

Aerial Life

Spaces, Mobilities, Affects

Peter Adey

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Aerial Life

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The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

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Series Editors' Preface

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Kevin Ward
University of Manchester, UK

Joanna Bullard
Loughborough University, UK

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Chapter One

Introduction

Prologue

Responding to the rapid growth in commercial air transportation and its implications for the personal mobilities and geopolitical relations that follow, French urban sociologist Henri Lefebvre would write that ‘space is also being recast’ (1991: 351). This book is concerned with the scale and content of that recasting.

1920, the Royal Geographical Society, Kensington Gore, London

A meeting held at the Royal Geographical Society in Kensington Gore, London, brought together geographers and eminent figures who shared interests in the advancement of British military and civilian aviation. Winston Churchill, Hugh Trenchard, Frederick Sykes and Geoffrey Salmond¹ included, the group set about discussing the major milestones passed by a growing British air network and the creeping establishment of new routes in Africa and the colonial territories. Opening the meeting, the Society’s President, Sir Francis Younghusband, spoke about the relation between the field of geography and the burgeoning technology of the aeroplane.

We earth-bound geographers are inclined to look with a jealous eye upon these fine gentlemen of the air. For they soar up aloft and glide gracefully over the most terrible obstacles, insurmountable to us geographers. We dislike them especially for a very nasty habit they have contracted of taking photographs of us from that superior position in which men appear like ants, mountains like mole-hills, and even the President of the Royal Geographical Society

appears of very insignificant proportions. But we geographers get our own back upon them in the long run, because they cannot stay up in the air for ever. (Prince of Wales et al. 1920: 263)

As an example of coming to terms with the new sorts of perspectives available from the aeroplane, the meeting was typical. The aeroplane was to develop quite new ways of seeing space and time.² From the aircraft the earth tilted. It became a large canvas as the embodied gaze left the shackles of the terrestrial subject. Quite different people would be necessary to take advantage of these viewpoints and unfettered, frictionless movements. Together, entirely new sorts of space would be born.

On the other hand, the geographers diverged from what are now rather typical conceptions of mobility or air travel in favour of a position that concerned the ground the aeroplane was dependent upon. For Younghusband, it was questions of geography – questions concerning the surface of the planet that earth-bound the airmen.

If they are in an aeroplane they are most anxious that the surface of the earth beneath them is not water, and if they are in a flying-boat they do not want it to be land. [...] They want to know if it is covered with forests or buildings, whether it is hilly or plains, whether it is crowded or free and open, and whether there are communications to their landing-place. They want, in fact, to know everything they can about its geography. (Prince of Wales et al. 1920: 263)

In the end, Younghusband joked, they would be ‘glad enough, these haughty airmen, to shake hands with us humble geographers’ (Prince of Wales et al. 1920: 263).

At first Younghusband appears to separate the glamorous lives of the airmen – who act on high above from their privileged perspectives – from the existence of the geographer – whose concern is with the terrestrial: with the landforms, patternings and peoples of the ground below. These distinctions are commonplace ‘as separations between above and below, air and ground, bomber and bombed’ are made in representation (Gregory 2010 in press). At the same time, however, the world of the airman is made dependent on the world underneath. New connections between the horizontal and the vertical are brought into being. Like the airmen and the geographer, the two dimensions shake hands. The vertical life of the airmen is tethered to the terrestrial, to the location of their landing place and its local topographical idiosyncrasies, as well as its outer connectivities. The aeroplane is not necessarily liberating or liberated, but it is tied, or what John Urry (2003) might describe as ‘moored’, to an infrastructure on the ground. Both the ground and the air reside together in vertical reciprocity.

1941, Dachau concentration camp, Germany

In *Homo Sacer*, Giorgio Agamben (1998) discusses the work of German Nazi scientist Dr Sigmund Rascher, who in 1941 applied to Himmler to be provided with two or three ‘professional criminals’ for the purposes of his research on the pilot body. The research was commissioned for the Luftwaffe. His experiments required VPs, short for *Versuchpersonen* (human guinea pigs), who could be stretched to the limits and beyond of the human body. His experiments would test their abilities to withstand, adapt to and eventually succumb to the environments of high-altitude flying, or submersion in freezing temperatures – to simulate the conditions of their pilot counterparts should they crash-land or parachute into the sea. Subjecting a Jewish VP to the equivalent pressure of 12,000 metres of altitude, or hypothermic conditions that could stop their hearts, the tests took the subjects through a range of extreme states of life that would lead, for some, to death.

The documentation of Rascher’s work, under the oversight of Himmler and Hitler’s personal physician, Dr Brandt, was used as evidence during the Nuremberg trials to convict Brandt and several of Rascher’s fellow scientists of war-crimes. (Rascher and his wife were executed by the SS two weeks before the Allies entered Dachau.) Investigated by Major Leo Alexander of the Medical Corps of the United States Army (Alexander 1945), the files emerged in Himmler’s cave depository in Hallein, Germany. Now the study of research in medical ethics and the scientific dimensions of totalitarian regimes (Bogod 2004; Poszoz 2002), their evidence gives us explicit insight into the role and imagination of the aerial body.

Our concern here is for the reduction of the *Versuchpersonen* to a bare life. Viewed as non-living or already dead, the VPs were criminals or persons whose animation did not matter; they were ‘asocial individuals and criminals who deserve only to die’, as Himmler would come to justify their sacrifice.³ Understood as little more than an organism, their use would be one of ‘vital importance to the air force’ and therefore national security,⁴ avoiding ‘a young German aviator’ being ‘allowed to risk his life’. The VPs tell us about the embodiment of aerial mobilities, the movement of the ‘haughty’ airmen who must be sustained in extreme conditions. But they also reveal bodies in the shadows, body-subjects quite removed from the aeroplane and the ways we tend to imagine their action.

1998, a cargo aircraft somewhere between countries

Almost 60 years later a series of air travels are experienced and written up by writer Barry Lopez (1999). Lopez had undergone 40 flights with air-cargo aboard various 747 freighters or passenger planes carrying freight.

Covering over 110,000 nautical miles, flying in and out of major cities and across the world's continents, Lopez visited Taipei, Rotterdam, Los Angeles, Lima, Calcutta and Chicago O'Hare airports, among many others. He travelled with a bewildering amount of cargo: from cattle and sheep to valuables such as precious stones and watches, to perishables such as flowers, food and newspapers.

Clearly this is not a *moment* particularly unique or worthy of drama, although Lopez's flights are full of little events (severe turbulence especially). His recordings capture the strange worlds of the cargo-hold, dominated by a stillness born out of animation: inattention from the overload of wind and noise; the stench of animal faeces or a fruit's unique odour. Lopez is both enthralled by the atmospheric little worlds of air-transport cargo and bemused by and critical of what they add up to. A museum director in Los Angeles, Lopez is told, found it cheaper for the museum's entire sandstone façade to be quarried in India before being air-freighted to Japan, where it was dressed, and finally 'flown to Los Angeles than to have it quarried, dressed and trucked in from Minnesota' (Lopez 1999: 84). Phone-books are shipped to China to take advantage of cheaper labour forces, who can key in the details at a far lower cost. Rayon blouses are cut in Hong Kong and flown to Beijing to be finished by hand before they are flown back.

Lopez's point is more subtle than a critique of the ridiculously generalized processes many of us call 'globalization'. Clearly it is a classic narrative of the annihilation of space by time (Harvey 1989; Kern 1983). It is a story of new economics, just-in-time delivery. Yet it is a far more human story than that. For the flights criss-crossing the globe, arriving in and out of cities, loading and unloading, are governed by desire. What planes fly, Lopez suggests, 'is what people imagine they want. Right now' (1999: 85). Flying over the rocket fire and streams of tracer ammunition in Afghanistan, the desire for guerrilla weaponry is nowhere more clear. Demand produced from a want, a need, a lust, jealousy, a most basic and thoughtless emotion, has produced a disturbingly uneven logic of aeromobile commodity flows. The view 'that people everywhere want more or less the same things' is an illusory one; 'not all the world's cultures can be folded into [the] shape' of a European and Western consumer ethic (1999: 92). Stepping out of the homogenized airport in a place such as Calcutta or Harare, Lopez was witness to 'starkly different renderings of the valuable' (1999: 93).

Lopez's travels also brought him into the cockpit. With lengthy spans alone with the pilot to make conversation, Lopez asked him what he thought of the work of the artist James Turrell, who had built a crater in Arizona near Flagstaff in an attempt to construct what he thought of as the shape and volume of the air. Lopez's narrative cuts back to a recollection of a conversation with Turrell. 'For me,' Turrell explained,

flying really dealt with these spaces delineated by air conditions, by visual penetration, by sky conditions; some were visual, some were only felt. These are the kind of spaces I wanted to work with. [...] People who have travelled to Roden Crater – heavy equipment operators as well as museum curators – say, yes, you do see that the sky has shape from the crater. (1999: 107)

After explaining the motivations behind Turrell's work to the pilot, the pilot duly 'turned around in his seat and said, "He's right. I know what he's talking about. The space you fly the plane through has shape."' "

I asked if he thought time had boundary or dimension, and told him what I had felt at Cape Town, that time pooled in every part of the world as if in a basin. The dimension, the transparency, and the agitation were everywhere different. He nodded, as if together we were working out an equation. A while later he said, 'Being "on time" is being on fire.' (1999: 107)

* * *

So here we have, some 80 years apart, three rather different apprehensions of time, space, body and the air. For the geographers, the air allows one a greater appreciation of the ground from its high perspective; a greater albeit instrumental respect for geography, even as space is shrunk by the ability to traverse it; a new 'substance' of 'geographical knowledge' (Wright 1952: 330). From an enhanced position above activities and patterns on the ground, their perspective merges with many familiar narratives of flight as transformer of our senses of space and time, 'transcending geography, knitting together nations and peoples, releasing humankind from its biological limits' (Sherry 1987: 2). But geography was not transcended. Space, in its vertical and horizontal planes, is connected. The aeroplane depends upon the geography of the earth for it to survive. Reversing Gillian Fuller and Ross Harley's (2004) thesis, *life on the ground surely changes that in the air*.

As the geographers make a distinction between the body on the ground and the body in the air, Rascher's disturbing experiments make another sharp and literal cut. The choice is made between a body whose life is worth nothing – the *Versuchpersonen* – and the body whose life is worth more – the German pilots. The VPs' rights are suspended. They are exposed to harsh extremes of high altitude, freezing temperatures, the immersive conditions of aerial space. The issue here is the aeroplane's relationship with an inside and an outside, an insider and an *Other*. The *other* in this case is outside the realm of law, designated by sovereign and scientific power as 'asocial', 'criminal', and, therefore, whether they live or die is of no consequence. In fact if they survived the experiments they earned a pardon – they earned their right to life. The *Versuchpersonen* are in fact the aeroplane pilot's *alter ego*, the airman's *doppelgänger*. They are the *other*, both a by-product and an essential component of the pilot's operations.

Lopez's geographies of flying mark out other sorts of differentiations and productions of space. They are found unevenly in different places and at different times, and they are spaced by collective feelings. Together with Turrell and the pilot's accounts, the aeroplane reveals the shape and dimensions of the spaces it has produced: of unevenly created lines of desire along which commodities and aircraft travel; volumes of space where time is different; contours of expansive vistas, limits, borders and forms.

This book is precisely about the interdependencies identified by the geographers, the sharp and scary differentiations of bodies and subjects produced by the German scientists, and the spaces, shapes and volumes Lopez articulates – the solution within which aerial life finds its suspension. It is concerned with how space has been produced, transfigured and shaped through the technology of the aeroplane, and, as this has happened, how people have been changed too. If as Lefebvre famously suggests, 'to change life [...] we must first change space' (1991: 190), this book is about life changed and threatened by new productions of aerial space and mobility.

Overview

The spaces and shapes of the aeroplane are many and they are diverse. Airports and aircraft have become synonymous with our contemporary mobile world (Graham 1995; Hannam et al. 2006). More of us fly now than ever have before. International tourism is made possible by charter and scheduled aircraft flying between cities and continents. Western societies are made and constituted by air travel, allowing social relationships, networks and associations to be held and maintained, or, conversely, to be *dis*-abled, destroyed and ruined (Cwerner et al. 2009). War in the twentieth century was war waged by the aeroplane. From the air raids of the Blitz to September 11, to the newest unmanned drone aircraft deployed atop Gaza and Afghanistan, aeromobilities provide both promise and possibility as well as dread, terror, destruction and death (Grosscup 2006).

The spaces of the aeroplane, then, are very dangerous and they are certainly curtailed (Sweet 2004; Wilkinson and Jenkins 1999). It is in the spaces of air travel where societies are increasingly regulated as flight has become a dominant means to cross borders (Salter 2003, 2008). Flight is a space which is intensely segregated and hierarchical as well as highly monitored and controlled. The geographer's point is made nowhere more clear as the complex processes of securitization on the ground (in the airport) secure the way for a safe flight free from explosives, guns or hijackers.

On the other hand mobility by air is not nearly always so dark. The top-side of its more concerning implications are the capabilities it brings to connect people together, to join friends, families and associates; to deliver

aid and humanitarian assistance; to create exciting experiences and feelings of uplift, exhilaration and joy; and to create jobs, investment and value.

In many respects, aeromobilities are responsible for our current and modern condition and they are conveniently sought as the barometer of the day. They define and undo more traditional conceptions of citizen and territory through mobile post-national citizenship regimes or re-imaginings of nations. Airports' outlet-lined corridors express the relationship of consumer and commodity – brand names provide a welcome familiarity in a space that is often disorientating. The airport terminal is now even understood as the new model of the city. The *aerotropolis* or airport metropolis has become the future of urban existence, posited by John Kasarda (Charles et al. 2007; Kasarda 1991a) as the newest Kondratieff wave (Kasarda 1991b) of economic development, forming an air-cargo industrial complex essential to economies and especially city-states such as Singapore, Hong Kong, Dubai, and destination 'experience economies' (Lassen et al. 2009).

Clearly these issues demand investigation. Yet the study of aeromobilities has remained remarkably asocial and rather fragmented. There are entire journals devoted to aviation medicine. Aviation law even used to be a popular sub-discipline and is now a popular area of practice. Aviation and transport security is an enormous industry with well-funded research agendas. Air warfare has been subjected to its own scrutiny by those concerned with the effectiveness of payloads, or by international human rights organizations working on behalf of punished populations. Transportation research and transport geography examine air travel's relation with policy making, governance, economic transformations, alongside technological change. As we will explore in more detail in the following section, the way aerial mobility has been explored in the literature is as an instrumental device – it is a means to an end.

On the other hand, recent conceptual turns towards notions of 'mobility' and 'flow' have been productive in their elaboration of the mobile dimensions of existence, serving as some sort of corrective to the manner we have thought about movement before (Adey 2009; Cresswell 2001, 2006a; Urry 2007; Urry and Sheller 2006). More discussion and debate is also generating fruitful relationships between 'new mobilities' and a revitalized transport geography (Dival and Revill 2005; Knowles et al. 2007). While incredibly useful for the analysis of our aerial world, they tend to focus their attention to specific sites such as the airport terminal with convincing empirical detail (Fuller and Harley 2004; Pascoe 2001; Salter 2007a). Others use the airport as a metaphorical comparison to contemporary society (Augé 1995; Castells 1996; Chambers 1994; de Botton 2002; Serres 1995). The result of all of this is a useful, yet necessarily partial and often allegorical perspective on air-travel mobility.

This book tries to break the current mould. It aims to present theoretically informed research that explores what the development and transformation

of air travel has meant for societies and the human subject. It argues that air travel is both constituted *by* and expressed *in* a set of geographies, infra-structures, relations and processes that connect both land and air.

Aerial Life

As a key component of contemporary mobile life, aeromobilities have shaped and defined the scope of our movements: the sorts of places we may go; the kinds of violence we may inflict; the scale, extent and manner of our surveillance (Adey 2004a, 2004b; Salter 2004). They alter the shape and sovereignty of the space above us, the way we see ourselves in relation to our country's neighbours, and the possibilities and capacities of our bodily movements. Gillian Fuller and Ross Harley (2004) go as far to suggest that airports are entirely new kinds of life. *Aviopolis*, they purport, is a 'mix of multiple forms of life' between the earth and the sky. As 'metastable' meta-forms, airports 'mix multiple forms of life, matter and information into a series of new and constantly changing relations [...] it is impossible to separate airports from the ecology of its environs' (Fuller and Harley 2004: 104–5). The airport has an anatomy; it terraforms its ecologies – understood as a transversal exchange between nature, culture and technology – giving life to some and death to others. With its 'exoskeletons', circulatory systems of 'arteries' and 'capillaries', the airport is a 'commercial organism' (Harley 2009). In the same vein, International Relations scholar Mark Salter has noted how the operator of Frankfurt Airport City describes its passengers as 'the *homo aeroportis globalis*' – 'a new but by no means rare species' (2008: 11) – a distinctive kind of qualified and consumer-driven life, hybrid and adaptable, a species whose patterns of behaviour are difficult to predict.

Although we could take Frankfurt's claims with more of a grin than any acute interest, their ambition to extend and even replace the city articulates how quite new forms of life, exchange and political community have been produced by the aeroplane. I want to take these 'new forms of life' seriously in three related ways which I shall develop further and in more conceptual terms in the following section and throughout the volume.

1 Firstly, the increasingly central role of air-transport mobilities to our society has led to the genesis of what we could call an 'aereality' – a distinctive kind of mobile society, a 'life on the move' – which the aeroplane has worked to imagine, define and mould (Cresswell 2006a; see also Sheller and Urry 2000 on the car). At the same time, and as already discussed, the aeroplane threatens to destroy that life and other non-aerial forms of existence. Aerial life is thus a life on the move, on the edge, on the verge of disaster. We can, however, be more precise than this 'life on the move' given that the life-worlds of the aeroplane are unevenly distributed and they are not one but many. By this I mean not the separate societal incarnations of

the aeroplane or the aeroplane's uneven transformation of social structures and relations, but specific 'aerealities', in William L. Fox's (2009) terms – *ways* of 'life on the move' which the aeroplane has produced and threatens to undo (see, e.g., Gottdiener 2000). This book takes seriously the lives the aeroplane has altered.

2 It is the contradictions of these lives and indeed the contradiction of aerial life that this book is interested in. For if the city – the *polis* – transformed political life – 'from mere life to human life, and from human life to the good life' (Bull 2007: 13) – we must ask just what kind of life our aerial world has produced as it becomes increasingly the medium for the operation of violence, civil society, protest and political power. Life is both supported, shunted and made good by the aeroplane, and simultaneously dropped, punished and treated as less than human. Given Nikolas Rose's concern for our growing ability to 'control, manage, engineer, reshape, and modulate the vital capacities of human beings' (2006: 3), we must ask precisely how what we think of as life has become indelibly altered by our aereality. *Just what are the politics of aerial life itself?* The book explores how aerial life might be understood as a different kind of (non)human existence, altered in its capacities to think, feel and act.

3 Finally, this book is concerned with aerial lives as they are *lived*. Thus, it departs from the confines of artistic and visual representation such as cinema, painting or tourism that may characterize the study of aerial geographies or mobilities (Lofgren 1999; Paris 1995; Paschal and Dougherty 2003; Wohl 1994). In the plethora of ways that air travel has been examined, the representational portrayal of the aeroplane as a visual image and a subject of discourse dominates concerns. Focusing on the practised and performative dimensions of these aerial lives, the book examines the more-than-representational (Lorimer 2005) performance of aerial life to see how it is not only portrayed, but *done* and lived. Before exploring these conceptual concerns in any more detail, let me firstly illustrate the methodological shortcomings of attending solely to the representations of flight.

Research on the aeroplane is dominated by representation. For instance, Robert Wohl's (1994, 2005) wonderful epochal studies of aeroplane culture present the political spectacle of flight as an object of visual capital. Alan Cobham's arrival in England on the Thames. Lindbergh's landing at Paris. The Beatles' arrival at Liverpool. Hitler's stage-managed mobility across Germany by aircraft. Aeromobility conveys a personal and technological charisma to be visually consumed. Airline advertising (Van Riper 2004), posters, maps and calendars are discursively investigated for their communication of far-off places, the celebration of the nation, or the glamour and romance of the air. As well as celebrity and splendour, the shadow of the bomber (Bialer 1980) connotes fear and destruction, vulnerability and threat. Propaganda is high on the list of the aeroplane's functions. In his studies of the 'golden age' of aviation war films, which coincided with the

'golden age' of cinema, Michael Paris' (1993, 1995) shows how movies from Howard Hughes' *Hell's Angels* to Tony Scott's *Top Gun* display themes of heroism and force, daring as well as danger, the cult of the airman and their prowess of technological modernism and as a 'metaphor of national achievement' (1995: 205). The sight of the aeroplane is just as significant as the view from it. The aerial view, of course, was preceded by the technology of the skyscraper, producing already changed forms of 'aerial subjectivity' (Waldheim 1999), and constructing what Davide Deriu (2006) calls the viewing subject of the *planeur*. Skyscraper life meant living in heightened elevations where everything that was desired could be 'contained within' it or 'sighted from' the building (Douglas 1999: 202).

This book aims to move beyond the limits of discourse and textual representation in how we understand the aeroplane's worlds. It will investigate the aeroplane's manufacture of quite different ways of being. Inspired by Peter Sloterdijk's (2009) modification of Heidegger's 'being-in-the-world' to 'being-in-the-air', this book takes seriously aerial geographies as an 'unthought' phenomenal world. With the body and its 'vital capacities' (Rose 2006) as my starting point, the book complicates the predominance of visual interpretations – as merely scopic – towards a flesh-and-bones approach to visual culture – bodies that sense, touch, feel and intuit. It is therefore about aerial subjects and their relation with space, a realization 'that man is not only what he eats, but what he breathes and that in which he is immersed' (Sloterdijk 2009: 84).

It is not, however, about discarding representation or ignoring the power of the imagination. Investigating the production of aerial life means that one cannot dispense with the imaginative. Rather than pacify the visualization and imagination (Gregory 2004) of an aerially mobile subject, I suggest that these imaginations are bound up in the production of aerial subjectivities, in the production of aerial life itself.

Attuning to geographical imaginations and imaginative geographies, Derek Gregory's influential work on the construction of an apparatus of contemporary colonialism paves the way for an approach that considers how the imaginative geographies of colonialism are not merely an expression of processes and relations but actually do a lot of work. Inspired by Edward Said's *Orientalism* (1978), the geographical imagination forms more than merely an archive of cerebral thought produced through the sedimentation and accumulation of memories and histories; it actively structures future practices and performances. For Gregory, 'its categories, codes and conventions shape the practices of those who draw upon it'; in short, '*it produces the effects that it names*' (2004: 18). In this sense the imaginative geographies of *Orientalism* are closer to a kind of practice, a performance of space. It is thus a 'domain but also a "doing"' (Gregory 2004: 19).

Taking this cue, the book investigates aerial worlds as they exist as both real and imaginative domains, and as they are practised as both

representational and more-than-representational performances. In this way the little things of bodily motion, technologies or technique produce or replicate minor or grand imaginative geographies, (re)producing imaginations of the body, the state, territory, the vertical, and so on.

But just as Said's imaginative geographies of the Orient presume an other, aerial lives produce and are premised upon outsiders – constitutive others. In Agamben's (1998) study of Rascher's experiments it was the 'asocial', the 'criminal', a Jew accused of 'inter-racial' breeding, a Gypsy or a homosexual cast outside the rights of citizenship. Those were the Others to the security of the state and the safety of the aerial pilot. As well as the VP, the image of the Arab pervades the aerial imagination. The British strategy of colonial policing in Iraq first placed the Arab populations opposite the violence of the aircraft's bomb or machine gun (Lindquist 2000; Townshend 1986). Even T. E. Lawrence found the Arabs' mind-set difficult to understand. On occasion their response was 'too oriental a mood' for him 'to feel very clearly'. 'An Arab would rather offer up his wife than himself, to expiate a civil offence!' he explained to Basil Liddell Hart.⁵ The 'interwar fantasy of the Arab' (Bourke 2005: 273) presented by Lawrence and British military officers is not entirely different, then, from the contemporary rendering of a 'sinister, bearded fundamentalist'. Such an image is embodied in the profiles and classifications of aviation security, where a 'physiology of seeing' (Pugliese 2006) casts an Oriental spectre of kinesiology, phenotypology and vestiture upon the mobile body. These *others* are identified, targeted (Gregory 2007), or produced through the lived techniques and practices of aerial life.

Aerial geographies

What I have developed is an argument as well as an approach. It is also more than an important or difficult methodological task; it is an empirical point. My contention is that the aerial lives I want to understand map a diverse yet coherent spatiality – an aerial geography – reminiscent of geographer Rachel Woodward's exposition of the multiple sites and spacings of 'military geographies' that are always 'there with us' (2004: 4) and James Sidaway's claim that the 'repercussions of war and death are folded into the textures of an everyday urban fabric' (2009: 1092). Take architect Eyal Weizman's (2002, 2007) critique of the 'territorial hologram' expressed through the Israel–Palestine conflict. Weizman (2002) argues that 'political acts of manipulation and multiplication transform a two-dimensional surface into a three-dimensional volume, thereby evading established models of spatial analysis'. For Fuller and Harley (2004) and Salter too, a space like an airport extends into both vertical and horizontal horizons, it moves 'into the atmosphere – integrated into transport and critical infrastructure, throughout government regulations and business relations, into the surrounding city and

country, and across territorial frontiers' (Salter 2008: 9; see also Dodge and Kitchin 2004 and Graham 2004 on the virtual). The aerial lives I want to explore are three-dimensional too. They have volume, they take shapes and they frustrate ordinary forms of spatial analysis because they are littered and extended across an interlacing and interconnected architecture of both vertical and horizontal planes.

By taking the view from above and what Kenneth Hewitt (1983) called the 'view from below', the volume teases out something akin to what John Urry has labelled a system. Urry argues that air systems 'are central to the making of the new global dis/order' (2008: 25). The way I treat these systems or realities is slightly different. I want to explore the shapes and volumes these realities take and understand how they are formed and experienced in ways that threaten or secure the future of those systems. These are not that dissimilar to Lewis S. Thompson's description of a kind of aggregation, a medium of a 'boundless, borderless air mass', and an 'aggregate of men, aircraft, weapons, air bases, facilities and the industrial and technical resources that sustain flight' (1955: 58). Take bombing, a practice which has a history, as Gregory (2007) shows (see also Lindquist 2000), but it also has a geography with defining and competing contours and geometries. Understanding aerial geographies as a contradictory aggregation of spaces, shapes and geometries perhaps best characterizes my approach.

For example, consider Louise Amoore's (2009) discussion of the aligning of science, commerce, the military and the state, as she investigates the contemporary security apparatus or *dispositif* distributed across numerous terrains, materialities and systems of knowledge. What she calls an 'emerging geography of algorithmic war' embodies ever-closer relationships between 'science, expertise and decision', allowing the distinctions between them to 'become more malleable' (Amoore 2009: 54; see also Bousquet 2009). Evidence may be found in the smallest piece of computer code which expresses value-laden scientific models. It may be born in the movement of a body, portrayed in corporate sales jargon, or expressed in the instructions of policy. Three-dimensionally, Amoore's approach is to build up the aggregated shape of the contemporary security *dispositif* composed of numerous spaces, technologies, practices and knowledges.

Unlike the topological surfaces used to describe legal-judicial formations, expressed by International Relations theorist Didier Bigo (2006; see also Vaughan-Williams 2008) as a Möbius strip, the spaces I'm describing have corporeal volume and shape. Indeed, they are touchable, felt and immersive environs with form. On the other hand, they also create outsides. And like the Möbius strip, these outsides are relative to the positioning of the subject. In this manner they are more akin to Doreen Massey's (1993) sense of a 'power geometry'. For some, aerialities are exclusive and capable of exerting force and power. For others, cast outside or as *other*, they are exclusionary, pregnant with fear, and provocative of extreme forms of violence.

The book works through a series of time-spaces which are not chronological or necessarily geographically delimited. Clearly the scope and limits of such a study could be absolutely enormous. Instead the book focuses on specific events, examples or case-studies in the history of the aeroplane's movement, particularly during its birth and examples from today which throw both into sharp relief, whilst preserving a genealogy of processes and trends. Although the majority of the original primary material I draw upon is European, American, archival and historical, the book uses diverse secondary and supporting material from around the world, which actually often involves British and American forces or expertise, illustrating the imperialist character of aerial life (see also Aaltola 2005). The approach, however, is not intended to be distinct. It is not meant to speak only within the boundaries of the examples discussed, and they should be understood as exemplars or stand-ins for much wider processes. What's more, as the book tracks the different dimensions of aerial life, it sketches out the imagination, augmentation, performances and experience of different subjects, be they passenger, pilot, scientist, planner, bombed civilian or artist, among others. These all surpass strict geographical and temporal definition. Clearly the volume cannot account for every body, and many will be missing. Instead I try to pick up on the subjects most transformed by the aeroplane's motion.

Aerial Life as both domain and doing, context and performance; before we move straight into the rest of the book, let us firstly explore the conceptual and disciplinary contexts and impulses that support this kind of analysis. How can we develop an approach more sensitive to the politics of aerial life?

Powering Up Aerial Geographies

We know how the study of our ability to move through the air has been slow to garner the theoretical benefits of 'new mobilities' and more sophisticated conceptual concerns. I do wonder, however, whether it is going too far to suggest that 'as objects of social-scientific mobility research [...] [airports] are almost entirely uncharted territory' (Kesselring 2009: 39), as does Saulo Cwerner when he suggests that 'aviation and air travel still receive scant attention in the social sciences' (2009: 2). Numerous studies of airports and aircraft show them to be signifiers of our contemporary mobile world (Augé 1995; Castells 1996; Gottdiener 2000; Hannam et al. 2006; Pascoe 2001). Social relationships, networks and associations are held and maintained by what Claus Lassen (2006) and Paul Virilio (2005) first termed 'aeromobilities'.

Continuing work in transportation geography has served to trace out the complex linkages of airline flight networks and organizational patterns. Drawing out these vectors uncovers the elaborate relationships that connect certain places to others by air travel, pinpointing hierarchical structures of

the most global and interconnected places (Graham 1995; Vowles 2006; Zook and Brunn 2006), supporting and facilitating international business relationships (Derudder et al. 2008a, 2008b; McNeil 2009). Other work on the social and cultural dimensions of air travel (Adey et al. 2007) has explored the relationship between air travel, identity and ways of belonging (Adey 2006; Corn 1983; Fritzsche 1992; Simmons and Caruana 2001). The airport terminal has become a focus for much of this thinking, drawing analysis of what it means to inhabit these spaces as sites of alienation, strange encounters and inequality. For others the airport can be seen as a place of home, relative stasis, dwelling (Adey 2008a; Crang 2002; Cresswell 2006a; Gottdiener 2000; Iyer 2000) and omnitopia (Wood 2003). Elsewhere the symbol of the aeroplane has influenced ways of imagining one's place in relation to the rest of the world (Pascoe 2003), acting as a builder of national identity and citizenship (Raguraman 1997; Wohl 2005). While the geographical relations of the aircraft cabin, or the aircraft cockpit, witness the performance of gender relations (Whitelegg 2005), Lucy Budd (2009) plots the spaces outside the aircraft window, examining the complex geographies of airspace management. Diverse and individually discussed spaces are evident, yet the shape, scale and quality of these spatialities have received little attention and neither have their contradictions.

An earlier paper by political scientists Stefan Possony and Leslie Rosenzweig captures some of these shortcomings. Attempting to set out an investigation of the 'geography of the air' as a new research focus, the authors limited their scoping of this geography to the 'physical differences of the air in various locations and altitudes' (Possony and Rosenzweig 1955: 1). They wanted to know what 'that invisible sea in which we live, the air' (1955: 1), meant for international relations, strategy and foreign policy. The authors made some interesting observations and should be applauded for stimulating an awareness of the importance of air-geography or 'aerogeography'. Although their conception of this geography was rather unsophisticated and problematic in relation to today's studies, their approach was to make the kinds of connections this volume strives to make. Setting out how the physical characteristics of airspace constrained and enabled aerial activity, from the simple implications of air currents, altitudes and temperature, their environmental determinism turned the layers of the atmosphere into variables to be entered into the equation of complex geographical and social relations. My bugbear is that today's studies fail to escape the one-dimensionality Possony and Rosenzweig overcame. They miss the depth of the sky, the infrastructures that support it and the social relations and experiences they make possible.

Cwerner, Kesselring and Urry's recent collection *Aeromobilities* (2009) points out that enhanced collaborative research can enable aeromobilities to be understood in this kind of way, 'by bringing together geographers, sociologists political scientists, semioticians and even artists, among other

professionals in the humanities and social sciences' (Cwerner 2009: 18). As the editors suggest collectively, 'Aeromobilities calls for a collective effort to expand our knowledge of airspaces and the social relations they enhance and make possible' (Cwerner et al. 2009: x). These new and integrated research agendas enable more socially nuanced and interdisciplinary positions on a subject like air travel. Indeed, it is through diverse conceptual perspectives that the three-dimensional shapes and scales of aeromobility may be revealed, necessitating, I contend, far more conceptual sophistication if they are to deal with what we can call some of the really 'critical' questions that aeromobilities research demands. As Caren Kaplan has recently claimed, the topic of violence remains incredibly absent from conceptions of mobility, thus, 'considerations of the entangled histories of war and mobility serve as an important corrective' (2006a: 395; see also Virilio 2005). What are the 'quality of life' issues at stake here, of fear, feelings of vulnerability, the rough touch of power? This compels a more nuanced consideration of the body as it is experienced and performed, and more careful understandings of power and control.

Circulations, species and spaces

'[O]ur relationship with aeromobilities is deeply *political*', argue Cwerner, Kesselring and Urry. 'And, without knowing what lies above us, we have very little scope for bringing it under democratic control' (2009: x, emphasis added). Clearly, the complex geographies of extraordinary rendition, aerial bombardment or airport security require just as complex theorizations of power in order to understand not only their composition, but also their implications. Let us take the monitoring by plane-spotters of secret CIA flights, which has given us a new window into the clandestine world of movements in the sky (Grey 2006; Paglen and Thompson 2006).

The CIA-leased private jets were used in a system intended – and many would argue misguidedly and illegally – to secure everyday life, a life which had been threatened by the hijack of several commercial aircraft on September 11, 2001. It is a question of the circulations that aerial life produces and becomes threatened by. We well know how the aeroplane has allowed us to become ever more mobile, shunting the sorts of people and commodities described in Lopez's narration. We have already discussed the manner in which this has engineered quite new forms of spaces and bodies into what Urry would describe as a system of circulation. And yet, these circulations have become both the target and medium – the infrastructural vulnerabilities – of aerial life. The problem is therefore centrally a matter of security. For if the aeroplane, its mobilities and infrastructures are harnessed as a means of security, how are these techniques further productive and destructive of different kinds of aerial life itself (see Lobo-Guerrero 2008)?

Michel Foucault's (2003, 2007) writings on power and biopolitical security deeply influences my approach. A plethora of research that orbits around Foucault follows the way mobility has become a problematic of security, and, thus, conceptualizes biopolitical administrative techniques as practices which take mobility as an inextricable component of what it means to live. The biopolitical apparatus is therefore about the facilitation of circulation, allowing things to be in motion, 'constantly moving about, continuously going from one point to another' (Foucault 2003: 65), all with an inherent danger that must be quashed. Circulation of all kinds – biological, monetary, trade – appears a contingent variable in the constitution of a free, good and constitutively 'aerial' life.

A shift from a sovereign geopolitical engagement with territory to bodies and populations marks Foucault's identification of biopolitical versus sovereign power. For many writers, Foucault's (2003, 2007) texts on the biopolitical help us interpret how contemporary forms of power enact a managerial, and not necessarily disciplinary, enrolment of a molar – a group of people addressed as a population. Bodies, and knowledge of bodies, are abstracted into data which may be sifted, tabulated and searched with the aim of administering that population. Indeed, the continual calibration of circulation is organized in order to protect that circulation from strangling life.

The key for the scholarship of Mick Dillon and Luis Lobo-Guerrero (2008, 2009) is the precise object of these techniques. They ask what sorts of technologies and techniques address the referent object of biopolitical security – that is, life – or the 'species being' as defined by Foucault. And, if what counts as life alters, what does this mean for technologies of power. It follows, then, that if the aeroplane has led to the imagination and production of quite new kinds of life – or forms of life mediated by the aeroplane's mobility that continually pose a threat to that life – *what sort of technologies and techniques have led to its production and security?*

The response the book takes is with less fidelity to Foucault, but a more considered take on biopolitics, sovereign and disciplinary power. Firstly, and this is certainly not unique to my approach, in the context of the aerialities I pursue, biopower is not necessarily divorced from the exercise of other modes of force. In other words the modes of power discussed are typically multiple. Gregory's (2008) investigations of the 'war on terror' exact a similar blurring of biopolitics with the 'protracted struggle over the right to claim, define and exercise sovereign power' as demonstrated in the struggle over insurgents in Baghdad. Similarly Colleen Bell's analysis of contemporary surveillance and security techniques is suggestive of forms of subjection "at a distance" and compelling modes of self-governance on the one hand whilst, paradoxically, it evokes 'the presence of sovereign authority in modern affairs of state' (2006: 151), on the other. The evolution of power from sovereign to biopolitical, from the focus on the individual body to the collective – the discipline of the body and its capabilities to the collective issues of 'births