (42) argued that:

> Indoor climbing leads climbers to expect a good placement at regular intervals [the spacing of protection on an indoor wall]. It's not like that [outdoors]. You need to be flexible. The only way to do this is climb outdoors at differing venues, different rock types at different times of the year. That's what you need to be an all-round climber able to deal with the variety of situations that you may face.

This demonstrates that the rationalised and predictable engagements with indoor climbing walls are different to the more complex socio-technical engagements experienced in the outdoors.

Fifth and finally, Ingold (2000: 291) claims that "skilled workmanship serves not to execute a pre-existing design, but actually to generate the forms of artefacts". The 'artefact' created, albeit temporally, is the single climb and its safety network consisting of nuts and cams, clipped with quick-draws and threaded by a rope connecting the lead climber to their belayer. Like the artisans that Ingold refers to, the climbers in my study regarded the climb and its performance, including the creation of a temporary safety system, as having a unique and pleasing aesthetic. This is supported by Mick (45) who said:

> It's the aesthetic of the route. It's one thing on-sighting a route, it's another on-sighting it and been able to look down to see you rope running smoothly through your gear, all neatly placed and spaced out, none of it ripped.

For several of the climbers I interviewed, placing the gear well and producing a safety system that worked and was aesthetically pleasing, was as much a part of achieving an ascent as any other aspect – it was "Part of the formula" (Carl 46). By contrast, if gear

had ‘ripped’ from its placements, or caused rope drag during the ascent, not all the required elements of a ‘good climb’ had been completed – at least to the purist interested in the ‘craft skills’ of climbing.

The application of Ingold’s critical dimensions of skilled practice highlights that climbing skill is acquired through the relational practice between the actors present in the climbing assemblage. Like the artisan, the climber is practicing craft skills as part of a co-evolutional assemblage. Ingold (2000) continues by arguing that the subject centred skills could be replaced by objective principles of mechanical functioning. The same could be said of climbing, for example the placement of a cam requiring less skills than the placement of a nut. This raises questions such as: have the skills of climbers been replaced by, or at least enhanced by their kit? My research suggests that both these eventualities are manifest in climbing, points I will return to in the conclusion.

6.22 Reading the rock: applying craft skills

The way in which climbers apply their craft skills is captured by their term ‘reading the rock’. The expression reading the rock was commonly used by the climbers I interviewed to describe how they negotiate a climb – and how it is approached and performed as an assemblage. Being able to ‘read the rock’ well and work out the moves, gear and rest points on a climb was considered by climbers to be a skill that could take years to perfect. But as I have demonstrated this it is not merely a case of reading the rock in isolation. It is about, the body of the climber and capabilities both mental and physical. It is also about what is known about the climb, its grade and the quality of the climbing, the gear and where it can be placed and whether it will be reliable, and how it works with the body and the rock. ‘Reading the rock’ is about being part of an assemblage of things that all need to be factored upon, understood and familiar. These are facets of climbing that can only be achieved through experience and practice. Below are a number of examples from my interviewees that illustrate how climbers ‘read the rock’ as climbing assemblages.

Todd describes how he reads the route of a climb in terms of the available protection that can be placed upon it:

> looking ahead judging what is coming and whether it is protectable or not, or whether you have to be bold. With experience you can look ahead and usually see whether there is some where to put some protection. Usually you can, I mean obviously you can't always, or you find things that you couldn't see from below, but you can usually see if it might be that there is none. (Todd 40)

As he demonstrates in his quote, Todd examines the route in relation to the potential for placing his gear to protect the route. This technological reading of the rock also gives him an indication of how secure the route will be to climb, allowing himself to mentally prepare to make 'bold' moves with little or limited protection. He also recognises that the crag and climb do not release all of its information from a visual inspection from the base of the climb. These are aspects that may be gleaned from the guide or need to be coped with when they are encountered.

The most intense reading occurs during the practice of climbing, when the climbing assemblage is at its most active with information and function flowing through the relational network.

> With grit [stone] every square inch is a potential hold, but it's knowing that and trusting it, that's what comes with plenty of outdoor experience. The friction is important you have to realise what you can stand on what you can hold onto, there is so much more balance. You really need to know how to read the situation. (Finlay 57)

In Finlay's example there is a dialogue between the rock, the shoe, and corporeal self. This dialogue is continuous and ever changing as the climb progresses requiring the climber to act as an assemblage, drawing upon past experiences and applying them to the present situation. The climber also has to constantly read feedback from the rock through the rubber of his/her shoes to maintain their stance upon the rock and achieve upward progression.

> Looking at a piece of rock and knowing instinctually that something will go in there and knowing when to stop and when to press on, there is so much judgement that is going on much more so than 'sport climbing', and tons more

than in bouldering. Placing gear is a mega skill, the judgement of when to do it and when not to do it. (Carl 46)

Carl's quote again suggests how aspects of moving as an assemblage through practice seem to become 'instinctual' as the body's consciousness extends to include other actors in the network. Common practices such as selecting a nut from the rack on the harness, placing it and clipping it into the rope become 'unconscious competencies' allowing the focus to be maintained on remaining in secure contact with the rock face. These 'unconscious competencies' are promoted by the ritual and regimes of the climber that ensure that they are always prepared. For instance by racking the gear in accordance to the route as Liam (38) describes below:

I rack it up according to what I think I can get easy access to and what I'll need. I'll look at the climb first and assess the moves and the gear that I think I'll need. I look if it favours any side and I'll rack accordingly so I know I can get to my cams and quick-draws easily. And when I look at a climb the actual gear placements are crucial in deciding whether I am going up. I'll always consult the guide book but I'll also look at it myself. I like anything that has a crack running down it, as you know you'll get something in it. So long as it's not too wide.

Climbing as emphasised by Lewis (2001; 2004) is an embodied pursuit requiring a high degree of bodily commitment both in terms of the attributes required to climb and the risk to the body posed by climbing. Consequently, climbers often read routes in relation to their physical and mental bodily capacities as constituent parts of the climbing assemblage. The embodied movement and capacities of the climber are integrally linked in to the other actors in the climbing assemblage as Tim (38) indicates below:

If I see a route with a good fist or hand jam I'll have a go at it. It doesn't do my hands any good but I find it immensely satisfying. Placing your hand tensing the forearms – all your weight goes through your arms and they become levers as you move for the next jam or hold. There's little pain if you lose some skin or take a chunk out – the focus takes it away. Find a 'jam' on a route and you'll find a cam placement too – more often than not.

Tim stresses the embodied aspect of climbing that he likes – which for him is the commitment and satisfaction of jamming. Climbers read the rock with their personal skills and pleasures in mind (as well as the skills and competencies ever reliant upon the extended climbing assemblage that help them to 'stick to' the rock, or in Tim's case secure his committing moves. Every movement that takes place on rock does so in the matrix of the climbing assemblage. Physical movement is accompanied by technical assistance to body and mind.

Figure 6.25 Climber heel hooking in climbing shoes (www.fiveten.com)

6.23 Enabling assemblages: the 'foot-climbing-shoe-rock' assemblage

The section differs from the last by focusing upon technology as a as a virtual prosthetic extension of the body that alters the body and mediates the climb. I have hyphenated the foot-climbing-shoe-rock assemblage (fig 6.25) to illustrate the complex ways that they are entangled in the pursuit of climbing. My focus is upon the assemblage's situated practice, and therefore the separation of those constituent parts would only serve to simplify its complex relational fusions and capabilities (Michael 2009).

Climbing footwork was mentioned by many climbers as an aspect of technique that was reliant upon the synergy between body, technology and rock, particularly on gritstone where because of the characteristics of the rock, and the properties of present day climbing shoes, "every square inch is a potential hold" (Finlay 56).

Climbers from my sample were able to eloquently articulate the enabling benefits of the 'foot-climbing-shoe-rock' assemblage within the wider climbing assemblage. Most climbs follow natural geographical features in the rock such as cracks, arêtes, slabs or chimneys. These often indicate the lines of least resistance to the climbing assemblage. However, as I mentioned above, climbers are also in part guided to these features by how their gear will work with such features. From this perspective we see the climb differently - what features does a climber's gear allow them to climb? Rather than the geology of the rock, it is the negotiation of climber-gear-rock that determines the route. Accordingly as Michael (2006: 41-42) suggests:

> The body as it is performed in everyday life is realised through its interactions with its environment, an environment populated by the material and cultural products of technoscience.

These items, Michael argues, are often disregarded in daily life. When I asked climbers about their 'techno-scientific kit' (or, as I simply referred to it 'kit'), the element most often omitted was their climbing shoes. It seemed that although climbing shoes were pivotal to the activity, their conspicuousness rendered them almost invisible.

Climbing footwear has evolved through various incarnations from nailed boots, hiking boots and plimsolls, towards the 'sticky' rubber soled climbing boots with exceptional grip popular today (Parsons and Rose 2003)(Chapter 3). With every incarnation climbing abilities have been extended. Colin and Nigel had both climbed through the transition in shoes and lauded the benefits of sticky rubber: "When I first got a pair of sticky rubber shoes I was climbing a grade harder within three weeks of trying them on" (Colin 55).

> Sticky rubber has really changed slab (blank rocks that require friction to ascend) climbing, when I first did routes on the Etive slabs it was in Ebs [a forerunner of the modern climbing shoe]. I would love to go back in a pair of sticky boots because I'm sure it would be a walk now comparatively. More that and the fact that they are worn direct against the skin and are just a better fit giving a high level of confidence. (Nigel 53)

A rock climbing shoe is tight fitting, creating a taut and contained foot that can support the weight of the climber upon the smallest ledge. Climbing shoes are ergonomically designed to work in harmony with the climbing body extending the limits of what the organic body alone can do. Advertisers understand this and shoes are advertised according to their rubber's 'frictional prowess', 'versatility' and 'sensitivity', emphasising the benefits they *can* afford the user. Shoes thus demonstrate how technology modifies and enables the body as a constituent part of an assemblage to go places in which the organic body alone cannot venture. Therefore footwear is so central to climbing because once in conjunction with the shoe the foot is able to go beyond its 'normal' limits by gaining purchase on the slightest feature on the rock face, or with help from sticky rubber generate enough friction to maintain upward momentum on a featureless slab. Climbing shoes represented a key facet of climbers' personal climbing styles with my respondents often preferring a particular brand or model.

The ergonomics of climbing shoes do not usually represent a harmonious union of body and technology. Climbing shoes are often chosen that are too tight and painful after prolonged use. This is because some climbers find that they climb better in tight shoes. Gavin (26) explained:

> I wear Anasazi velcros, the brown ones, 5.10s. I take a ten and a bit shoe and I wear my rock boots eight and a half. And when they are new they are pretty uncomfortable but gradually they stretch and I fit into them, and they reach a point when they are just perfect. Because right at the beginning you edge really well but you can't smear so well because it hurts.

Meanwhile Megan (23) adds:

> People have really tight shoes and they say that it helps them climb better, like my boyfriend he has them really tight, like even at the wall he'll come down and on his way down he will kick his shoes off his heel. He can't climb if they're a tiny bit loose, but I can't climb if they're too tight. I don't like them soppy I like them to fit snugly but if I feel like it's crushing my foot and there's any pain there, then

> I can't climb properly, I don't climb as hard. At the end of the day my feet will be hurting so I wouldn't like to go any tighter.

Hence in stark contrast to Michael (2000, 2001) rather than disrupting the union between body and environment in climbing some level of discomfort seemed necessary. This is similar to other technologised outdoor practices were pain represents an integral element of the experience (Spinney 2006). Tight climbing shoes led to a variety of foot disorders, particularly in the older climbers within my sample. Climbing shoes are also often worn without socks to prevent *any* movement as the climbing shoe constrains the foot of the climber producing a foot encapsulated in suede and rubber. Climbers' feet therefore developed areas of hard skin and deformities such as bunions, illustrating further that the shoe and the rock through the practice of climbing co-constitute and reconfigure the climbing body. This resonates with Dixon's (2008) notion of the technological user as 'inherently plastic' because the foot's form and functionality is dramatically altered expanding the possibilities for the climber. Through the practice of climbing the shoe itself is also gradually reformed stretching to better fit the wearer. Through climbing the fusion between shoe and body is enhanced, and a new more functional 'inherently rubber' climbing hybrid is co-produced, that is physically changed and mentally attuned to the properties of the shoes.

However, another argument could also be made concerning the shoe-foot-rock assemblage. For Ingold (2004: 319), technological developments in shoes imprison the foot, constricting its freedom of movement by blunting its sense of touch:

> The foot has been progressively withdrawn from the sphere of operation of the intellect, that has regressed to the status of a merely mechanical apparatus, and moreover that this development is a consequence – not a cause – of technological advance in footwear.

The paradox between Dixon's and Ingold's conceptualization of the technologically enable being is interesting. Dixon sees the body as extended by a progressive technological fusion, whereas Ingold regards the technological advancement and enablement as blunting the senses. To an extent both are correct – the climbing shoe

both inhibits sensations protecting it from the rock, but also enhances technologically mediated sensations. These technologically mediated sensations represent the climber's ability to be able to read the friction of the shoe clad foot on the rock. In this sense we see the climbing shoe as a mediator that both inhibits and expands capacities. This is similar to Michael's (2001) arguments (section 4.12) the climbing shoe at once mediates and transforms the dialogue between foot and rock. It acts as a co-agent, a communicator between the foot and rock and other 'haptic knowledges' of the climber (Patterson 2009).

I want to illustrate this further through the example of an interviewee who was capable of climbing highly graded technical routes, which gave him a greater awareness of the technological developments in footwear. Chris (fig 6.26) was a boulderer, so I didn't expect the interview to take long because bouldering is one the least gear-intensive varieties of climbing. However, when he arrived at the crag, to my surprise he pulled several bags of kit from his car along with two bouldering mats. In addition, his kit included six pairs of shoes, a chalk bag and a bottle of liquid chalk, a scrap of carpet and a brush for cleaning holds. Chris considered himself a boulderer although he also climbed trad and sport routes. He had climbed many high level bouldering problems up to V12. I was keen to find out why he had bought along so many different pairs of shoes, and this is what he said:

> With rock shoes, obviously things have come on leaps and bounds in last ten years, if not five years. Rubber and shoe technology is influencing the grades that people climb at. It's just the advent of the way that they can mould rubber now, use rubber to better advantages. I've got quite a few different pairs of shoes that I use in different ways and forms. From a pair of baggy slippers that I just use to warm up in, and train in, smearing on grit but they're crap now! Through to a general all round shoe that's good for heel hooking quite stiff for edging, but hasn't got anything across the toes for toe hooking or downturns on sharp roofs. You then have the 'Dragon', that is realistically a big roof climbing shoe, very downturned toe, a big chunk of rubber so you can really push your foot into pockets and twist in with it, pull against it and it doesn't hurt and you get more friction. And then my newest pair which were actually on sale for 20 quid, it's to

> replace the basic slipper but it has a much bigger toe box with the slashes in the rubber on the toe so you can heel hook and toe hook, generally a much better fit. So obviously the technology in footwear design has opened up a load of scope on how you use your feet, and how you play with the climb, and that brings more technique into it. Obviously with the technique you don't need as much strength you can do things a lot easier and a lot quicker. So it that way the technology of footwear has basically aided and developed climbing very very rapidly over the last ten years. (Chris 35)

Chris was passionate and knowledgeable about his climbing. He was explaining that he used different shoes to do different things. Old shoes were used to warm up in, whilst other shoes had specific features that enabled him in differing ways. Chris details how the shoes' differing properties enable the climbing assemblage to do differing things on differing types of rock or problems. Rather than there being just one boot that does it all there was a range which Chris realised and embraced. He understood that different types of shoes enabled him to climbing different types of rock problems. The slashes in the rubber across the toes of one shoe for example, increased the sensation of the shoe on the rock meaning that it could be used to 'snag toe-hooks' creating greater friction with the rock when it was needed. Whereas the reinforced rubber toe box of the Dragon reduced sensation but protected the foot whilst performing powerful 'jamming' moves with the feet. It required Chris' knowledge and experience to understand how each shoe could perform, according to the geology, the route, as well as his own capabilities.

Moreover Chris had thought carefully how his footwear altered his pursuit. He argued that new technologies alongside climbing competency and techniques, now made routes easier as they required less strength. He developed this argument further:

> Basically people are down-grading problems because the shoes are becoming more adaptable more useful in the ways that they are designed, obviously as I said rubber technology, stickier rubber, the way that they can mould it over the toe over the front of the shoe for it to be comfortable, have holes in it or slashes in it. Basically if you are putting a toe hook in underneath a roof and you've got smooth rubber then you are going to get less friction, but more friction than with

> the slashes. If you look at those [Chris points to some shoes with a smooth rubber sole] it's just a standard piece of rubber, if you use that [Chris points to a pair of shoes with holes extracted from the rubber over the toes], if you are going to be toe scrubbing with that, you think just maybe one of the holes may just snag on a rock and give you that extra bit of grip. With these new shoes things become easier to climb although it is not actually easier to climb, it's just that you are wearing things that are much more developed. So although you are finding it easier it is not actually easier. (Chris 35)

So Chris believes that new, enabling technologies can make certain climbs easier by lessening the physical challenge. However, he sees a problem with this in terms of the grades that have been given to climbs in response to these socio-technical changes. He is not sure whether climbs should be down-graded as a result. This is because he realises that it is not the climb that is easier it is the climbing assemblage that is more effective (section 6.14).

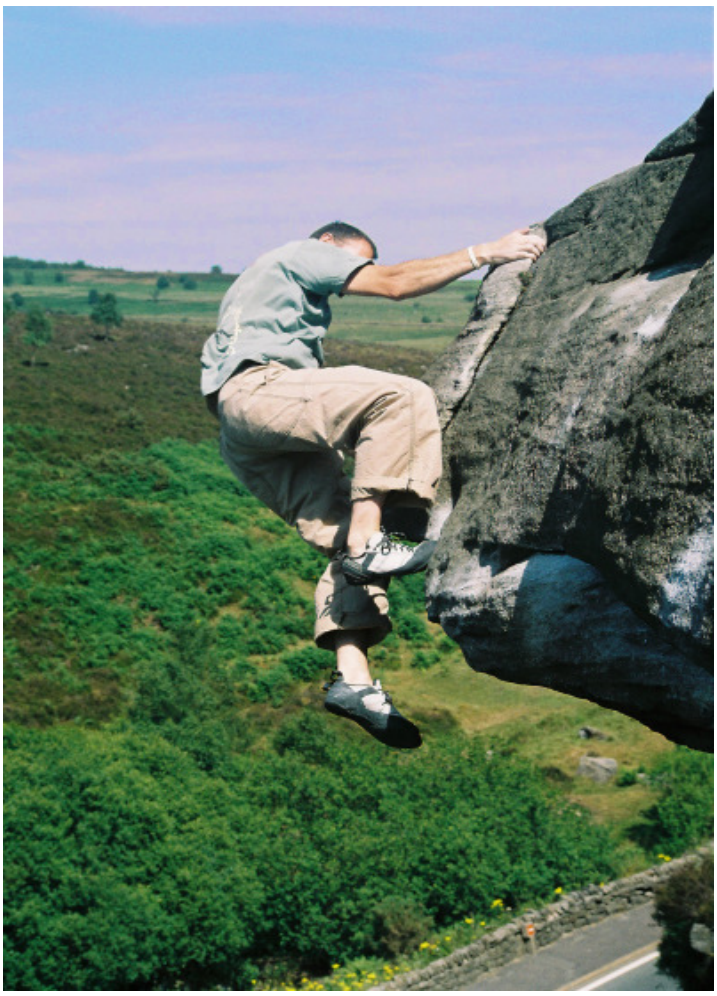

Figure 6.26 Bouldering in the Peak District

6.23.1 Frictional observations: developing the 'feel'

Like Chris I also gained experienced differences from a variety of shoe types but found the benefits difficult to attain. To help triangulate some of my arguments in this section I draw upon my own field notes to illustrate how shoes take time to become part of the assemblage and how they are shaped by the climbing body as well as shaping the climbing body. Equipped with enabling claims, and my interviewees combined knowledge regarding the most effective brand and type of climbing shoe, I visited the Peak District to climb, making a swift deviation to the gear shop to purchase a pair of 'Five Ten' rock shoes.

Excited at the prospect of these new climbing shoes improving my climbing without any effort, I slipped the new shoes on at the base of a route. Stepping onto the rock I felt the soft rubber stick solidly to a small pock mark in the gritstone. All I had to do was trust my footing by applying more weight whilst raising my body to make the first

secure hold. I couldn't. It felt wrong. The grip was there but my feet felt awkward and unfamiliar in the new shoes. I could not gauge the amount of grip I had, or how it would act in conjunction with the rock as I moved. I stuttered on the rock, an internal dialogue raging, one part assuring myself that it would be alright, but the other highly cautious of crashing to the floor and removing the skin from my legs as I scraped against the abrasive gritstone. The caution or cowardice won and I stepped down from the crag. I repeated this process several times before reaching for my bag and my old pair of battered but tried and trusted shoes. Climbing with them I could feel that the rubber did not have the equivalent friction with the rock, particularly as in places the rubber had worn through to the suede. But they had a level of grip that I could read. I knew the limits; I knew how they worked with the rock, and, most importantly, my body knew how to climb with this level of adhesion. If toes began to slip from their holds I knew how to make subtle adjustments to my feet and body to counteract and adjust their placement.

Despite the product descriptions of advertisers, performance cannot be bought but must be earned through bodily performance. A skilled practitioner and time are required to realise, and release, the synergistic technical advantages of kit. Similarly to Jones (2005), I had revealed that in certain circumstances technological conjoinment could reconstruct the body as a hybrid with the potential to disable as well as enable. Like Jones' cyclist stranded out of gear on a busy road, my new and unfamiliar climbing shoes had rendered me "a cyborg chastened by a defective limb" (2005: 822), or at least one that I was yet to learn how to use. My respondents also demonstrated an awareness of these kinds of relational thinking in regard to exchanging shoes and climbing footwork. Liam (38) said: "Even if it's the same pair of shoes you need to break them in, learn to get a feel for the rock through them" (Liam 38). While Keith (47) had seen:

> Two climbers [who] did the crux move totally differently. The first climber thugged through it using a scrabbling smear [using the friction of the rubber against the rock to proceed rather than the support of a ledge], the next climber was a real pro, his footwork was exquisite, using the same obscure foot placement, he planted his foot and subtly altered its positioning eight times

> without it ever leaving the rock. He was so graceful in his movement. I think you have to be that good to make the most of top end shoes.

Clearly technological enablement extends to the experiential, as overcoming physical barriers are interdependent with the mental barriers. Technology doesn't merely make the the body better (for climbing) without thought, but must be made an effective part of the assemblage through the climbers' minds as well as their bodies. This is further demonstrated by Nick (55), another interviewee, who revealed that:

> If I am soloing then footwear is the thing, obviously your own confidence and stuff is the most important thing, but that is generated in part by how you feel with your kit. Once you get to know a pair of rock climbing boots they are very helpful.

When climbing the climber feels the limits of their own bodies, for example, whether or not a hand hold is sufficient to hang off whilst repositioning the feet, whereas, the limits of prosthetic kit extensions that mediate between the different actors in the climbing assemblage are unknown. Climbers emphasised the need to develop a 'feel' for their kit through repetition and experience, producing 'unconscious competencies' that are almost instinctual.

Echoing Hinchliffe's (2007: 38) assertion that assemblages represent 'an active combination of technologies, ways of proceeding, their arrangements and their ongoing, unfolding nature', the bodies and technology of climbers may *appear* to work in harmony, but it is accompanied by an intense and unheard dialogue running within the assemblage of climber, kit and environment. Michael (2001: 114) regarded walking boots in a similar fashion:

> Boots are invited, indeed, sometimes necessary guests in the heterogeneous dialogue between humans and the environment. They at once mediate this dialogue and transform it.

However, unlike boots that (when fitted correctly) appeared to perform their roles 'invisibly' as feet supporters, protectors, and bodily stability providers, the role of climbing shoes in the climbing assemblage was a more conscious one as a sensual

extension integral in the ascent of rock, rather than in part a sensual buffer of the realities of the environment. The rock, or more accurately the climber's level of adhesion to it, is read through the rubber of the soles requiring synthesis and familiarity to make small adjustment and judgments in order to progress up the climb.

The shoe-foot-rock assemblage shows that the technology and organic body co-constitute each other - the shoe clad foot of the climber is no longer the entity it was before it was shod. Constriction and materials transform the foot into a hybrid entity specifically tailored to climb. Over time this fusion subtly enhances as the skin on the feet harden on the areas that rub and abrade. At the same time movement and sweat from the foot gradually eases the suede allowing the shape of the shoe to mimic the contours of the foot. Again resonating with Ingold's (2000) view of skill acquisition, once a climber has a 'feel' for the shoe s/he is then able to read the friction of the rock and ascend routes as if they have learnt to use a new body part. Thus it is not only the users of technology that are 'inherently plastic' (Dixon 2008), in certain cases it is the technology that also alters its form and enhances the fusion. The benefits of these co-evolutional fusions go beyond those described in the product manual and can only be realised and recognised during the practice of climbing.

6.24 Technological extensions: ropes, harnesses and belay devices

I will now consider the wider climbing assemblage. The enabling foot-climbing-shoe-rock assemblage is straight forward to conceptualise - shoes are physically attached to the body and the performance enhancement is clearly evident when observing climbers ascending otherwise un-climbable smooth slabs. In this section I move on to discuss further elements of the climbing assemblage that includes ropes, harnesses and the rack of protective gear. For the clarity of the study, unless otherwise stated, I will assume that the climbers are using a trad rack and broadly following a trad ethic whereby gear is used to protect the climb, rather than to aid the ascent (Section 2.3).

Similarly to a climbing shoe, a harness is worn on the body and becomes an integral part of the climb. The harness has a waistband and leg loops designed ergonomically not to limit the movement of the climber but to fit securely and distribute the weight of the climbers body evenly in the event of a fall, or when the climber chooses to put their weight on the rope. Harnesses have evolved greatly over the past 30 years and

now perform in a manner whereby the climber can feel secure in the knowledge that it will not fail, cause tremendous pain, or even asphyxiate them (Section 3.7). In this sense the harness quietly performs its function and the mere knowledge of its presence provides the climber with a sense of security and confidence. Having one's own harness makes this more tightly part of the assemblage, familiarity and reuse shapes both climber and climb. For example, Penny (30) said:

> When I first started climbing I used to hire or borrow a harness when I climbed - and they never felt quite right. Perhaps it was my lack of experience - it just felt unusual. But I have my own harness now, and it just feels part of me when I climb. I am aware I am wearing it, and because it's mine, I know it's a good brand, new, and reliable. Things like that are important to me. I'm a nervous climber and anything that helps with that is good.

The harness works in conjunction with the rope which is connected to it via a figure of eight knot. Similarly to the harness the rope is ideally only there for security rather than to aid the ascent, but (despite trad ethics to the contrary) it is quite common to see climbers resting on (weighting) the rope at the crag having reached a tough move, and/or having exhausted themselves trying to overcome it. This change in ethics was considered to be due to the greater functionality and reliability of modern climbing gear. Thus the reliability of rope had changed practice but also questioned the ethic that I climber shouldn't weight their rope – an example of how practices and technology co-evolve in ways that might upset the ethical purist.

The climbers I interviewed stated that they were very protective of their ropes as they saw them as the interlinking figure in their protective technical assemblages. Climbers replaced ropes more regularly than other aspects of their protective kit and were very reluctant to lend them out, particularly if they were not able to observe them in use, because they liked to know the history of their ropes. This included how they were stored, how many times and from what height climbers had fallen on them, or if they had got wet or tainted by any liquids or gases, which could potentially damage the rope. Like bodies, ropes are shaped by climbs this can be unhelpful as well as enabling. The history of a rope may be invisible, for instance if it has taken several large falls, or they may become detectable by visible fraying or a narrowing of the ropes diameter.

This is evidence of the co-present spatialities and temporalities of assemblages (Michael 2006: 153).

Figure 6.27 A photograph of a single pitch climb displaying belayer and climber Joined by a rope that passes through several pieces of protection (source: www.ukcliming.com).

Ropes represent a sensual and dynamic element of the climb. The rope physically connects the constituent elements of the assemblage of the climb. The rope runs from the ground into the belay device that is connected to the belayer's harness. It then runs through the clips of the quick draws connected to the protective, nuts, cams or slings following the routes of their placements, and finally it is secured to the harness of the lead climber (fig 6.27).

Belaying is where the rope is fed out or taken in, by the belayer, according to the movements of the lead climber above. Belaying is a sensual and dynamic process that can feel automatic but also requires concentration and quick thinking. Different climbers stated that they required or preferred the belayer to subtly alter their style of belaying for them. For instance, a cautious climber told me that they felt safer if the

rope was kept taut. Although she considered that this could hinder her ability to move quickly, it comforted her against the risk of falling. John (40) also liked a tight rope, he said: “I prefer to climb on a relatively tight rope it lets me know that the person belaying me is concentrating”. Other climbers preferred the rope to be left loose so they could move unencumbered by the drag of the rope running through the belay device. Gavin (26) explains this:

> I always climb on a loose rope, after all it should only be used in emergencies. Climbing on a loose rope focuses your attention - you might still hurt yourself if you slip off. If you are used to a loose rope it’s easier to move above gear, because you’re used to leading the rope rather than letting the rope lead you.

Gavin thought that a tight rope promoted a feeling of reliance on the technology which were at odds with his personal approach to trad climbing. He liked the reassurance of tying into a rope, but considered that it should remain a reassurance, rather than what he perceived as a ‘virtual aid’. This example illustrates that the rope takes on differing forms and roles in the assemblages of different climbs and of different climbers. Through the action of the belayer holding the rope tightly or loosely the agency of the rope, and correspondingly the climber, is altered.

Whilst the lead climber ascends the route the belayer lets out the rope sensing the tension in the rope and paying out accordingly. When the lead climber places protection on the route the belayer quickly pays out rope allowing the lead climber to clip it into the protection. Sometimes the lead climber calls for slack on the rope to allow this, but more often than not the belayer can read what the lead climber requires from below or feel it through variation in the tension of the rope. The rope, like the shoe in the previous section becomes a medium of communication within the climb. These messages promote agency and enact the climb. Below Nick (55) shares some insights about the medium of the rope within the climbing assemblage:

> I don’t really have a favourite [piece of kit]. It varies according to the climb. If you talk about most of your climbing it’s having somebody good at the other end of the rope. I’ve climbed a lot with Sue who is my wife now. She wasn’t very experienced, but she was a good climber. She used to be a bit frightening when

she led because she would go in a straight line and not follow where the holds were or not put runners [protection] in and things. But because she was inexperienced if I was leading and feeling a bit, you know [unnerved], it was not feeling too good, I didn't exactly feel good with Sue holding the rope because she was inexperienced so that is very important. I felt a lot different when she got better, when she was more experienced. It is always better when I'm with somebody else who I have climbed with a lot and is experienced. You develop an unspoken relationship based on movement and rope tension, they know if they hear a certain click of a runner then the slackness can be taken out. You know if something goes wrong, if you fall off on an awkward spot on a big cliff in bad weather at the end of the day, and you've lost touch with the rock, and have an injury, you don't want a wholly inexperienced person holding the rope wondering what to do about it all. I mean I climb with them, but I am just saying it makes a big difference to the way that you feel and your confidence and what you are likely to take on.

For Nick the rope is a sensuous extension and connection between the belayer's body and his own. He can feel the tension in the rope between himself and the belayer, and from this and his knowledge of the belayer's competence, he is assured that as long as the technology and the belayer performs as they should he is in safe hands. This demonstrates how the sensual encounters within the assemblage lead to the development of haptic knowledges (Paterson 2009), relating to procedures like belaying.

If the climber was to fall the belayer has to take in the rope and brace themselves to take the weight of the climber. If the fall is from height the belayer can be taken of their feet or violently pulled towards the crag. For example Derek (59) told me that he once fell 80ft before the slack was taken out of the rope by a single piece of gear preventing him from hitting the ground. He walked away uninjured but he told me that, "it burnt my mate's hand to pieces but it saved my life". Thus there is a mutual dependency between climber and belayer, not only does the climber have to consider the assemblage of their kit in conjunction with the climb, they also have to consider the belayer as part of a conjoined relationship.

Figure 6.28 Friction belay device

Nick also told me how the introduction of the belay device (fig 6.28) had replaced the body belay where the rope was wrapped around the body to create enough friction to catch a climber. He explained how technology had changed practice and the impact that this had on younger climbers:

> I grew up without a belay device, [I used] a rope round my back and one wrist, which I still do sometimes. I would still do it for speed if I was rescuing somebody who quickly needed a rope - rush to the top and drop a rope down to them before they let go and fell. For speed I would stick it round my back, I can hold a big fall like that, a big leader fall. People just don't know or trust it now, it's lost, it's just gone. (Nick 55)

The embodied knowledge of body belaying had been replaced by the belay device. Similar to Latour (1992) a 'physical practice' (in my case the body-belay) had been shifted out from 'human intention' to the 'mechanical' (by the belay device). Because of this the role of the body has changed and whilst it is still important to listen to the rope, the consequence of a fall or weight being placed upon the rope is less significant – as the weight is distributed through the rope to the belay device and dispersed through the harness. The belay device also allows lighter climbers to belay more

successfully, especially heavier leaders. Even though I have climbed for several years I was personally unaware of the body belay technique and if I dropped my belay device on a multi-pitch climb I would as a result have to improvise as best I could, or seek rescue by another climber. This further demonstrates how technological innovations change socio-technical practices, and that past practices can be lost in the transition, because once a new technology is normalised its technological and practice based predecessors disappear (Shove 2003b Shove and Southerton 2000; Shove 2003, Shove and Pantzar 2005a, 2005b). The example of the belay device shows that technology both enables and disables, there are gains and losses in the nuances and performances of the changing climbing assemblage.

The harness as well as securing the climber to the rope is also the hub of activity with gear loops adorned with an array of protection and kit (see fig 2.3). Most climbers racked their gear in the same way every time they climbed, although sometimes gear was racked upon the climber's harness according to the route, which may favour a particular side of the body, or had specific placements which necessitated or ruled out the need for specific devices. This gear was accessed automatically with climbers developing, through practice, a body consciousness thereby knowing where each piece of gear was racked upon the gear loops. We should regard these not as instincts but as cognitive unconscious acts which Thrift (2008) asserts are associated with prior practice.

My question was how did the ropes, harness and protection extend the corporeal limits of the climber, given that one placed desirably it was not called upon to physically aid the climber? Simon (41) suggested that it was there "just in case":

> The gear is there for those "just in case moments". However people's definition of 'just in case' varies from 'just in case I fall' to 'just in case my arms get tired and I need a rest' or 'just in case I can't do it'.

Simon was critical of climbers who he considered relied on their gear too heavily. For Simon, the enablement from his gear was derived from the security provided by/for his climbing assemblage, giving him the confidence to climb routes which he could not climb otherwise. This further emphasises the interdependent nature of climbing as an

assemblage wherein movements involved in placing gear become practised and seamlessly merges as the practice of climbing unfolds and the climber 'choreographs' the climb.

Although I refer to flowing movements during practice Ingold's (2000) comments on skill acquisition through practice are again relevant here. I use the term 'choreographs' as climbers positively referred to the aesthetic nature of their climbs. For instance Conner (23) said:

> It's the aesthetic of the route. It's one thing on-sighting a route, it's another on-sighting it and being able to look down to see your rope running smoothly through your gear, all neatly placed and spaced out, none of it ripped.

Other climbers commented on how they liked their climbing and gear placements to 'flow', and referred to their movements as 'graceful',' controlled' and 'restrained'. Likewise climbers liked to see their rope running freely through their gear with placements neatly aligned and secure. The terminology used by the climbers resonated with Csikszentmihalyi (1975) flow state theory, the total corporeal involvement validated through competency. Confirming my earlier proposition that 'flow states are likely to be achieved by bodies and technologies working in harmony both, rhythmically, and kinesthetically'. Mat (32) explained the frustration when his techno-natural engagement failed to meet his standards:

> When I have led a sustained route, and been terrified from half way up, you've got the gear in and it's in well, and then you do eventually get to the top it is an amazing feeling. But if you look down and your ropes all crossed over and messed up it's oooh! I only got that two thirds right! It's definitely a better feeling when you look down and think textbook!

Adrian (41) also gained pleasure from solving what he considered to be an 'engineering challenge', which he suggested occurred concurrently with the 'physical' and 'mental challenge' of the climb. He explained:

> It's about balancing several different aspects at once. I get pleasure from solving problems generally. Climbing gives me a *physical problem* to solve - what set of movements get me up this rock, and I have to talk myself up through a *head game*, and at the same time, basically solve an *engineering problem*, this is how I run the ropes safely and more efficiently, keep the double ropes straight and where do I put runners in, how do I construct them, how much do I extend them. And so bouldering puts the emphasis on the physical element, and soloing puts the emphasis on the head element, 'cause you drop down below your physical limit and it's all about the head then. But trad is about doing all three. So putting the gear in and arranging it, and doing that whilst under pressure as well, if you are doing that as you run out on to a shaky set of holds then absolutely that's part of the fun. It wouldn't be the same without it.

For these elements to come together climbers had to develop what Jez (38) referred to as "unconscious competencies" with their gear. Climbers describe their use of gear as becoming instinctual, following Ingold (2000) climbers described situations whereby experience/practice with kit became part of the climber as skill - so climbers were demonstrating practiced skill rather than instinct.

Climbers referred to these sorts of competencies when talking about reaching for their racked gear. During interviews climbers elicited a range of hand movements, whereby they would reach for equipment off their imaginary racks, to illustrate their knowledge of its contents and whereabouts. Rather than articulating such descriptions climbers bodily competencies are unarticulated but choreographed by a "performable repertoire of haptic knowledges" (Paterson 2009: 16). Climbers were able to explain to me how they moved as assemblages through movements rather than words. This emphasises again that skills make such practices seem unthinking, but only though much practice and experience, not through genetic instinct (Pile and Thrift 1995). This feature is supported by climbers' bodily regimes of preparation for climbing (Section 6.6).

The unconscious competencies also involved the crag. Experienced climbers stated how just by looking or in some cases feeling the rock features they knew which nut or cam would fit into any given placement, how it would act in combination with their

other gear, the rock and themselves, as they moved above and the rope pulled through, or even if they fell upon it. This is how Jez (38) explained his own "unconscious competence":

> As I am climbing I looking at the rock, I'm thinking about what size of gear, what type of gear I'm going to be putting in as I'm coming up to it. Not getting somewhere then going through everything in my rack to find something that fits. And I think that comes, and it's not a deliberate process it just comes with experience. It builds up, it's one of those competencies that becomes an 'unconscious competence'.

Drawing upon Whatmore (2006), it is though such 'unconscious competencies' with their gear that climbers become 'more-than-human'. They become and act as assemblages, and it is only as an assemblage that they are able to commit themselves to strenuous and dangerous routes that would otherwise be beyond their corporeal capacities.

6.25 Representations of hybrid climbers

Moving on from how climbers talk (and move) about their kit I will now consider how their kit is represented in other texts, and how these representations purposefully draw upon discourses of hybridity and co-agency in their composition. The notion of gear being concurrently a physical and a mental enabler in differing ways is illustrated in this advert (fig 6.29), from the rope manufacturer 'Tendon Ropes'. Observation of such advertising imagery immediately draws upon Haraway's (1985) ideas of cyborg fusions and transgressed and blurred boundaries between body and technology. They offer a graphical demonstration of enhancement by hybridisation and co-evolution of bodies which cannot be represented by traditional realist mediums (Thrift 2008). Only with digital manipulation can theoretical implications of the relational intertwining of body and technology be illustrated (Dixon 2008; Haraway 2007).

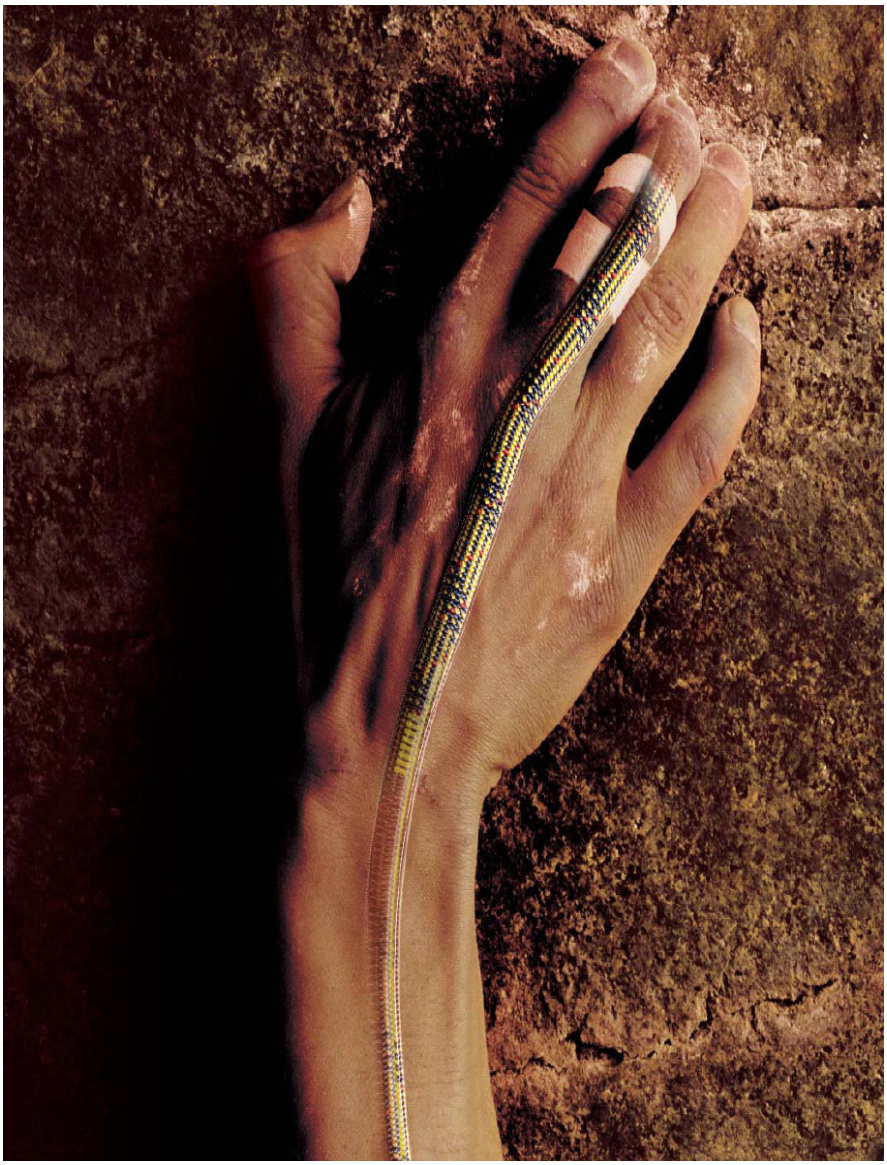

Figure 6.29 Tendon rope advert (source www.mytendon.com)

The advert proposes the idea that body and kit become intertwined as one whilst climbing and that the rope becomes a sensual extension of the body. The rope merges with tendon of the hand implying that it too has properties of the organic body. The advert thus suggests that the rope shares bodily characteristics and is not merely a physical artefact, it becomes an agent. Agency of the rope is also implied by the accompanying slogan, “a natural part of your body and mind”, and with the imagery of the rope mimicking, and merging with, the contours of the body. For example, during the practice of climbing in accordance with the adverts portrayal, the climber would assume that the rope will move freely with the body with little drag, and have properties such as elasticity thus preventing the jarring effects of a fall. Consequently,

the rope and its properties are linked to the manner in which they merge with and extend the body and mind becoming a body-technology assemblage rather than distinct entities.

6.25.1 Agency and aesthetics

Technical agency is also conveyed within the next advert by the aesthetics of the image. For Law (2002: 122) "If agents act they act because the capacity or propensity for action has been distributed in their direction". His example is an aircraft brochure shows how active agency is distributed favourably toward the aircraft and away from its contextual environment. Drawing upon a technology-nature-culture trichotomy, where the technical is attributed as 'active, skilful and heroic' whereas the landscape in which is appears is rendered passive and mundane. Law argues that agency is a matter of multiple distributions that is affected in many ways by interferences. Thus in order to understand agency Law asserts that it is important to explore the character of these interferences.

To examine this aspect of technological agency in climbing I will similarly draw upon a visual representation of technology in the landscape (Figure 6.30). This example illustrates the complex and subtle ways that the agency of technology in climbing is distributed and also the specific interferences which I feel are unique to the climbing case study, particularly in regard to the nature-culture-technology trichotomy. Figure 6.30 is an advertisement for Red Chili climbing shoes. In the picture one shoe is obscured by the sunlight whilst the contact point between the other shoes and the rock is hidden by the crag. Even in the product picture below the advert the sole of the shoe has been cropped from the display. However, we can see the climber is soloing the route un-aided by the security of a rope. He is, as consequence, demonstrating a greater reliance upon the grip of his shoes working with his muscular and skilled body to ascend the route. The 'natural' is given prominence within the picture. The rock face dominates the image whilst the 'natural' sunlight and its resultant glare in the photograph, obscures both body and technology. The de-emphasis of the technology is performed by the blurring of the clothed body and shoes by the glare of the sunlight and the deliberate use of free soloing. This is drawing attention to how the climber and their technology are passing through the permanence of the 'natural' site which over shadows it but does not constrain it.

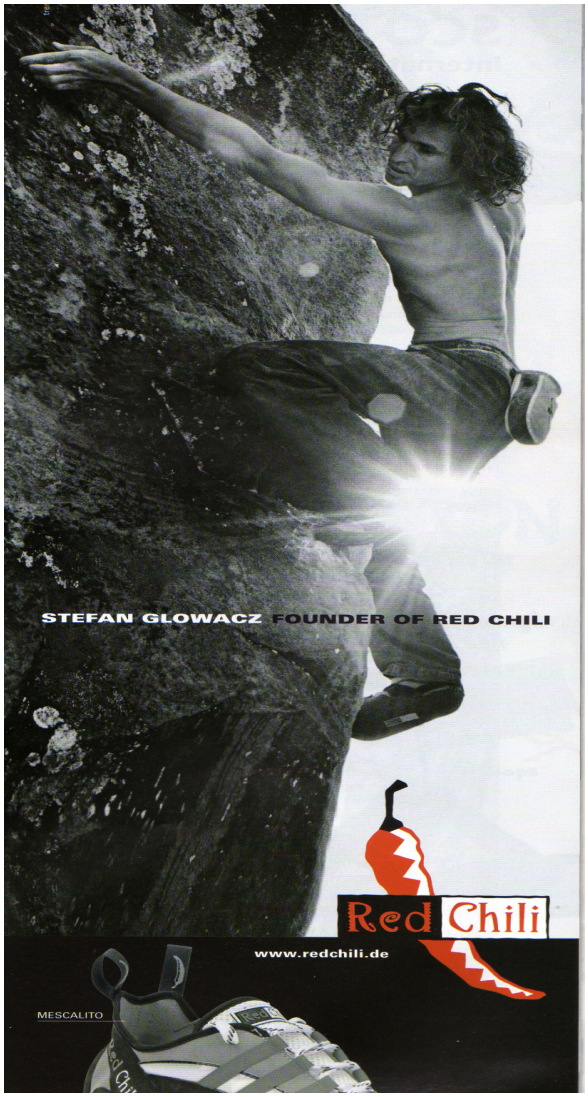

Figure 6.30 Red Chili climbing shoe advertisement[1] (www.redchili.de)

If we begin to apply Law's ideas of agency, distribution and interference we see the process more starkly. The 'natural' landscape in this case the crag far from being regarded as 'passive' and 'mundane' appears challenging requiring the culture and technology of the climber to overcome it. The climber (and his technology) is 'active' and 'heroic'. Moreover, as an assemblage clad in 'Red Chili' shoes the climber is enacted. In accordance with Law (2002) the technology is characterised by its capacity

[1] It is argued that the use of masculine images such as that appearing in figure 6.30 above operates to sustain and promote masculine practices serving to keep masculine power intact (see Robinson 2008).

for action. Although the environment is permanent and challenging by aligning with technology, the climber's passage is enabled. Thus the climber is performed as an actor with the attributes that allow him to climb the challenging rock face. However, rather than this agency being distributed by strong contrasts and contradictions, the climber's agency is achieved through its subtle alignment with technology. The contrast is the climber and technology as 'vulnerable' but 'heroic' against a powerful environment - the technology has enacted by tipping the balance of agency towards the climber's presence in the picture. This example emphasises that "the performance of technical agency is complex" (Law 2002: 140). However, unlike the technology illustrated in Law's study, in this example the agency of technology is promoted against the backdrop of an actively challenging environment illustrating the difference between the environmental engagements depicted.

6.26 Summary

The section has shown how the climbing assemblage is brought together during the climb. Climbers' ascents are negotiations and the technology and body are co-constituted through experience and material practice (Hinchcliffe 2007; Michael 2000). Through climbing practice and varied engagements, relational skills develop and the bodies of climbers and their capacities are extended as climbing assemblages. Amidst this 'unconscious competencies' occur as the body becomes highly attuned to its technologised action as a more-than-human climbing assemblage.

Throughout this section I have found that changes in climbing technology are apparent to all of my interviewees. However the *enabling* agency of the technology is dependent upon its situation and varies according to the socio-technical practices of individual climbing assemblages. Generally, older climbers have a greater awareness of these changes because they have experienced them. They recognise how kit can enable climbers even if sometimes they fail or are unable to take advantage of supposed benefits. This is because some older climbers sometimes refrain from using a number of types of 'new' kit out of preference for their familiar tried and tested methods. However, others find it hard to rely upon now *reliable* kit because they retain a fear built out of relations with the unreliable kit that they have climbed with in the past.

Older and younger climbers alike perceive that the present day climber is often more reliant upon the protection offered by their kit. This was because reliable kit 'now' represented the norm. Older climbers are regarded as having better skills as a result of this particularly in relation to placing passive protection, and relying upon the protection it offers. Although younger climbers also valued the skills of gear placement, and the aesthetics of their safety systems constructed by the climb, they were happy to place cams first out of ease and speed. This has led to debates within my sample concerning authenticity of climbing experience.

As kit changes the socio-technical practices also co-evolve. There is both enablement and disablement as a result, as some socio-technical practices and competencies are lost whilst others emerge (Hand *et al* 2007). Newly introduced technology can 'shift out' practices from human intent to the mechanical domain (Latour 1992). Practices and competencies can be lost or changed by these shifts and assemblages change as new technologies are normalised (Shove and Southerton 2000; Hand *et al* 2007).

Technology also enables through protection, making what were regarded as bold routes safer. This is a feature I will pay closer inspection to in the next section but due to my artificial separation of topics some overlap is inevitable. Present day technology has allowed climbers to climb a greater range of routes, or alternatively have made established routes safer. Climbers' views on cams illustrate that the relations with their kit enables them, and that 'trusting' relationships develop through practice. Climbers' kit also involves other humans, most notably the belayer. Like the familiarity between kit and climbers that enables an ascent, familiarity between belayer and climber fosters a socio-technical bond and unspeaking relationship which can also produce confidence to climb.

Climbing is a highly skilled pursuit. However, it must be recognised that many skills are socio-technical and thus represent a negotiation between the skills of the climber and the skills of technology. These are co-produced through practice. The function of climbing kit is immanent to the practice of climbing - co-produced by the climbing assemblage. Like in other spheres of life if technology performs well, even if it is conspicuous, it can be rendered invisible (Michael 2000, 2001). Skills are also relationally acquired through climbing as an assemblage and the represents the

manner in which skill transmission has traditionally taken place. Climbing proficiency can only be gained through varied engagements with differing types of climbs with varying problems and rock types. Climbers also demonstrate that through familiarity and practice, their use of kit appears to become instinctual. However, although the competencies and skills that develop seem instinctual, rather they are learnt through practice (Ingold 2000).

Knowledge is power to the climber – they become enabled by their in-depth knowledge of the physics and mechanics of their kit. This knowledge is combined from instruction manuals and practice at the crag. The professionalisation of climbing, and particularly training, is changing the ways climbers are climbing with their kit. Non-standard socio-technical practices are not taught by instructors, and consequentially are being lost. Furthermore, climbers also fear that the replacement of the traditional climbing apprenticeship will threaten the culture of the pursuit.

The technologised practices shape the climbers' bodies especially the shoe clad feet which develop sores through the constriction climbers require to enable themselves as assemblages (Dixon and Whitehead 2008; Ingold 2004). Technology changes the body and the body changes technology (the rock changes both), together their properties and capacities are enhanced. However, technology both enhances and reduces sensations to facilitate the climb. Technology like the body is changed through climbing – for instance damage to a rope. This is evidence of the co-present spatialities and temporalities of assemblages (Michael 2006).

In sum technology plays a mediating role, whereby the 'equipped' climber, as an assemblage, is granted passage up the crag, making the un-climbable climbable. In line with this scenario I have illustrated that the material artefacts of climbing (like the climbing body), are plastic entities that are situational and contingent according to the relational practice in which they are enmeshed (Dixon 2006). In climbing and other spheres of life meanings and use values are not merely ascribed to objects, rather objects have agency as an effect of relations (Law 2002). These are relations that have the power to influence or enable human agency when rightly aligned (Callon 1986; Latour 2000). Thus following from Whatmore's (2002) hybrid geographical approach, I assert that climbing and climbing skills, practices and culture are the relational

outcome of everyday interactions between humans, non-humans and the environment they both engage with.

In the next highly related section I discuss the experiential consequences that changes have had upon the experience of climbing as a co-constituent actor amidst an array of technology. I will explore how climbers are corporeally enabled by their kit when the climbing assemblage is subject to the risks of the ascent.

Co-produced experiences of comfort, security and risk

6.27 Introduction

This section will examine the experiential aspects of the present day climbing assemblage examining the implications of changing socio-technical engagements. I have argued that climbers climb as constituent parts of climbing assemblages where technologies appear to seamlessly fuse with the body of the climber to enhance the climbing capacities. There is agreement that present day climbing kit has made the pursuit safer (Abramson and Fletcher 2007). However, despite technological innovations and the arrival of safe and reliable kit in conjunction accompanying socio-technical practices which allow *almost* risk free ascents to be made, present day climbers often prefer to align themselves with technology in such a way that the element of risk is maintained through climbing (Lewis 2004). However, risk is important to climbers.

> If you get to the top of a climb where you have pushed yourself and you *have* taken a risk it's a great feeling - you may as well be walking up stairs if you're *not* taking risks [emphasis added]. (Ron 41)

It is clear from the debates within climbing and the information divulged by my interviewees that technology can and does alter risks dramatically, which in turn affects climbers' ability to climb and their experience of climbing (Thompson 2010). However, on this aspect clarity is required concerning whether technology is extending the limits of the body (Whatmore 2006), or perhaps in some way adapting the climbing environment by extending what it is deemed 'safe', or at least less risky to climb.

Traditional British ethics embrace the unaided ascent where ropes and kit are supposed to protect climbers rather than aid them (Lewis 2001). Therefore, the ability of climbers is often defined more by psychological barriers caused by fear of falling rather than by physical barriers of strength or stamina (Thompson 2010: 267). It would be easy and perhaps necessary to impose a dualism to distinguish how climbers are enabled 'physically' and 'psychologically' by their technologies. However it is not so straightforward. For instance, although modern climbing shoes physically enable climbers, the physical enablement is inherently intertwined with psychological enablement, as climbers describe the enabling confidence that is provided by the properties of sticky rubber shoes and/or by the co-development of the shoe-climber-rock assemblage whilst climbing (Section 6.23).

Risk sets climbing apart from many outdoor pursuits (Csikzentmihalyi 1975), and overcoming risk whilst achieving an ascent in a safe controlled manner was regarded as an integral source of satisfaction amongst my sample. Without the risk, and the challenge of overcoming it, some climbers like Ron above saw little point to the pursuit. However, while relational theorists have examined the complex and entangled relations between culture, nature and technologies (Hinchcliffe 2007; Whatmore 2002; Law 2002; Haraway 1985), they are yet to address the conscious engagement with risky environments for pleasure and exhilaration. Risk is part of the practice of climbing. It is immanent and contingent rather than prior and independent of context. I propose that risk, alongside other experiences of comfort and security are co-produced in the relations between the climber, the technology and the crag.

Innovation and the use of climbing technologies are driven by the assessment and management of risk (Parsons and Rose 2003). Climbers are both risk takers and risk managers, their skills and judgements are integrated with their protective kit and immanent to the practice. Risk is produced through climbing relationally through the climbing assemblage and here I will explore how changes to the assemblage have altered climbers' experiences of risk. In the following section I will explore how climber's kit and practices with it mediates risk in line with their subjective climbing preferences. I will examine innovations which, for some are controversial, such as 'bouldering mats' as well as the standard use of ropes and protection. In addition to

this I will investigate the relations that develop between climbers and their gear and how these relations enact the climb by promoting comfort and security by mediating risk.

Figure 6.31 Bouldering above a bouldering mat

6.28 Modified environmental engagements: bouldering mats

An innovation that has caused debate among climbers in recent years is the bouldering mat (fig 6.31). These are large foam pads which are carried to the base of climbs to protect climbers from awkward falls and reduce the impact. Advocates welcome the reassurance and protection they provide and they have become common sights at bouldering venues. An additional benefit is that they are said to protect vegetation that can be damaged at popular bouldering sites. In contrast, others claim that they reduce the intensity of the experience, and some suggest that the grading, for technical difficulty and severity, of such routes should be reduced to reflect this (Section 6.14). Todd (40) told me:

> One of the big technological changes in the last few years has been bouldering mats. If you're climbing gritstone where things are very short, you can turn things from being leg breakers into fun things. There's climbs I would've done before mats came along as solos, I am very proud of them, I am so proud because I had such a strong experience from it, with bouldering mats they

> become a more physical thing, just something you did. You don't have to *travel* [Emphasis added] so far to get up it. There are also plenty of things that I would never had done, that I can now. They open lots of stuff up.

Todd highlights that bouldering mats allow him to go places and do things the he could not do before. Bouldering mats extend corporeal limits by modifying environmental engagements. His engagements are modified because mats reduce the risks posed by falling and this mediation allows the climber to perform competently without the burden of anxiety. In addition to this mats allow boulders to produce climbs where previously there were not climbs (or at least not climbs that could be ascended free of other climbing kit). Thus they do more than psychologically reassure the climber they have spatial implications concerning where climbers can climb.

Todd was also aware that bouldering mats decreased his 'experiential limits' and referred to "doing it on the cheap". This suggests that the temptation to reduce risks and heighten performance leads some to see themselves as "cognately corrupted" by this technology (Michael 2009: 92) and unable to act in its absence. The comfort and reassurance bouldering mats offer decrease the intensity of the experience and reframes climbers' tolerances to risk. Simon (41) stated bluntly that, "when risk is diminished experience is diminished". Consequently, in line with Ritzer (1993), for some, technology can rationalise the experience. Climbing experiences may change from 'flow experience' (Csikzentmihalyi 1975) into 'eco play' (Abramson and Fletcher 2007) as the intensity and seriousness of the pursuit decreases. This represents more evidence of the shifting form of the entire climbing network.

Furthermore, the knowledge and experience of a technologised engagement that represents a less risky safer alternative, may hold the climber back in future, when the enacting technology is not present. This may act as the rationale for the climbing community's characteristic hesitance, and resistance, to new climbing technologies, representing a fear that newly introduced forms of climbing kit will detrimentally alter the experience (Thompson 2010). Yet once the new technology is sampled a return to the past technologies and associated practices may not be deemed rational due to the greater risks involved (Section 6.19). This was certainly the case for Todd who told me that although he was proud of his past ascents without a bouldering mat he would not

climb such severe problems in the future without a mat due to safety concerns. However others felt they had to reassert risk into their practices because they had become *too* reliant upon technological mediations of risk, and this was debilitating their climbing.

6.29 Technological relations and risk

Examples, like boudering mats illustrate the reasons why claims are made that new climbing technologies are in some ways sanitising the environment and the pursuit of risk (Thompson 2010). The history of the pursuit is marked by debates about the release and uptake of technologies that were perceived to lessen the intensity of the experience of climbing (see Chapter 3). However, despite this, during my interviews, there were few technologies that climbers said they would not use at the crag, as long as they did not damage the venue. The one exception was very large cams which climbers felt were unpractical to carry and 'embarrassing' to use. Mat (32) said "they're okay for a big wall ascent in Yosemite, but would make you look a complete and utter twat at a single pitch crag in the Peak [District]". Thus rather than having a technological boundary which they would not cross for fear of reducing risks too much and tarnishing their experience (Lewis 2004), the climbers I interviewed had a socio-technical boundary where virtually all technology was welcomed, but was aligned in a manner appropriate to their experiential climbing goals.

The climbing assemblage produces the climb and also produces the risk of a climb as a particular property of the relations. Several of the climbers I interviewed compared how their relations with outdoor kit for other sports, differed to their relations with their climbing kit. Gary and Conner both climbed and mountain-biked but thought they had a greater understanding of, and protective bond towards their climbing technology, than their bikes. This, they suggested was due to the greater risks of climbing in contrast to biking. Thus, as the two quotes below illustrate, whereas gear on their bikes was sometimes left dirty between use, and allowed to wear and degrade, their climbing gear was kept clean, oiled and well maintained.

> I am a mountain bike leader and a BCU coach. I don't look after that equipment as well as I do my climbing stuff that's for sure. I suppose your life isn't resting

> upon your in depth knowledge of how your suspension forks work, as it *is* on how a cam works. (Gary 30)

> I won't compromise with my climbing gear but I don't maintain my mountain bike as well as I should do. I don't know why. Why is that? I guess I think I won't kill myself mountain biking I'll hurt myself but that's alright, I could kill myself climbing! (Conner 23)

This high level of care for climbing gear was evident throughout my sample with all the climbers ensuring that their gear was clean, dry, sorted and well maintained at the end of a day's climbing. To these climbers their gear was valued because it mediated potentially life threatening situations. This was a strong sentiment amongst every one of my interviewees when discussing the bonds between themselves and their climbing gear. Even those who did not feel any sense of emotional attachment towards their kit valued its life-preserving quality and, as a consequence, they maintained it to a high degree.

This appreciation of the risk mitigation role of gear also effected climber-gear relationships, particularly whilst climbing. Knowing their gear was well maintained and safe for use prevented climbers worrying about it as they negotiated the ascent. Nigel (53) discusses this point in relation to his ropes:

> Ropes have always been really important to me and I have replaced them really regularly, at least as often as the guidelines suggest. I keep them clean and dry at all times. In terms of makes I have come down to Eldrid and Adelvice and I don't tend to stray from that anymore. I've got a beautiful pair of 50 metre 9 millimetre Eldrids at the moment which are just great, they handle so well, they have huge fall factors they're fantastic. I need to know that the kit is safe and that I am safe to climb well - then I don't need to think about it, I can focus on the climb.

Nigel's stringent care for his ropes gives him confidence in them and allows him to focus upon his climbing, rather than whether his kit would work in the event of a fall.

Given the value climbers placed on the safety of their kit, and their appreciation of how gear functioned at every level, it was paradoxical to discover that their gear *also* gave them confidence when it was knowingly placed in poor or marginal placements that provided little or no protection. Climbers referred to this as placing 'psychological protection', this is, gear that was very unlikely to prevent a fall, but its presence still offered the climber a psychological boost that allowed them to continue. This is how Mat, Jez and Mick explained their use of psychological protection:

> I often place psychological pro. I know if I fall on it, it will rip but what can you do? I have a mental trick though, when I clip my rope I let the gate on the karabiner click, as hard, and as loud, as possible, and that is the mental trigger, that says, I'm safe, my gear is working, climb on, it's scary but it works! (Mat 30)

This is another example of technology communicating. However in this example the functional sound of the karabiner's gate is used to infer that the climbing assemblage is safe to continue. The assemblage is not deemed safe but technology enacts nevertheless.

> The thing with placing gear is to be absolutely honest about what's going to hold and what isn't, or what the limit is, it may hold me falling from five feet it won't hold me falling from 10 feet. And I think just being very honest about that, there's a value in placing gear just for psychological reasons just to make myself feel better. Cause that can help, even though I know at the same time it is not going to hold if I fall on it, at least I feel as if I've got something in. (Jez 38)

For Jez, feeling insecure with technology made him feel safer than without it. But for Mick (45) below the slightest sense of socio-technical security can be all it takes to make the next move:

> I have been known to put gear in that is absolutely atrocious, but you think just because you have a piece of gear in then it helps you move on. I did one climb where the only gear I could find was a little pocket and I managed to put a cam in which only had two in, you know they normally have four, just like that [Mick uses his hands and my number two cam to show the size of the pocket and how he precariously placed the cam] just tiny it was, and it came out as soon as I put

any tension on it, but it just got me on to the next bit of gear.

Mat, Jez and Mick are enacted by their gear and the enabling relations that they generate as part of the climbing assemblage. Even though it is not physically protecting them their gear allows them the confidence to move on. Also, when Mick states that he is trying to get to the 'next bit of gear' rather than saying that he is moving between holds, this becomes demonstrative of the importance of technology as an enabler. This further illustrates the influence of gear to enact, rather than the rock or the climber who directs the climb.

These examples also confirm that behind every habitual use of gear lies a matrix of relations, to justify and enable the climb. As the gear is placed a new relation is produced depending on whether its placement is 'bomber', 'okay', 'suspect', 'iffy' or purely for psychological reasons. Each gear placement is different as each relation of risk, body technology and rock condition is different, one day a cam placement may be 'iffy' the next day for another climber it might be 'okay'. Thus it appears that differing types of climbing gear becomes as Michael (2006: 33) terms "mundanely manifested" in the socio-technical assemblages of climbers. He explains that:

> Technologies are not simple intermediaries, but also messengers that subtly alter their messages, and this alteration is mediated through the ways in which they enter into, sometimes unexpected, relations with other human-non-human ensembles. (Michael 2000: 25)

In accordance with Michael's study, first, changes in the design of technologies will alter how they mediate climbing. Second, specific situated relations (of familiarity; reliability; unreliability; fear; safety) between the climber and their technology will be sustained in future relations. Third, changes within the climbing community about the acceptance, or not, of certain climbing technologies will inflect these relations. This is also similar to the claim of Hand *et al* (2007: 280), that "technologies and practices co-evolve", and although their work is based on the domestic sphere, it usefully demonstrates how changes in practices lead to changes in technology and vice versa. This is a feature that is shared by rock climbing where the technologies and practices co-evolve through time, but also in the moment as the climb is produced.

6.30 Co-produced experiences of risk

Traditional British climbing was predicated on the orthodoxy that 'the leader must not fall' (Well 2001). However, changes in climbing technology have enabled climbers to challenge this position. Some climbers consider falling off as indicative of effort and pushing personal boundaries. This indicates a co-emergent shift in the security of climbing kit as well as ethics. However, the majority of climbers I interviewed were perplexed by the notion of 'falling off a climb' being positive, as it undermined their trad ethic and liking for self preservation. Although few had reservations about weighting the rope if required, an actual fall was indicative of losing control which was at odds with their desired aims and outcomes from the pursuits (Robinson 2008). Leo (28) explains his view:

> I don't believe in this business of 'if you're not falling off you're not trying hard enough'. I suppose it depends what you want. It wouldn't be a success for me. If I fall off a route then it is a failure, really once you have weighted the rope like that, there have been plenty of occasions where I have had to lower off on gear and things, but taking a big lob [fall] is definitely not what I am after. I have been in the position where it could have happened, where things haven't quite turned out as I had hoped and expected, I've misjudged things, but generally to me it's to climb close to the limit of your ability, but to be in control. There is no pleasure for me personally when things start to go out of control. I know some people thrive on that, not me though.

I interviewed climbers at all levels of climbing, from beginners to professionals. The sample also included differing ages and genders. However I didn't find anyone who considered themselves as reckless, or a thrill seeker - although non-climbers might consider theirs to be extreme activities. Megan (23) outlines that risk is very much a situational and subjective concept:

> Climbing doesn't have to be risky. There are people who take it to the cutting edge and there's people who take it to the cutting edge for them personally, but it doesn't have to be, I mean it's a lot safer than a lot of things I think. You take the right precautions and whatever. I mean soloing I would class as an extreme

> sport and I would say that it wasn't safe, but a soloist might disagree. But I think that climbing can be a safe as you like, it depends where you take it I think.

Megan explained that what is regarded as risky by one climber may be safe to another. Notions of risk are dependent upon the individual and their perceptions rather than what those beyond the climbing network project onto these activities (Palmer 2004).

Nevertheless, the risk of rock climbing remains present in the pursuit, and mitigating risks is a major role of the climbing assemblage (Parsons and Rose 2003). Climbers placed more or less gear according to how they felt on the day about their climbing and the risks. Nick (55) discusses:

> Some people place a lot of gear because they feel at risk. But a lot of that is to do with whether or not you are feeling confident, rather than whether there is real risk. So if you are feeling confident you can go and solo something that is quite hard. But if you are not feeling confident and you try and solo something then you feel the risk enormously, in fact it can then make you more at risk of actually falling off, of course, as you get stiff and tense and all the rest of it.

Even when climbers were feeling confident and less vulnerable, risks remained a constant companion on the climb. Penny (30) told me "even when I climb regularly risk never leaves my head". She felt, as others did, that feelings of risk and insecurity were vital to maintaining safety. Therefore, following Van Loon (2002) (Section 4.14.4), could we call the constant companion of risk a 'virtual actant' applicable in the context of the climbing assemblage? We can say that risk is ever present whilst climbing – the rope *could* snap or the climber *might* fall - but it is contingent to the actual situation and co-produced within the climbing assemblage.

For Van Loon's conception of risk as a virtual object to be applicable and acceptable, risk would have to be constant and always present to the same degree. Perhaps rather than risk itself, it might be more productive to conceptualise gravity the constant risk-producing virtual actant (although the effects of gravity would again be contingent to the climber's situation). Neil's (34) quote emphasises that risk is not a static concept – rather it is situational, contingent and related to the climbers' assemblage and their

confidence in that assemblage – as well as their emotional state concerning their ability to climb.

> I feel very uncomfortable not wearing a helmet because I have two fears. One is something hitting me on the head which on a lot of gritstone crags is unlikely but the other - I have this terrible fear and it has never happened to me but you read about it. It's where people are leading and fall off and as they fall they get their leg tangle up in the rope and end up flipping backwards and hitting the back of their heads. I just think where your helmet's not going to help you if you have a full ground fall it will certainly help if that sort of thing happens. (Neil 34)

Van Loon's theory does not work in this situation. This is because Van Loon's reading of a virtual object is different to Mol's (1998). She suggests the term 'virtual object' can be applied when the presence of an object (in Mol's study an internal medical condition) is physically apparent via consistently identifiable symptoms - even though it still cannot be directly observed. The risks within climbing are highly variable and the use of technology increases this variability. Yet the data from my interviews suggests that, like other aspects of climbing, risk is a co-produced feeling dependent upon the alignment of the climber as an assemblage of the contingent situated act of climbing amidst the heterogeneous relations of the climbing assemblage. Therefore my assertion is that risk *is* part of the practice *not* prior and independent as Van Loon (2002) asserts.

6.31 Risk, comfort and security

My interviewees suggest that climbers have a sagacious awareness of the risks they take whilst climbing – the choices that they make are part of the assemblage that produces risk. Although he didn't consider himself a 'high' risk taker, Jez engaged in several risky pursuits including paragliding, base-jumping in addition to climbing. He was extremely succinct in his awareness and description of the risks involved in climbing.

> I have taken risks but always within what I would consider to be acceptable risks. And the risk particularly in climbing which is skill based, the risk is moderate. You have *objective risks* such as weather or rock fall or gear failure, but a lot of

> *subjective risks* that are due to skill at climbing, skill at placing gear, reading conditions, knowing when to turn back and when to carry on. Those modify the overall outcome. I would certainly never think I've taken what I consider to be an unacceptable risk, I always based my risk on what I think I cannot get away with, what I can do to safely get out of if I needed to. (Jez 38)

Objective risks relating to gear failure such as ropes snapping or karabiners failing were considered a rare occurrence given the reliability of present day kit. It was 'subjective risks', the risks that climbers expose themselves to, that presented the greatest barriers.

Climbers liked to be in 'control' of the situations they found themselves in whilst climbing, and to be protected from subjective risks by the gear that they placed, securely. Simon (41) explains the comfort he derived from well placed gear:

> Well if you can get a big hex in that's always really comforting. I always take quite a lot of slings, probably a lot more than other people, if I can find a nice big natural spike, getting a sling over that makes me feel comfortable as well. I guess in terms of protection I like things that make me feel secure, make me feel safe. If I can, perhaps everyone would say this, but if I can use a bigger piece of gear I will always hunt around to use a bigger piece of gear rather than the easy little wire, perhaps if I have got time.

The greater the reliability of climbing gear the greater the climber's confidence that it will not fail if called upon, thus reducing feelings of subjective risk.

As Simon's quote illustrates, the word 'comfort' was often used for describing the security the protection gave climbers from risk. Mat's (32) quote below explains how, he also felt comfortable and confident climbing close to his gear.

> There are objective and subjective risks in climbing. So there are definite objective risks in terms of loose blocks, especially multi pitches or mountain crags after the winter we've had. But I am actively at the moment forcing myself to take subjective risks, because last year I was degenerating into a climber who would push himself technically, but would only ever do so with gear above my

> head, and so I am actually trying to go the other way round and say I need to expose myself to risks. So I need to do some of the risks that run out I need to do that, and some of that comes back to doing things like soloing, doing that below my limit.

Mat was aware that risk and technology were bound together in his climbing practices. He felt he became dependent upon this comfort level and as a result his climbing was hindered by a fear of subjective risks. His dependency on the security of his climbing kit made it difficult for him to climb above where he had placed protection. Mat felt that his reliance on kit had increased his susceptibility to subjective risks, and considered that this was limiting his ability to climb at a higher grade. Mat (32) explains this further:

> For the purpose of pushing my grades higher by making the easier sections more relaxed on hard climbs so that I can then concentrate on the hard bit. Cause if I am used to soloing severes, then it means that I can chill out on the 2/3s of the route that lead up to the steep route for example, and only worry about the roof. Or then when you pull onto the roof and there is an easy slab above but you haven't got any gear in other than what you have put in going through the roof and there is nothing on the easy slab, you can go, 'that's fine I was soloing this sort of grade that last week, nothing is going to happen'. That had become what was paralysing to me. I'd do a hard section and not be able to finish an easy section without gear.

Mat recognised that the relations of the climbing assemblage were rationalising his experience. However, as an actor within his climbing network Mat was free to alter its alignment reinserting different levels of risk. He did this by soloing (climbing without protection) easier climbs and getting used to being on the crag whilst not reliant upon the security provided by protective gear. By co-creating more risk within the climbing assemblage, and becoming familiar with it, Mat was able to reduce his dependence on kit. He had retrained his relations as a climbing assemblage – attempting to make the co-produced risks of climbing routine and standardised to improve his grade (Robinson 2008).

Mat felt that by soloing easier routes he was reducing his dependency on technology and by doing so increasing his tolerance to subjective risks by boosting his confidence. Paradoxically for Mat, his confidence in his gear made him feel more dependent on it. However, for others the greater performance offered by new technologies made climbing safer particularly when within their limits.

The technologies that co-produce the climbing body and the climb have, for some, led to a safer more predictable pursuit – despite its inherent dangers (Abramson and Fletcher 2007). Technology may make climbing safer for some but there will always be those who want to push limits further (Thompson 2010). For these climbers technological innovation extends the 'sphere of safety' and represents a chance to move beyond the current level of achievement and to test the full potential of technological improvements and bodily limits. Paradoxically for those climbers wanting to push their limits the greater safety and aid provided by new technologies could lead them into situations of greater risk. John (40) illustrates this point:

> I'm getting used to relying upon a shit-load of new gear at the moment - micro-cams, light-weight dynemas [slings], ultra light krabs [karabiners]. The micro-cams in particular have extended the routes I can protect. I'm climbing routes that I wouldn't have attempted before. Am I taking anymore risks because of that? I'd say I was purely because I wouldn't have climbed them otherwise.

So both the micro-cam and the bouldering mat (see section bouldering mat) are extending the sphere of what is deemed safe by the climber, and thus also the sphere of climbing practice to otherwise unattainable routes. This again demonstrates that both the body and mind are in the climbing assemblage producing risk and practice. It is the heterogeneous relations within the climbing assemblage which determine how practice and risk are co-produced. However the constraints of our modernist binary comprehensions of the physical and psychological make these highly contingent interdependent co-creations difficult to articulate. A legacy of how binary presuppositions, such as body and mind, and nature and culture, are entrenched in modern day thought and social consciousness (Murdoch 1997a) (Section 4.3).

6.31.1 Comforting kit

Previously I drew attention to new materialist thinkers notably Miller (2008) and Turkle (2007) (section 4.6.1). Their insightful research demonstrates how material artefacts developed agency through relations bringing comfort to the lives of the people in their respective studies. Similarly the artefacts of climbers brought comfort to them as they climbed. This is self-evident given that the artefacts I am discussing (climbers' kit) are largely designed to provide security and protection whilst climbing – this is true. However, the comforting role of kit is not always blatant. Climbing kit (as with any material artefact/s) cannot be regarded as solely acting in terms of given prescribed functions (Latour 2004). Returning to the example of 'Mr Stripey' from the introduction of this chapter, we see an object with no functional climbing value in technical terms. However, it is used by one of the UK's leading climbers to achieve his many summits. What tends to be either forgotten or overlooked is that irrespective of a given or prescribed function, climbing assemblages are unique and performed in different ways (see also Lorimer and Lund 2003).

Earlier in section 6.22 (co-evolving with assemblages), I mentioned how older climbers valued and enjoyed placing nuts, and felt that they could rely upon this. Such a trend resonates with Miller's (2008) findings that, long established material routines, that become familiar and repetitive to people, may also bring them comfort. This could represent part of the rationale why younger climbers felt more dependent upon their cams. Through relations that occur within the climbing assemblage actors become interdependent. They exchange and enhance each others' properties (Latour 1999). This mutual exchange and co-evolutional relationship is difficult to isolate in relation to climbing gear, particularly given that the co-produced agency is a result of relations during the practice which enables climbing in every sense.

The close relationships between climbers and their kit resonate with Haraway's (2008) insights concerning companion species. Haraway spoke about becoming worldly through her subjective co-constituted relations with her dog. She argued that she became drawn into a "multispecies knot", through touch and reciprocal action (*Ibid*: 35). Climbers have pet like relations with their kit - they are protective of it, they look after it, their relations with it are tactile. Kit reciprocates by looking after the climber on the climb. The application of Haraway's ideas helps is explore the deep significance

that non-humans add as co-constituents in all aspects of our life, and especially to climbers. In the next section I delve further into the relations between climbers and their kit examining the differing ways in which artefacts enable them and become symbolic of something greater than its 'given' function within the assemblage of climbing, for instance through regimes of preparation.

Figure 6.32 A chalk veiled hand crimping the rock

6.32 Regimes of preparation: enabling relationships and rituals

This chapter previously highlighted the regimes of preparation undertaken by climbers to condition their bodies to be able to withstand the extreme forces that climbing places upon them. A regime of preparation was also evident in relation to several differing pieces of kit. This regime was marked by socio-technical rituals that were undertaken with kit before and sometimes during each climb. Although each ritual performed a function that was in some way necessary for the climb to be undertaken, each ritual also contributed to the so called 'head game' of climbing. Latour (2000: 20) claims: "Bring your attention to bear on hard things, and see them become gentle, soft

or human". His quote is illustrative of my findings in this section exploring how through the internal relations of the climbing network, the hard artefacts of climbing became actors capable of enacting agency related to emotional support rather or in addition to physical function.

The most blatant of these rituals was chalking. Climbers referred to 'chalking up' before attempting to climb – the function of this is to increase the friction of the hand and fingers on the rock by drying the sweat from the hands (figure 6.32). However, the climbers I spoke to admitted to "abusing the chalk bag" (Beth 36) whereby they used excessive amounts, or used it when it was not really required. This was a climbing ritual that was undertaken to prepare and enact the climbing assemblage, often after all other preparation such as racking of gear, and tying into the rope. Gavin and Sue below explained why they chalked their hands before a climb:

> Chalking up is just something I do, it's almost unconscious, I'll never forget to do it. By doing it I'm telling myself this is it, it's time to climb. It focuses my attention on what I am about to undertake – the next thing I do is step onto the rock (Gavin 26)

> Climbers are like sumo wrestlers and salt, they cover themselves up to their elbows in the stuff, it leaves a mess everywhere. You definitely don't need that much but I admit I will use it even if I don't need it – it's part of my mental preparation and makes me look hard!? (Sue 24)

Both Gavin and Sue failed to mention the intended purpose of using chalk - for them it appeared that the primary purpose was indeed a 'regime of preparation' for the climb that enacted and enabled the pursuit.

There are other examples of rituals and regimes undertaken by climbers with differing bits of kit. Alex's ritual concerned his climbing footwear and for him slipping his heels in and out of his boots signified the start of an ascent as well as the finish.

> I always kick the heels of my shoes off after a climb - they get tight and sweaty so I enjoy the temporary relief. Grabbing the tab on the back of my heel and pulling

them back on is literally the last thing I do before climbing again. That's my ritual – my feet are hurting again it's time to climb. (Alex 28)

This ritual was mentioned several times as a way of mentally preparing for the climb - an activity that signified the change of state from ground-dwelling spectator in to a climber. Tim (38) also had a footwear-related ritual which involved removing any dampness or debris from his shoes on an old carpet sample which he carried with him to the crag.

Before a route even an easy warm up climb I meticulously remove any debris from my shoes. I carry this mat around with me [Tim reveals a filthy and worn carpet scrap tucked in the fold of his bouldering mat]. Yes I know it probably makes them dirtier [laughter] it's one of those mad things.

Paul: Have you had the mat a while then?

I had it since I started bouldering getting on for 15 years ago. Shoes, pads and brushes have come and gone but this fella has stayed with me. My lucky charm – I dread losing it. My climbing ability is tangled up in silly stuff like that.

Tim, like other climbers that I interviewed, recognised that climbers climbed as part of an assemblage of things - each of which played a role even if that role seemed unusual. This again emphasises how agency and enablement in climbing is due to the relations that exist, and are repeated and reinforced, in the climbing assemblage. Nick (55) a climbing instructor, recognised how his kit enacted him as he taught people to climb:

I have a work helmet and it is like a change of identity thing, it is a big old GB Kevlar helmet it's dead uncool but it has a nice big brim round it for keeping the rain off, and what I have found is that almost on a unconscious level if I put that helmet on I do feel different because I am in work mode, I will even tie my knots differently … one of my sloppy habits is that my figure of eight, I will normally finish it off not with a stopper knot but by rethreading the tail through the knot, because I find that really compact, but I won't ever do that when I have got my helmet on because I am working, because if I teach somebody to do that and they get it wrong and they partially untie their figure of eight then they could

hurt themselves. So my work helmet is a peculiar thing in that it changes the way that I climb and the way that I behave.

Nick's role as a climbing instructor made the way his helmet affected him more apparent. Thus demonstrating how through material relations people and objects form active 'lasting' partnerships (Turkle 2007). For Nick, the change in his climbing was stark, whereas with others the enactment and changes in behaviour as a result of kit mediation were more subtle.

6.32.1 Symbolic enabling relations

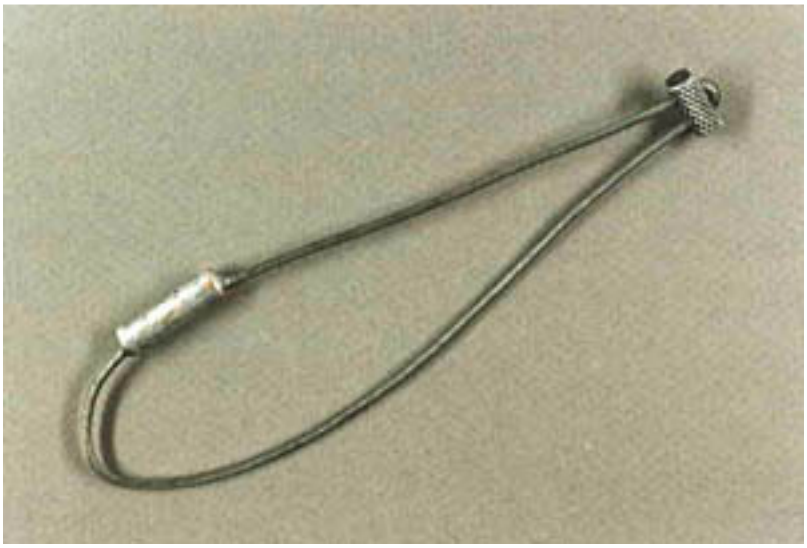

Figure 6.33 'Peck Cracker' (Source: Pennequin 2001)

I have highlighted that a major aspect of the bond between climber and kit was due to its role as a protector that concurrently and interdependently mediated climbers' actions and emotions. This bond was intensified especially if a specific piece of gear prevented a serious fall from occurring, as had happened to some of the climbers that I interviewed. In consequence, the gear often gained greater significance on the climber's rack, becoming symbolic. Several of the climbers that I interviewed had a 'lucky' piece of gear which had derived its value in this manner. Phil (66) had a 'lucky' nut that had saved a large fall and below he explains how it became significant and even symbolic to him:

I was on a route and it all went wrong I ended up traversing away from my gear and eventually came off. As I fell I caught my leg in the rope so I swung upside down and clattered into the rock. I remember it 'cause when I got to the bottom

> my belayer was annoyed cause the rope had whipped across his face taking the lit cigarette from his mouth 'you owe me a fag' is all he said as he lowered me to the ground white-faced, bloody and semiconscious. It was a 'Peck Cracker' [fig 6.33] that saved me. You probably not heard of them. It's like a little knurled nut on a really thin line sling. It was a Peck, Trevor Peck made them, all it was, was a round piece of metal and it was knurled, it wasn't hexagonal or anything it was just knurled, it was rough and the wire went up and down through two holes in it. After the incident I placed it on every climb for luck... I was compelled to do that for many years.

Symbolic artefacts became paired with symbolic practices which reinforced the connection and enabled the climber. In Phil's case it was the intense experience of the initial fall that produced his strong relational bond, whereas Nick developed his symbolic relational bonds with his helmet over time.

From Kenton Cool's knitted mouse Mr Stripey, to Nick's helmet, and Phil's 'Peck Cracker', all climbers' gear, no matter how mundane or sophisticated, played an active role in the pursuit of climbing – providing ability, confidence, comfort and security against the inherent risks that were close to the minds of most climbers. My interviewees' artefacts and the practices that surround them became valued through past relations, and like Miller (2008), I found that we cannot assume the genres which constitute such relations nor the value individuals place upon them.

My arguments here counteract claims that technologies overtake lay persons' understanding of the principles of their functioning (Shaw 2008). Rather in climbing there is a situation where technologies through climbing are propelled in status and agency that far exceeds their 'intended' ascribed use values. These examples illustrate that we should not only consider the more-than-human, rather, we should examine the more-than-technical or preferably remove the modernist dualistic assumptions that we have bound the terms in (Murdoch 1997a).

6.33 Summary

This section has explored climbers' notions of risk and how they are mediated by the technologies of the climbing assemblage. Climbers seek to retain a level of risk as a

desirable experiential element of their pursuit. However, they like to be in control of the risks that they court. This control is often negotiated in conjunction with their technology. Innovation is driven by risk control (Parsons and Rose 2003) and it could be argued creates risk where experience once was in line with Beck's (1992) theory of 'reflexive modernisation' (see also Pantzar 2003). There is agreement that technology has, and continues, to make climbing safer (for most), and that it is changing the experience of climbing.

Bouldering mats control and mediate risks by modifying the climbing environment. This produces a larger sphere of safety, in which climbers feel able to climb. Risk can also be mediated by using new technologies such as micro-cams that also allow previously un-protectable routes to be ascended. The addition of this kit to climbers' socio-technical assemblages creates new technologised geographies of climbing. However, in conjunction with other socio-technical changes within the climbing network they have led climbers to question the validity of their grading systems because climbs now appear to be easier. They also lessen the intensity of the experience and achievement. Nevertheless climbers continue to use them succumbing to rationalisation and safety, at the expense of risk and experiential rewards.

Thus it could be argued that climbers' experiences, like those in other spheres of life are being increasingly rationalized by technology (Ritzer 1993; Donnelly 2003). This can lead climbers to become dependent upon technology in order to provide enhanced levels of comfort and security. This may leave them unable to act without its presence, a feature Michael (2009) terms, cognitively corrupt. Abramson and Fletcher (2007) question whether climbing still represents a true 'flow experience', rather they suggest it constitutes a less serious classification of engagement. Some climbers react against this situation and set out to reprogram the relations of the climbing assemblage. They do this by realigning their socio-technical practices in such a way that encountering risk becomes more familiar and doesn't inhibit their ascents. However, there are few technologies that climbers refuse (within ethical guideline) despite widespread debate (Heywood 2006; Lewis 2004).

Lewis' (2001) arguments from Chapter 4 (Section 4.5.1.) concerning climbing providing significant moments, through the possibility of death, did not resonate with my

interviewees. Risk of injury or death was seen as a sign of climbers' failings, not successes. My interviewees did enjoy the 'risks' they took, but only when they were 'managed' and 'controlled'. My interviewees also asserted that technology has improved safety for sport and trad climbers alike. Hence the reduction and analysis of climbing according to this binary, alone does not help understand what is happening to the changing sport of climbing, notwithstanding climbers' socio-technical, philosophical and ethical approaches to the pursuit (Lewis 2001, 2004; Donnelly 2003; Heywood 1994).

The risks of climbing give climbers a greater appreciation of their kit. In comparison to less risky outdoor pursuits climbers take care of their kit and have strong bonds with it. They develop close relationships and subjectivities with their kit. These co-constitute individual agencies amongst the climbing assemblage that enable, notwithstanding prescribed functions, for example, what climbers term 'psychological protection'. These socio-technical practices are bound up in matrices of relations. They are unexpected outcomes of technical (inter)mediation (Michael 2000) and evidence of the co-evolution of people and their technologies (Hand *et al* 2007).

The safety offered by climbing kit challenges the established culture of British climbing making it safe and acceptable (for some) to rely upon kit during the ascent. However, technologies' risk averting agency is variable in response to the socio-technical methods and preferences of the climber/s. Technology plays a key role in comforting and securing the climber in the face of risk. Through the repetition of technologised engagements familiarity develops providing comfort to the climber. Furthermore close personal relationships are established between the humans and non-humans which are reciprocal and provide meaning (Haraway 2008; Miller 2008; Turkle 2007).

This section has also questioned the merit of Van Loon's (2002) proposal that risk should be materialized for analytical purposes. However, I have found that doing so fails to account for the contingencies that surround the co-construction of risk. I propose that risk is co-produced during the climb and is a direct consequence of the mediated engagement.

Kit helps climbers overcome debilitating risks. Enabling relations with kit become manifested in the socio-technical regimes of preparation that help climbers focus and climb. To these climbers their kit becomes part of their climbing identity and can shape their practices. For some, pieces of kit can become symbolic and bestowed with agency and significance above all else within the climbing assemblage. In response to risk climbers become more-than-human and likewise their kit becomes more-than-technical.

Co-producing the crag

6.34 Introduction

The crag is implicit to all my chapters as actor in the climbing network, and within this section I consider how climbing shapes the climbing environment and co-produces changes in the crag. Although climbing ethics promote that 'the crag should be left as it is found' it is inevitable that the practice of climbing will change the crag. I will discuss how these changes occur both through a climbing centric definition of the appropriate condition of a crag, and through climbing as an assemblage at the crag. I then finish by discussing how climbers' close relationships to the places where they climb foster a sense of obligation concerning their environmental stewardship.

6.35 Conditioning the crag

The condition of the crag is vital for climbing as it affects safety, grip and access. The most deliberate measure taken to keep crags in condition is the formal 'crag clean-up'. These are undertaken by individual climbers, climbing clubs, land owners and the BMC. At the largest scale, trees that are overhanging crags and/or preventing access are felled or pruned to allow climbing to continue. A recent example was at Kaley Crag in West Yorkshire, where following Environment Agency guidance a team was put together by the BMC with the purpose of removing Himalayan Balsam, an invasive weed that was encroaching upon the climbing areas. During crag clean ups loose blocks are removed and vegetation may be removed from the rock face. These formal and planned activities keep the crag in 'condition'.

Climbers also informed me how the act of climbing kept the rock, and the routes, in condition. The traffic of climbers removed lichens and mosses and kept down other vegetation growing out of the crag. The passage of multiple climbers also removed any remaining loose debris present on the crag. One interviewee took me to a crag that had fallen out of condition through under use. As I spoke to him he ripped ivy from the limestone face (with permission from the landowner) in order to begin the process of making it climbable again. This encounter emphasises that the 'condition' of the crag is defined as, through, and by, climbing not for anything else.

Rock climbing is also highly affected by the weather. First and foremost rock climbing shoes do not grip on wet rock. This renders the majority of rock climbers fair weather athletes who retreat indoors or are limited to the few overhanging or sheltered crags that remain dry during wet weather. The weather can also have longer lasting impacts upon the rock with periods of particularly wet weather increasing the presence of slippery lichen. Adrian (41) explains this:

> Brimham [Rocks, North Yorkshire] rocks was ever so green the spring before last. The previous summer had been wet and it had also been a wet winter. There hadn't been much climbing at all on the less popular routes. Some routes didn't come into condition until much later in the summer than usual.

The weather played an important role in the ongoing condition of the crag and without the traffic of climbers, wet conditions allowed lichens and mosses to re-establish themselves on the rock. Consequently when the weather is dry the rock remains green and friction between rock and shoe is reduced.

Wet weather can also weaken some rock types such as sandstone, leaving them susceptible to abrasion or snapping. This is a problem that is particularly evident at the Bridestones, North Yorkshire. At this crag the BMC offer access notes telling climbers not to climb in the wet nor use ropes on the erosion susceptible routes (www.bmc.org.uk). In this instance the qualities of the rock influence and enforce climbers' socio-technical practices. The gritstone and limestone edges of the Peak District and Yorkshire are also susceptible to the effects of the weather and the freeze-thaw cycle that can loosen blocks of rock, thereby altering the route (Langmuir 1995).

Although hot dry weather helps condition the crag by preventing the growth and spread of lichen it can also have negative effects on climbing. This is because heat softens the rubber on shoes making it harder to grip very small foot-holds, it may also make the feet of climbers swell affecting their feel for the rock through their shoes. Sweating hands in summer also makes it harder to hold slopers (Section 2.3.3) due to sweat, necessitating the use of more chalk (Berry and Arran 2007). Gritstone affords its best grip in the winter when friction between shoe and rock is greater, slighter crimps

can be achieved and slopers can be held by sweat free hands. Thus weather and rock become integrates into the climbing network as influential actors.

Other non-humans were also involved in defining the condition of the crag, most notably nesting birds. These breeding routines of bird bought other socio-temporal factors to climbing. Climbers are dissuaded from climbing near birds nest by 'seasonal climbing restrictions' put in place by the BMC (http://www.thebmc.co.uk/Feature.aspx?id=1149). These restrictions are documented in databases that climbers can access whilst planning their trips (https://www.thebmc.co.uk/bmcCrag/). Climbers also found it advisable to avoid certain birds who would seek to repel them from coming close to their nesting spaces, placing both the bird's offspring and climbers in danger. However, in most cases climbers and birds co-exist well and sometimes climbers became involved in their conservation. For example, the most popular site within my sample area, Stanage Edge, in the Peak District, has seen a number of successful breeding seasons for ring ouzels, a species of bird in national decline. This has been aided by climbers in conjunction with English Nature, the RSPB and the Sheffield Bird Study Group. This is evidence of the subjective and co-constitutive relations between human and non-human species (Haraway 2008).

In addition to keeping the route in condition the traffic of climbers also produced wear on the crag. It is common at climbing sites to find areas of polished rock on the holds of the popular routes and Stanage in the Peak District, and Almscliff in North Yorkshire are notable for this. This is caused by the abrasion of holds from the sticky rubber soles of climbers as they attempt to ascend. The polished nature of the rock at such sites ensures the climber has to take a cautious approach in order not to slip off the hold.

Climbers also disclosed to me that the repeated use of gear placements also wore the rock. For example, Gemma (29) told me:

> In Northumberland there's a particular route that has a 2.5 friend placement, and it's clearly been you know it's a horizontal crack and you put your 2.5 friend in it and it fits perfectly. It never used to be like that it's just because so many people have put a 2.5 friend in it that it has worn away the rock around it

> [creating a hollow]. But what can you do about that. When you get to that point you're not going to not put a 2.5 friend in there because it a perfect place for it, you know, so you are probably contributing to but… oh well.

Climbers acknowledged that their activities eroded the rock to some extent but couldn't envisage a way that this would change. However, they did consider that the greater popularity of the pursuit had caused issues of erosion both to the crag, and surrounding area (base of climbs and footpaths to climbing areas). Climbers also feared that greater numbers of climbers making top rope ascents rather than trad lead ascents intensified the problem of wear on popular routes. This was a further particular problem at 'road side crags'.

In a similar vein climbers were critical of 'too much' top roping outdoors and considered that it was influenced by the growing number of climbers who had started to climb at an indoor wall and did not have the appreciation for the sports ethics and history. They felt top roping routes not only eroded the route at a greater rate but also threatened the traditions of the sport.

> …someone goes out there and sticks all these top ropes in place, books all the pigging routes for the whole evening *come on*! It's rude and the increased traffic trashes the route for others. The people climbing it get a far lesser experience [than a trad lead]. What's the point? (Colin 55)

Some climbers were vociferous about what they felt to be a threat to ethics, experience and ultimately the quality of the rock that they climbed. Although roadside crags had become increasingly busy Keith and several other climbers had noticed a trend whereby mountain routes which required a long walk-in were becoming less popular. As a result of this many had fallen out of condition exacerbating the problem. Keith (47) blamed several factors:

> More and more people are choosing roadside crags or bouldering. They require less time and commitment at the expense of the long trad mountain routes which are falling out of condition - particularly those with a significant walk-in. It's a time thing. People are busy and just don't have time. It's also a big commitment - with a big walk-in you might only have time to climb one route

> whereas at a roadside crag you can climb a dozen. Because it's [climbing long mountain routes with a walk in] fallen out of fashion, you need loads of gear time and commitment. If you go single-pitching or bouldering you can be car-boot to route in 10 minutes.

Keith considered a day in the mountains including a long walk-in with his kit as integral to his kind of climbing. This was view that many others echoed as the ideal way they liked to climb, but often they considered that time could not be found to commit to their ideal.

It is clear that the climbing assemblage erodes the rock and in turn the rock also acts upon the climber and their kit. Climbers' newly purchased and shiny kit was soon dulled by abrasion against the rock as the kit dangled from the harness or was placed during the climb. Metallic objects lost their bright anodised surfaces whilst material items such as slings, harnesses and ropes became frayed and fuzzy over time. The soft rubber of the climber's shoe is quickly worn down by the contact with rock often to the extent that holes appeared showing the underlying fabric. The rock (as I discussed in the earlier section of this chapter) also acts upon the body of the climber and the co-production of the climb is complete.

6.36 Co-protecting the crag

My thesis also supports other research that suggests activities like rock climbing provide protagonists with a great respect for 'nature' and a sense of stewardship towards the environments in which their pursuits are undertaken (Laviolette 2006; Abramson and Laviolette 2007). Most of the comments on this topic were made in response to, or stemmed from, the final prompt on my interview guide which asked, "How has climbing affected the way that you view the environment?" Responses to the question were grouped under three broad themes:

1. Viewing the environment through the embodied practices of the pursuit
2. A general appreciation of the aesthetics and experiences of being in the outdoors
3. A greater appreciation of the fragility of both the climbing, and the wider, environment

Climbers explained how they began to view the environment through the veil of their pursuit. Challenges were spotted on the crags that they passed if they were out walking in the countryside or the spotted cracks and laybacks and they considered potential ascents. For instance Megan (23) said: “I look at a piece of rock and think oh I wonder if there is a bit of climbing on that”. Mick (45) took this idea further, and thought that most outdoor pursuits made their participants view the environment differently:

> You must yourself know as a climber and mountain biker you couldn’t just walk along a path without thinking I bet this would be good on my bike, or walking past a crag and looking and thinking where the lines were. When I was canoeing I used to look at little streams, and think imagine you had a canoe the size of a match box how much fun would it be going down there, gutters! So it does, because you don’t just look and think what a nice view, isn’t it lovely here, I find it if I go for a walk with the family and I find a boulder, I’ll just see if I can do this little problem. So yeah it does, I see the outdoors more as an adventure playground rather than just a breathing space.

The example illustrates that differing socio-technical engagements, require a differing knowledge, and set of embodied skills, about reading the landscape, and thus altered their transitory perspectives (Jones 2005).

Jason (21) also recognised potential climbing routes beyond the traditional climbing environments, such as, in the city where he lived and worked:

> Your eyes are drawn to crags and rock features and things like that, for God’s sake, you can walk past a building and see a ledge and put your fingers on it and think yes I could hold that.

All of the climbers that I interviewed enjoyed being in the outdoors, and took pleasure in the scenery and rejuvenation that it provided. In turn they acknowledged that climbing had brought a greater appreciation of outdoor places. From my own experience, after ascending a climb during which all my attention focuses upon the

challenge of the rock - I am met by the relief and pleasure of a successful climb, I am also met by the vista gained from my newly acquired vantage point. The beauty of this is intensified by the corporeal experience – it is my climbing sublime. Other climbers were likewise drawn to the aesthetic qualities of the environment, Derek (49) said:

> I suppose that all my life I have been an outdoor person so I see climbing as a way of getting me into great places in the world. See wonderful features and environments. I still get a great deal of wonder, satisfaction and amazement from going to new climbing areas and just seeing weird rock formations shapes and the natural wonders of weathering. I've been climbing for 44 years and I'm a climber-holic and I'll always be a climber.

Hearing Derek speak there is little wonder that climbing often fosters a sense of environmental stewardship towards the environment; and this stewardship was directed towards the spaces where people climbed. It has been argued that people give back to environments that have given them pleasure (Tarrant and Green 1999). This seemed in line with the comments of my interviewees who frowned upon littering and erosion, and often took direct action to resolve the problem, as Mat (32) explains:

> I always used to be a hill walker and do a lot of wild camping and probably if I am honest with myself probably wasn't that careful about the trace that I left behind, and that never bothered me at the time. Since then I do a lot less walking as I'm a climber, as that's what climbers do, what's closest to the car park. But what I think that's done is put me into areas of the countryside which are far more frequented, so I pick up stuff, I make sure I don't chuck stuff. I used to smoke and I used to come back from the crag with pockets full of cigarette butts because that is where I would put a cigarette butt cause I didn't like seeing them around. Has it changed how I look at the environment definitely? Yes.

Climbing also made my interviewees consider the wider environment beyond the crag and their roles in terms of the global environmental and climate change. Sam (49) argued:

> My climbing has taught me a lot about myself and it has taught me a lot about the environment, you know I've done three trips to Peru, and the changes in the

> mountains between those three trips have been profound. I did one trip in the late 80s another in 1996, and another in 2003 and the amount of glacial retreat during that time was just astonishing, I look back at my slides from 1986 and my digital photographs of the same place in 2003 is completely different, it has made me think yes there is profound climate change and for a long while I didn't really think that man was influencing it, or I thought it was too early to tell. Nowadays I am pretty much convinced that that is the case and that we are all going to have to change our lifestyles over the next ten years to make sure we don't continue doing that.

This was a common theme as climbers recognised that their actions were having negative impacts on the global environment. For instance, Colin (55) was critical of his own carbon footprint from his rock climbing activities.

> These days I like to think I have far less an impact on the environment now and obviously one of my jobs is to train people to have a minimum impact of the environment. So that focuses your attention. Having said that I am going from here to Capel Curig, and then to Shrewsbury, so what's my carbon footprint for the week? And I am very into protecting the environment but I flew abroad 4 times last year to go climbing, and to a large extent, we all talk with forked tongues.

Although proactive at the local level, and aware of wider global environmentalism, few climbers had considered how they could reduce their impacts upon the global environment. Sam had also attempted to reduce his environmental impact through his climbing purchases but still felt if a product was particularly good he'd not be swayed by the environment yet. However, the fact that climbers were considering the environmental impacts of their practices, and taking steps at the local level, represented the influence of their engagements with, and their value of, the outdoor environment. Perhaps in time their engagements with the climbing venues which through ethics, practices and guidelines sought to sustain and co-protect the crag, could be projected onto the wider environmental issues.

6.37 Summary

The actors of the climbing assemblage unite at the crag ready for the challenge of overcoming it. The crag represents the climbing venue and been implicit to all of my empirical chapters. It has a role in creating climbers, it is transformed and commoditised by guidebooks. It allows for the placement of gear in order to facilitate the climb, and it co-produces experiences during the practice of climbing, such as the risk associated with falling from the crag. This section has considered several other ways in which the crag is involved in the co-production of the climb.

Climber actions physically change the crag through climbing-centric organised clear-ups removing items which climbers' consider detract from the climb. The traffic of climbers and their gear also conditions the rock. The crag and other non-human elements further define the condition of the crag and the activities of climbers. This includes wet weather which renders the foot-shoe-rock assemblage less effective, and prolonged wet weather turns the rock green with lichens which also effect levels of grip.

Finally, I outlined climbing's impacts upon its venues, as well as the potential for the co-protection of climbs through an enhanced recognition of the vulnerability of the crag and the wider environment influenced through climbing. In accordance with other research (Laviolette 2006; Tarrant and Green 1999) this had prompted local action on littering and erosion but was yet to tackle or produce a more sustainable ethic amongst the climbing community.

6.38 Summary of all sections in Chapter 6

In sum these sections have explored the complexity of climbing as an assemblage by looking at the actors that come together and mutually co-constitute each other during the practice of climbing. First, I explored the organic body of the climber as a dynamic, co-constituted subject that is built and reconfigured through climbing on rock and increasingly within indoor training spaces. Second, I investigated how guidebooks are central to climbing as an assemblage even though they are physically absent from the practice on rock.

Third, I examined the gear involved in the practice of climbing on rock and looked at the differing ways in which it co-evolves in relation to others in the climbing

assemblage. This includes how shoes shape the climber's foot and vice versa, how ropes act as sensual cords of communication, and vary in agency according to their tensions. The climb is co-produced through the enabling relations between the actors of the climbing assemblage - it is neither the climber, the geology of the rock, or the technology that produces or directs a climb, instead it is a negotiation with each playing important mediatory roles.

Fourth, I explored climbers' notions of risk and how they are relationally mediated by the technologies of the climbing assemblage that extends the 'sphere of safety' in which climbers consider it 'safe' to climb. This section demonstrated that the bonds and relations between climbers and their gear can be more symbolic and enable the climb beyond their proposed functions.

Finally, I discussed how the crag was altered through the practice of climbing, through crag clean ups and through the traffic of boots and bodies, abrading the surface of the rock removing lichens and debris. I also examined how through the pursuit of climbing a sense of environmental stewardship is fostered, in recognition of the fragility of the environment and the joy it has given climbers.

Chapter 7:Conclusions

7.1 Introduction

Having addressed my research questions through a qualitative, ethnographic and embodied methodology I have shown how climbers and technology together produce the climbing assemblage. I will now conclude by summarising the general themes that have emerged from this research, in relation to my initial research questions, which were:

1. How are climbers enabled as co-constituent parts of climbing assemblages, in terms of the active roles performed by technologies, the co-evolving relationships between actors within the assemblage, and the co-produced functionalities that emerge during the climb, as well as the involvement of and impact upon the crag, in and through climbing?
2. What are the implications of the changing socio-technical engagements of climbers both upon their experience and capabilities, and upon how can they help us better understand other technologised practices?

Whilst answering these questions in the previous chapter I have tried to convey a sense of the complexity that must be considered in order to understand the practice of climbing as a constituent part of a climbing assemblage. Although I have held the subsections of bodies, scripts, kit and environment apart in order to explore their differing roles in the climbing assemblage, it is only across this complexity that the pursuit of climbing is undertaken. Following Michael (2009) we could perhaps call this structure the layered orderings of techno-natural engagements. This is a recognition that the participants of outdoor pursuits engage with, and their practices emerge from, multiple spatial and temporal networks.

My methodological approach rather than relying solely upon personal experience (although this was important) and the dilemmas that such approaches rouse (Mercer 2007), has sought to understand climbers' technologically mediated engagements through talking and climbing with them (and their kit). Participant observation and the use of tangible prompts provided me with further insights into the experience of climbing as an assemblage. My triangulation of methods has allowed me to experience

moving as an assemblage first hand through my own climbing, and by belaying a range of others on numerous ascents, acting as part of their climbing assemblages. In addition when possible and practical my interviews purposefully included engagement with climbers', or my, non-human climbing kit. The presence of this kit enabled verbal, bodily and mechanical dialogues which have enhanced my findings.

During my analysis these insights provided by both theory and method have allowed me to move beyond what Lorimer (2005:87) terms "the proforma social science treatment of interview transcripts", allowing greater representational depth to be explored. This has been greatly aided by ANT as a theoretical approach that has allowed me to unpack the multiple relations between climbers, their kit and the environment. Non-representational theorists would argue that the *complexity* of the climbing assemblage renders a full understanding of the practice beyond representation, due to the inability of established representational forms to capture all of the contingencies of the practice through a secondary account in the aftermath of the event (Thrift 2008; Laurier and Philo 2006). However, I contend that some of the otherwise non-representational aspects of my interviewees' life world experiences have become representational through the methodology and relational approach.

Therefore, despite the reported shortcomings of representational accounts noted above I employ Lorimer's (2005) idiom of the more-than-representational, and used the descriptions of climbers paired with insights derived from participant observation to step towards reconstructing the fidelity of the event of a climb. This is a feature that is aided by the deep understanding and intellectual reflections that climbers were able to divulge which climbers felt was due to the potentially serious implications of undertaking the pursuit, as well as the elation elicited by a successfully choreographed move or ascent. Drawing upon Harrison (2008) I assert that due to the focused nature of the pursuit and the vulnerability of the body during the pursuit, climbers have a deeper awareness of the important roles played by technology that in other situations would be rendered invisible by their conspicuousness or mundanity (see Michael 2001, 2006). This sagacious consciousness of specific embodied technological relations sheds light on the wider significance of the unremarkable beyond the realm of climbing and into the sphere of everyday assemblages. This is because we are all technologically

enabled beings bound within numerous socio-technical assemblages whether we realise it or not (Mitchell 2004; Shaw 2008).

7.2 Climbing assemblage

My research demonstrates that the world is perceived and experienced as an assemblage rather than as a body alone. When making sense of a climb, and working out how to ascend it, the assemblage is integral to all aspects, and during the practice the competencies of the climber are negotiated as an assemblage. I have considered Lewis' (2001) claim that 'nature' *should* dictate the route for climbers negotiating an ascent, and found it to be both anthropocentric and charged with subjective ethics relating to ideals of authentic climbing experiences. Crags, like other landscapes, are observed and experienced through situated, historical, cultural and technological contexts (Cosgrove and Della Dora 2009; Michael 2009; Wylie 2009). Therefore, I argue that for today's climber the route of a climb is first demarcated in the guidebook, as Heywood (1994) notes. The methods of inscription of contemporary guides include greater detail and standardisation with time and technology. At the crag an established route may be visible from chalk marks or the wearing and polishing of the rock from repeated ascents - yet more evidence of the co-production of the crag through climbing. Furthermore, climbing is shaped by the presence of places into which technological protection can be placed to secure them. Finally, a climber must also assess the skill and corporeal capacity that they require to attempt an ascent. Thus, in essence, the ability to climb is co-produced by the technology in negotiation with the climber and the crag – the relations of the climbing assemblage. There is dialogue between the climber, the crag and the gear which is mutually constitutive in enabling the climb to be performed. Consequently I dispute the notion that 'nature dictates', and alternatively I propose a 'messier situation' (Law 2004) whereby each 'actor' plays an active role in enacting the climb in a co-constructional manner.

Following from Hand *et al* (2007: 680), I have also found that in climbing, "technologies are implicated in the structure and reproduction of practice and hence in the choreography of things and people in time and space". New technologies emerge and with them develop new and evolving socio-technical practices, although not always without debate. For instance, the belay device has replaced bodily practices (a rope

around the shoulders), and these latter techniques can disappear over time. However, it has made belaying safer and easier, particularly when belaying heavier climbing partners. In contrast some of my respondents argue that the introduction and widespread use of cams devalues the traditional skills of gear placement, yet the aesthetics of the safety system produced during the climb remains of value to the ascender despite this. The kit of climbers also plays a role in identifying and demarcating the differing varieties of climbing and climber.

Across the different climbing types, kit enables – bouldering mats enable climbers to ascend new routes, they increase the sphere of safety and thus the places where climbers feel comfortable climbing. Cams and micro-cams enhance the possibilities for protecting the climb and accelerate the placement of protection. All aspects of the climbers' non-human safety system have changed - their composite materials have greater strength, and their ascribed but immanent functions are refined. In addition to this, new practices and competences co-evolve within the present day climbing assemblage. This, in sum, leads to a level of reliability that challenges the principle that in traditional British climbing *the leader never falls.* Therefore it is left for today's climbers, in conjunction with their technology, to define their co-produced actions and limits. Through technological change they now have the choice to follow or ignore the socio-technical principles of their forebears.

The functions of both new technologies and the practices that surround them are immanent to the climb (Ingold 2000) but they are also often emergent and beyond their ascribed purposes. For instance, for some climbers rubbing chalk into their hands moves beyond a method of enhancing grip and serves as a ritual to focus the senses for the oncoming ascent. Likewise through practice and familiarity the objects of climbing can become enhanced in status and agency. The placement of a 'lucky' nut may enable the entire ascent rather than the proportion of the climb its ascribed function and alignment actually protects. This supports Law's (1991 :10) assertion that practices are socio-technical: "in practice nothing is purely technical. Neither is anything purely social". However, I go further, suggesting that agency is co-produced by and through the interactions of humans and non-humans. These are enabling relations that are reinforced and sustained through practice.

Some kit also becomes a prosthetic extension that enables the organic body. Climbing shoes modify the climbing body and, vice versa, as the climbing body modifies the form of the shoe. Through the relations of the climbing assemblage a climbing hybrid is co-produced that is physically changed and mentally attuned to the properties of the shoes. Enhanced capabilities emerge as the relationship develops and the foot-shoe-rock assemblage co-evolves. The climbing shoe does not represent a seamless fusion of the organic and technical. Rather the shoe at once enhances and reduces the senses of the climber. Through practice a climber's level of grip can be communicated from the rock though the shoe to the climber. Other pieces of kit also act as communicators: through the tension of the rope the belayer can often sense the confidence or nerves experienced by the lead climber through the performance of the climb.

Other technological developments such as bouldering mats alter the climbing environment, and enable the climber by extending the sphere of safety in which they can climb. However, not all climbers use technological improvements to their upper limits of performance, preferring to climb within the 'safety' of the technologically enhanced climbing assemblage. In these cases climbers can climb the same routes as previous generations of climbers but with the added assurances provided by the reliability and greater range of protection offered by present day kit, alongside the socio-technical practices that accompany them. The development and use of technology shifts the perception of some routes. As a result they are perceived to be easier than their original grades suggest, leading to re-grading. However, some climbers felt that they had become reliant upon technological security and felt less able to tackle bold routes with little protection, they were not used to climbing routes in situations where risks were not controlled and mediated via their kit.

Consequently there is a stark paradox present in the climbing assemblage: technology both enables and disables, it dulls and enhances the senses, it helps provide achievement and it lessens achievement, in practice it en-skills and de-skills. Michaels (2009) suggests that technology can 'cognitively corrupt', leaving the participant unable to act without its presence. My research includes examples of this process, most notably the cases of bouldering mats, cams and modern ropes. Like Latour's (1992) concept of 'shifting out', functions that were once undertaken or tolerated by

the climber are now 'shifted' to technology. However these are not purely physical functions (like Latour's door closer). The functions that the kit performs in conjunction with the climber are subjective and contingent to each climb. For example, kit may enhance climbers' corporeal tolerance to the risks that are co-produced during the climb by acting as a 'securely placed cam', which in conjunction with the rope, belayer and harnesses insures against a ground-fall. However, in a situation where a 'secure cam' cannot be placed, a climber's familiarity with the comforting relations of the climbing assemblage, results in them being unable to act without it. Technological co-dependence is reinforced through practice, thus reversing assumptions that technologised engagements enable. In such circumstances the climber is co-unabled, and likewise dysfunction rather than function becomes immanent to the practice. The co-agent not only enables it corrupts.

7.3 Consequences of the assemblage

I now turn to my second research question and the wider consequences of this understanding of the climbing assemblage. Latour (2005) accepts that no theory, not even ANT, covers everything. Accordingly I conclude that it is neither necessary, nor conceptually viable, to materialise risk as a 'virtual actant' within the climbing network. As Lyng's (1990) edgeworking theory suggests risk is subjective, contingent and situational, dependent upon the contexts in which the risky pursuit is undertaken - be it surfing, climbing, sky-diving or bungee-jumping. Thus any attempt to materialise risks in such circumstances would fail. Furthermore, if the climber does not climb they do not experience risk (unless they consider the choice to climb or not a risk in itself). Consequently, risk should be seen as a creation rather than a pre-existing entity or an absent presence (Law 2004). If we consider risk a creation then we can see it as co-produced amongst the actors that constitute the climbing assemblage in practice. The result of these co-produced notions of risk may be expressed as safety instructions or precautions, which in turn enact relations between climbers, their kit and the crag. However, risk and climbing go hand in hand, and, although risk is materially absent, the technologies used to suppress and control it are ready to act and reveal themselves as risk is *co-produced.*

In seeking to attend to risk and its importance within the climbing assemblage I experienced the failure of an ANT approach to accommodate it conceptually as a discrete element in the assemblage. ANT struggles with anything non-present; it stumbles with failures, concealment and otherness (Maclean and Hassard 2004) (Section 4.4.1). Rather than include feelings of risk, risk can only be accounted for by its material incarnations and consequences. For example the use or non-use of safety equipment, the textual guidelines and warnings accompanying differing safety items or found within climbing guides and instruction texts. Attempts to realise risk in the assemblage in other more conceptual ways distorts the analysis and provides actors with unequal agency.

This is part of a wider criticism that ANT can only describe relationships between material actors be the human or non-human and whilst the symmetry this provides allows for a deeper understanding upon how networks through relations between actors are developed, sustained or fall apart (Law 1986; 1987), they fail to accommodate and explain the non material aspects that are fundamental of the human condition. Therefore, although we can say that risk is co-created through climbing, ANT does not allow us to consider how climbing is impacted by the risks that climbers feel whilst and during climbing, other than in the alignment and relations between the human and non-human actors within the climbing assemblage. Relating back to Latour's (1988a) study, Pasteur becomes recognised as a successful scientist because the action of the actors of his experiment, in a similar vein a climbers outcome, by this same perspective, is seen as an outcome of the network rather than any prior notions of risk, skill or confidence.

The study of climbing helps highlight the agency of things but also more generically it shows us how, in the face of technological development, climbers retain agency to ensure their experiential desires are met. Climbers consciously question the impact of innovations upon their experiences and their engagements with the environment. As such they have a high awareness that they are constantly involved in technologised hybrid practices. As Turkle (2007: 326) notes:

> Once we see life through the cyborg prism, becoming one with a machine is reduced to a technical problem of finding the right operating system to make it (that is, us) run smoothly.

Climbers are constantly striving for the operating system that best serves their experiential climbing goals, and because of this they are highly attuned to, and actively debate, the effects that technology has upon their engagements with the environment. Therefore, analysing hybrid climbing assemblages helps us understand *and* problematise our often unwitting participation in the multiple technologised assemblages of everyday life. Consequently, our research has neglected how rethinking technologised pursuits like climbing can provide critique and insight concerning how human-technology hybrids themselves produce technology as well as the role of human agency.

Researching climbing also contributes to our understanding of other outdoor practices such as fell walking/running, mountain-biking, canoeing and paragliding, as well as other quotidian technologised practices. In all spheres of life humans and non-humans are entangled in multiple ways, with multiple effects (White and Wilbert 2009), and networks are constantly and progressively realigned and re-negotiated through the heterogeneous engineering of the contingencies involved (Latour 2005). The insights provided from climbing can be applied to the ways in which technologies mediate, produce and enact our experiences and practices as active worldly co-agents.

By merging these themes and removing the artificial separation that I have been required to apply (for the sake of clarity during my investigation), climbing can be seen in a newly complex manner. By overlapping the complexity of each into a matrix of heterogeneous networks that constitute the pursuit of climbing, we begin to distinguish some of the complexity of the modern day pursuit. We find stronger climbing bodies; some with the subtle skills to transfer their strength from indoor wall to rock, some without. We find that more informative route data from guidebooks, as well as other sources of information, feed the climber's addiction and shape their choice of places. The greater range of protection and other refinements to kit at their disposal allows the stronger more skilled climber to reach new limits, or indeed the less experienced climbers can (sometimes but not always) use them to compensate for

skills yet to be developed. Spheres of safety are extended and environmental ethics are fostered. My empirical study demonstrates that climbers' technologies and their relations with them effect how they related to the vertical worlds which they desire to inhabit during their transitory ascensions.

Climbers and their technology have access to a vertical space not available to others. The hybrid climbing assemblage can go places where others cannot. Therefore, climbers are able to create their own geographies particular to the activity and its venues. These spaces are continually constructed and reconstructed in a highly embodied manner through the act of climbing. However some fear that technology will become the overriding actor within the climbing assemblage, suppressing both the skills of the climber and the character of the rock.

> Today's climber doesn't want to cut himself off from the possibility of retreat; he carries his courage in his rucksack... Times change... Faith in equipment has replaced faith in oneself. (Messner 1971: 243)

The evidence that I have presented throughout the previous chapter suggests that technology has not led to Messner (ibid) terms, 'the murder of the impossible'. Although, for some, technology has made the climbing experience safer, and has aided climbing abilities, paradoxically for others the security that their technology provides has instilled dependence that hinders their climbing. Furthermore, climbers continue to align themselves with technology in such a way that overcoming risk remains an integral part of the experience.

Overall do these technological changes spell change for climbing? Will they weaken the immutable mobiles that have in the past given British climbing its distinctive form? It is likely that the "framed interactions" (the bounded interactions of climbers) are changing and will change further (Latour 1996). This is evident from what climbers have reported in the interviews and from the changing methods and equipment that climbers are using. This may weaken or mutate the (im)mutable mobiles that maintain the networks of climbing. However, this is an expectation of the ANT approach as networks are constantly and progressively realigned and re-negotiated through the heterogeneous engineering of the contingencies involved. Technology is just one of the elements that is driving this progressive change, and while changes and flux may

not be new to climbing, it may be that the cumulative effects of protective and enabling technologies paired with societal changes towards convenience, indoor climbing, bouldering and sport and competition climbing place pressure on British climbing to change and define itself. Whether its network is strong enough to maintain its character in the face of such changes waits to be seen. However, the way in which the networked activities of climbers are manifested in their technological, stylistic, spatial ascents will continue to be the subject of debate.

7.4 Further research

This research set out to examine how climbers' engagements were mediated and altered by their kit as they climbed outdoors. However, from my first interviews I discovered that climbers' engagements are increasingly altered and informed by practice undertaken on indoor climbing walls. I have briefly explored how these new spaces of climbing promote their own socio-technical practices and can enhance the climbing body and, for some, can also boost their performance in the outdoors. However a more comprehensive discussion of the new spaces and larger technologies of climbing and their impact upon the pursuit has proved beyond the scope of this project.

This study has raised my awareness of the increasing prominence of artificial landscapes, both indoors and outdoors, for a number of pursuits that were traditionally conducted in 'natural' settings outdoors. Climbers, like other sporting participants, have begun the question the appropriateness and/or authenticity of such engagements and their impacts upon their pursuits. Yet, sporting landscapes (artificial or not) are largely absent from academic research (Bale 1994), apart from a few studies examining specific pastimes. For example, angling and climbing (Eden and Barratt, in press) and skiing (Tivers 1997). There is clear potential for further study into the impact these new leisure spaces have upon individuals and upon the established cultures of sports which have to accommodate new participants who are used to participating in their sport and engaging with environments, in different ways and often with differing motives and socio-technical practices.

Such a research agenda could examine several outdoor pursuits that have produced artificial landscapes including, climbing, mountain-biking and canoeing. Swimming is

also an interesting historical case study giving the impact of artificial leisure spaces like – lidos and how they affected swimming in 'natural' venues. All of these examples would allow us to explore the experiential differences of engaging with 'natural' and 'artificial' environments within these various pursuits, and to reveal the consequences for the individuals as well as cultural and spatial issues that result from 'new' artificial leisure spaces. For example, some of my interviewees argued that the rise of indoor climbing has decreased 'commitment' amongst climbers, and has also changed how often climbers climb. They report a decline in multi-pitch mountain ascents and, as a result, many of these are falling out of condition (thus exacerbating the problem). An ANT approach to this topic would allow the human and non-human actors of sporting networks to be investigated without the dualistic assumptions likely to disrupt the interpretation of the growing prominence of artificial landscapes.

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Appendix 1 Interview coversheet and topic guide

Interview coversheet

Interview Details	
Date	
Location	
Respondent details	
Name	
Age	
Sex	
Experience (Years/frequency/climbing grade)	
Area(s) where respondent predominantly climbs	
Type of respondent Climber type/Mt Rescue/training org etc..	
Preferable or predominant type of climbing	

Topic memo and miscellaneous information

Interview Topic Guide

1. Introductory topics

a. How long have you been climbing for? How did you get into climbing? Do you climb often? Where do you climb?

b. What is your preferable type of climbing and why? (do not specify types at first let respondent answer in own words). How would you define yourself as a climber (trad/sport/free etc…)?

c. Could you detail the range of technology that you use to climb and simply what it does? (Focus upon what interviewee deems important). Prompt if necessary/clarify what is meant by technology if needed.

d. What are the factors that influence the range/type of gear that you carry? (Style, function, cost, preferred climbing type, rock type, location). What influences you to buy/not to buy? (Trends, quality, style, price, function, weight)

e. What is the last piece of gear that you bought and why did you buy it? (probe)

f. Do you have a favourite bit of kit? Why do you like it and what does it do? (probe)

2. Climbing kit

a. Have any technologies that you have bought or used, noticeably altered the way you climb?

b. Do you feel technology change your experience of climbing?

c. How does your kit help you to climb? Do these enable you physically or mentally please explain? (probe)

d. Going back to the range of technology you disclosed earlier how does each one help you climb? And what did you do differently prior to its purchase?

e. Are you aware of your kit when you are climbing? Prompt for clarification and detail around this point.

f. Are these technologies passive or do they require skill/training to provide function? (are they actively beneficial from start or do they require practise)

g. Does the use of technology become part of the style or is it external from the climb? Does the use of technology enhance this or detract from the climbing please explain?

h. Does your kit influence what you climb?

i. Does the use of technology become more routinised and practiced though extended use? Does its meaning to you change over this time?

j. Some say that climbing without the use of any technology, even chalk in some cases, is the purest form of climbing (deep water soloing, free climbing). What do you think of that sentiment?

k. How would you describe the relationship between yourself and your gear?

Climbing risk and experiences

l. Climbing is often marketed as an extreme sport due to the risks involved, do you consider it to be an extreme sport?

m. What do you feel about the risks involved with climbing? Do you like risk? Is risk a negative factor?

n. How do you personally manage risk?

o. Do you have rules that stop you taking risks?

p. Do you draw on anything outside of your personal experience to manage risk? E.g. official guidelines etc…

q. Climbing is a potentially risky sport is it something that you consider before you climb?

r. Do you consciously use technology to create a level of risk that you find manageable or desirable?

s. Do you consider risk as you are climbing?

t. Are there any climbing technologies that you will not use? What are these? Why won't you use these? Do they take skill away? Do they take risk away? If yes why is this a bad thing? Do they add to the enjoyment of the experience in terms of security? Do they give psychological/mental strength?

u. How do you decide what you will and won't use is this personal choice or is it influenced by others, please explain?

v. Would you say that you take risks when you climb? (E.g. relying on poorly placed gear going for moves that you are not sure you can make etc…)

w. What kit do you carry in case of incident?

x. Do you consider your mortality at all as a result of climbing?

y. Academic theories of risk consider society as risk adverse, if it is how would you explain your reason for climbing and directing risks towards yourself?

3. Concluding topics

a. What impact does technology have upon your climbing experience?

b. With the increased participation in climbing have you noticed any changes amongst the general and specific climbing groups in regard to their usage of and reliance on technology? Are there changes in the technology used or the manner in which it is being utilised for climbing? What do you think the implications of these changes are?

c. Do you think that the popularity of indoor climbing has had any effects on the outdoor sport?

d. What do you think about the idea that technology sanitises the environment or risk?

e. Has climbing changed the way you look at the environment?

Appendix 2: Departmental Risk Assessment Form

DEPARTMENT OF GEOGRAPHY - THE UNIVERSITY OF HULL

RISK ASSESSMENT FORM

Description of activity/work being assessed:

Ethnographic practice involving participation in indoor and outdoor rock climbing, and walking. Activities will take place in suitable sites across the UK such as Yorkshire and the Peak District.

Date(s) when activity/work will be undertaken:

4/2007 - 4/2008 Ongoing research during this period.

*Assessment review date:	**Assessment reference:	Number of staff:	Number of students:
4/2008	PRB160042	0	1

Identify hazards (Hazard - the potential of a substance, activity or process to cause harm):

- Climbing and walking are potentially hazardous activities with potential harm caused via:
- Falling
- Falling debris
- Equipment failure
- Human error
- Risk of muscle and joint injury
- Fatigue and other factors related to health and fitness
- Falls or slips when approaching the climb area or whilst walking
- Danger from weather extremes (cold/hot/wind/snow)
- Navigational difficulties
- Traffic incidents whist travelling to or from field sites

Who is at risk from the hazards:

During the project I will be climbing with small groups of climbers who will all be at risk from the potential hazards.

Evaluation of risk (Risk - the likelihood of a substance, activity or process to cause harm):

The sport has an element of risk but is unlikely to cause significant harm if relevant control measures are followed.

Control measures:

- A number of control measures will be utilised to prevent the risk of harm to participants:
- British Mountaineering Council (BMC) Guidelines for indoor and outdoor climbing will be followed (http://www.thebmc.co.uk/safety/train/climbing_outside.pdf) (see attached).
- Health and safety guidelines of climbing walls will be adhered to (A condition of entry to indoor climbing facilities).
- No lone fieldwork will take place.
- Climbing and walking within the limits of fitness and ability.
- Carry a mobile phone whilst outdoor climbing/walking.
- Awareness of emergency protocol.
- Always be equipped with basic first aid kit.
- Condition of equipment checked prior to use.
- Always notify an additional party of location of climbing/walking venue.
- Climb/walk within the limits of the individual's ability and experience.
- Care to be taken whilst walking in and out from the outdoor climbing venue designated paths used when possible.
- Observation of weather condition prior to climbing and relevant steps taken in response.
- Use of appropriate warm-up to prevent muscle and joint injuries.
- Helmet to be worn whilst leading climbs outdoor to prevent injury from falling objects.
- Take appropriate navigational equipment e.g. Compass and map.
- Take measures to prevent fatigue e.g. fitness levels take additional food and water to maintain energy levels.
- Pack appropriate survival gear if necessary e.g. Survival bag, additional food, water and whistle.
- Care to be taken when driving to and from climbing/walking venue.

I am fully aware of the health and safety requirements on this document. The University does not accept liability for any accident that may result from undertaking this activity. The requirements identified in this risk assessment will be adhered to at all times when conducting the fieldwork activities.

Name of assessor: Paul Barratt	Signature:	Date: 5/4/2007
***Name of co-signatory: Dr David Atkinson	Signature:	Date: 5/4/2007
Assessment received by Safety Officer Paul McSherry	Signature:	Date: 5/4/2007

Notes:

- Assessors will find guidance in completing a risk assessment from the Health and Safety Executive publication, 'Five Steps to Risk Assessment'.
- *The risk assessment is valid for one year from receipt by the Departmental Safety Officer. An earlier review may be necessary when conditions have changed as a result of new equipment or techniques being used, new information on hazards, new legislation, or because of the introduction of new or inexperienced staff.
- One copy of the assessment must be lodged with the Departmental Safety Officer before work is undertaken, and copies of the assessment are to be retained by the assessor including the supervisor.
- **The assessment reference is required for filing and retrieval purposes and should be unique, for example, assessors initials then the module code, add any additional reference as necessary.
- ***The co-signatory is required for students working unsupervised.

Additional notes for fieldwork risk assessment:

- The risk assessment should be lodged with the Departmental Safety Officer before setting off along with the names of all field trip participants and contact details of fieldtrip leaders. A copy of the assessment should also be made available to each member of the group.
- Students working in the field without supervision should complete a risk assessment with the help of their supervisor who should retain a copy.
- The risk assessment should be taken into the field, along with the reporting lines flowchart and relevant codes of practice for working in the field.

Hazard identification:

- From planning a journey/field trip through to arriving back.
- Specific to the journey. If driving, plans should take into consideration; what you have been doing prior to going on a field trip and returning; what experience you have for driving unfamiliar vehicles or on unfamiliar terrain. Training from qualified driving instructors can be arranged for drivers of minibuses or for towing trailers.
- Specific to the field site
- Specific to the equipment/activities.
- That can be reasonably foreseen.

Appendix 3: Ethical Consent Form

DEPARTMENT OF GEOGRAPHY, UNIVERSITY OF HULL

CONSENT FORM: INTERVIEW

Project outline and Declaration of Consent

I, of

Hereby agree to participate in this study to be undertaken by Paul Barratt. I understand that the purpose of the research is to investigate climbing culture. This interview will explore the impact of technology upon climbers' experiences.

I understand that:

1. Upon receipt, my interview transcript will be coded and my name and address kept separately from it.

2. Any information that I provide will not be made public in any form that could reveal my identity to an outside party. I will remain fully anonymous (unless permission is sort to the contrary).

3. Aggregated results will be used for research purposes and may be reported in scientific and academic journals.

4. Individual results **will not** be released to any person except at my request and on my authorisation.

5. That I am free to withdraw my consent at any time during the study, in which event my participation in the research study will immediately cease and any information obtained from me will not be used.

Signature: Date:

Contact details of the researcher: Paul Barratt, Department of Geography. University of Hull, Cottingham Road, Hull, HU6 7RX

The contact details of the Geography Ethics Officer are: Department of Geography, University of Hull, Cottingham Road, Hull, HU6 7RX, Telephone. 01482 465320.