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High Places

Cultural Geographies of Mountains, Ice and Science

Edited by
Denis Cosgrove and Veronica della Dora

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Introduction

High Places

Denis Cosgrove and Veronica della Dora

The physical landscape is baffling in its ability to transcend whatever we would make of it. It is absolute in its expression as turns of the mind, and larger than our grasp; and yet it is still knowable.¹

High places take many forms. Topographically, mountain peaks and ranges and high plateaus are elevated above sea level or surrounding plains; polar regions are geographically elevated according to the global measure of latitude that rises towards the earth's poles. Sacred locations often but not always physically elevated, are 'high' principally because they have been set apart by the faithful as being closer to divinity. Indeed the biblical expression 'the high places' is an English rendering of the Hebrew *bamot*, which denoted a place marked for worship by an altar, a stone stele, or a wooden post. Height, then, is much more than a question of scale or altitudinal measure, just as place is much more than geographical location; it denotes a relationship between location and human experience. Connected, as height and place have consistently been across cultures and faiths, for example in the Western concept of Sublime or Chinese notions of the mountain as an originating 'place of places', high places make for complex and fascinating geographies, both material and imaginative. As a collection of essays, *High Places* can be situated within a rapidly expanding literature that seeks to re-conceptualise what Lewis and Wigen have called 'metageographies', i.e. large-scale classificatory labels through which we frame geographical knowledge. In this sense, *High Places* complements recent work such as Felix Driver and Luciana Martins' collection on the tropics,² or the *Journal of Historical Geography's* special issues on islands and oceans.³ It also adds to already existing literature on cultures of science in extreme environments.⁴



Figure 1.1 View of Mount Athos, Greece (photograph by Monk Apollò, Docheiariou Monastery, 2006).

Introducing this collection of studies devoted to high places we consider their material and metaphorical aspects and the ways in which the two dimensions of altitude and latitude interplay. We begin by addressing a conventionally 'spiritual', 'Christianised' and Western vision of high places, but move towards a more polyvocal approach through the exploration of cultures of science-making and cognition in these regions. For the sake of clarity and structure we have divided our discussion into sections. The first of these considers how topographic and latitudinal height have been brought together in geographical writing, especially in relation to the concept of the sublime that framed both mountain and polar regions during the era of Western exploration and colonisation of the globe. Next we comment on how an expanded concept of place permits more complex and subtle geographies of such areas to be written today. A section on mapping of and in high places examines the complex relations between representation and materiality there, while our comments on the body respond not only to a growing geographical recognition of the human body as the site where nature and culture come together and are inscribed, but also to the special demands that high mountain and polar regions make on an organism that evolved physically in much warmer parts of the earth. In a final theoretical section on cognition, knowledge and science making in high places we recognise the enduring role that they have played in Western environmental and ethnographic science and the ways that this connects quite

diverse peoples and places while sustaining in some respects a colonial relationship that in geopolitical terms has passed. These themes are *foci* of the book's individual studies, whose organisation and principal concerns we summarise in the final section of this introduction.

Height

The high places considered in this collection are defined by either high altitude or high latitude: they are mountain ranges and peaks, or polar regions (i.e. those lying beyond 66° 32' north and south latitudes): places of rock, snow and ice. Such locations share various climatic, geomorphic and biotic characteristics, including low mean and absolute temperatures, regular snowfall and ice formation and high winds, with consequent glacial and aeolian processes shaping their landforms, and a limited range of flora and fauna whose adaptation to climatic conditions renders them unfamiliar and even invisible to eyes accustomed to more 'temperate' environments. These shared physical conditions account in large measure for the grouping of high mountains and polar regions in conventional geographical study. It was a commonplace of modern physical geography in the nineteenth and twentieth centuries that the altitudinal belts of tropical mountains such as Chimborazo or Kilimanjaro allowed the climatic belts of the globe to be observed and studied over the limited space of a few miles, and within sight of the equator, and this was reflected in maps of world climate and 'natural' regions by geographers such as Köppen and Herbertson.⁵ Today, both polar ice sheets and mountain glaciers are treated scientifically as equally significant, as barometers of global climate change. In fact, even from the perspective of physical geography alone, the differences between high latitudes and high altitudes can be as great as their similarities. Low-latitude high mountains such as the tropical examples just mentioned, with their regular diurnal and unvarying seasonal cycles of day and night experience very different annual insolation from polar regions with their annual shifts between light and dark, while in temperate high mountains aspect plays a role not paralleled in polar regions. Mountain glaciers behave differently from continental ice sheets. Vast areas of the Arctic are low-lying plains, and even the Antarctic continent – although a 'high place' in that it boasts the highest mean altitude of any continent – has limited regions of the high-angled slopes typical of mountains in any part of the world.

While physical geography alone might argue against collecting high altitudes and high latitudes under a single rubric, human geography is more accommodating. Both environments are characterised by sparse and largely impermanent human settlement, their physical landscapes for the most only moderately transformed by human occupancy. High places fall into what the early twentieth-century geographer H.J. Fleure termed 'regions of difficulty': areas of scant resources for dense human occupation that 'refuse sensible increment even to prolonged effort'.⁶ Fleure's perspective was of course typical of those whose individual experience and cultural resources are not designed to accommodate daily life in such spaces, as John Wylie's comparison of Amundsen's and Scott's contrasting experiences 'on ice' deftly reveals. And as Gilles Rudaz points out in his discussion here of Alpine



Figure 1.2 View of Croagh Patrick, Ireland (courtesy of Alan Reeve).

mountain dwellers, even such generalising terms as 'mountains', let alone comparative and globalised terminology as Fleure's, do not figure in the place perceptions of native dwellers, who use more localised toponyms. Michael Bravo's study reveals clearly that Inuit and others whose individual lives, communities and cultures have been framed by dwelling at high latitudes, regard the idea of living on those margins of survival (as figured by those from more temperate zones) as quite bizarre.

It is of course precisely the interplay between the generalising cultural visions and environmental interpretations of outsiders and visitors, and the localised knowledge and experience of insiders and dwellers that can make geography a compelling subject of study. All geographical writing is inflected by the expectations, needs and desires of its authors and never wholly subject to empirical specifics. At the same time, however, meanings are not simply imposed on territory, but they rather work through its material specificities. The human connection with high places is a two-way physical and imaginative dialogue in which geographical knowledge is continuously built and destabilised, shaped and reshaped. The landscapes of high places have commonly evoked in those arriving from more 'temperate regions' (the layered meanings of that phrase itself give clues to their likely interpretation of non- or in-temperate places) feelings of awe, reverence, but also displacement and anxiety. Nineteenth century exploration and colonialist discourse figured high places as spaces of muscular and masculine challenge, of competitive adventure, and unearthly, intense, sometimes even spiritual experience, as well as of intense scientific curiosity. For the outsider,

there is little of the homely about these regions, little of dwelling. And their 'un-homely' physicality has played an active role in the processes of their geographical signification. Local experience and knowledge differ of course, but only very recently have voices domesticated within high places gained an audience in the wider world and entered into a more balanced dialogue with the 'formal' scientific knowledge of visitors. Gilles Rudaz, Richard Powell and Michael Bravo all seek to bring those voices into this volume.

The outside vision of high places, whether mountainous or polar, renders them as liminal, inaccessible and pure. The presence of snow and ice as landscape elements in themselves and in their capacity to blanket and mask more durable landforms, the obscurity and evanescence of mist and cloud, together with the disorientation these can produce, and the physical rigours of ascent and traverse for those whose technologies of movement have been shaped in different environments, all reinforce associations of high places with physical and moral demands, with moral purification, eschatology and transcendence. Jagged rock and ice, snowdrift and freezing mist, intermittently clearing to reveal forms of unparalleled clarity, are among the standard geographical tropes of high places, whose imaginative power is reinforced by distance from permanent habitation, intense cold, unrelenting wind, physical isolation and discomfort, distorted vision, physical danger and death. Mountain peaks viewed from a distance, polar ice sheets, icebergs and windswept, white plains seen from the deck of a ship or from the air combine line, form and colour into powerful landscape images for which the conventional aesthetic language is that of the 'sublime'.

The idea of the sublime is complex and multilayered, and the literature seeking to specify and explicate it is too large and sophisticated for us to do it justice here, but it is worth recording that the Greek word used by Longinus in the earliest discussion of the sublime as a poetic and literary form is *ypsos*, literally meaning 'height'. Longinus associates the sublime with high passion and its bodily effects and expression, especially terror. The Latin word from which the English 'sublime' is derived, also denotes 'high' or 'exalted', so that as a term of aesthetic 'sublimity' referred to metaphors that encouraged the visceral sense of awe, terror and humility in the face of immensity that we associate with vertigo – fear induced by height. When attributed in Christian thought to the experience of the divine especially, transcendent height was always an element of the sublime. It was in eighteenth-century England, and in direct association with experience of the Alps in the Grand Tour and the fascination with landscape aesthetics, that the sublime became contrasted to 'the beautiful' and attached specifically to the combined, aesthetic experience of specific kinds of natural places.⁷ Such places were characterised by irregular forms, vertiginous contrasts of height and depth, precipitous ledges and slopes, and perhaps intensities of heat or cold that gave the human body an agreeable frisson of terror. In an age when Europeans – educated in the fashionable philosophical and literary language of the beautiful and the sublime – systematically explored and recounted the globe's mountain and polar regions, it is unsurprising that they drew repeatedly on the aesthetic theory and literary language of the sublime to describe such high places.⁸ Sublime language and its geographic equivalent of stock images have endured, at least in the popular imagination of outsiders, up to our own days. In the twenty-first century high places are no longer regarded merely as adventure playgrounds in which to experience the conventional pleasures and trials

of the sublime. They are increasingly treated as uniquely precious locations for human survival, barometers of environmental and social vulnerability, spaces of scientific study and cultural, geopolitical and environmental contestation. However, as a number of these essays sometimes explicitly reveal, these concerns still draw upon and contribute to an aesthetic reservoir best described by the parameters of sublime landscape. As William Fox suggests, the psychological responses conventionally associated with the sublime may yet prove to have physiological foundations.

Place

So far our focus has been on the first part of the term high places, on their most characteristic dimension. But the characteristics of 'place' demand some reflection. For geographers, place denotes something much more than pure location in physical space or indeed natural and topographic features. Places do have a location, some form of physical presence, to be sure, but they are also the expression and the necessary medium of social processes, they represent a gathering of humans together with the material, social, political and symbolic appropriation of space that such a gathering always entails.⁹ Humans do not need to be physically present to create and sustain place. Barring a tiny number of scientific outposts, the continent of Antarctica remains empty of human presence, but its existence on maps, in explorers' reports, in scientific and literary publication, in photographs, movies and paintings make it a significant place on the globe. The history of exploration efforts, the application across its surface of political boundaries and toponyms, and the presence of those research stations and camps, all contribute to create a texture of places within its designated continental space. Estonia's current desire to establish a scientific presence on Antarctica in order to demonstrate its significance as a scientific nation, and the conquest of Everest by an Estonian group of mountaineers in 2003 on the fiftieth anniversary of the first ascent and the year of the country's accession to the European Union, widely celebrated in the national press, are examples of the continued significance of high places in framing narratives of national identity.¹⁰ Places have complex and overlapping existences within geographic space whose meanings and significance are commonly the subject of struggle and contestation.

Applying these insights to the term 'high places' implies that something in the elevation of mountain and polar regions contributes significantly to their social form and order and that they share through the physical fact of elevation some social characteristics. In the past, as H.J. Fleure's designation implies, the geographer would have searched for common social morphologies in inhabited polar and mountain regions: seasonal migratory activities, hunting and herding economies for example, and sought to connect these to common features of their physical environments. The environmental determinism (although Fleure would have rejected such a designation) explicit or implicit in such study is unacceptable today, not only on theoretical grounds, but because it is based on too broad an understanding and interpretation of human life and landscape in such regions. Superficial parallels between reindeer herders in northern Scandinavia and llama herders in the Andean cordillera for



Figure 1.3 Ceremonial South Pole marker (courtesy of Alberto Bolatto).

example do not take us very far in understanding the complex interconnections between physical environments, natural ecosystems, domestication and social organisation within the respective communities.

Yet to employ the term 'high places' denotes a commonality between designated regions on the globe that is more than purely physical. Given that the place making activities of those whose lives and cultures have been formed in these various regions are as varied as those of other human groups, whence does the common designation spring? Once again, the designation of a high place comes from outside of the society which has made the high place its home; it is an imaginative act, the outsider's attribution of common characteristics and meanings that shape diverse locations into comparable places. While rejecting the environmental theories that originally gave rise to the concept of high places we cannot escape the intellectual heritage that has shaped both the representation of mountain and polar regions across the globe and the embodied practices to which such representations have given rise and which in turn have reinforced them. At the same time, the studies here draw upon sophisticated meanings of place that seek to embrace the complex social processes involved in their designation, description and interpretation.

Mapping high places

Physically or imaginatively, high places mark the ends of the earth. They do so in different ways. Firmly grounded in the earth, territorially bounded, and yet stretching towards heaven, mountains, for example, have represented sites of revelation in many different faiths, points of junction between the immanent and the transcendent: what Mircea Eliade long ago called *axes mundi*. In the Christian tradition, the pyramidal silhouettes of the sacred mountains Mount Athos in Greece and Croagh Patrick in Ireland [Figs 1.1 and 1.2] looming over the sea at the opposite ends of Europe might be considered emblematic. Thanks to their majesty and well-defined profiles, high mountain peaks are primary geographical objects in the landscape to capture the human gaze. In their metaphorical use, mountains seem to help us grasp the ungraspable and visualise the indefinite. Walter Benjamin used a mountain range to describe his 'auratic experience', while Frederick Nietzsche gave visual shape to 'the modern spirit' in the form of an erupting volcano.¹¹ Even in everyday speech, who has never complained about being buried under 'a mountain of work', or aimed to reach 'the top'? Nor is this purely a Western metaphor: in Chinese thinking, mountains are the bones that comprise the very structure of the earth; 'more dramatically or completely than any other natural thing, a mountain is ... a place for the interplay of such basic forces as *ch'i* and *li*, *yin* and *yang*. It is also the primary place of authentic wilderness. In short, a mountain is a place of places – a place from which other places originate: 'the originating host of all the guest places in a given landscape'.¹² Chinese landscape paintings seek to 'map' the resonance of such places.

We talk metaphorically too about 'opposite poles' to 'map' contrasting extremities in people's personalities, or in polemical arguments. Yet geographically the notion of the poles as 'the ends of the earth' is more arbitrary and complex to define than visible mountain peaks. Sometimes named 'the third pole', Mount Everest is a well-defined, visible, physical place – differentiated by humans from the surrounding range of similar peaks by reason of its unique height. As places, the North and South Poles, by contrast, are more abstract, geometric, spatial concepts. Indeed, the earth has various Poles: magnetic, geodetic and geographic. The geographical poles are defined by the earth's axis of rotation, and thus by astronomical principles and the invisible laws of physics, rather than by physical geographical appearance, while the magnetic poles are migratory over time and thus difficult to determine and mark precisely. Unlike mountains, the geographical poles need scientific instruments (or human markers) in order to be rendered visible in the landscape.

Visible or invisible, latitudinal or altitudinal, high places are similarly challenging to those trying to 'map' them formally and thus encompass them within the remit of secular science. Practically, the mobility of ice sheets and glaciers, and of steep slopes and screes, as well as the shifting and often obscured boundaries between land and sea in polar regions or between horizon and sky in high mountains, challenge the cartographic desire for stable lines on the map. Speaking more theoretically, for all the claims to scientific objectivity associated with it, mapping is a process that is as much physical as it is imaginative. It involves physical

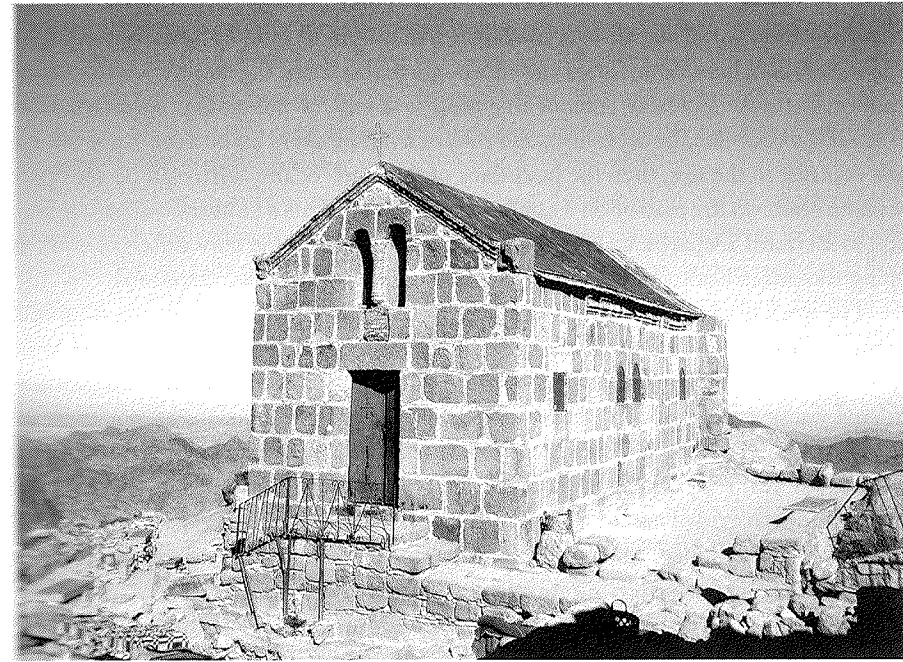


Figure 1.4 Greek-Orthodox chapel at the top of Mount Sinai.

interaction with the territory, but also the ability to contemplate it from a distance. The Western discourse of mapping is above all one of visibility, depending on the ability to see and measure location and distance and yielding in the map itself a visible representation of the surveyed place. High places represent peculiar challenges to the idea of visibility, as William Fox's study reveals. In high mountains the influence of altitude on the body can place great demands on accurate recording of scientific data, as von Humboldt's scientific work in the high Andes made so apparent in bleeding lips and strained eyes, while steepness of slope challenges such graphic techniques as relief shading or contours to represent altitude on maps.¹³ When British surveyors from the Falkland Islands Dependency Survey tried to map the Antarctic spaces of Graham Land in the early 1950s, using aerial-survey techniques developed in the war theatres of Western Europe and South Asia that they believed would greatly ease and speed their work, they were often stymied by the same problems of magnetic variation and mirage that had faced their maritime predecessors in polar regions, while the need for 'ground truthing' – terrestrial survey to fix aerial traverses to specific points – remained a physically challenging necessity.¹⁴ Indeed the 'final' mapping of Antarctica was achieved only in 1997 when the Canadian Space Agency (CSA) and NASA published a composite mosaic of photographic traverses based on satellite imagery.

In its broader, less purely technical sense, mapping is a cognitive process that helps us make sense of the world in our everyday lives. All mapping rests on selectivity and on the imposition of markings, boundaries and meanings that inscribe the natural world but are not inherently 'natural'. For this reason, mapping is always a potentially contested cultural practice. If the boundary between the solid rock of a mountain ridge and the sky above marks a stark contrast to the eye, then the boundary of the 'ends of the earth' can be set. To trace those same limits on the map or on a satellite picture represents a cultural – often a political – choice, as Bernard Debarbieux and Jong-Heon Jin reveal in the very different contexts of mapping mountain chains in the Western and Korean cartographic traditions.

The work of identification, or 'pinning down on the map', a specific point-location of or in high places is no less problematic than setting boundaries or defining the limits of geographical objects. It was not until the eighteenth century that the mathematician Leonhard Euler predicted a 'slight wobbling' of the terrestrial axis, and not until recent times that scientists recorded a consistent movement of the southern polar ice sheet (roughly ten metres per year). By a strange paradox, the poles (the points of origin of the meridians and of our modern grid of certainties) thus escape the implications of fixedness suggested by survey and mapping. Also, the gathering of longitude lines towards the poles renders the graticule, so useful in transferring locations from ground to map over most of the global surface, of decidedly limited value. Even fixed 'taken-for-granted' mountain-landmarks are not always obvious to identify. Unlike the dramatic cones of Mount Athos and Croagh Patrick that rise above the level surface of the immediately adjacent sea, or Mounts Ararat and Kilimanjaro whose snowy peaks tower over surrounding highlands, Mount Sinai, the most famous and 'holiest' of all Biblical mountains, for example, does not stand out against the horizon, nor does it have any striking physical individuality. Surpassed by almost 400 metres by the nearby Mount Catherine, the Mountain of Moses is virtually impossible for 'non-expert' eyes to single out from the intricate Upper Sinai massif. Its identification has long been contested, with a number of 'competing peaks' laying claim to the title. The small chapel and mosque now perched on a specific peak provide landmarks no more reassuring than the South Pole marker on the white wastes of the Antarctic ice sheet [Figs. 1.3 and 1.4]. The former has been determined by careful research on text and territory, the latter by geophysical and mathematical calculation. The chapel and mosque on the Mountain of Moses and the South Pole marker, in their different ways, celebrate mapping achievements.

The body in high places

Both altitudinal and latitudinal high places are characterised by physical conditions that place extreme demands on the human body. These are environments in which the body is forced into visceral struggle with the matter of landscape, to protect itself from the numbing effects of extreme cold, the searing bite of wind chills, the disorientation and blinding effects of snow and the blood thinning and sickening effects of low pressure and high altitude. Accommodation to these features of the physical environment is apparent in the material

culture, the social *mores* and the language of peoples inhabiting them, as Michael Bravo's discussions with Inuit people make clear. On the other hand, senses accustomed to the physical environment of temperate places are shocked and alternately sharpened and dulled by these immediately physical aspects of high places, and those encounters are inevitably reflected in narratives and other representations of such encounters and the geographical assumptions to which they give rise.

The imaginative sublimity of high places may be linked to the physical process of sublimation – the transformation of solid ice and snow into vapour, for example, without passage through an intermediate liquid state. This phenomenon occurs only at sub-zero temperatures, so this can occur naturally in high places. Sublimation can have direct physical impacts on the human body. In the midst of a polar blizzard, or of a mountain climb, the body is rendered porous to the elements. In this sense, it also metaphorically experiences another sort of sublimation: through the tactile contact with rock, or through its becoming one with the wind and the snow. It is against such elemental harshness that physical endurance is tested, giving rise to complex discourses, inflected by cultural assumptions about gender, class and ethnicity.

In nineteenth and early twentieth-century literature of western exploration, mountain and polar landscapes were usually described in Manichean terms: extreme and austere, painted in black and white, arenas in which human values were also polarised.¹⁵ High places were figured not only as geographical *terrae incognitae* to explore, but spaces for a sort of Stoic self-reflection – for an inner exploration through physical distancing from the inhabited world. If mountaintops had traditionally provided a visually powerful metaphor for Cartesian detachment from the world at their feet, the continuous bodily confrontation with injury and death during the ascent could also offer a different, more distanced perspective on everyday 'human affairs'. This remove was sought by travellers into these regions long after the heroic period of first exploration and 'discovery' was over. Peter Matthiessen's 1970 search for the 'snow leopard' among the ravines and flapping prayer flags of Tibet's high plateau is figured as much as an exploration for self and relationship as a quest for the physical presence of the rare creature itself.¹⁶ Like ancient Greek heroes travelling to the Pillars of Hercules, mountaineers and polar explorers of the 'heroic' age of Western exploration achieved a sort of super-human status by reaching the 'ends of the earth', although they would sour if their motives were detected as less than pure, defiled by the desire for money or fame.¹⁷ Any detachment from the world, of course, was only temporary. It was through the temporary physical experience of high places, especially when marked permanently on the body in the form of scars or lost limbs and faculties, that heroic values could be brought back home and circulated through the great metropolises of Europe and North America. In this sense, the tempering, masculine qualities attributed to high places and their elemental landscapes served as signs of the authority of science and a moral counterpart to the supposed effeminate Tropics and their 'corrupting' corporeal influences.¹⁸

The environmental extremes of high places have also intrigued scientists studying human psychological and physiological responses to challenging, physical conditions. Usually remote, potentially dangerous, alternatively nerve-racking and enervating, high

places might lead to depression, despair, or physical sickness, but they could also encourage group cohesion. If acclimatisation to the Tropics was mainly a nineteenth-century concern, acclimatisation to high places remains an object of scientific investigation today. In 1982, Peter Hackett, a University of Colorado researcher on high altitude physiology and methods for coping with life-threatening conditions, established a still-working laboratory on a 14,000-foot-high glacier on Mount Denali, the coldest place in Alaska and indeed on the whole North American continent. This cluster of 12 by 14 foot plastic shells is used by Hackett and a small group of colleagues two months each year to study the human body's reactions to high altitudes and extreme conditions. Over the years, the lab has been also used by NASA to explore the dynamics of a small isolated technical group, given the similarity between the lab's conditions with those travelling to the ultimate high places on the space shuttle and International Space Station.¹⁹ In *Driving to Mars*, William Fox describes a similar scientific research location – the Houghton Crater of Devon Island in the Canadian High Arctic, the largest uninhabited island on earth. Each July a score of scientists camp in the twelve-mile-wide, 1,000-foot-deep crater in order to conduct experiments in an environment that is the closest available on our planet to that of Mars.²⁰

Science making in high places

Contemporary laboratories located on glaciers and in the polar regions continue a long tradition of regarding high places as privileged arenas for science making. Their scientific significance seems to increase in direct proportion to their remoteness – physical and imaginative – from what Bruno Latour has called 'centres of calculation' in the metropolitan regions of the earth's densely populated, more temperate regions. Just as physical isolation has been seen by people of faith as a pre-condition for the human search for 'truth', so it remains the same for those whose quest is scientific rather than religious. The early Christian hermit's search for a contact with God on lofty mountain peaks was preceded by the ancient natural philosophers' desire for a no less transcendent contact with the stars, with rare herbs, with nature's truths. Like polar explorers and holy ascetics, by setting themselves apart from the world through their ascent of high mountain summits, or by reaching the polar ends of the earth, entire generations of natural scientists gained a degree of authority simply from the location of their field activities. As Maria Lane shows in her chapter, it is through their physical access to remote mountaintops that late nineteenth-century American astronomers, for example, were able to legitimise their scientific enterprises, and to gain legitimacy among their colleagues. In this sense, awe-inspiring high places have 'sublimated' the astronomer's status in the eyes of modern society.

As privileged sites for observatories and laboratories, high places have often been conceptualised as large-scale laboratories in themselves. High places and laboratories have been seen to share such characteristics as 'sterility' (in the sense of 'pure', uncontaminated environments), and 'distance' in the sense of separation from the rest of the world. These features were deemed necessary to fulfill the requirements for what was conceived as scientific

'objectivity'. Thus, the only permanent settlements permitted on Antarctica are 'research' laboratories and bases, in spite of the fact that their occupants and activities can be as environmentally damaging as any tourist camp. Or consider Heather Frazar's compelling descriptions of the parallels between the surface of the Greenland Ice Sheet and the National Ice Core Laboratory in Denver, CO. Thanks to their environmental characteristics, high places have also been considered able to disclose the most recondite secrets of our planet's history. Nineteenth-century Scottish physicist James Forbes envisaged glaciers as 'endless scrolls, as streams of time engraved with the succession of events', just like geologists of his time regarded mountains as 'archives of the earth' – the 'great stone book'.²¹ A century and a half later, as Frazar shows, scientists are piercing Greenland's ice to map earth's climatic changes on a 'pristine' three-kilometre-long ice core, used to construct a literal archive.

The scopes and modalities of science making in high places vary. The Humboldtian conceptualisation of a mountain-peninsula such as Mount Athos, with its well-defined altitudinal belts and coastal boundaries, as described in Veronica della Dora's chapter, is very different from science making on the polar ice cap. They are visually and cognitively different: in the former case the scientist is offered the chance to grasp the mountain's unity in diversity with a single gaze from afar. In the latter, as William Fox and Kathryn Yusoff show, the gaze can often quite simply get lost. And yet, the mental processes that identify Mount Athos and the Antarctic continent as discrete geographical objects and natural scientific cases rest on similar principles and have similar ethical implications. The 'isolation' of these features produces complex meta-geographies of purity within a broader ecological discourse of environmental threat; it produces, in other words, a series of seemingly uncorrupted islands within an impure world. Represented in popular geographical imagination as a universal heritage to be safeguarded, high places thus transform physical regions into mental regions of individual (ecological) conscience. At the same time, while increasingly internationalised through such initiatives as the Antarctic Treaty, the 'twinning' of high mountain communities and the internationally-designated 'years' devoted to their formal study and conservation,²² high places remain pre-eminently spaces for science. Ironically, the imperatives of 'science' frequently seek to maintain an inaccessibility challenged by modern communications by denying access to non-scientific visitors: the most recent shift in the politics of extremity and height.

Finally, science making in high places is inflected by ethnographic encounter, perhaps more often than is readily acknowledged by scientists themselves. Both Bravo and Mitchell point to the role of polar scientists today as the unintentional inheritors of the colonialist and sometimes racist attitudes that governed the encounter between temperate and local peoples well into the late twentieth century. While the wholly exploitative attitudes and conduct of many earlier polar explorers and scientists towards local dwellers – on whose knowledge base and skills those outsiders, of course, depended – have gone, the tensions and misunderstandings of encounter continue to shape practices of knowledge making in high places.²³

Structure and contents of the book

This collection explores various ways in which high places become meaningful, and how, through various significations, their landscapes migrate and circulate. We have grouped the essays into two parts. Part 1 is devoted to studies of cognition and formal science in high places, framed by individuals and groups who come from 'outside', and for whom such places are generally viewed as distant, marginal and difficult. In this sense these essays could be said to adopt a classic geographical perspective, although they draw upon novel modes of geographic theory and method in treating spaces and places. Part 2 considers knowledge of high places from the point of view of the natives, or the 'insiders'. It gives voices to those who inhabit such locations and who have conventionally been excluded from the geographic except on terms dictated by others. As each of the contributors makes abundantly clear, such knowledge derived from 'the inside' cannot be considered distinct or opposed in some way to 'scientific' knowledge, but it is in constant negotiation with external knowledge, to which it actively contributes. Each type of knowledge pressures the other in framing a constantly evolving understanding of the geography of high places in all its aspects.

Part 1 comprises seven essays. Three are devoted to high latitudes and three to high altitudes. These essays are introduced by a piece by William Fox, which explores problems of cognition and (dis)orientation in both types of environments through personal, embodied experiences on Mount Erebus and Pico de Orizaba (central Mexico), respectively the highest volcanoes in the Antarctic continent and the fourth highest in the northern hemisphere. Themes of cognition, disorientation and embodiment are also pursued in John Wylie and Katherine Yusoff's chapters. Weaving a personal story of archival research at the University of Cambridge's Scott Polar Research Institute with the stories of Scott and Amundsen's expeditions taken from the explorers' diaries, Wylie's account unfolds in a complex and mobile intertwining of subjectivity and materiality specific to the Antarctic continent, that also move beyond it. For Yusoff, nineteenth-century knowledge of the Antarctic lay in a fluid zone between fact and fiction. Her chapter discusses examples from the charge of 'immoral mapping' made against American explorer Charles Wilkes in 1840 for the designation in his reports of land where none was later to be found, tracing the origins of his expedition to the truly speculative geographies of Symmes' Hollow Earth theory. As Yusoff shows, mirages, even utopian visions, are always to a degree geographically grounded in the material specificities of high-latitude geographies. In Heather Frazar's chapter, high-latitude materialities are quite literally taken 'out of place', and turned into valuable 'scientific objects' able to unfold and circulate in stories that transcend high places' locational specifics, as the GISP2 ice core project demonstrates. In this sense, from untamed places of deception, high places can turn into places for 'scientific domestication'. Similar narratives run through the three mountain chapters. The conceptual domestication of mountains, as Bernard Debarbieux shows, is overwhelmingly an Enlightenment project, one dictated by the desire to read order in the complex 'text of nature'. At the same time, it is also a project encompassing different, often contrasting, discourses and sets of practices: from the normative,

theoretical and distanced conception promoted by cabinet scholars, like Buache, to the empirical work of von Humboldt. This latter tradition, grounded in fieldwork and reconnaissance processes, would open the way to the later successes in geology and botany, validating direct experience of the mountain environment in the construction of scientific knowledge. Veronica della Dora's chapter shows how the 336-square-kilometre mountain-peninsula of Mount Athos, a monastic republic and 'naturally bounded' high place in northern Greece, has been conceptualised as a large botanical garden in different scientific traditions, from the sixteenth-century, pre-Linnaean taxonomies to the early twentieth-century ecological theories. Thanks to Athos' internal floristic variety, panoptic conformation, and self-enclosed cartographic nature, the peninsula has long 'mattered' as a place for science making, becoming for botanists a floristic sanctuary. The idea of mountains as scientific laboratories/observatories is taken further by Maria Lane in her exploration of late-nineteenth-century North American high-altitude astronomy. Lane's study reveals how wild, lofty peaks are not only domesticated through scientific practice and the establishment of astronomical observatories, but actively participate in the social legitimisation of the astronomer himself as a scientific figure. Furthermore, the astronomer's status is affirmed through his act of climbing and his kinetic interaction with specific high-altitude milieus.

Four essays comprise Part 2 of the collection, each in its way giving voice to those who 'inhabit' high places and their negotiations with visitors of diverse stripes: scientists, tourists, and state and other 'flatlanders' or 'temperate' types. Gilles Rudaz examines the ways in which those dwelling in, and making their living from, Alpine mountain places have come to adopt from such outsiders the designation of 'mountain' as a geographical and environmental classification and have used complex relations of dependence and independence to negotiate their own material interests. Rudaz makes it very clear that there is no single voice within Alpine communities, but that negotiations and conflicts occur among mountain dwellers as well as with territorial outsiders. Michael Bravo's exploration of the complex and never fully-mastered skills of observation and bodily sensation used by Inuit hunters and fishers on the sea ice along the shores of Baffin Island are also in constant negotiation with forms of knowledge available with increasing facility from outside, such as weather forecasts and global positioning systems. His study is also a personal account of negotiations between scientific discourse – increasingly practised among Inuit individuals – and traditional knowledge, and the questions of language and the cartographic representation these encounters entail.

Richard Powell's account of the Canada Day celebrations at Resolute in the Canadian High Arctic – since the 1950s, a scientific base and a federally created Inuit settlement – offers another perspective on the sometimes tense, sometimes humorous relations between tourists visiting from temperate regions and Inuit inhabitants of this very high latitude place. Living in largely separate spaces within Resolute, the contacts between Inuits and the tourists, who were regarded suspiciously as representatives of a paternalist, if not colonialist, federal government, coincide and occasionally collide in such everyday practices as casual labour and recreation, but on Canada Day – something of an awkward celebration in parts of Canada – the inhabitants of the still recently designated Nunavut, proclaim

their allegiance to a greater territory while in a carnivalesque fashion 'turn upside down' everyday relations of power and authority.

Deploying alternative epistemologies to challenge colonialist intellectual structures is the subject of Jin Jong-Heon's study of the revival of Paektudaegan, a unique Korean mode of mountaineering that involves walking ridgeway watersheds rather than scaling peaks. Jin shows how the practice relates to a mode of geographical science and cartography that predated the modernisation of Korea initiated in the late nineteenth century. In the early twentieth century Japanese colonial science, drawing on European concepts, redrew the map of Korean mountains, thus breaking a system that corresponded to a long-standing cosmological model of Korean national territory. Debates over the scientific status of *pung-su*, the geomantic model that underpins Paektudaegan, and the embodied practice itself, reveal continuing ideological tensions in a divided and post-colonial Korea.

High Places presents multiple and refracted geographies of polar and mountain regions, revealing something of the always contingent, contested and mobile nature of scientific knowledge, and its necessary engagement with the lives, experiences and understanding of those who dwell in such places.

Part 1

Science and Formal Knowledge in High Places
