

Vernacular mapping

affect, virtuality, performance

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Abstract

In diagramming the recent, global proliferation in quotidian cartographic technologies and practices, this thesis is concerned with the re-imagining of durable geographic motifs and refrains; those of maps and mappings. Conceptually, the thesis works to explore and interrogate the underplayed non-representational registers of cartography. Specifically, this entails unsettling the assumed ontological security of maps as representational artefacts, at the same time accentuating their affective and virtual vectors through an attentiveness to their spatial emergence and performance. In doing so, maps are rendered here not as mimetic, static grids of existence, but as intensive performances, productive of an unqualified geographic and political potential; that is to say, spaces of the virtual. Empirically, these conceptual concerns are worked through a series of fieldwork traces that animate and narrate a number of quite distinct yet resonant cartographic performances; namely geographic encounters with a counter-cartography group in North Carolina; a digital, open-source mapping organisation in both the UK and Peru and finally with two examples of an *institutional* cartography: Google and Ordnance Survey. Through these mappings, these fieldwork traces, what the thesis works towards is a micropolitical diagramming of contemporary cartographic practices, a diagramming that complicates deliberately the representational certitude of maps, but moreover, one that affirms the (im)material, anticipatory and minor geopolitics of mapping; a mapping of and for the everyday; a mapping of and for the vernacular.

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for Fabiola

- they mixed, so the map arrows said, into a single strength
Dylan Thomas

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All photographs and images by author unless stated otherwise.

// Chapter One

Disorientations

Disorientations



Here, now

Maps, mappings, cartographies; (dis)orientations for the everyday, obdurate disciplinary motifs of geography, maligned and admired in variable measure. Cartography; a science and set of practices once pertaining to sovereign power alone, yet now increasingly diffuse in its geographic reach and performance. Nonetheless, whether rendered through hegemonic, quotidian or hybrid assemblages, mapping remains resolutely political. This, then, is a thesis concerned with contemporary cartographic performances; an exploration, interrogation and diagramming of vernacular mappings; geographical performances enmeshed in and generative of spaces affective, virtual and intensely micropolitical.

Cartography, unbound

“I am in an unfamiliar place... momentarily what the map tells me bears little sense of where I think I am” (Newling, 2005: 48).

“What we are witnessing is without doubt, a renaissance of maps and mapping; a diagramming on an epic scale” (Thrift, 2011a: no pagination).

Maps and mappings maintain a curious hold on everyday geographies. On the one hand they enable a *slowing down* of space for navigation, thereby (sometimes) quickening journeys to pre-figured destinations. Moreover, both cartographic reason and the cartographic settlement have helped prise apart a modern constitution of

ubiquitous dualisms (Latour, 1993); rifts between representation and reality, between subject and object, nature and culture, between body and map; the geometric logic propagating taxation, territory, terror, war and frontier (Lacoste, 1973). Yet on the other hand, as Newling's bewilderment attests to, maps and mappings continue to disorientate and perplex. The ritualistic and daily choreographies between bodies and cartographies, between satellite navigation devices and world-weary drivers, for example, complicates hugely any straightforward division between maps and their users, or between representation and the onflow of reality. At the same time, as enunciated by Nigel Thrift (see Thrift 2011a and 2012), there is in-progress a pandemic growth in mapping technologies and practices (Chambers, 2006) which themselves have recalibrated the natures and geographic character of cartographic performances. This has constituted a move away from a sovereign or statist accord of mapping and a shift instead toward a more, broadly speaking, *participatory* model of cartography, facilitated to a large extent by the recent proliferation in Web 2.0; a generation of the internet dominated by online interfaces; interactive platforms and protocols (Zook et al, 2004; Zook and Graham, 2007; Zook and Dodge, 2008).

This thesis then is a geographical narrative and interrogation of contemporary cartographic concepts and practices; a fieldwork tracing of the natures and performances of everyday mappings; one which takes seriously the underplayed material and immaterial, non-representational vectors of mapping, those of affect and the virtual, asking simultaneously how such performances might fold into both a vocabulary for vernacular mapping and into a micropolitical understanding of cartography, questioning what this entails for geographers' disciplinary encounters with abstraction and mapping.

The aim of this opening into the middle-of-things is therefore to setup geographical research into vernacular mappings by both signalling a conceptual re-thinking of mapping and by signposting a concomitant explosion in cartographic techniques and performances that alter significantly the geopolitical register in which maps work and inflect. The chapter goes on to pose the question, why *now* consider maps and mapping, and having done so, it establishes an outline for the forthcoming conceptual and substantive chapters. In calling for a cartography unbound, a mapping untethered from the stultifying impulses of representational certitude, a certain degree of conceptual and empirical disorientation and disruption will be inevitable, such are the vernacular energies required to do the work of unhinging cartography from its determinedly Euclidean grid. The upshot, however, is a re-orientation of sorts; an understanding of cartography that valorises its affective, virtual and performative potential, a speculative mapping that questions not what worlds a map and its attendant practices 'reveal', but instead anticipates what kind of worlds and geographies maps could bring into being.

Renaissance, recalibrated

"In the deserts of the west, still today, there are tattered ruins of that map, inhabited by animals and beggars; in all the land there is no other relic of the disciplines of geography" (Borges, 1946: 84).

Conceptually, this research constitutes an attempt to develop a nascent theoretical re-working of maps and cartography in geography. It attends to and expands upon geographies that at once unsettle the ontological security of mapping (see Kitchin and Dodge, 2007) and which disrupt the representational settlement entrenched and performed by cartography. Put differently, this is to acknowledge explicitly that maps

are more than mirrors of reality, more than palimpsests or simulacra of space, and that the performances of mapping constitute more than the restricted cognitive practices of a rigid, spatial science. Such contentions, to be sure, are far from novel; familiar refrains increasingly well rehearsed under the aegis of critical cartography (see, for example, Harris and Harrower, 2006; Crampton, 2010). What differentiates this research from the broad critique of critical cartography is an affirmative approach to the non-representational registers of mapping. This means that beyond the project of unveiling the sometimes blurred social relations black-boxed by the map, a technique influenced by deconstructionist thought (see Harley, 1989), this research, through a series of fieldwork traces, cultivates an affirmative critique of maps and mapping practices; a speculative and anticipatory diagramming of what such cartographic performances might be capable; geographically and micropolitically.

A turn to non-representational geographies (Thrift, 2007) in thinking about cartography is to keep company with the post-humanist, maverick, unsettling cartographies of Gilles Deleuze and Felix Guattari; cartographers of rhizomatic maps that derange the locus of thinking and doing in the world from the staid mooring of arborescent thought¹; a Freudian psychoanalysis of Oedipal impulse (Deleuze and Guattari, 2004a) in which thought, behaviour and geographies are understood to be given in advance or fastened to a mapped, gridded unconscious². To map with Deleuze and Guattari is to accentuate the role of bodies in the folds of experience and to diagram

¹ Inverting the relation between thinking and mapping, Berardi (2008: 5) suggests that one should consider, “rhizomatic thought as the map” and as such this would constitute a, “trying to see the trace of the real in continuity with the lines on the map. In continuity, not in analogy, because rhizomatic thought is not a calque, but a rhythm, a mode of functioning, a style. A rhythmic map if I may say so”.

² Such that maps might simultaneously orientate and disorientate, so too does Stivale (1984: 31) remark that the cartographies of Deleuze and Guattari, “seek to delimit territories and then deterritorialise, to discern strata and then destratify, to define articulations and then disarticulate”.

the importance of bodies, human and non-human, affective and virtual, in the distribution and performance of vernacular cartographies. It is to accept at all times and spaces that the world is never offered or presented in advance, but that maps and their practitioners are always provisional, subject and vulnerable to ongoing modification and change. The topology of mapping is therefore not the preserve of mental cognitive processes, but a distributed set of bodily, way-finding, (dis)orienting performances; a cartography for moving geographies (McCormack, 2002a). To speak of vernacular mapping is to shake off the, “geometric habits that reiterate the worlds as a single grid-like surface open to the inscription of theoretical claims or uni-versal designs” (Whatmore, 2002: 6), and is instead to diagram a vibrant cartography that is, “necessarily topological, emphasising the multiplicity of space-times generated in/by the movements and rhythms of heterogeneous association” (ibid: 6).

How, though, do these conceptual energies coincide with contemporary cartographic performances?

Katherine Harmon’s (2004) suspicion that all humans possess an innate *urge* to map has of recent years appeared to be a well founded one. Thrift’s earlier identification of a renaissance, or re-enchantment in mapping is characterised in-part by the boom in geo-locative industries and online geo-locational platforms; Google Earth, Google Map, StreetMap, MultiMap, Map Action, Platial, WikiMap, OpenStreetMap to name but a few of such applications; part of what has been called variously the geoweb (Haklay et al., 2008; Elwood, 2011; Leszczynski, 2012) and cyber cartography (Fraser-Taylor, 2005). Some of these online cartographic applications are proprietary and commercial (for example, Google Earth), whilst others are crowd-sourced and open-sourced (for

example, OpenStreetMap), the latter falling under the conceptual umbrella term of 'volunteered geographic information' (VGI) (see Goodchild, 2007).

Stop, momentarily

"...everything has its geography, its cartography, its diagram" (Deleuze, 1995: 33).

Continue, for now

Outside the conventional purview of disciplinary geography, mapping has been of intense topical interest, caught up and implicated as it has been in making genomes visible³, detecting Icelandic volcanic ash⁴, detailing local patterns of crime in the UK⁵, diagramming happiness⁶, modelling risk⁷, its re-invocation as a pervasive geopolitical (and media expedient) device in the so-called Arab Spring⁸ and most recently, in the sporadic staging of 'Occupy!' movements centred in financial nodes across the globe in

³ The Human Genome Project, concluded in 2003 was a thirteen year multi-agency project to identify, catalogue and map the circa twenty-five thousand genes present in human DNA (International HapMap Consortium, 2010).

⁴ Mapping the extent of ash particulate in the atmosphere following the eruption of the Eyjafjallajökull volcano in Iceland (Heinold et al, 2011).

⁵ The UK Home Office in February 2011 released a publically available, online crime map that details the geographic location of reported and recorded crimes. It has come under severe criticism for obfuscating crime statistics (see Bear, 2011).

⁶ 'Mappiness', a current research project based at the London School of Economics that measures and maps the relative 'happiness' of iPhone users in various *natural* environments. Outcomes of the research are still pending.

⁷ 'Understanding Environmental Knowledge Controversies' (2006-2010); an interdisciplinary project focussed on the modelling, risk and controversy of environmental matters of concern, in this case, flooding (see Whatmore, 2009; Munk, 2010).

⁸ Maps have played into the discourse of revolutionary contagion following the popular 2011 uprisings in Tunisia, then onwards in Egypt and Libya. Cartography has been used mischievously in broadcast media to lend credibility to the popular contention that uprisings can encroach in the manner of viruses and more disconcertingly, that the intensely varied countries of the Middle East and north Africa can be collapsed into one another straightforwardly.

the latter half of 2011 and early 2012⁹. In the practice of occupation, cartography has historical form, renowned for its complicity in certain colonial ventures, but also increasingly recognised now for its role in contemporary counter-mappings; a further empirical concern of this research.

The immediate and concentrated cultural re-enchantment with mapping has of late grown apace, particularly in the UK where in 2010, several television series on the *beauty* and *power* of maps commissioned by the BBC garnered popular attention alongside a mini-series for radio on mapping stories. The British Library, also in 2010, curated an exhibition entitled ‘Magnificent Maps: Power, Propaganda and Art’, followed soon after by the currently active ‘London Mapping Festival’¹⁰, a series of cartographic events co-ordinated by geo-locational industry leaders; events that will segue into the city’s hosting of the Olympic Games in July 2012. In sum, a modest but noticeable, *sensible*, cartographic intoxication that have led some astray into a prosaic, if not mildly peculiar form of mapping addiction (see Parker, 2009). It goes without saying that what constitutes here the notion and performances of mapping far exceeds the narrow repertoire of techniques and norms that are associated with the more specific discipline and practice of cartography, but arguably this has always been the case with mapping and does not belong exclusively to the early twenty-first century.

Michel Serres (1975: 175) remarked in lamentation that, “the world is no longer written on maps, it is written in the encyclopaedia”. This thesis argues otherwise, that

⁹ ‘Occupy!’; an ongoing series of worldwide protests at particular nodes of socio-economic significance. Of particular note for their disruptive valence are the Occupy Wall Street and Occupy Madrid chapters of the movement.

¹⁰ What linked, visibly and in conceptual tone, the BBC television series with the British Library exhibition was a mutual valorisation, even *fetishisation* of the map as an artefact. From the Hereford Mappae Mundi to the World War Two propaganda maps, such cartographies were curated as pre-ordained encounters with anything from the cartographically sublime to the cartographically despairing.

on the contrary, the world and its variegated geographies are increasingly and more intensively inscribed and brought into being by everyday, vernacular cartographic practices of which geographers have hitherto written little about. This pattern of intensified cartographic inscription is particularly acute in the context of the growth in Web 2.0 applications that allow user-modification of content and permit on occasion the alteration of the source code upon which the application is propagated; labelled specifically as, 'open-source' programming. These software assemblages coupled with emergent cartographic communities are not merely mapping an extant reality, but more pressingly are, "actively shaping sociospatial organisation" (Kitchin and Dodge, 2011: 16). In the sense that geospatial technologies both intersect quotidian, somatic itineraries and are themselves inflected by everyday cartographic practices, one might reaffirm the claim that we are all becoming cartographers, if we are not so already (Deleuze, 1999), and as such, newly formed cartographic publics should speculate on the performative, affective and virtual (after)lives of their mapping practices.

Indeed, this re-enchantment and intensification of what the research identifies as 'vernacular mapping' necessarily leads to one of the core questions and themes of this thesis; what kind of politics; geopolitics, micropolitics or otherwise, might be at stake in the performance and performing of such maps? In the course of the following chapters, the research explores the political situations and events that emerge out of the mapping, whilst at the same time considering the question, of what kind of politics is this? The responses will strike at the as yet untold paradox or aporia of this research; how to generate and attend in non-representational terms or grammars to a motif and practice that is considered to a large extent as a form of representation, or emblematic of a politics of representation? Without pre-empting the geo-stories to be narrated in the

forthcoming lines, paragraphs and pages, it is worth stating up front that this is not an attack on representations per se, but an affirmative critique of representational thought, and an investigation into the question; of what else can maps and mappings do or become?

For the love of maps

“I love maps – they are one of the reasons I became ‘a geographer’” (Massey, 2005: 106).

“I love maps. There, I’ve said it. I am coming out as a cartophile” (Painter, 2006: 345).

“If you don’t admire something, if you don’t love it, you have no reason to write a word about it” (Deleuze, 2004a: 144).

What then, is it that sparks a concern for maps, beyond the conceptual and worldly goings-on in cartography? Why write of, and for maps and mapping? In response, nothing else but spaces, moments, lines and intensities of biography, of boyhood fascination, outright romanticism for the Euclidean artefact, “the old world map as dark as tea” (Lee, 1959: 18), school atlases that still show the USSR intact, Zaire still present, the virtual promise of a daydreams’ journeying¹¹, a bedroom, “where the walls were gradually being covered by strange maps and fabulous drawings” (Garcia Marquez, 1984: 7), Orwell’s (1948) dystopian cartographies in *Nineteen Eighty Four*, TE Lawrence’s (2000 [1926]) lines in the sand, the gift of an Ordnance Survey map to ease the adolescent pain of moving home¹² and a geographer’s admiration of their at once

¹¹ Herman Melville (1892: 57) in *Moby Dick; or the White Whale* writes, “It is not down in any map, true places never are”, but to disagree with Melville here from the outset and to turn on the potential of processual modes of thinking, places can be brought into being by maps; even in daydreams (and more importantly so).

¹² An Ordnance Survey Landranger Map (1:500 000) of Aldershot, Hampshire and Guildford, Surrey.

stubborn durability in print and pixel, yet total susceptibility to imagination; in short, a love of maps.

“In all flat maps (and I am one)”
(Donne, 1631 [1977]: 218).

A reason therefore, according to Deleuze, to write about them, but more importantly, to write *otherwise* of maps and mappings, to think otherwise about their *potential* over their supposed *power*, to diagram their micropolitical investments over their macropolitical tyrannies, to cast these way-finding techniques, technologies and performances as vernacular mappings. What is interesting about these vernacular mappings, to quote Deleuze (1995: 33) once more, “are the lines that make them up, or they make up, or take, or create”. This research is an attempt to trace these lines; pencil, bodily, affective, performative, actual and virtual; to ask where they might lead or terminate. It is a matter also, of drawing more lines, of multiplying threads and loose ends, of generating conceptual lines, of creating concepts. Concepts that emerge in the *researching*, following Deleuze and Guattari (1994), do so not as discursive propositions, but as an incorporeal manner for speaking, “the event, not the essence or the thing” (ibid: 21). Put differently, this is to think about a processual cartography in which concepts are made in response to the emergence of events, rather than the forging of concepts without relating them to the problems to which they are meant to respond. In this specific context, the conceptual push of this research is not to foist the notion of vernacular mappings on to the world, but is instead to put at risk certain ideas and cartographic practices, diagramming at the same time, to posit the question, what kind of encounters and politics emerge in the spaces of these events and moments of encountering?

From here, to

A moment of conceit; a tentative map of what is to follow in this thesis, but minus the comfortable guarantee of arrival at settled concepts, or the promise of questions to be resolved. Instead, save for this front-loaded confession, the following chapter outlines might be regarded as a series of proto co-ordinates or transient staging posts for the space-times of the thinking, mapping and *geographing* involved in this research. This is not to fall back on a feckless abandon to ‘anything goes’, but an attempt, an effort, a geography that takes seriously the processual eventfulness of cartography and the worlds they, in part, bring into being.

Chapter Two diagrams and deploys the integral components of Euclidean cartography; namely those of lines, contours and legends, as a technique for writing a genealogy of critical cartography that complicates the onto-epistemological assumptions associated with its nature and practice, whilst at the same time using this deliberate focus on lines, contours and legends to begin to open up some of the conceptual vectors of this thesis. Specifically, by working through a process of *legending*, a form of fabulation (Deleuze, 1995), the chapter develops notions of affect, virtual and performance in ways that establish a provisional vocabulary and grammar around vernacular mapping. In doing so, it foregrounds the core research questions that thread throughout the project.

Chapter Three is an act of tracing. In harnessing some of the cartographic and ethical energies of the monist philosopher, Baruch Spinoza, the chapter interrogates what kind of ethos, techniques, fieldworks might be needed in, one, putting concepts ‘at risk’, and two, generating research materials that speak to, inflect and modify research questions, even if that leads to their failure in conceptual terms. Working through the

notion and interventionism of *geographing*, the chapter signposts the empirical space-times cultivated in the research, attempting however, to elide the awkward and systemic tensions within the social sciences created by stating methodological investments a-priori to the processual emergence of events, cartographic or otherwise.

Chapter Four starts in the middle of things, in the middle of fieldwork, narrating geographical encounters with 3Cs: Counter Cartographies Collective in North Carolina, USA. This, then, is to put into a motion an affirmative critique of cartography through the performance of cartography, specifically, to think differently about mappings that identify themselves or are identified by others as forms of countering power or subaltern radicalism. The chapter questions the nature of *being* or *becoming* counter cartographic, and goes on to argue that counter cartography cannot be caricatured as a practice of straightforward resistance to a pre-existent problem, but instead can be diagrammed as a series of compositional performances in which both the matter of cartographic concern in question arises from the doing of mapping, and from which the imagining and enacting of alternative cartographies, alternative worlds, emerges. Mapping alongside Guattari, the chapter introduces the notion of cartographic micropolitics, whilst simultaneously drawing out the awkward (pre)personal intensities of counter mapping in a self-styled affinity group based within the political networks of a state university.

Chapter Five marks a shift in tone, focus, location and cartography. Concentrating, thinking, writing through fieldwork with OpenStreetMap, an online, crowd-sourced mapping community, the chapter animates several fieldwork encounters across the UK that work in the form of 'mapping parties'. In tracing these cartographic encounters, the chapter narrates the process of becoming mapper, whilst

diagramming the kinds of subjectivities that are caught up in the process of 'editing the world'. Editing the world through these everyday mapping practices are, the chapter argues, distinguishing components of a vernacular mapping, ones that accentuate the experiential, affective and virtual capacities of mapping, whilst at the same time, narrowing the conceptual gap between abstraction and experience. Vernacular mapping here emerges itself as a cartography of co-produced spaces, fabricated through human, non-human hardware and software assemblages. Moreover, vernacular mapping emerges as a cartography of anticipation in which the potential of maps is not told or drawn in advance.

Chapter Six finds itself in a moment of loss, in a space of getting lost, again with OpenStreetMap, but this time on the streets of Lima, Peru. This chapter, having re-orientated itself with the help of satellite navigation, goes on to cast how vernacular cartographies such as these are resolutely eventful, thinking the event through Deleuze and Alain Badiou. In pushing the conceptual and practical *openness* of OpenStreetMap in the context of Peru's own cartographic heritage, the chapter argues that novel forms of cartographic practice can be generative of certain events, eventful spaces and atmospheres. Moreover, working as ever alongside Deleuze and Guattari, it suggests that vernacular mappings constitute a form of nomadic knowledge production; a cartography that rather than operating from point to point, is instead in the business of generating space times of/for the inbetween, or *intermezzos*; refrains for the micropolitical.

Chapter Seven turns to and diagrams the broader institutional cosmologies in which vernacular mappings work, modify and inflect. Specifically, the chapter draws on encounters with Google and the UK's Ordnance Survey as a technique for considering

the geopolitical relations between these institutional cartographies, and the vernacular cartographies that feature in the preceding chapters. This is not a comparative exercise between the two modes of cartography, primarily because, as the chapter will argue, the institutional and vernacular are co-constitutive of each other, and their lines of affinity are perhaps more pronounced than either party would like to admit. In considering the institutional, *molar* geopolitics of these cartographies, the chapter also considers how vernacular mappings inflect the study of cartography in disciplinary geography, and in doing so, considers how maps and mapping performances might be recast as practices of a minor geopolitics. Such a recasting works beyond mappings conventional rendering in the annals of geography, castigated as it has been for its nefarious complicity in certain colonial practices. Drawing on Deleuze and Guattari's (1986) work on the figuring of the *minor*, the chapter argues for an understanding of geopolitics that valorises the affective, virtual and experiential registers of vernacular mapping.

The thesis is brought to a close in **Chapter Eight**, yet it remains stubbornly a speculative diagramming of the question, of lines to where? This is not to conclude for conclusion's sake, but it is to stretch deliberately the micropolitical expressions of vernacular cartographies; their virtual, affective and performative actions, registers and spaces. The chapter acts to leave open and unresolved, threads, lines, questions and problems. It does, however, question the valence of vernacular mapping in disrupting the representational accord of cartography and the recombinant ecologies of map-making. In writing lines *for* vernacular mapping the chapter explores both the notion of a 'vernacular semiotics' and a 'cartopolitics', simultaneously holding on to the fundamental question, what, after concepts, after fieldwork, is a map?

Orientation, onwards

To get negations out of the way first, this is not a thesis about the narrow geographies of the *power* of maps, nor an assessment of the efficacy of participatory modes of cartography; whether they are participatory, or democratic *enough*; a type of enquiry led by the suspect over-coding of liberal terms. Instead, this is a thesis about the micropolitical potential of emerging forms of cartographic technologies and performances; of vernacular mappings. This is a thesis that diagrams how mappings might be understood as practices of (dis)orientation that are not reliant on a transcendental grid or series of Euclidean referents and mooring points; as Massumi (2002: 180) argues, “the way we orient is more like a tropism (tendency plus habit) than a cognition (visual form plus configuration)”. How then, might contemporary cartographic technologies and performances, folded conventionally into the certitude of representational analysis, be mapped, understood and practiced themselves as generative of material and immaterial, non-representational vectors of everyday geographies and micropolitical experience?

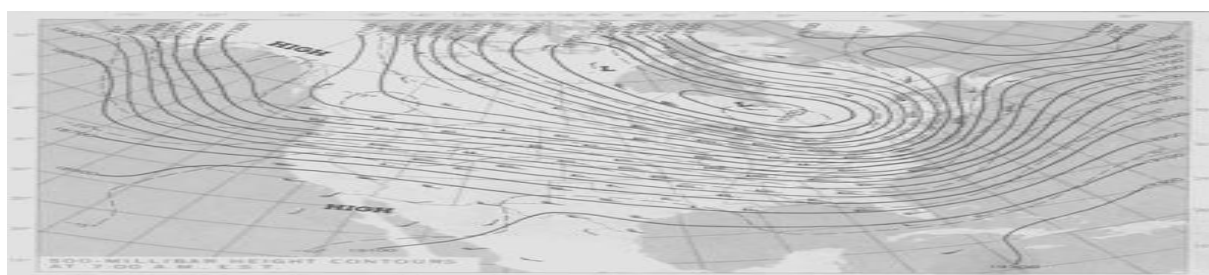
By way of response, and a partial one at that, a turn now;

to lines, to contours, to legends.

// Chapter Two

Lines, contours and legends

Lines, contours and legends



Openings

“It is better for us to begin from the premise that cartography is seldom what cartographers say it is” (Harley, 1989: 1).

Prefaced by JB Harley’s contention that there is more to be said of cartography than of that articulated by its practitioners¹³, this chapter is a discursive foregrounding of both the conceptual work to be done and the research questions to be posed in this thesis by exploring extant literatures and contemporaneous debates in cartography and furthermore, its relationship to geography. Specifically, working under the three subheadings of *lines*, *contours* and *legends*, the aim of the chapter is to mobilise these familiar cartographic attributes as staging posts for re-thinking maps as more than artefact and for extending recent theoretical arguments which, holding fast to non-representational geographies, contend that maps and mappings are emergent processes and performances. Moreover, in diagramming here lines, contours and legends not just as static attributes or appendages, but as processes in of themselves, the chapter expands on conceptual discussions concerned with affect, virtual and performance so as to introduce the key notion of the ‘vernacular’ and subsequently, the cultivation of a vernacular mapping (Gerlach, 2010). The chapter is structured as follows.

¹³ Here Harley is referring to a particularly narrow group of mapping practitioners; namely those who are professional cartographers schooled in Euclidean methods. It does not account for Foucault’s contention (via Deleuze, 1999) that we might all, in fact, be cartographers of a sort.

In 'contours', the chapter traces the folding and unfolding accounts of cartographic history identified variably under the guise of 'critical cartography'. In doing so, this section highlights the non-conformist natures and practices of mapping, whilst at the same time, signposts current geographical scholarship which rattles the assumed ontological security of cartography. In 'lines', the chapter considers the disciplinary vocation of lines and their role in both holding apart and weaving together certain ontological domains invoked by or associated with cartography. The section goes on to interrogate how lines might be diagrammed otherwise, and how they fold into the generation of a cartographic micropolitics. In 'legend', the conceptual push of this section is to propose that the noun legend be refigured as the process of 'legending'; a form of fabulation for thinking about particular terms and concepts in different registers. In this context, the objective is to put at risk the notions of affect, virtual and vernacular so as to figure what work these concepts might or might not do in the realm of cartography. From all three sections, the core research questions underlining this project will be identified and explained, whilst concomitantly anticipating, in part, the reasoning and justification for the use of certain empirical methodologies, to be outlined and illustrated in the following chapter.

Contours

This section interrogates and explores the contours of cartographic discourse. To recite a story of cartography since its inception as Euclidean science would be too long a tale for here, so instead the focus will be concentrated on a narrow range of accounts that fall under the banner of critical cartography; a brief genealogy of how geographers

in recent decades have approached and engaged cartography¹⁴. Like contours themselves, cartography and its analysis is not a linear teleology, but an undulating and overlapping series of non-conformist performances held in relationally different reliefs to each other, contours that bubble and sink by way of historical and geographical, “sedimentations, by the irregular seams and cracks of lived practices by uneven operations of power, by fluctuations in rhythms and temporalities and the like” (Seigworth, 2011: 316). The history and geography of cartography then, if indeed one can be written, is not a straightforward chronology of ever growing progress and sophistication, but a turbulent geo-pageant of competing and multiple practices, impulses and ideas. In sum, cartography has struggled, much like geography (Livingstone, 1992), with the contours of its status as a technique and discipline of knowing and inhabiting the world.

Since Claudius Ptolemy’s (circa AD120 [1991]) claim that geography’s premise as an academic vocation was one of representation through the drawing of maps, cartography has long been held as a geographer’s disciplinary motif (Pickles, 2004), and valorised as a major structural pillar in the production of geographical thought (Harvey, 2001). Even when cartography was found wanting in its awkward complicity in pernicious, colonial war machines, geographers, specifically at the human edges of the academic spectrum, maintained their carto-interests by re-invigorating their engagement with maps, propelled by JB Harley’s foray into deconstructionist thought (Harley, 1989; 2001). Since then, and echoing the sensibilities of a cultural turn in

¹⁴ For a forensically detailed narrative of cartography, see the University of Wisconsin-Madison’s *History of Cartography* publication series. Founded in 1987 by JB Harley and David Woodward and now approaching its sixth volume, the project is an interdisciplinary venture that historicises the perpetually changing conceptual contours and practices of cartography; organised by era and geographical region; for example, Harley and Woodward (1987; 1992; 1994); Woodward (2007); Kain (forthcoming); Monmonier (forthcoming).

geography, the latest rapprochement of mapping by geographers has been described as marking a 'cartographic turn' (Cobarrubias, 2009), characterised by 'critique' influenced by post-structural and post-humanist thinking. The presence of critique in cartography, however, is not one exclusive to these assemblages of thinking (see Crampton 2001; 2009a; 2009b; 2010; 2011).

Indeed, as Crampton and Krygier (2006) recognise, cartography itself, conceptually and practically, has always been embroiled in the throes of critique, albeit of different registers and tonalities. Preceding the emergence of critical cartography as a chorus of affirmative critique in the 1980s, and long before Denis Wood declared that maps *have* power (Wood and Fels, 1992), the military preoccupations of US cartographer Arthur Robinson led him to explore and deploy the critical capacities of the map (Robinson, 1952). For example, in suffusing the cartographic axioms of accuracy and objectivity with a certain political and rhetorical charge, Robinson rendered the practice of cartography as a form of ideological critique by pitting one cartographic tradition against another; in this specific case, the cartographic modalities of the USA against those of Nazi Germany. For Robinson, blunt critique in cartography was not enough, he wanted something more; a revolution, one that would lend the discipline a scientific rigour by stepping back from what he regarded as a preoccupation with aesthetics and instead focussing attention on the brute functionality of mapping (Crampton, 2001).

Moreover, Robinson's later cartographic spat with Arno Peters concerning his infamous contra-Mercator projection of the Earth, documented by Crampton (2010) serves only to highlight the perpetual tensions that cartography necessarily stirs as both a device and practice of critique. Again, prior to the advent of *modern* critical

cartography, JK Wright (1944) was also involved in a sustained critique of cartography through his antagonism of the positivist zeitgeist and subsequent contention that maps were predicated on the subjective regimes of their authors; a claim accepted widely today, but quasi-heretic in the time of geography and cartography rendered as avowedly spatial sciences. In the intervening years, cartography came under attack from geographers of all shades; from humanist geographers critiquing the technocratic excesses of maps (Wood, 1978), to quantitative geographers claiming that cartography lacked a sound conceptual basis for maps to be empirically useful (Harvey, 1969). At the same time, Marxist geographers castigated cartography's embroilment in the state machine (Lacoste, 1973), itself a critique that was a conceptual forerunner to post-colonial attacks on mapping (Gregory, 1994). Such post-colonial impulses manifested themselves, for example, in Bill Bunge's (1969) inversion of the power-geometries (Massey, 1993) associated with state mapping so as to craft a counter-cartographic impulse, in this context, as a form of protest against the arbitrary state mappings of school districts in Detroit. Outside of geography, artistic and experimental movements such as the Situationists and Surrealists, although at creative odds with each other, were envisioning, drawing and performing *otherwise* maps of the city and the world; again, cartography mobilised and animated as a form or method of critique and re-imagining.

Cartography then, in addition to being a geographical craft of spatial invention, can also be characterised as a discipline and practice of critique, or put another way, its history suggests that cartography has been, and continues to be deliberately critical in its nature and practice (Harris and Harrower, 2006). To speak of 'critical cartography' might therefore be regarded as somewhat tautologous; so what, therefore, is it that

distinguishes the emergence of a modern critical cartography from the critiques levelled at cartography throughout its history?

In response, what appears conceptually different in more recent critical cartographies to emerge during the last two decades is a turn to continental, post-structuralist thought. This shift in attention toward such thought or its antecedents is by no means novel, as the Situationists and Surrealists would attest to, however, the intensification with which these modes of thinking and engagement have been recently apprehended points to a remarkable shift in register from a strident positivism toward certain forms of relational and process philosophy. Supplementing this conceptual contour, queer and feminist critiques have also been at the centre of both rethinking cartography (Wilson, 2011), challenging the masculinist god-tricking of the cartographic 'view from nowhere' (Haraway, 1988), whilst also questioning what is stake in the ontology, epistemology and practice of mapping, and in addition, the ongoing debates surrounding the political valence of Geographic Information Systems (GIS) (see Schuurman and Pratt, 2002; Kwan, 2002, 2007; McLafferty, 2002, 2005; Brown and Knopp, 2008). At the same time, contemporary critical cartography is also distinguishable in its empirical concern for the quotidian and thus for everyday mappings, attentive as it is to the explosion in mapping technologies and performances that have broadened, to a small extent, the demographic basis for map production (Perkins, 2003).

The turn to and uptake of continental philosophy by geographers and critical cartographers is far from universal, and the notion of critical cartography as a discursive assemblage is notably variegated in its composition, as mosaic-like as the broader discipline of cartography itself. Critique layered upon critique was a marked

feature of cartography from the outset. Harley's (1989) ostensibly Derridean deconstruction of maps is a salient point in this respect. Harley argued that by interrogating the 'sub-text' of the map (reading between the lines and the images), map users and theoreticians could pick apart the ideological underpinnings, or the warp and weft of the *power* of the map. Here, the power of maps is rendered akin to George Orwell's statement on political language, claiming it that it is, "designed to make lies sound truthful and murder respectable" (Orwell, 1946: 254). Critics of Harley were quick to jump on his seemingly cursory reading of Derrida (Belyea, 1992), pointing out that in his attempt to uncover an implicit truth in the map, Harley was inadvertently reconstructing another edifice of ontological security for cartography. Moreover, despite the citing of Foucault as a key influence in his project, Harley's notion of a locatable, centralised power harboured by the map was clearly at odds with Foucault's actual thesis of disperse, non-sovereign powers (Foucault, 2002). Had Harley carried through Derrida's conceptual work to its full extent, the legacy of his deconstructionist project might have been one of a productive, affirmative critique, rather than the caricature of seeking out conspiratorial narratives hidden in the lines of the map, a tactic which remains pervasive amongst some scholars (see, for example, Monmonier, 1996, 2004, 2010).

This is not to dismiss the work of Harley outright, scholarship which has been influential in engendering an entire school of social constructionist critiques in, and of cartography (Edney, 1993, 1997, 2009). Indeed, in taking a lead from the very questioning set in train by Harley of cartography, a field often regarded historically as neutral and self-evident, Denis Wood, alongside John Fels, has been influential in developing a semiotic account of cartography which argues that maps are not mere

mirrors of power, but moreover that they are instigators and arbitrators of power (Wood and Fels, 1992, 2009). Contending that maps operate through the deployment of a sign-signifying propositional logic of *'this is there'*, Wood and Fels argue that maps engineer capacities to generate and consequently normalise a wide array of macropolitical space-times, ranging from maps aiding the imposition of colonial power to maps which render *natural* the idea and practice of (N)ature as a wilderness of the pristine, non-human other.

The alarm caused by Wood and Fels' diagramming of *powerful maps* became particularly acute in the early to mid-1990s when geographers entered into a fiery debate with GIS scholars and practitioners. The former argued that the valorisation of GIS by the latter (see Openshaw, 1991) was tantamount to a return to logical positivism (Pickles, 1991, 1995), an ontological posturing that would be deployed to vindicate military ventures, citing specifically the first Gulf War. It was a familiar contour line in cartography; explicitly, its association with bellicose activity (Dodds, 1993; Ingram and Dodds, 2009). What was different about Wood's work in comparison to what had gone before, however, was that it eschewed Harley influenced conspiracy theories and recognised instead that mapping could be put into the service of not just dominant powers, but also into the hands of recalcitrant and resistant actors, hence the enduring popularity of their critical cartographic analysis.

Despite the positive reception of Wood and Fels' ideas, and Wood's further rehearsal of his thesis (Wood and Fels, 1992; 2010), the Roland Barthes' inspired semiotic analytic has been criticised for not moving beyond a negative critique of cartography's insidious excesses mired in the status quo (Kitchin, 2008). Furthermore, such semiotic readings of maps arguably only does the indignity of speaking on behalf of

others (Foucault and Deleuze, 1977), stifling the possibility of maps and mappings to enunciate more than a singular political concern, affirmation or anxiety. Moreover, and in a similar vein to Harley's reconstruction through deconstruction, Wood and Fels' narrative of map symbols and their meanings is noticeably overwrought in its quest for a fixed and deterministic link between the sign and signified, a nullifying of all surprises (Rabasa, 1993), and by the same token, making the assumption that there exists an ontological gap between discrete signs and signifiers.

More convincing analytically in the contour folds of critical cartography is John Pickles' (2004) *History of Spaces*, a hermeneutic reading of cartographic impulses and practices that, drawing heavily on Heidegger and Foucault, recognise, as did Cosgrove (1999), both the performativity of maps as Latourian 'inscription devices' which *do* work in the world, and also the multi-vocality of maps, or put differently, the possibility of maps and mappings to articulate more than a singular politics. Pickles' account is also amongst the first in modern critical cartography to begin outwardly questioning the representational basis of cartography, at once aligning mapping's assumed ontological security through the heuristics of objectivity and accuracy with broader conceptual preoccupations rooted in Cartesian, Enlightenment reasoning. Crucially, Pickles diagrams the relational investment of mapping, noting specifically that the map and map user are not discrete entities but relationally enactive, and by folding Latour's (1999) circulating references into the analytical milieu, he states the claim that representational practices are simultaneously re-presentational and transformative of the world. Inverting a well-rehearsed cartographic axiom, Pickles states that the map precedes territory and thereby, as surmised by Crampton and Krygier (2006: 18) rethinks mapping as, "the production of space, geography, place and territory as well as

the political identities people have who inhabit and make up those spaces". Perhaps, as Pickles (2004: 12) suggests, "instead of focussing on how we can map the subject... [we might] focus on the ways in which mapping and the cartographic gaze have coded subjects and produced identities".

Kitchin and Dodge (2007) radicalise Pickles' unsettling of cartography's representational accord by undoing the very ontological security of maps as representations. Whilst acknowledging the importance of the preceding critical cartographies of Wood and Pickles, Kitchin and Dodge continue further in remarking that these critiques still afford the map the privilege of its existence as a stable artefact, held together by a particular discursive regime, even if the meanings and identities that constitute that regime are themselves unstable and multiple. Departing from this staid accord, the crux of the argument lies in the claim that, "maps have no ontological security; they are of-the-moment; transitory, fleeting, contingent, relational and context dependent. They are never fully formed and their work is never complete" (Kitchin and Dodge, 2007: 335). Putting to work a notion borrowed from biology, *ontogenesis* (processual emergence), Kitchin and Dodge suggest that maps come into being through their continual practising, and that any 'meanings' to arise from the map are contingently produced and re-produced as relational solutions to spatial problems. These claims are not only the vanguard of a substantial, non-representational critique of cartography, but they also serve to collapse cartographic ontology and epistemology on to one other. Put simply, to question *how* a map performs is to ask the same question of what it *is*, or what relations the map is performing and bringing into being.

Notwithstanding the accusation that Kitchin and Dodge's conceptual work elides the wider cultural circuitry (or context) of maps (see Herb et al, 2009), the idea of maps

and mappings as processually emergent evinces profound political implications insofar as, echoing Deleuze and Guattari (2004b), the binaries between map and map user, and between subject and object, like that of the ostensible schism between ontology and epistemology, appear to dissolve in the very performances of mapping. These political nuances are explored later in the chapter, but for now it is important to emphasise, as Thrift (2011b: 9) does, that, “maps have always been engines rather than cameras”, a statement that resonates with a Deleuzo-Guattarian sensibility of becoming over being, and also Massumi’s (2002) evocation of the virtual; the perpetual motoring of unfolding spaces of potential.

To summarise briefly, Kitchin and Dodge’s contentious, provocative contour has jump-started not just a theoretical re-appraisal of cartography in which ‘re-thinking’ has become the eminent leit-motif (Dodge and Perkins, 2008; Dodge, Kitchin and Perkins, 2009), but it has also opened up a broader empirical repertoire for geographers to engage with and investigate, specifically in attending to, amongst others, cultures of map use (Perkins, 2008), the performances entangled in map art (Harmon, 2004; Kanarinka, 2006; 2009; Bhagat and Mogel, 2007; Paglen, 2007), noise mapping (Cidell, 2008), community mapping (Lin and Ghose, 2008), ‘counter-cartographies’ (Peluso, 1995; Nietschmann, 1995; Roth, 2009; Bryan, 2009; Sletto, 2009), narrative mapping (Caquard, 2011) and even the emergence of humorous maps (Caquard and Dormann, 2008); the types of novel, cartographic practices that hitherto have received little attention. At the same time, the contemporary swell in everyday cartographic and GIS practices (Elwood, 2006, 2007, 2008), ubiquitous mapping (Gartner et al, 2007), or ‘else/where’ mapping (Abrams and Hall, 2006) based primarily on internet platforms (Zook and Graham, 2007) offers the opportunity to gauge differently, long established

cartographic tropes and concepts. The unpicking of representational thinking has also implications for concerns beyond cartography, especially in the field of modelling in which some of the practices of diagramming involved in environmental controversies, for example, in climate change and forecasting, have been found caught up in either making present and visible matters of concern (Latour, 2004), or indeed rendering situations 'anti-political' (Barry, 2002). Whatmore (2009), for example, also cites the performative instincts of models and their active capacities to normalise and standardise certain, prescribed knowledge regimes and political decisions (see also Landström et al., 2011a; Lane, 2011).

In surmising the variable theoretical contours in the conceptualisation of mapping, the most significant shift in cartography, arguably, has manifested itself in the register, tonality and vector of *critique*. As Crampton and Krygier (2006) elucidate, the purpose of critique is not fault finding, nor the trial of concepts by Kantian tribunal, which is perhaps the style of critique that has sometimes characterised cartography's, and indeed geography's disciplinary history. For the likes of Crampton, Wood, Fels, Pickles, Edney, Kwan, Kitchin, Perkins and Dodge, the vocation of critique is now closer to one of affirmation, pivoting on Foucault's own resolution of critique as, "an attitude, an ethos, a philosophical life in which the critique of what we are is at one and the same time the historical [and geographical] analysis of the limits that are imposed on us and an experiment with the possibility of going beyond them" (Foucault, 1997: 132). It is in this ethos of affirmative critique that this research looks to sustain.

The historical and geographical contouring of cartography is such that linearity cannot be wrought out of its kaleidoscopic heritage, and claims to cartographic 'newness' need to be treated with caution; and moreover, this is only to speak of the

extremely narrow band of mapping identified as the western, geometric science of cartography. That said, what is striking about maps now, more so than before, is that they are intensely, “performative, participatory and political” (Crampton, 2009b: 1). Taken together with the unsettling of its ontological premise, some of the questions underscoring this research begin to emerge.

Specifically, if the conceptual tenor of cartography moves from one of ontology to one of ontogenesis, what does this entail for geographers attending to maps empirically? This research then is concerned with the issue of what methodologies might be introduced or brought to bear in witnessing non-representational tendencies, or in witnessing cartographic emergence. Moreover, the other pressing question becomes, what is at stake, politically, ethically and geographically in the assertion of a cartography that is constantly in the making and its work never fully done? Harley’s (1990: 16) question resonates once more, “are cartographers concerned at all with how maps could answer the Socratic questions, ‘how should one live?’”. Does this processual and contingent emergence absolve cartography of the responsibility of its performative consequences, or does it conjure an alternative register of political pathways for acting in the world differently?

For now, the contours outlined partially here have been a, “foregrounding of the samenesses and differences, the rejections, emergences, and formalisations played out” (Mitchell, 2007: 38) in the thus-far histories and geographies of cartography. In the following sections, the chapter will explore the implications of these contours and then prepare some tentative responses to the aforementioned questions, anticipating their fuller exposition in the substantive chapters of this thesis.

Lines

“People inhabit a world that consists, in the first place, not of things but of lines” (Ingold, 2007: 5).

“I daily see many that delight to look on maps but for want of skill in geography; they know not with what manner of lines they are traced, not what those lines do signify, nor yet the true use of maps” (Blundeville, 1977 [1589]: 2).

Having traced some of the contours of critical cartography in such a way as to deliberately elide linearity, this section, somewhat counter-intuitively, invokes a conceptual tracing of lines as a technique for pursuing some of the conceptual claims made in the previous section. Constituting the very architecture of cartography, particularly in its Euclidean guise, lines play a crucial role not just in the material composition of the map, but also in the often immaterial propagation and modulation of the Manichean ‘modern constitution’ of certain societies and philosophical traditions (Latour, 1993). Put differently, lines have been caught up in the engineering and deployment of dualisms and binaries; trademarks of western, Enlightenment thought. To work through lines here is both to develop a discussion of non-representational geographies and why they matter in this cartographic context, whilst at the same time it is to segue into an introduction of Deleuze and Guattari’s manifold cartographies; maps anchored not to pre-existing grids, but ones that generate only lines, and following Deleuze’s (1995: 44) conjunctive ‘and, and, and...’, they proliferate yet more lines; lines of escape and lines of flight; lines to worlds in the making. This theme is then taken up again in Chapter Seven’s consideration of a ‘minor geopolitics’ and the role of lines in vectoring the political. For now it is important to recall, if ontogenesis is to be taken seriously, that lines are not merely ‘artefactual’, but processual also.

Longitude, latitude, contours, grids. Walking, surveying, drawing, etching. Straight, bendy, gradient and undulating. What is cartography, to paraphrase Gunnar Olsson, if not the drawing and interpretation of a line? (Olsson in Pickles, 2004). Maps and mapping practices are shot through with lines, some traced, some gestural, some fixed, some ephemeral, some even ghostly. Whether material or immaterial, lines are at once the internal DNA and outward expressions of cartography, exemplified by Olsson's (2007) historical and painstaking account of the proto-cartographers Pytheas', Erastosthenes' and Ptolemy's ceaseless pursuit of accurate geodesic projections; stretching truculent grid lines across spherical globes. If cartography is indeed the drawing and interpretation of a line, then what can these lines do? Straightforwardly, these cartographic lines *perform*. Likewise, in their unfolding effects and affects, lines are performative. Following Ingold's (2007) genealogy and taxonomy of lines, their assumed mediocrity is replaced by a suite of vibrant and political charges, activities and implications. Lines have a disciplinary function; they perform and enforce frontiers, whilst simultaneously orientating and disorientating bodies; walk the line, do not cross the line, a line drawn in the sand, lines as a form of rhetoric (Olsson, 2007). Similarly, lines might be generative in their constraint, cultivating pathways to as yet unrealised space-times; gestural lines that might lead one off the edges of the map.

In literal and metaphorical terms, the line in itself has been, and continues to be a useful frontier between a plurality of supposedly distinct ontological domains. The line, in other words, extends and protends simultaneously (Carter, 2009), and has helped to sustain the glut of binaries that characterise western thinking through its posturing as a form of mediation or threshold between certain dualisms. Lines, then, play into a cartographic reasoning of the world, or the Cartesian accord of subject/object,

nature/society, mind/body, human/non-human and most saliently of all in this context, reality/representation. In the last of these classic dualisms, the line performs an ambiguous role. At one and the same time, for cartographic purposes, the line must hold apart as two separate domains, reality and the representation of that reality, so as to reinforce the axiom that 'distance lends one truth' (Massey, 2005). On the other hand, the line is expected to narrow the gap between reality and representation, so as to make claim to both accuracy and a sense of cartographic verisimilitude in which the map user can place their wayfinding trust. In other words, lines do the work of holding apart abstraction and experience, if only to offer cartography its epistemological underpinnings as an objective, rationalist science. How though, can a representation ever fully 'capture' the full extent of reality, even if only in the singular?

In terms of the lines of representation, Jorge Luis Borges, writing of the days of Spanish conquest, points to the absurdity of it all; "in that Empire, the art of cartography attained such perfection that the map of a single province occupied the entirety of the city, and the map of the empire, the entirety of a province. In time, those unconscionable maps no longer satisfied, and the cartographers guilds drew a map of the empire whose size what that of the empire and which coincided accurately with it" (Borges, 1946: 3). Lefebvre (1991: 85), too, begs the question, "how many maps, in the descriptive or geographical sense, might be needed to deal exhaustively with a given space, to code and decode all its meanings and contents?" Aside from the hinted futility of understanding representations as carbon-copies of a portion of reality, the entire epistemological regime of representation fell into crisis, increasingly questioned by a cultural turn in geography, at first claiming that reality was composed by its very representations, and then collapsing the void between representation and reality

altogether. At the pivot of this turn were the likes of Foucault, Derrida, then later Latour and attendant actant-network scholars who in turn casted those representations such as lines, as transcendent of the mimetic (Carter, 2009), and therefore as entirely transformative of reality.

In geography, the variegated lines of representational critiques form a patchwork of disciplinary traditions from phenomenology to neuroscience that have, to varying degrees on intensity, coalesced under the purview, or, “umbrella term” (Lorimer, 2005: 83) of non-representational theory (Thrift, 1996, 1997, 2000, 2007). Less a theory and coherent narrative (Cadman, 2009) than a mode of engagement (Anderson, 2008), non-representational thinking is at once a critique of the epistemological certitude of representational, and by the same token, cartographic, thought and reasoning, whilst also constituting an affirmation of a geography of things *happening* (Anderson and Harrison, 2010) For Harrison (2000: 499), non-representational thinking is in part a response to, “the inability of knowledge in social analysis to do anything other than hold onto, produce, represent, the fixed and the dead; a failure to apprehend the lived present as an open-ended and generative process; as practice”. To be clear, non-representational theory is not a dismissal of representations themselves, but is instead a tentative ethos of attending to emergence, becoming, process and performance; to the tendency and push of worlds, human and non-human materialities alike (Whatmore, 2002; Hinchliffe and Whatmore, 2006). The recourse to non-representational thinking in this research is not to signal the wholesale adoption and imposition of a travelling theory framework upon contemporary cartographic practices. On the contrary, its manifold lines and aspects are deployed as points of inflection for experimenting in thought processes that do not reduce cartography into a

constructivist narrative of conquest and resistance. Moreover, the rich conceptual tapestry that is non-representational thinking allows for a certain degree of what Guattari (2009b) labelled shamelessly, 'idea-theft', a magpie like tendency to pick up and engineer concepts to do the theoretical work required in research. The flip side to this purloining of concepts is an attendant responsibility to then put those ideas at risk of being modified, redesigned or even dismissed (Stengers, 1997).

Such an ethos attends to both the, "nagging problems of how to add movement back into the picture" (Massumi, 2002: 3) and also to the, "soliciting of the event" (Dewsbury, 2003: 1926), diagramming and performing (Dewsbury, 2000; Latham, 2003; McCormack, 2005) the space-times of the in-between and the not-quite-there. For Thrift (2007), the lead protagonist of non-representational geographies, these modes of thinking furnish a 'speculative topography', one that responds to post-humanist contentions that there is no stable human or non-human existence, that because so much of what happens in and for the world, what moves, what becomes, from day-to-day, and throughout spaces, does so before it passes the threshold of cognitive recognition. The methodological and ethical project of such thinking is therefore not to fixate or capture pre-figured states, identities, spaces and assemblages, but is to proliferate both somatic capacities to move, act and perform differently, and to relocate the process of thinking and politics away from a purely mental, cognitive staging, and toward an avowedly more bodily, kinaesthetic register (McCormack, 2003), to witness the unfolding of worlds (Dewsbury, 2003). In sum, non-representational thinking pokes mischievously at the binary scaffolding of Cartesian convention. Importantly, representations are figured as emergent from the world, and thereby transformative of the world. Likewise, what counts as 'subject' and 'object', already a, "poor

approximation of thought” (Deleuze and Guattari, 1994: 95) becomes unclear, and in terms of cartography, the map’s oft-cited labour of division of these categories (Law and Benschop, 1997) is put under considerable strain. It is not enough, as Foucault (1984: 369) argues, “to say the subject is constituted in a symbolic system... it is [also] constructed in real practices”.

Recalling lines, under the influence of non-representational geographies, their conceptual and empirical work can be conceptually unshackled from the vestiges of a Cartesian divide, and need no longer be an arbitrator between reality and representation. To paraphrase Deleuze and Guattari (1994), mapping, like thinking, is neither the presence of a line drawn between subject and object nor the revolving of one around the other. Maps then, are their own practitioners (Thrift, 2007).

Thought processually, far from holding abstraction apart from experience, lines, something in-between and transversal (McCormack, 2004), might help conversely to weave both together, and indeed narrow the conceptual gap to the point where abstraction and experience are immanent to one another, and whereby lines and maps can be understood as lived abstractions (Manning, 2009). In taking ‘lines for a walk’ as Ingold (2007) suggests one does, “cartography shifts from being a ‘point’ or fixed location and moves instead to an encounter between people and places” (Irwin et al, 2009: 2). Moreover, and in reiterating their performativity, “some kinds of ghostly line... can have very real consequences for peoples’ movements” (ibid: 49). Anticipating a discussion in the following section, to signpost these transversal qualities of a line is to say that it can weave across spaces actual and virtual, so that a line might be considered not as a path composed of discrete positions, but instead as, “non-decomposable; a dynamic unity” (Massumi, 2002: 6) or a constitutive line of force and futurity (Coonfield,

2008). A line, drawn, gestural or otherwise, could be diagrammed, following once more Kitchin and Dodge (2007), as an ongoing emergent practice whose work is never complete, and its vocation never entirely circumscribed or qualified. What emerges here in addition to Ingold's (2007) 'parliament of lines' is the beginnings of a political autonomy of lines, divorced from their Euclidean rendering and charged with the potential to take flight. To take this project further, Deleuze and Guattari's (2004b) multiverse and schizoid cartographies are the next point of departure for continuing the present thought experiment into how lines, the classic feature and component of cartography might be re-drawn and put at risk in the politics of contemporary vernacular mapping performances.

To begin with a proposition; "[i]ndividual or group, we are traversed by lines, meridians, geodesics, tropics, and zones marching to different beats and differing in nature. We said that we are composed of lines..." (Deleuze and Guattari, 2004b: 223). In this opening gambit to a manifesto for lines, Deleuze and Guattari hint at their predilection for cartography as a method for apprehending psychoanalysis in starkly different terms to Freud. The use of cartography in this instance is not allegorical, but experimental, a counterpoint to what Deleuze and Guattari regard as the archaeological edifice of the Freudian, Oedipal unconscious. Instead, the deployment of a cartographic method is intended to generate pathways of becoming and existing that are not reducible to linguistics and a staid psychoanalysis. In a similar gesture, this research is in part pushed by an attendance to Deleuzo-Guattarian cartographies, folded empirically through everyday mappings. Although these cartographies surface throughout the course of the thesis, it is worth here making explicit some of these conceptual lines from the outset. Such cartographic lines are not to be regarded as

metaphor, but as conceptual co-ordinates for engaging with the material and immaterial performances of vernacular mappings.

Primarily, Deleuze and Guattari's mapmaking marks a shift from 'arborescent' to 'rhizomatic' forms of thinking and assemblage. That is to say, such a move is oriented as a critique of the kind of western thought discussed earlier, its binaries grounded in a radicle or fascicular root system, leaving little room for political manoeuvre. Rhizomatic thinking, conversely, "is not amenable to any structural or generative model. It is a stranger to any idea of genetic axis or deep structure" (Deleuze and Guattari, 2004b: 13). Maps and cartographies, as diagrammed here then, are composed of rhizomatic lines, distinguishable by their orientation, "toward an experimentation in contact with the real" (ibid: 13). It is at this stage that Deleuze and Guattari make some of their most important and oft-cited cartographic claims, "the map does not reproduce an unconscious closed in upon itself; it constructs the unconscious. It fosters connections between fields", and thereby concluding, "the map is open and connectable in all of its dimensions; it is detachable, reversible, susceptible to constant modification. It can be torn, reversed, adapted to any kind of mounting, reworked by an individual, group or social formation. It can be drawn on a wall, conceived of as work of art, constructed as a political action or as a meditation" (ibid: 13/14).

What might this all mean? Firstly, it suggests, as Deleuze and Guattari themselves recognise, that the map is all to do with distributed and diverse performances. The lines of cartography are therefore found not just in the etchings of a map, but also in the gestural enactments and negotiations of mapping practices. Moreover, in its identification as a form of rhizomatic thinking, the ontological apparatus of cartography is further rattled and by accentuating a map's vulnerability and susceptibility, the

political charge invested in cartography becomes far more dangerous insofar as its potential refuses a straightforward motive or identity; it is, “not a map in which to locate or recognise oneself in a predetermined plane with fixed co-ordinates... [but] where things may go off in unforeseen directions or work in unregulated ways... a map meant for those who want to do something with respect to new uncommon forces, which we don’t quite yet grasp” (Rajchman, 2000: 5/6). For individuals and groups that align themselves with movements in so-called ‘counter-cartography’, Deleuze and Guattari’s mapping manifesto constitutes a cartographic clarion call, demanding that lines be drawn so as to, “make room [in the world] for things to happen” (Carter, 2009: 15).

Elsewhere, Deleuze and Guattari make distinctions between different lines, specifically between ‘molar’ and ‘molecular’ lines. Whereas the former is rooted to the state and rigid statements of identity, the latter is nomadic and a flight risk; a line of escape (Deleuze and Guattari, 2004b) or a line of flight that engenders not just deterritorialisation, but reterritorialisation too (again, a theme developed in Chapter Seven). In working up this political genealogy of lines, it is important to state here that cartographic lines can be as generative as they can be destructive. Consequently, for affirmative critique to be sustained in critical cartography, the productive valence of lines needs to be highlighted and practised continuously. Furthermore, their transversal characteristics lend these lines the ability to criss-cross verticality and horizontality; a tactic for undermining the vertical and scalar sensibilities of an orthodox cartographic geopolitics.

In their assertion that maps are implicated in the construction of the unconscious, Deleuze and Guattari again nod to the performative registers of mapping

and also to the possibility that maps and cartographies are in the business of generating immaterial geographies; affective and virtual spaces inflected by the afterlives of gestural lines, spaces that are under constant perturbation and modification; an ontogenetic, “cartography that is co-extensive with the whole social field” (Deleuze, 2006: 30) whereby encounters, actual and virtual are not diagrammed in advance. The map ‘expresses’ and ‘journeys’ at the same time; simultaneously animating and generating its pathways, its territories, its worlds; a further entangling of lines and their involvement in weaving abstraction, experience, subject and object. These lines too, by their very becoming are relational, so that when tied into cartography, “maps... are superimposed in such a way that each map finds itself modified in the following map, rather than finding its origin in the preceding one: from one map to the next, it is not a matter of searching for an origin but of evaluating displacements” (ibid: 63).

The danger to Deleuze and Guattari’s lines, as they themselves identify, is that molecular and segmented lines are continually at risk from being crystallised into molar lines of rigid formations, trapping molecular movements into partitioned molar aggregates (Doel, 1996), hence the micropolitical demand that molecular lines be drawn anew over and over again; or indeed, that lines be allowed to draw themselves into existence, divested of any authorial control. To do otherwise, to draw a map and to continually enunciate the tired semiotic, propositional claim, ‘this is here’ or the distributive order ‘that goes there’ is in Deleuze and Guattari’s opinion, tantamount to a micro-fascism in which macropolitical demands are sedimented through molar lines.

That risk aside, Deleuze and Guattari’s cartographies and cartographic method are useful, albeit not straightforward points of departure for thinking about the lines and the performances caught up in contemporary cartographic practices, primarily

because it detaches cartography as a staging of fixed points and instead animates a processual cartography characterised by, “lines of variation, which do not even have constant coordinates” (Deleuze, 1992: 4). In summary, this section of the chapter has acted to redraw and complicate the role of lines in the assemblages of cartography. As the threads through which maps and mappings are composed, lines have been taken conventionally as axiomatic and traced in cartographic isolation, but in working alongside the emergence of non-representational geographies, this section has interrogated the role of lines in maintaining the modern constitution, whilst suggesting that lines might be diagrammed in such a way that points to their transversal potential and their concomitant ability to contract the interval between abstraction and experience. The research questions left outstanding from this discussion to be addressed in later chapters are notably, what kind of lines are drawn and emergent in the practice of vernacular mapping; what sort of lines of flight are being cultivated or undone? Moreover, how, methodologically, can the role of cartography in modulating the relation between abstraction and experience be witnessed and traced, what does it mean to speak of a lived abstraction, and what then finally, is at stake politically and geographically, in the contraction between abstraction and experience?

With contours and lines folded into this cartographically inflected review, the chapter now turns to yet another familiar attribute of maps; that of legends.

Legends

“Across territories, maps and their legends, reside the promise of fabulist swerves, fortuitous misapprehension and half-wilful misunderstandings” (Seigworth, 2011: 315).

Imprinted on maps as artefacts, legends are ubiquitous, tucked neatly into their corners, acting as orienteering devices for the map itself, almost as a form of epistemic guarantee; north is north because the legend designates as such. Legends also betray the problem of an abstraction taken too far, or understood as withdrawal from the world, whereby the claim of the map as an accurate simulacrum of reality needs to be propped up by a series of discursive codes and explanations. To that end, legends are prime targets for deconstructionist analyses of cartography. In this instance, however, the aim is to work beyond legends as signifying codes, and instead dwell on the notion and practice of ‘legending’ as a technique for developing the core conceptual vocabulary of this research. What is involved then, in the performance of legending? The term derives from Deleuze’s reading of Henri Bergson’s (1997 [1935]) own notion of ‘fabulation’, both a query and response to the paradox of fiction; namely the problematic of how people can exude and feel ‘real’ emotion toward ‘unreal’ events and entities. This is not to suggest that legending as a reworking of fabulation is a form of myth making, for as Mullarkey (2006: 3) makes clear, “though it connotes fabrication, fabulation is not wholly unnatural, nor unfounded: it is not fictitious or purely relative to individual whimsy”. Instead, through Deleuze’s politicising of fabulation, legending is a, “generative unfolding of new possibilities” (Bogue, 2007: 106), demonstrated by Deleuze’s own legending of Bergson’s concepts.

Pre-empting a discussion of Deleuze and Guattari's (1986) 'minor' in Chapter Seven, Bogue (2007: 100) goes on to suggest that legending is also a, "practice of a minor people engaged in a process of self-invention", and it is with this ethos of creative invention in mind that legending is mobilised here as a technique at once disruptive and generative in its apprehension of the key concepts to be examined; specifically the notions of vernacular, affect, the virtual and performance. Indeed, in its motivation for re-imagining, re-working and re-invention, the process of legending has much in common with the performances of being and becoming vernacular; of recombining everyday, sometimes mundane, practices. Having already drawn out some of the lines and contours in critical cartographic thought, a further aim in this process of legending is to consider what is at stake in this turn to processual thought within the context of the current upsurge in participatory and user-generated cartographies.

The process of legending begins here with the concept of vernacular as a means of re-imagining what the notion could entail and as a re-investment of its political valence and potential. This is not a straightforward process, not least because the vernacular is saddled with a quarry of limiting definitions and connotations, identified as, "something countrified, homemade, traditional... [the] tendency to associate the word with a local form of speech and a local form of art and decoration" (Jackson, 1984: 85/149) whereby the vernacular is linguistic rooted to a particular locality or areal unit (see Snow, 2007). So far, so prosaic. In geography, the problem is compounded by a handful of case-studies which use the idea or term vernacular as a foil or conceit for hooking political concerns to specific scalar units. Lamme and Oldakowski (2007) for example, map the 'vernacular regions' of Florida, variously labelled, *Bible Belt*, *Dixie*, *Sunbelt*. Nomenclature devised not by Floridians, but imposed lexically by the authors;

an awkward form of cartographic determinism that holds the vernacular as axiomatic. Elsewhere, Lane et al. (2008) cite the importance of vernacular heritage in modulating environmental policy in the Murray-Darling watershed in Australia. Whilst they argue that the vernacular is lively and performed, the tendency to grip to the local is, in this context, steadfastly retained.

In sum, Howard (2008) highlights an intuitive but misplaced notion of the vernacular which can be identified by three characteristics. Firstly, that the vernacular tends to co-exist with a dominant culture, so that it stands in dialectical relation to hegemony. Secondly, and related to the first point, that the vernacular is rendered subaltern, a focus of discursive recalcitrance; counter-hegemonic and affirmative. Thirdly, that the vernacular is the vanguard of the common; a community of shared goals itself remarkable in its alterity to institutional knowledge. The point here is not to police the notion of vernacular in such a way as to dismiss the meanings outlined above, but it is to recognise that as the idea stands, the vernacular appears to have been afforded little room for (micro) political manoeuvre.

To legend a vernacular that has more at stake, a version that might move with the world instead of trying to capture it, is to think beyond its fusty and steadfast dictionary definitions. In addition to conceiving of a vernacular characterised by a set of parochial dialects, idioms, signals and literacies, the vernacular might also be understood as the productively mundane and quotidian, or as, “spatial forms for routines of everyday life” (Stangl, 2008: 245). Moreover, and crucially, the vernacular needs to be understood as the co-production of knowledges, materials and spaces. Taking a lead from Whatmore et al’s (2003) ‘vernacular ecologies’, the notion of the vernacular can be shaken from its pejorative malaise, and charged with a micropolitical

vibrancy when considered as the, “space times of everyday life co-fabricated between human and non-human practices and pathways” (ibid: 18). From this, the notion of vernacular mappings can begin to emerge; cartographies of and for everyday lives enacted through cosmopolitical and hybrid performances that themselves enrol and extend political recognition to more-than-human company (Whatmore and Hinchliffe, 2010).

Vernacular mappings are cartographies that in their ethos and practice are more vulnerable and susceptible to change and perturbation; cartographies that perform the unsettling of epistemological and representational certainties whilst affirming spaces for inhabiting and navigating the world otherwise; “if understood as vernacular processes, and performed as such, maps [become] not mere static renderings of the world but instead can move alongside, and indeed, change the world” (Gerlach, 2010: 166). As will become clear from the research fieldwork to be diagrammed in the forthcoming chapters, the vernacular, and specifically vernacular mappings, rely on the experiential (Whatmore, 2009), or the promulgation of an ‘ecology of practices’ (Stengers, 2005), and it is the valorisation of both the presently corporeal and of experience that is one of the distinguishing features of contemporary cartographic practices. To employ the notion of the vernacular is also to elide the use of problematic categorisations such as ‘counter’ and ‘indigenous’ that feature prominently in modern critical cartographic discourse, and instead conceives of a mapping that refuses to advertise an obvious politics, but which is political nonetheless; after all, cartography does not need perpetually to be entangled in conflict, or embroiled in the articulation of marginal demands. This is an argument developed in Chapter Four and its empirical focus on 3Cs: Counter Cartographies Collective; ‘counter’ by name, but arguably less so

in its cartographic performance. In its convivial performances of mapping into knowledge (Whatmore, 2003) and generation of newly emerging cartographic publics, vernacular mappings put at risk the divide between scientific and lay knowledges, and in the specific context of this research, such multifarious carto-practices pose a significant risk to the established configuration of cartographic institutions and the mapping industry as a whole; an architecture of cartography that has long been under the patronage of states and a small coterie of geospatial agencies.

The legending of the vernacular here is to introduce deliberately an uncertainty (DeSilvey, 2012) into its conceptualisation and tentative definition. The reason for this is twofold. Firstly, as per the risk of molecular lines crystallising into staid molar lines, there is a concomitant risk that if defined precisely, the experimental notion of vernacular mapping will lose its open-ended, relational vocation. Secondly, uncertainty arises insofar as the intention of the study and practice of vernacular mappings is to imbibe, perform and express the non-discursive tendencies of contemporary cartographic practices that are otherwise missing from orthodox accounts of mapping. Specifically this entails a further legending of the vernacular to take into consideration *affect*, the *virtual* and *performance*. Traditional maps are, as Seigworth (2011: 316) remarks, “notoriously limited in displaying ‘emergent processes’ or affective capacity”. How then, to attend to this conceptual difficulty, and what work might affect, the virtual and performance do in the service of vernacular mapping? In proffering a tentative response it is worth outlining here what is involved in these concepts, not by means of an exhaustive or definitive glossary, but rather through a thinking alongside the rhizomatic tendencies of non-representational geographies.

Echoing the materialist returns and conceptual investments of recent cultural geographies (Whatmore, 2006), the tenor of the analysis and practice of mapping shifts from one concerned with representation, identity, essences and static beings to one animated by re-imaginings, affect, events and becomings. Moreover, working through affect, the virtual and performance as constituent intensities of the conceptualisation and practice of vernacular mapping, “offers a hitherto undrawn map of the possibility of ‘thinking otherwise’” (De Certeau, 1984: 197). This thinking otherwise might then be transposed to mapping otherwise; opening, proliferating and modifying micropolitical spaces of and for the itinerant rhythms of the quotidian and seemingly mundane.

Moreover, writing of affect here is to also speak of the legending done by the likes of Deleuze and Guattari in conjuring a concept at once diaphanous (Lorimer, 2008) and of increasing interest to geographers (McCormack, 2003) and cultural theorists alike (Grossberg, 2010). Affect is understood here as intensity, or rather the continual surging and ebbing of emergent and relational intensities between bodies. As a corporeal intensity, “a virtual force, a material effect and an immaterial disposition” (Dewsbury, 2009: no pagination), affect might be regarded as the motor of being (Connolly, 2001; 2002) or rather the inconstant engine of becoming. Conceptual interpretations of affect are as variegated as affect itself (Thrift, 2004; Anderson, 2006), so in order to provide some degree of conceptual restraint, the shade of affect at work in this research is one that draws on Deleuze and Guattari’s ethological take on Baruch Spinoza’s treatise on the affects; the distributed, variable and, “indefinite capacities” (DeLanda, 2005: 62) of bodies to affect and be affected, and his subsequent ethical manifesto that greater perfection can be attained through the training of bodies to increase their affective capacities; an ethos that will have a bearing on the research

methodologies to be outlined in the next chapter. Importantly, affect is distinct from emotion in its pre-personal, visceral and proprioceptive tenor (Massumi, 2002; McCormack, 2003), compared to the cultural, cognitive fixing of feeling that characterises emotion, and cannot be located within the confines of an individual body; “affects are not feelings, they are becomings that go beyond those who live through them” (Deleuze, 1995: 137).

This particular legending of affect is not without its critics, not least because of a lingering suspicion toward bodily immanence and the accusation that the autonomy of affect (Massumi, 2002) might be read as a lack of guarantees in political and cultural formations (Grossberg, 2010). However, the reason for folding affect into a study of maps is twofold. Firstly, a consideration of affect amplifies the often ignored non-discursive power, or rather, potential of maps; it is also a declaration that contemporary vernacular mappings valorise this affective vector of cartography, one of bodily experiences. Put differently, cartographic thought and practice, through the invocation of affect, becomes a type of distributed, corporeal thinking (Thrift, 2004), and not a turgid process of cognitive mapping, an unlikely ocular diagramming and overcoding of orientation along imagined Euclidean gridlines that has past its sell by date (Massumi, 2002). Secondly, the affective lives and afterlives of maps (Oliver, 2011) are worth diagramming for their virtual lines and contours, or in other words, paying attention to affect necessarily involves attending to the virtual, micropolitical forces of cartography.

The concept of the virtual is doubly located in this research, at once as an empirical concern for the digitally virtual; online geospatial platforms and the use of various cartographic softwares and hardwares, and then also as a conceptual concern for the virtual understood as the realm of the unrealised (Grossberg, 2010) or the realm

of potential (Massumi, 2002); the real without being actual (Deleuze, 1991). This sense of the virtual is a legending from Henri Bergson's work on time, memory and duration; an abandonment of chronological time (reduced, unfortunately and inadvertently, to the confines of crudely spatialised units), and in its place a contention that in duration, the past is constantly actualised in the present by incipient tendencies toward a futurity. In other words, time and memory are indivisible in their composition.

For Bergson, the virtual, worked through the example of music and memory is understood as, "the performance of the movements which follow in the movements which precede, a performance whereby the part virtually contains the whole, as when each note of a tune learned by heart seems to lean over to the next to watch its execution" (Bergson, 2004: 112). Taking this further, the virtual can be understood as the sensing of something yet to come (Manning, 2009), a cartography of speculative pathways; "the pressing crowd of incipencies and tendencies" (Massumi, 2002: 30), generative of potential, "where futurity combines, unmediated, with pastness" (ibid). The virtual, then, is a, "lived paradox where what are normally opposites coexist, coalesce, and connect; where what cannot be experienced cannot but be felt – albeit reduced and contained" (ibid).

Cartography, through its lines, contours and legends, has a role to play in folding and unfolding the virtual and the actual. A journey made, therefore, by cartography might be understood as the actualisation of the virtual. More important however, is the tentative, not-quite-there, anticipatory quality of the virtual, and the manner in which maps and mappings could be understood as technologies and performances of anticipation, or "technique[s] for inhabiting possible futures" (McCormack in Latham et al, 2009: 95). Indeed as Thrift (2007: 60/61) remarks, "qualities like anticipation and

intuition... [are] not just spirits, but material orientations”, which in turn raises questions about the micropolitical capacities of vernacular mappings, an ongoing concern throughout the thesis; to what extent are vernacular mappings embroiled in a micropolitics of affect and the virtual, or in the production of assemblages of enunciation (Guattari, 1995), or, “strategies for the constitution of new territories, other spaces of life and affect, a search for ways outside of territories seemingly without exits” (Guattari and Rolnik, 2008: 3)?

In order to work up responses to these questions later in the thesis, one way of attending to the non-representational lines and contours of affect and the virtual; of the vernacular, is to think about *performance*, both conceptually and methodologically. A pervasive and sometimes specious motif within the social sciences, Thrift (2007) documents the various interpretations of ‘performance’ from its legending in dramaturgical circles (Goffman, 1971) through to its animation in both performance studies (Parker and Sedgwick, 1995) and in social theory and philosophy (Deleuze, 1995). In the specific context of this research, the legending of performance here is important in three respects (although the caveat holds that it is not the intention of the research to prescribe a definitive taxonomy of concepts).

Firstly, performance is important in a non-representational sense whereby meaning and identity are not the defining purpose or avatars of an artefact, process or event. Insofar as vernacular mappings involve bodily gestures, movements, motions, disruptions and liminal space-times which orientate and disorientate each other, they can be sketched and diagrammed, but never captured fully; performances that exceed representation and refuse compartmentalisation into subject-object relations. In a broader context, all cartographic articulations are caught up in some form of theatrics, a

staging of propositions, claims and anticipations, and so it is vital to think about maps as performances, or to invoke a now well rehearsed refrain, to diagram maps as continually in the making. Secondly, performance is important in its inflection by Judith Butler (1997); its performative guise. Here, the notion of performativity adds to the growing trend outlined earlier in wresting maps away from accounts of their neutral or mirroring propensities, and instead assigns a far more active and political role to cartography; one which animates maps as enmeshed in generating eventful spaces through their repetition, staging and attendant claim-making. Thirdly, performance is important to this research methodologically in terms of thinking through how to attend to the affective and virtual lines and contours of the very performances engendered in the examples of vernacular mappings to be examined in the forthcoming chapters. To attend to performance in this way is to state an ethical commitment to finding ways of animating the processual and the emergent without dissipating the affective, virtual and immaterial resonances which are threatened by the dulling effects of representational practices. By attending to performance thus, the research is in a position to elide semiotic or identitarian interpretations of cartography which necessarily involve a speaking-on-behalf-of-others and which can close down certain political space-times in doing so. Instead, thinking through performance alongside non-representational geographies goes some way to eroding the subject-object binary, and concentrates on the affective processes of maps and mappings coming into being and the generation of virtual, unqualified political potential.

In sum, this section has moved from the *being* of cartographic legend to the *becoming* of conceptual legending, a practice of inflecting established ideas in such a way that allows them to be mobilised in alternative ways to their most common-

sensical or intuitive usage. In doing so, this legending has introduced the notion of a politically vibrant, co-produced vernacular, whilst at the same time the section has invoked some of the non-discursive modalities that will weave throughout the pages of this thesis. The following, final section of the chapter draws together some conclusions on the work done by lines, contours and legends in this brief conceptual discussion, and speculates on what work they may go on to do in relation to the empirical focus of this research. The many speculative traces to these considerations will then be folded into the remaining key research questions yet to be posed.

Speculative traces

This chapter, through lines, contours and legends, the axiomatic attributes of maps, has in a processual manner, attempted to both think *otherwise* cartography, and to establish the conceptual charge of this research.

Through contours, the chapter acknowledges the long and varied tradition of critique in cartography as a discipline and practice, whilst staging a genealogy of critical cartography in such a way that eschews the tyranny of linearity and standard historiography in favour of overlapping stories and contiguous geographies. Moreover, the contours orientate the research toward critical cartographies which disrupt the shibboleth-like ontological and epistemological architecture of mapping.

Following the traces left behind by lines was then used as a technique for thinking about their ambiguous and somewhat schizophrenic role in holding apart the seemingly distinct ontological domains of a Cartesian inspired, modern constitution. However, by introducing non-representational geographies that question the relational concordance of reality and representation, abstraction and experience, it was also

suggested that lines might be involved in the narrowing, if not the dissolving of those very intervals. Supplementing this analysis of lines, Deleuze and Guattari's manifold cartographies were invoked as points of inflection for thinking how they might be folded into an empirical study not to do with psychoanalysis or the rhythms of capitalism, but instead concerned with the materiality and performances of contemporary cartographic practices.

The notion of legending was then cultivated as a process for re-invigorating the tired conceptual vocations of the vernacular, and by doing so, the section setup a platform for thinking about how to attend to the explosion in current cartographic technologies and performances signposted in Chapter One. It was also a staging post for the non-discursive vectors of cartography; affect, virtuality and performance; the vectors normally discarded or ignored in critical cartography, but here valorised and interrogated for their micropolitical and geographical potential.

The speculative traces and questions left outstanding from this review are primarily empirical in their tenor, specifically, what are the natures and practices of vernacular mappings and vernacular mappers, indeed, in this form of post-statist cartography, who or what now counts as a cartographer? How might geographers attend to vernacular mappings, to the likes of 3Cs: Counter Cartographies Collective, OpenStreetMap, and also to the established institutions of cartography, namely Ordnance Survey and Google? Furthermore, in attempting to witness, diagram and accentuate the non-discursive registers of cartography, what practices and concepts are involved in the cultivation of a cartographic micropolitics, and what is at stake when this tenor of politics stand in variance to the kinds of cartographic politics espoused in critical geographies that hold on to the modalities of representation? Attendance to a

cartographic micropolitics is a tacit acknowledgement that maps do more than mirror the world; specifically that they cultivate and modulate spatial sensibilities (Yonomoto, 2000). It also marks a shift in focus from cognitive to somatic and relational performances in which consciousness of the body is cultivated through cartographic encounters in and for the world (Merleau-Ponty, 1992). Consequently, what counts as a geopolitical gesture might be shifting from the institutional to the bodily, mediated through experiential, everyday, vernacular cartographies. Moreover, it is the conceptual unsettling of the representational accord in addition to an empirical focus on these vernacular and minoritarian registers of carto-politics that begs the question, what, now, is a map, and what are its micropolitical demands?

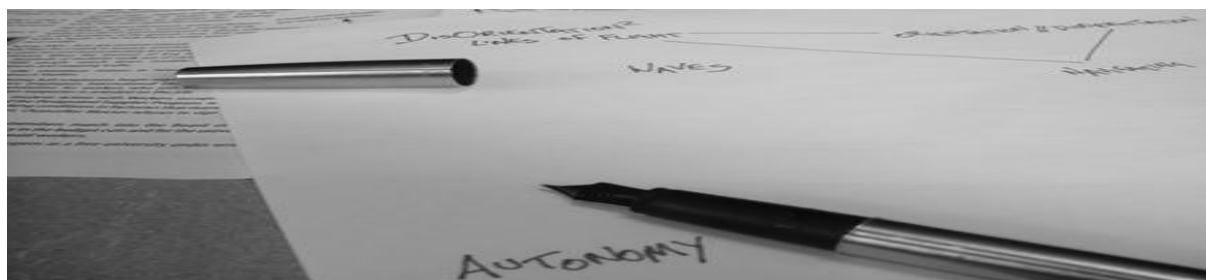
A question, for sure, to be left for the end point of this thesis, but for here, it is worth concluding with a final statement on what vernacular mappings, immured in the mundane, the affective, the virtual, the performative and the micropolitical, might (or might not) involve, perhaps, at last, “an unstable linkage of... struggles and diagrams, a kind of linkage that generates something new, that simultaneously dismantles existing assemblages, space-times, physics and generates mutations, hybrid formations that always operate through a kind of shared excess, through a peculiar sense of resistance or struggle, and through an experimental kind of empiricism” (C.Cred, 2007: 120).

Having diagrammed the undulating lines, contours and legends of vernacular mappings, albeit in terms avowedly partial, the thesis now turns to questions of method, methodologies and technique; to matters of fieldwork anticipation and empirical *tracing*.

// Chapter Three

Tracing

Tracing



Put back on the map

How, then, to attend empirically to the lines, contours and legends of contemporary cartographic practices as outlined in the previous chapter? What techniques and methods might fold into and unfold through the conceptual milieu of this research, and what kind of ethos underscores such theoretical investments, especially when dealing with non-representational registers of performance? This chapter outlines responses to these questions by tracing the experiential methodologies and techniques cultivated through the researching of the variegated actors, assemblages and performances involved in vernacular mapping. The invocation of ‘tracing’ in this chapter hints not only at the generation of traces, material and immaterial, embroiled in the *doing* of the research, it also gestures toward an anticipatory exploration of what was involved in both the process of fieldworking, and in the presently-in-the-making craft of writing.

Tracing, at first glance, appears somewhat antithetical to the tentative sensibilities of processual mapping, the former described by Deleuze and Guattari (2004b) as a form of arborescent, staid logic, counter to the open-ended energies of the latter’s rhizomatic unfoldings. However, an attention to tracing is useful here in three respects. Firstly, tracing serves as a provisional drawing out of lines; lines of the event, lines of enquiry, lines of technique, lines of fieldwork. It does so in a manner that is

partial and vulnerable to modification. Secondly, tracing offers a certain amount of ‘generative constraint’ (McCormack, 2008) to the research project; tracing methods and thought-experiments that might go on to fail, or modulate as yet unformed spaces for thinking, performing and writing otherwise. Thirdly, as Deleuze and Guattari (2004b: 14) themselves postulate, “[i]t is a question of method: *the tracing should always be put back on the map*” (emphasis in the original). Put differently, tracing speaks to the methodological commitments of this research; explicitly, that the process of tracing does not stand apart from the matters of concern at the core of this project, namely maps and mapping, so as not to figure these novel forms of cartographic practice as somehow stable, immutable, detached ‘subjects’ for enquiry. Moreover, it makes clear that the act of tracing is not one of reproduction or representation, but one of experimentation and risk in which methods might be dismantled, discarded, or indeed pushed to their conceptual limits¹⁵.

The chapter is comprised of two parts.

The first part, working through and alongside the geometric method and preoccupations of Spinoza, outlines both the ethos and ethics of the research, questioning what is involved in the drawing of Spinozist cartographies, whilst also introducing the radical, pragmatist and transcendental empirical contentions of William James and Gilles Deleuze respectively. With those ethical and conceptual concerns signposted, the second part of the chapter unpacks some of the techniques devised and

¹⁵ Even to inhabit, or to dwell, as Walter Benjamin (1999 [1935]) suggests, is to leave traces. Moreover, Ernst Bloch’s (1930) text *Traces* is described by the author as a “narration of narrations”; a collapsing of spaces and times through tales, events, musings and anecdotes. To attend to Bloch’s work here is therefore to take seriously the methodological injunction to, “think in stories”, to trace speculatively, “an impression that will not let us come to rest over what we heard. An impression on the surface of life, so that it tears perhaps” (Bloch, 2006 [1930]: 6).

deployed in the generation of research materials and traces (Whatmore, 2003), at the same time accounting also for the space-times of fieldwork that weave in and out of this cartographic project. What the chapter works towards is a methodology and set of techniques that are of, and for, both vernacular mapping and geography¹⁶; an explicit recognition that the folding of philosophical materials is part of the doing of the research, not the imposition of a conceptual meta-narrative standing over and above it (Crang, 2003). To reiterate, such a tracing of ethos and methods is not intended as a blueprint for geographic discovery, but is instead more akin to *geographing*; a “cartographies of things to come” (Munk, 2010: 55); or a speculative, “halfway state, an attempt to point out the direction of the future, without arriving there completely” (Pollock quoted in Stiles et al, 1996: 22); a set of practices that include writing. Contra a naive empiricism (Shapin and Ophir, 1991), writing is traced here as an integral and constitutive craft of geographing, a continuation of the fieldwork itself, the stretch of affects, the experiential, the virtual and performance; the extension of vernacular expression.

¹⁶ A geography not dominated by a cartographic reasoning as identified and exposed by Olsson (2007), but a speculative geography concerned with the non-representational vectors, lines, affects, (im)materials, contours and legends involved and implicated in the virtual unfolding, tonality and potential of space.

Spinoza the cartographer

“Spinoza; a cartographer without saying it, a cartographer without knowing it” (C.Cred, 2007: 126).

“Spinoza doesn’t make up a morality, for a very simple reason: he never asks what we must do, he always asks what we are capable of, what’s in our power, ethics is a problem of power, never a problem of duty. In this sense, Spinoza is profoundly immoral” (Deleuze, 1978: 9).

“Libre de la metáfora y del mito

Labra un arduo cristal: el infinito

Mapa de Aquél que es todas Sus estrellas”.

“Free of metaphor and myth

He grinds the stubborn crystal: the infinite

Map of the One who is all His stars”.

Extract from the poem, *Spinoza* (Borges, 1964: own translation).

Baruch Spinoza was, of a sort, a vernacular mapper; a cartographer in the thinking, a maligned and persecuted philosopher who sketched, like the minor draughtsman he was (Berger, 2011), open-ended, speculative and affirmative pathways to godly perfection through promoting the augmentation of affective capacities amongst relational bodies comprising the one, monist substance. In his most well-known map, *The Ethics*, Spinoza (1966 [1677]) traces a series of postulates and axioms that have since offered post-humanist philosophers and geographers alike the chance to recalibrate the vexed question of ethics (Thrift, 2003) and rethink its implications in the performing and performances of research, so as to, “produce a different sense of how things might be” (ibid: 119). In the mould of any respectable seventeenth-century

cartographer, Spinoza's method was one of geometry, inspired and influenced by both the ancient and near contemporaneous works of Euclid (2006 [c.300BC]) and Descartes (1968 [1641]) respectively, but whereas the latter's *Meditations* is an analytical work of discovery, Spinoza's *Ethics* is a work of invention (Curley, 1988). The geometric method therefore, as diagrammed and employed by Spinoza, "ceases to be a method of intellectual exposition", and instead, "imparts... sufficient force to go beyond its ordinary limits, ridding it of the frictions and even the generalities that accompany its restricted use" (Deleuze, 1988: 13/86). Invention, as Bergson cited in Deleuze (1991: 15) suggests, "gives being to what did not exist", an unqualified and speculative process of recombination of ideas, concepts and practices in which, "no one knows ahead of time the affects one is capable of; it is a long affair of experimentation... a Spinozan wisdom" (Deleuze, 1988: 125).

A project about vernacular mapping, or cartography wholesale, is one likely to encounter the straight lines of geometry at some stage, particularly as cartography is a science and practice preoccupied by method. Yet rather than succumb to the strictures of a Euclidean geometry or a Cartesian regime of co-ordinates, mapping with Spinoza fosters the chance for experimentation, for speculation, for drawing lines and legending concepts that refuse to yield their affective, virtual and performative surprises in advance. In itself, "to think is to experiment" (Deleuze and Guattari, 1994: 111), and thus it follows that an aim of this kind of cartographic research is, "not to rediscover the eternal or the universal, but to find the conditions under which something new is produced" (Deleuze and Parnet, 2006: vii). Moreover, Spinoza's cartographies help elide the awkward conflation of ethics with a transcendental morality, a troublesome compromise that has saddled the social sciences with the burden of adhering to a

panoply of codes, tribunals and overwrought regulations for researcher behaviour. This is not to suggest that researchers should be abrogated of any form of responsibility, but it points to the contention that ethics does not lend itself to a hygienic compartmentalisation as some might wish (Thrift, 2003). All too often, ethics has historically been cast as an appendage or afterthought to the research process, or indeed treated as a pre-figured ritual performed in advance of fieldwork in which after the necessary paperwork has been signed-off, the ethical concerns confessed upfront are either suspended in (Scheper-Hughes, 1995) or fall victim to audit cultures (Strathern, 2000) and industrial shredding machines. What kind of ethics therefore, is at stake in this research? Spinoza, the cartographer, traces a pathway once more.

Spinoza's ethics, remarks Deleuze (1988: 125), "has nothing to do with a morality; he conceives it as an ethology, that is, as a composition of fast and slow speeds, of capacities for affecting and being affected". In the context of geographical research, this contention suggests that far from being a meta-ethical code of conduct, ethics constitutes itself, a methodology for encounter and engagement that takes seriously the capacities of and for bodies to generate and be generative of different kinds of affective spaces and atmospheres (Bennett, 2001; Massumi, 2002). Ethics is not, "what would be good or bad per se, but about learning how what we encounter affects us, how it empowers, or separates us from our capacity to act (that is also to think and feel" (Stengers, 2008: 44). In geography, such sentiments have been echoed recently by notions of hybrid, relational ethics (Whatmore, 1997), an, "ethos of awareness" (Thrift, 2004: 14) and fieldwork experiments in the affirmation of the affective eventfulness of research (McCormack, 2003), thereby encouraging geographical sensibilities toward all forms of life, including those that, "exceed

experiential consciousness” (Rose, 2010: 343). Such an ethos might even involve a certain intuition, “a kind of intellectual sympathy by which one places oneself within an object in order to coincide with what is unique in it and consequently inexpressible” (Bergson, 1992: 23). Spinoza’s cartography of method therefore does not pertain to a staged, reflexive deconstruction of the researcher’s biography (for examples of such a tactic see Hay, 2005 and Sheehan, 2011), but instead it insists on the continuous propagation of ethics as practice and the opening up of affective encounters throughout the research process.

Empiricism

For vernacular mapping as both a concept and as a series of assemblages and performances, the opening of spatial and affective encounters is crucial to the cartographic process. Moreover, an ethical predisposition towards a Bergsonian sense of the provisional, radical indeterminacy of the future (Mullarkey, 1999) and tentative formation of these encounters, as encouraged by Spinoza the cartographer, are central to the research process. However, Spinoza as a rationalist made little or no appeal to empiricism or the experiential (Hampshire, 1996) in conjuring his geometries for how one *could* live.

This facet of Spinoza’s work is problematic insofar as vernacular mappings and their attendant practices are predicated on, and are themselves generative of, the experiential, and that to write about such things here requires a deliberate orientation toward the empirical, whilst still holding on to the ethical sensibilities and cartographies of Spinoza. The valorisation of empiricism and the experiential however, is not to insinuate a flight toward a ground-truthing approach in which concepts are held accountable to the tribunal of an ostensibly separate realm of experience or the

'real', nor is the incantation of the empirical a sleight of hand tactic to, "produce adhesion, a feeling that we have understood, that the world explains itself for us" (Stengers, 2008: 91). Far from it; abhesion, failure and disorientation, "a disciplined lack of clarity" (Law, 2004: 3) are the more likely refrains of empiricism in the context of tracing contemporary cartographic practices.

Instead of turning to a form of empiricism deployed as a facile, "exemplification of a general social theory" (Barry, 2001: 21), the aim of working through experiential methods is, "not to make something know to us, but to make us understand our own power of knowing" (Deleuze, 1988: 83). This research therefore attaches itself to an ethos, commensurable with Spinoza's ethical cartographies, of 'radical empiricism' as espoused by its pragmatist protagonist, William James¹⁷. James (2003: 22) himself explains, "to be radical, an empiricism must neither admit into its constructions any element that is not directly experienced, nor exclude from them any element that is directly experienced", not least because, "the conditions for experience are themselves experiences" (Mullarkey, 2006: 14). Moreover, it, "insists on understanding forwards... and refuses to substitute static concepts of the understanding for transitions in our

¹⁷ Carlisle (2011: no pagination) remarks, "to move forward with his philosophy Spinoza needed William James, but then William James needed Spinoza too". Whilst differing in register, both Spinoza and James were committed monists, and both espoused an ethics of vitality and affirmation; "Spinoza's philosophy has this sort of healthy-mindedness woven into the heart of it, and this has been one secret of its fascination. He whom Reason leads, according to Spinoza, is led altogether by the influence over his mind of good. Knowledge of evil is an 'inadequate' knowledge, fit only for slavish minds. So Spinoza categorically condemns repentance" (James, 1960 [1902]: 91). Whilst Spinoza and James depart in their divergent levels of attendance to empiricism, James, however, is not perturbed at Spinoza's concern for diagramming somatic experience through geometry; indeed, he suggests that working through affections as if they were geometric properties is still a valorisation of experience (of sorts), "he [Spinoza] will consider our passions and their properties with the same eye with which he looks on all other things, since the consequences of our affections flow from their nature with the same necessity as it results from the nature of a triangle that is three angles should be equal to two right angles" (ibid: 9).

moving life” (James, 2003: 125), so that, “through the complexity of the empirical... one gets a sense of the irreducibility and contestability of the social” (Barry, 2001: 22).

What significance does this radical empiricism hold in the context of researching vernacular mappings? Two responses might be elicited here. Firstly, vernacular mappings, as with all cartographies, are to a large extent in the business of abstracting and abstraction, but in researching these cartographic processes, the “abstract does not explain”, claim Deleuze and Parnet (2006: vii) drawing on Whitehead, “but must itself be explained”. In other words, this research is concerned with both attending to, and tracing the very abstractions that would otherwise be rendered axiomatic, or left in a conceptual black-box (Latour, 1987). Secondly, the research is not characterised by understanding a pre-existing realm known as ‘vernacular mapping’. Instead it is caught up in the generating of vocabularies and methodological techniques for bringing the idea of vernacular mapping into being. This, as Deleuze (2004b: xix) intonates, “is the secret of empiricism... [it] is by no means a reaction against concepts, nor a simple appeal to lived experience. On the contrary, it undertakes the most insane creation of concepts ever seen or heard”¹⁸, concepts understood as, “centres of vibrations, each in itself and every one in relation to all others” (Deleuze and Guattari, 1994: 23).

¹⁸ “Deleuze’s philosophy is a philosophy of creation” (Seigworth, 2006: no pagination) and indeed in Deleuze’s view, philosophy is concerned primarily with the creation of concepts. Moreover, for Deleuze and Guattari (1994: 5), “it is no objection to say that creation is the prerogative of the sensory and the arts, since art brings spiritual entities into existence while philosophical concepts are also “sensibilia””. Creation can take the form of a thought experiment, and does not necessarily result in the production of the new or novel; “as Nietzsche succeeded in making us understand, thought is creation, not will to truth” (ibid: 54). Interestingly, Deleuze (in Lotringer and Cohen, 2001: 101) remarks that, “creation (the creative act) is something that is very solitary”. I would argue that the complicated and disperse space-times of creative acts and creation, as to be exemplified in the case of vernacular mapping, makes it difficult to support Deleuze’s legending of solitary actants of creation.

This turn to radical empiricism is therefore a tacit acknowledgement of the *interventionist* and incessantly productive nature(s) of research, one which echoes the conceptual rethinking of maps not as mirrors of the world, but as transformative of worlds. At the same time this invites the challenges and disruptions that the world presents to thought and cartography; a Spinozist injunction to welcome and accentuate affective happenings in the world. Even research bound up in the seemingly detached exercise of ‘witnessing’ is interventionist; as Dewsbury (2003: 1919) contends, “witnessing is about intervention. In this it produces two movements: one away from the self towards the unknown, the unsayable; and the other towards the self, demanding that it acknowledges its responsibility as that unique witness”. Researching vernacular mappings is therefore not a commentary on a detached cartographic practice, but is in itself a form of, “mapping into knowledge” (Whatmore, 2003: 95), a form of co-production between various actors, human and non-human, in which research subjects and objects are not presented or offered up a-priori, but are generated in the craft, or perhaps fabulation, controversy, mess and indeed *trouble* (Jellis and Gerlach, 2011), of the research process.

It is this openness, or susceptibility to disruption and contingency, and simultaneous acknowledgement of intervention which builds into the notion of putting this research into vernacular mapping, ‘at risk’; “to act in such a way that [something] can concern the person, intervene in his or her life, and eventually transform it” (Stengers, 1997: 83). Put otherwise, this is to deliberately ratchet-up the, “frictions, discrepancies... silences” (Whatmore, 2003: 99) and the uncertainties that permeate research, and in particular fieldwork (Latour, 1993). To put research at risk is to push the experience of thought to its limits (Rajchman, 2000), to the point where it might

come to displace the original question or line of enquiry (Foucault and Deleuze, 1977). Risk might also involve taking a lead from Bergson once more, “for whom the first act of methodology is the stating and creating of problems” (Deleuze, 1991: 14). A frightening prospect for sure, as Dewsbury (2010) acknowledges in thinking about performative, non-representational research, but taking solace from Samuel Beckett, one injunction for such methodologies might be, “Ever tried. Ever failed. No matter. Try again. Fail again. Fail better.” (Beckett, 1987: 89); a bullish invitation to, and the deliberate folding in of, generative failure involved in the process of putting concepts, abstractions and ideas at risk so that they might become *better*, or in Spinozan terms, more *adequate* concepts, abstractions and ideas.

Geographical interventions

Cultural geography, having, “tended to be figured in terms of theoretical, rather than explicit methodological advance” (DeLyser and Rogers, 2010: 186) has of late undergone an acute and productive turn to qualitative research methodologies and techniques (Popke, 2009) that take seriously the ethical (and political) thought of the likes of, *inter-alia*, Spinoza, James, Guattari, Deleuze and Stengers, reviewed extensively by Crang (2002, 2003, 2005), Davies and Dwyer (2008, 2009, 2010) and Lorimer (2005, 2007, 2008). In sum, what these reviews demonstrate is that geographers have responded in part to, “the urgent need to supplement the familiar repertoire of humanist methods that rely on generating talk and text with experimental practices that amplify other sensory, bodily and affective registers, and extend the company and modality of what constitutes a research subject” (Whatmore, 2006: 606/607) and to, “take seriously forms of knowledge that are more diagrammatic than representational” (Hinchliffe et al, 2005: 655). Non-representational research in particular, has been in

this respect, “wilfully restless in character” (Lorimer, 2005: 84), notable by its resolute experimentalism (Dewsbury and Naylor, 2002; Dewsbury, 2010), “more-than-disciplinary” (McCormack, 2008: 1) scope, “more-than-human investments... [its] affirmative ethics and cosmopolitics” (Lorimer, 2010: 239) and its empirical gestures evocative of a pragmatist, radically empirical heritage (Jones, 2008). In sum, non-representational geographies have rallied around the imperative to, “explore and experiment with the multiple ways in which the world can and is coming to be” (Greenhough, 2010: 50), recognising the, “constitutive roles of embodiment, practice and performance in the shaping of subjectivity” (Wylie, 2002: 441).

With specific regard to research approaches to mapping and cartography, the change in methodological tenor and register has been marked (Goodchild, 2007; Elwood, 2011). Brown and Laurier (2005: 17), for example, having first castigated the “hypothesised mental processes” that dominate the pervasive cognitive model of research into mapping, then go on to mobilise a form of ethno-methodology in attending to and animating everyday itineraries of wayfinding and hesitant map reading, in particular taking care to, “pay attention to whatever is taking place in front of them” (Harrison, 2002: 500). Elsewhere in mapping studies, Dodge and Perkins (2008) push more-than-academic cartographic collaboration by organising OpenStreetMap parties in Manchester, an activist fieldworking resonant of Bill Bunge’s (1969) cartographic drifts around Detroit, perhaps part of a, “renewed ‘folk-geography’, re-engaging with past work on vernacular landscapes” (Crang, 2010: 195).

What is lacking to a large extent, however, within contemporary critical cartographic research, even in examples that involve some form of embodied or bodily participation in public events (see Parker, 2006; Kwan, 2002), is a concern for the

“touchy-feely” (Crang, 2003: 494), the “sensuous dispositions” (Lorimer, 2005: 84), somatic sensations (Paterson, 2007) and, “awkward intensities” (Dewsbury, 2010: 326) that amplify and diminish in the practice of everyday, vernacular mappings. The result is an elision of the affective and virtual atmospheres, spaces and micropolitics that are presently and constantly at play in the drawing of maps and the broader context of their social, cultural and non-human relations; a situation made all the more peculiar in light of a map’s affective capacity to, “often drive us crazy with frustration, disorient us, or make us cry” (Brown and Laurier, 2005: 18), leading us to trip over and lie “open to defeat by reason” (Laurier and Philo, 2006: 354).

It is the intention of this research therefore to supplement the already substantial critical cartographic repertoire of participatory mapping studies by concentrating on the affective, virtual and performative vectors of everyday and micropolitical cartographies. Although Suchan and Brewer (2000) acknowledge that a wide array of methods are required to attend to participatory mapping performances, contemporary and novel forms of mapping appear to, as Wilson (2009: 165) highlights, “elude our traditional ways of knowing and seeing”. What kind of methods then, are needed if the notion and practice of vernacular mapping is to be brought into relief? What, empirically, and echoing Foucault’s genealogical ‘history of the present’, is required to create, “a cartography of the present” (Roets et al, 2009: 738)? What kind of conceptual and empirical risks might need to be taken, and how might this research follow Spinoza the cartographer in remaining attentive to the affective eventfulness of vernacular mapping? To stage once more a question from a geometrically-inclined era in the history of disciplinary geography, “[w]hat kind of explanations of geometric events does geography require?” (Sack, 1972: 69). The following section responds to

these questions by tracing the specific methods that were involved in the performance of this research, placing a particular emphasis on the importance of fieldwork as a point of departure for generating materials.

Geographing

This section begins with yet another question, an aporia (Laurier and Philo, 2006); how to represent the non-representational? Put otherwise, how does one elide the supposed deadening effect of packing the world into words, themselves bound tightly in thesis form? How, “does one give a word to a movement without seeking to represent it”? (McCormack, 2002b: 470). Troubling questions to be sure, but if the empirical energies of non-representational thinking go some way to collapse the interval between ontology and epistemology through an ethical attentiveness to performance and its emergence (ontogenesis), what remains is the capacity to trace research not as a representative act of translation from the field to the word, but instead as a transformational practice whereby the binary between field and textual repose is itself dissolved by the circulating referents of enquiry (Latour, 1999). To reemphasise the ethical motivations of the previous section, if the research materials generated are, “characterised by difference and singularity... [and] thus not subsumable under any general law or procedure” (Gane, 2009: 85), then the vocation of the research in this cartographic context is not to represent the world in meta-narrative form (as the science of cartography itself has long attempted to do), but to re-present materials in such a way that is irreducible to pre-figured codes, meanings or subjects.

The purpose of this section therefore is to propose the notion of *geographing*¹⁹ as a speculative methodology for encountering and attending to the empirical concerns of this project. To employ the term geographing is not a move to court pedantry, nor to incite disciplinary turf warfare, but it is to take seriously the interventionism of earth writing, especially in dealing with the conceptual and empirical vectors of cartography, the inscription practice par excellence. At the same time, the invocation of geographing is an attempt to account for a play on methods and techniques that do not add up in any straightforward manner to the sum categories of, for example, ethnography, discourse analysis or archival research and other such empirical approaches drawn from the quasi-canonical methods repertoire of the social sciences.

In exploring what is at stake in this craft of geographing, this section traces the fieldwork undertaken to generate the materials at work in this thesis, mapping the fieldsites, case studies and their relations, whilst at the same time considering what role the researcher plays, politically and ethically, in the mix of its production. This is by no means a confessional for the repentant researcher, but an affirmative tracing, again in keeping company with Spinoza, James, Bergson, Guattari and Deleuze in asking of what is a researcher capable, acknowledging that their affects cannot be plotted in advance. Lastly, as a coda to this chapter, and to foreground the style of the forthcoming

¹⁹ 'Geographing' lacks deliberately the prescriptive certitude and empirical policing of a traditional methodology. Instead, it might be understood as a speculative approach to fieldworking and writing aligned with the specific injunction that it is concerned with animating the world *otherwise*. That means accentuating the non-representational vectors and intensities of the matter of concern; "a dance on the earth, a drawing on a wall, a mark on the body... a graphic system, a geo-graphism, a geography" (Deleuze and Guattari, 2004a: 205), even perhaps putting those vectors and matters at risk; generating answers that destroy the question (Sontag, 1963). Moreover, whilst I suggested that to conjure the term geographing was not motivated by a disciplinary claim-staking, there is, to some extent, good reason for geographers to consider what it is they can do and offer in terms of technique; namely to reflect upon and take seriously the inference of the term 'geography'. If philosophising is what philosophers do, then geographing is what geographers do.

substantive chapters, the section affirms the practice of writing, and its particular inflection here as a technique of 'disorientation' and concomitant 'reorientation', a cartographic ruse for engineering particular affective, textual dispositions, and an attempt to further unsettle the ontological accord of maps and mapping performances. A technique, in other words, to trace the, "creative, sometimes anxious, moments in coming to knowledge of the world" (Cosgrove, 1999: 2) through cartography.

Fieldsites

Insofar as cartography is itself reliant on a type of fieldwork to populate its maps, the idea of tracing vernacular mapping performances appears to be a fieldworking of fieldwork, a sort of remote sensing twice removed. A familiar motif of geography, fieldwork is, "no longer conceived solely through the logics of extraction and recovery: rather, it is an enactive, performative process, one in which data are generated through ongoing, tentative experiment as much as they are discovered or revealed" (McCormack, 2010: 40). With this in mind and with an emphasis on performance, this research established three fieldsites, tentatively at first, if only because, "starting is never easy" (Lorimer and Wylie, 2010: 6). These fieldsites are not necessarily geographically bounded to a singular location; some stretch institutions, others traverse nations, fibre optic cables and university laboratories. Instead these fieldsites might be characterised by their thematic and cartographic intensities or affinities for an existential commitment to mapping as a technique for imagining and enacting worlds differently. These sites, in no particular order, are firstly, 3Cs: Counter Cartographies Collective (3Cs) based in the University of North Carolina at Chapel Hill, USA; secondly, OpenStreetMap, a wiki-map platform and global mapping community, and thirdly,

institutions, specifically Google and Ordnance Survey, the former an ubiquitous internet search behemoth and the latter, a cornerstone of the British cartographic establishment.

Taking each of these fieldsites in turn, this section traces what is involved in the doing of the fieldwork, interrogating at the same time both the micropolitics of researcher 'positionality' and the specific methods and techniques deployed. Emphasis is placed here on the notion of *technique* over *method*, insofar as the idea of technique is less striated and directional than that of a method in which the latter might be construed as an established means to a particular, pre-figured end (Connolly, 2002)²⁰. To think and fieldwork through technique then holds on to a Spinozan sensibility for unqualified, speculative geographies and bodily capacities.

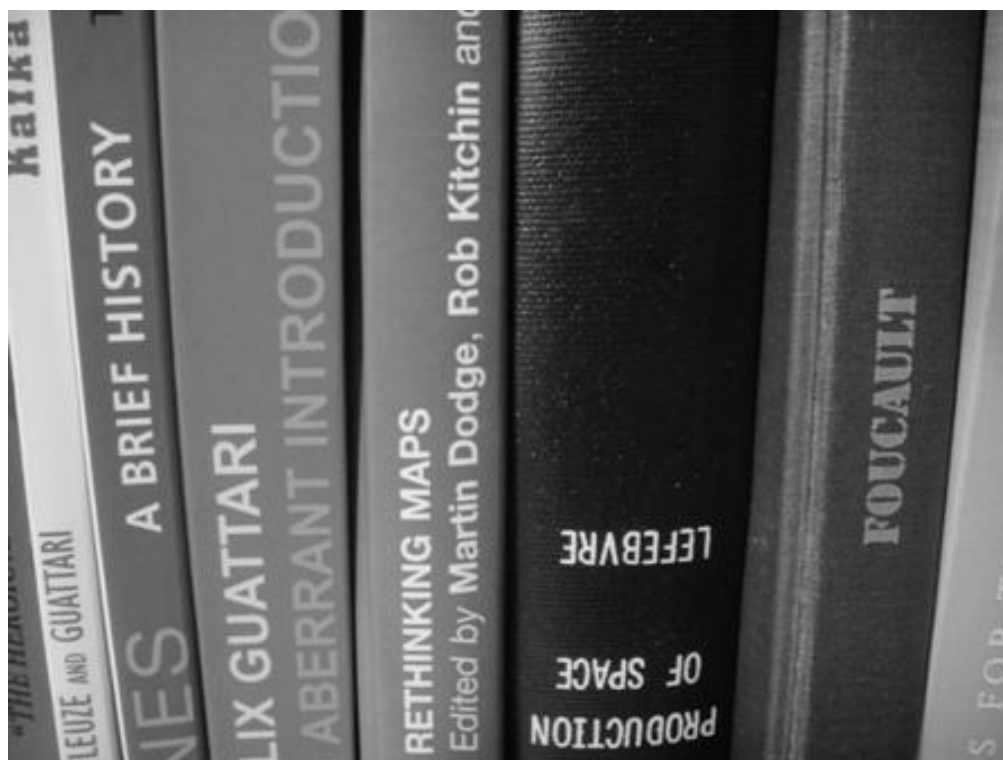
3Cs: Counter Cartographies Collective

To the first fieldsite, to 3Cs. Stumbling serendipitously (Pink, 2007) upon 3Cs via a lengthy and stochastic Google search, it soon emerged that this self styled 'affinity group' might be an interesting collective to work alongside; its webpage both spoke to, and would inflect, the conceptual interests of this project; Deleuze, Guattari, the power of maps, *cartography*. So far, so good. Moreover, the label 'counter' evoked a challenge to thought; a conceptual tenet against which some of the non-representational concerns of this project could push against. Having spoken to some of the student members of the collective to gauge the feasibility of joining them for a spell of fieldwork in North Carolina, I packed my bags for a three month stint in the southern college town of

²⁰ Moreover, the idea of method, as opposed to technique, demands too much by way of divestment of the excesses, forces, mess and materials of research. As Deleuze (2006b: 96) remarks, "Method is an artifice, but one through which we are brought back to the nature of thought, through which we adhere to this nature and ward off the effect of the alien forces which alter it and distract us. Through method we ward off error. Time and place matter little if we apply method".

Chapel Hill, enrolled officially as a visiting scholar at the University of North Carolina. Not knowing in advance of departure from Heathrow of this official enrolment for the Fall semester, it required a rapid recalibration; conceptual, somatic, micropolitical, as to how I might act and perform in relation to the other bodies involved in the fieldwork.

A more pressing risk was a conceptual one. With luggage weighed down by theoretical ballast and directed by an ethos emergent from a non-representational style of engagement, how would those ideas and concepts play across, or indeed be modified and discarded by their travelling to Chapel Hill? The point was never to impose theory on to life itself, but the risk remained that such ideas would find themselves irrevocably altered in the melt of fieldwork. To call this three month engagement with 3Cs an example of an ethnography would be a claim too ostentatious, and in anthropological terms, it would unlikely cross the threshold of constituting a substantial temporal investment in a particular case study. What, however, was the nature of the engagement with 3Cs? Certainly, the awkward intensities that Dewsbury (2010) identifies came to the fore; non-representational thinking demands a certain openness to the event, but this can lead to a disorientating sense of listlessness and anxiety about where one might 'fit'. This awkwardness was though at times productive; as I and others in 3Cs negotiated protractedly my role in the collective, it generated moments of consternation and controversy, glimpses into how the collective goes about its work, what concepts and practices they hold dear, what concepts and practices they discard.



//3.1// Ideas to where?

“You’re going to hit the fieldwork running”, said Craig with a knowing grin on his face. Craig, a then member of 3Cs, was collecting me from Raleigh-Durham airport in the oppressive humidity of Carolinian autumnal skies in September 2009. To start, then, as always, in the middle of things (Latour, 2005), “where things pick up speed” (Deleuze and Guattari, 2004b: 28). Craig was pointing to the situation that 3Cs were midway through a big project, ‘disOrientation 2’, narrated as such in the following chapter. Entering the fray in the midst of this project added to the inevitable mess and contingency of fieldwork (Law, 2004), and it also engineered my provisional role in the affinity group, almost as a matter of default and urgency, “you can be note-taker”, said Maribel, another former member of 3Cs. I took notes; I took photos (black and white in the main), I suggested edits, talked about non-representational geographies, or sat quietly chastised in the corner, deciding what to make of it all; holding aloft a small, handheld video camera provided a certain safety blanket.

Notebook upon notebook, simultaneously recording 3Cs meetings for the sake of their archival records, whilst writing through and on top of that, my own notes for the sake of research; it soon became apparent though that the difference between the two inscriptions were starting to narrow to the point where only one notebook was in use. This paralleled a broader concern that the lines between friendship and research were starting to blur, not to mention my transient status as a visiting student, beckoning as a consequence questions surrounding 'critical distance' and a, "relativity of viewpoint... a perspective which tries to learn something from what is studied, without at the same time being in awe of it" (Barry, 2001: 21). Immediately a tension arises between on the one hand, not wanting to re-inscribe or diagram a false dichotomy or cartographic distance between the researcher and researched, whilst on the other hand, not wanting to be subsumed in a matter of concern, or space-time in which critique, affirmative or otherwise, becomes impossible.

Given the earlier discussion of Spinoza's cartographies, and Latour's (2004) call for researchers to learn to affect and be affected by geographic eventfulness, it is perhaps unhelpful to cast any form of distance between researcher and researched, in part because to do so is to wreak a suspiciously hygienic break that itself constitutes the postulation of a discrete subject and object; the kind of settlement with imperialist, masculinist undertones that post-humanist and non-representational thinking seeks to undo. As Massey (2003: 75) intimates, "however much distance you put between yourself and your object of study, you will still be located somewhere"; at the same time, it would be equally problematic to suggest that one can ever attain full 'immersion' in a space, situation or fieldwork of concern; "try as we might to gain an observer's remove, that's where we find ourselves: in the midst of it" (Massumi, 2011: 1). In the case of 3Cs,

positing a deliberate distance, detachment from or converse immersion in the collective would have likely been counter-productive, therefore in an attempt to cultivate 'good judgement' (Thrift, 2003), it became a situation of cultivating an attentiveness to the go-along nature of the fieldwork with 3Cs, to experiment in 'letting-go' of certain conceptual shibboleths and also certain somatic habits, whilst holding on to James' injunction of radical empiricism where even the experience of experience is reflected upon and written about; in diaries, in photos, in videos, in emails.

Arguably, these tensions, however awkward and wherever they occurred (as indeed they did in all the fieldsites involved in this project), are productive in the generation of research materials (and immaterials), and relate to a question of co-production, rather than compromise, not least because inevitably we, "co-constitute and contaminate one another in the dynamic" (Kangieser, 2009: 75) of research. Indeed, to establish a false distance, under the auspices of 'being critical', would be a compromise too far. Involvement or participation in the makeup or activities of a collective such as 3Cs or later, OpenStreetMap, does not entail that one is signed up to their motives wholesale, nor does it follow that any critique should take the form of outright affirmation or agreement. Admittedly, this risks antagonising those actors who acceded in the first place to the researcher's request for involvement in their activities; the logical, *partial*, response to this quandary therefore is to make available all the research materials, in whatever form or state, available to those the researcher has worked alongside, in other words, to put at risk, yet again, ideas and contentions, and to, "feed obstinately off uncertainty" (Latour, 2005: 122).

3Cs themselves also participate under the banner of 'militant research' in which relationships between actors and normative ethical demands, or political ambitions

muddy any sense of empirical purity. They also, concerned with higher education budget cuts and solidarity campaigns in Argentina and Palestine, must also negotiate a way of research that runs schizophrenically between friendship or love of a cause, and their ability to undertake academic research, to find a, “way of regarding each other that both syncopates and stretches out the rhythms of movements, our words and our disclosures, oscillating between the ease of friendship and the unease of intellectual objectification” (Kanngieser, 2009: 76).

In the conversations, the mappings and the downright arguments I had with 3Cs, we made and unmade subjectivities and generated vibrant and turbulent affective atmospheres, a (dis)continuum of material and immaterial relations that stretched from the congenial through to the suspicious and critical. Crucially, what was at stake was not just the diagramming of a genealogy of 3Cs and its practices, but at the same time, the very premise of this research was susceptible and vulnerable to modification. Moreover, in the months intervening between the fieldwork and the writing of these lines, emissaries from 3Cs who have travelled back and forth from the USA have had chance to read notes, drafts, essays, look at photos, clarify quotes and make revisions. Not merely a rubber stamping exercise, but an ongoing process of restaging and retracing the Spinozist question, of what is this research capable, of what kind of affective afterlife could this research engender? In the three months of fieldwork in North Carolina, ideas and practices inevitably failed and fell by the wayside. Of what to do? For Stengers, learning to laugh, perhaps at one’s self, and one’s methods is the first injunction, the second; to, “affirm, even your own stupidity” (Massumi, 2002: 18) and third; to “adore your failure” (Edwards et al., 1992: no pagination).

OpenStreetMap

The second fieldsite, that pertaining to the wiki-mapping community, OpenStreetMap (OSM), is, to speak yet again through a Euclidean cartography, a far more geographically diffuse and distributed set of spaces for encounter. Once more, a chance read of an article about OSM published in the Big Issue magazine, 23 October 2006 sparks a generative moment; a fieldwork trace. Entitled, 'Walk this Way', the article detailed the emergence of a fledging mapping group and how it was upending the rule book on cartography, "[it is] emotional investment... which makes OpenStreetMap a special project... it enables people to re-experience their surroundings in a way they'd never thought of before" (Chittock, 2006: 17). This journalistic curio collided with a long standing interest in maps, and so, if ever a origins story could be authored, the semblance of a matter of concern emerges out of a Big Issue.

The primary aim of the fieldwork with OSM is to 'become mapper', a well-trodden technique of learning the norms, cultures, behaviours, politics and constraints of a particular practice or community, to locate (tentatively) the fieldworker body in the doing of certain practices, in this case, cartographic performances. In this, "tracing of associations" (Latour, 2005: 5), the fieldwork *takes place*, or emerges in Glasgow, Andover and Witham; sites of OSM cartographic activity known as 'mapping parties' (see Chapters Five and Six) in which mappers and GPS devices collaborate in the drawing, editing and modification of abstractions; if only for the love of abstraction (McCormack, 2008). Like a cartographer who pays close attention to technique and to the geodesic lines inscribed or followed, so too does the fieldworker pay close attention to the geography of what is happening; multiplying lines and traces, developing an ant-like disposition (Latour, 2005) in hoarding and proliferating those materials generated;

GPS signals, paper maps, recorded conversations (arguments), lingering affects, residual concerns and loose threads. Insofar as Spinoza followed a geometric method; here, I follow a geometric technique; similar in their concern for lines and cartographic organisation, but at variance in their ethos; whereas the former is a means to an end, the latter remains a, “speculative topography” (Thrift, 2007: 2), a compromise between the methodological constraint of Euclidean lines, and the unarticulated virtual; of events yet to come into being and affects yet to be actualised.

In staying empirically with OpenStreetMap, but conceptually attending now to the event, a further fieldwork encounter emerges in Lima, Peru (Chapter Six). Why? In response, four reasons. Firstly, with its activity largely concentrated in the USA and north-western Europe, OSM has little presence outside of these worlds, and so to push how *open*, OSM is, I co-fabricated a mapping party in Lima, a city that had hitherto not been affected by the cartographic sensibilities and practices of vernacular mappers. Secondly, travelling to Lima maintains an ongoing research interest in cartographic activity in the Andean community of Latin America (Gerlach, 2008), specifically in Colombia, Ecuador and now Peru; thereby building on contacts and ever-changing networks of cartographic actants and practices in the region. Thirdly, to fieldwork in Peru is to generate eventfulness, to court the trouble and mess that accompanies difficulties in translation and logistics. It is at the same time, to put at conceptual risk, the notion of event, as worked through by Badiou (2005) and Deleuze (2006a) by diagramming, through fieldwork, a space for research creation. Put differently, fieldworking in Peru is a form of “eventalisation... [that is] rediscovering the connections, encounters, supports, blockages, plays of force, strategies, and so on that at a given moment establish what subsequently counts as being self-evident, universal and

necessary” (Foucault, 1996: 226/227). Fourthly and lastly, organising a mapping party in Lima is figured as a, ‘small act of repair’ (Bottoms and Goulish, 2007), or put differently, a gesture of remittance or composition in the doing of fieldwork that is in part an attempt to counter deliberately the understandable accusation that such empirical work adds up to a re-entrenchment of imperialist, academic tourism, or a repetition of history in which the westerner’s cartography wins over the indigenous map.

Despite best efforts, and notwithstanding the contentions of co-production and distributed ethics, the act of fieldworking still demands a great deal from others; the time, money, intellectual and somatic energies of actors, human and non-human. In blunt terms, fieldwork can be selfish. This is not to say that fieldwork should be treated as a crude transactional exercise, whereby collaborators are compensated or repaid in kind, but it is to signpost a modest, reparative ethos of attending to the transformations effected in the world by fieldwork. It is to proffer an ethico-aesthetic response to the co-fabricated, and by the same token, co-destructive tendencies of fieldwork.

Witham, Glasgow, Andover, Chapel Hill and Lima. Not comparative sites, and not sites for comparison. Compare and contrast is not the method at stake here. To be sure, there are relations running between and through these sites, relations actual, materially and digitally virtual; tied together by an interest in lines, cartography and politics of different intensities. Instead, a journeying and tracing of these fieldwork space-times is to *geograph* the differential micropolitical tendencies of the sites, and to *geograph* the intensely variegated performances of vernacular mappings, to evoke the sense that vernacular mappings is not, of itself, a stable category or umbrella term into which amateur, participatory cartographies fall. The cartographies of, for example, 3Cs in

North Carolina on the one hand, and OSM in Witham on the other, are, as to be illustrated in Chapters Four and Five, obviously different in their composition and motivations, but what might be regarded as holding them together as examples of vernacular mapping is an existential commitment to cartography, and a recognition of its concomitant *power*, if not its affirmative *potential* for visualising, feeling and enacting different worlds and modes of inhabitation.

Institutions

With a similar commitment to mapping are the actors that comprise the third fieldsite, that of institutions, or institutional cartography, specifically focussing on Google and the UK's Ordnance Survey. The reason for turning empirically to the broader cosmology of cartography is to trace and diagram the context in which vernacular mappings operate, but also to get some handle on how institutions and institutional cartographies are themselves affecting and being affected or inflected by the activities of emergent vernacular mappers. Moreover, it constitutes an opportunity to think through institutions, the kind of *minor* geopolitics that novel forms of cartographic practice are beginning to engender, modulate and modify. This fieldwork was undertaken through a series of conversations and meetings, along a continuum of variable formality with Google's Chief Geospatial Technologist, Ed Parsons, and the Ordnance Survey's 'Vernacular Geography' research unit. These meetings were a chance, through relatively orthodox geographic and social scientific methods, to interrogate and diagram the relations between vernacular and institutional mappings, and indeed their substantial interdependence the growing blur between their respective cartographic norms and practices.

The rationale behind an attention here to institutions and institutional cartography is not to enter into a debate of this type of cartography's relative veracity versus that achieved by vernacular mapping performances and practitioners. Instead, to consider the infrastructure and practices of institutions (and indeed the processes of institutionalisation), with particular concern for the significance of cartographic licensing regimes, is to diagram and put into relief the micropolitical and geopolitical differences between a statist accord of cartography, and a vernacular accord of cartography. An attempt, in other words, to trace how vernacular mappings re-imagine cartography in micropolitical, creative terms.

Affective geographing

Affect, virtuality, performance. Those, the registers and refrains that permeate this thesis, these mappings, and those; affect, virtuality and performance, the intensities and modes of practice that simmer and emerge throughout the three cartographic fieldsites. How then to proliferate affect, the virtual and performance through fieldwork? A turn to cameras and film is one response, and an interest in writing, another. Taking first cameras, there has been a significant uptake amongst geographers in the use of visual methods, or videographic geographies (Garrett, 2011), considered increasingly as legitimate forms of ethnographic research (Pink, 2007; Spinney, 2011; Lorimer, 2010; Laurier et al, 2008) and as a set of techniques for enlivening, "the repertoire of ways in which geographies are creatively enacted" (McCormack, 2002b: 483). The danger however, in the clicking of lens shutters and in the zooming in and out of framed pixels, is that geographers are too quick to state an axiomatic link between video and practice (Simpson, 2011; Tolia-Kelly, 2012), or to make the opposite claim of 'capture' in relation to photographic images, echoing a cartographic reason that

representations mirror reality. In the same sense that, “the world is more excessive than we can theorise” (Dewsbury et al, 2002: 437), so too is world and its practices more excessive than we can convey through camera and film.



//3.2// The view from where?

That is not to say that photos and films are entirely redundant in getting alongside or affecting the *push* of the world. In the context of this research, photos are understood and deployed as resonant blocks of sensation (Latham and McCormack, 2009), a technique for opening, “thinking spaces for an affective micropolitics of curiosity in which we remain unsure as to what bodies and images might yet become” (Lorimer, 2010: 252). It is in this Spinozist ethos, once again, that images and videos are mobilised; one, as a technique for generating eventful geographies and two, as a form of telling stories and narrating encounters; a methodology of geographing in every sense. As far as possible, these photos and films are marshalled in such a way so as that they might *speak for*, rather than be *spoken for* by the tautology of text and caption. They,

however, do not stand alone, weaving in and out of the words, lines and paragraphs of this text. They join the *graphing* of the *geo*, the craft of writing.

Writing

To write of vernacular mappings here, is as much part of the experimentalism of radical empiricism and Spinoza's cartographies as the fieldwork is. Indeed, writing can stretch the expression (Massumi, 2002) of an event, so that it might further disrupt the gaps between field and text; hence its rendering here as a craft of geographing. Fieldwork and collaboration continues in the act and practice of writing, a performance engineered to, "bring something to life, to free life where it's been trapped" (Deleuze, 1995: 141); thus recognising at once that, "lines of writing conjugate with other lines, life lines, lines of luck or misfortune, lines productive of the variation of the line of writing itself, lines that are *between the lines* of writing" (Deleuze and Guattari, 2004b: 215, emphasis in original). Writing the conceptual and writing the empirical in this instance is not to lay claim to any sense of totality (Foucault, 2002), but quite the opposite; it is to affirm the partiality of research, and the inability to detect or capture force (Massumi, 2002). Detection or capture of affect and the virtual might be impossible, but the generation of these material and immaterial atmospheres and dispositions is not; indeed it should be the motive to do so. Put differently, "we paint, sculpt, compose and write with sensations. We paint, sculpt, compose and write sensations" (Deleuze and Guattari, 1994: 166). *Geographing* is therefore an attempt through writing and fieldworking *otherwise* to stretch the expressions and sensations of the field, acknowledging at the same time the possibility that these textual, affective accounts might fail much like field experiments (Latour, 2005).

The style of writing, the geographing that follows in the forthcoming chapters is both narrative and disorientating. Narrative in the sense that it traces and geographs the space-times of fieldwork, stripped of an explicit explanation, insofar as, “if description remains in need of an explanation, it means it is a bad description” (Latour, 2005: 137). Disorientating in the sense that such is the capability of maps and mappings; a variable capacity which is often written out of the traditionally linear accounts of cartography and its concomitant history. Disorientation not for its own sake, but written deliberately to take on the strictures of Euclidean geography and to evoke the sensibility of the virtual; of not knowing of what these vernacular mappings are capable. There are however, also points of orientation through writing, for questioning and assessing what significance and impact vernacular mappings have on the swirling cosmology and institutional constellations of cartography. Writing, like mapping, is its own performance, its own practitioner (Thrift, 2007).

To end in the middle of things

To begin at the beginning, is either the privilege of poetic licence (Thomas, 1954), or achievable only through a commitment to Euclidean, cartographic reason in which the edges of maps can be clearly delineated. In conclusion to this chapter on tracing, it is important to state that the research begins and finishes, not at a contrived beginning or end, but always in the middle, in the midst of events, affects, performances, controversies, mess, bodies, movement and stillness. In outlining the methodological concerns of this research, the role of the chapter has been to trace how the conceptual lines signposted in the previous chapter will be put at risk empirically in the forthcoming chapters, or indeed, how the conceptual and empirical appear to collapse into one another. Importantly, this chapter is not a guide for what is to happen next; not

all techniques or methods can be accounted for now, if only because in the following acts of fieldworking, writing, reading, and indeed thinking, things, affects and virtualities will ebb, flow and dissipate in ways yet unknown; lines, contours, legends and geographies still to come into being.

// Chapter Four

Countering Cartographies

Countering Cartographies



Maps and guns

“More indigenous territory has been claimed by maps than by guns. This assertion has its corollary: more indigenous territory can be reclaimed and defended by maps than by guns” (Nietschmann, 1995). In the midst of such a stark claim, it comes as no surprise that ‘counter-mapping’ is one of the more prominent motifs to have emerged in recent work across social and cultural geography. When asserting the latent, recalcitrant potential of maps, the late Bernard Nietschmann was working to ‘defend’, with cartography, the Miskito coral reefs in Nicaragua from over-zealous touristic and residential development. Since then, geographers elsewhere have been engaging with counter-mapping as a spatio-political strategy in the staking of indigenous land-rights, notably in Kalimantan, Indonesia (Peluso, 1995), and in the Mayan and Mayangna communities of Belize and Nicaragua respectively (Bryan, 2009; Wainwright and Bryan, 2009). What characterises the majority of these counter-mapping accounts is a hegemonic/counter-hegemonic dualism; a David and Goliath allegory in which disenfranchised groups vie against an amorphous, pseudo-colonial power. The mediators in these Battle Royale scenarios? Geographers.

A caricature for sure (by contrast, see Sletto, 2009; Fox et al, 2005), but one that leaves a residual binary in which one political claim, performance, space or entity is pitted against another, whereby the map figures as a static representational device; an immutable mobile (Latour, 1987). Moreover, out of this residue is the implication of an

ease and simplicity in which maps are diagrammed as disinterested and objective arbiters between spaces of conflict, or pre-defined actors replete with incommensurable demands. However, time and again, maps are shown not to be innocent bystanders in conflict, but fully complicit in its generation (Wood and Fels, 1992; Wood, 2010). The presence and role of counter-cartography cannot therefore be figured in such straightforward terms so as to constitute either matter-of-fact arbitration, or resistance to an extant conflict, if indeed the notion or space of 'conflict' enters the equation at all. What, then, is at stake in considering the notion, performance and politics of counter-cartographies?

In attempting to think differently about counter cartography, this chapter narrates a three-month period of fieldwork spent in and around the southern United States college town of Chapel Hill, North Carolina, where I joined 3Cs: Counter-Cartographies Collective (3Cs); a small 'affinity-group' based at the University of North Carolina, made up of a nomadic and continually changing assemblage of students, researchers and academics interested in the power of maps and their potential to enliven and produce alternate worlds. Indelibly attached to counter-cartographies by name if nothing else, *encountering* 3Cs was a fieldwork intervention engineered to consider two questions. Firstly, what are the pragmatics of counter-cartographies; the technologies, materials, peoples and practices enmeshed in becoming or being 'counter'? Secondly, but not divorced from the first question, what politics is at play in counter-cartography? Is counter-cartography reducible to a macro, or to use a Deleuzo-Guattarian term, 'molar', representational politics, or can counter-mapping and its attendant practices be cast in, and performed through alternative registers, namely micropolitical?

The chapter outlines a response in five parts. The first part is a genealogy of 3Cs; a tracing of who and what is involved, humans and non-humans alike, a spatial-history of the present of sorts; the second part is concerned with tracing one of the hallmark projects of 3Cs known as the 'disOrientation guide', and animates the production of a counter-map; the third part asks the question, what is distinctive about 3Cs, and how might its actors and performances disrupt the more well-rehearsed tropes in counter-cartography? The fourth part introduces micropolitics, and interrogates how thinking alongside the ethico-aesthetic sensibilities of Felix Guattari might inflect the concept and practice of counter-cartography. Fifthly, the chapter concludes in the form of a postscript outlining the ongoing collaborations of 3Cs across the world, whilst at the same time affirming that the notion and practice of counter-mapping involves more than merely the map rendered as artefact; that is to say that what needs to be diagrammed here is a far more expansive, emergent theatre of carto-political performances.

These five parts should not be read entirely distinct from each other; they fold into one another, and the sometimes stochastic, indeed disorientating spatio-temporalities of the chapter originate from both the fieldwork materials' mischievous and stubborn evasion of chronological marshalling, and 3Cs' own ethos of experiment and make-do. Also folding and unfolding throughout this chapter are the awkward intensities that surge and ebb during the fieldwork process. Such as they flow and dissipate, this chapter acknowledges the conceptual tensions that modulate the encounters and interactions between the *never-quite-distinct* or *never-quite-immersed* fieldworker and 3Cs.

3Cs: a genealogy

3Cs: Counter-Cartographies Collective

3Cs is born out of our enthusiasm with the power of maps

We work on mapping in order to:

- render new images and practices of economies and social relations
- destabilize centered and exclusionary representations of the social and economic
- construct new imaginaries of collective struggle and alternative worlds.

We seek to create collaborations for engaged research and cartography – transforming the conditions of how we think, write and map and the conditions about which we think, write and map.

//4.1// **Born out of our enthusiasm** // 3Cs website screenshot

On Monday 5th September, 2005, the University of North Carolina at Chapel Hill cancelled Labour Day, in part. As per usual, the central administration and staff were permitted a day's vacation; a widely accepted and cherished practice across the United States of America; a chance to mark the first industrial action by the federation's first integrated trade union, the Central Labour Union in 1878, or more prosaically, an opportunity to mark the start of the National Football League season. However, other workers, such as teaching assistants, research assistants, academics and students were not afforded the same benefit. For a small group of agitated graduate students, undergraduates and academic staff, this inequitable policy prompted questions: what kind of university sets aside academic labour as non-work? By what theoretical and practical means can people understand the spatial, cultural and economic processes that produce such an asymmetrical institution? What other state-funded universities are *possible*, and how can we produce them? (Dalton and Mason-Deese, unpublished).

To figure and proffer responses to these questions, several students and researchers turned to their mutual interests in maps and self-organised social action. Mapping offered a way to imagine, understand and critically assess complex spatial and

social processes and machinations. For the fledgling mapping working group, combining autonomous research with a vitalist, productive understanding of mapping was considered a means to producing alternative, lived worlds, or in this case, alternative universities. In practice, the group started life as an experiment that nurtured a collaborative and non-hierarchical relationship among researchers and others. With this in hand, the group set out to map the 'Twenty-First Century University'. Appropriating the names of the 3 Cups coffee-shop at which they first met, the embryonic mapping group morphed firstly into '3 Cups', then '3Cs' and finally into its present incarnation, '3Cs: Counter-Cartographies Collective' (visit <http://www.3cups.net> to see where it all began on 227 South Elliott Road, Chapel Hill).



// 4.2// Wine, coffee, tea and counter-mapping // 3Cups, Chapel Hill, NC

3Cs: some actors

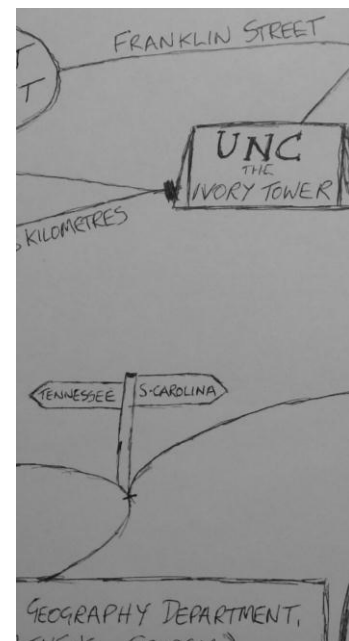
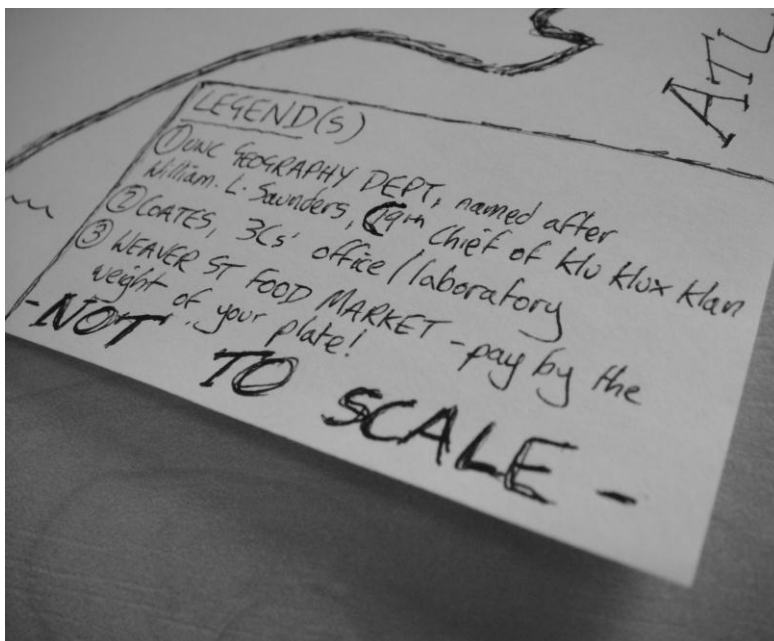
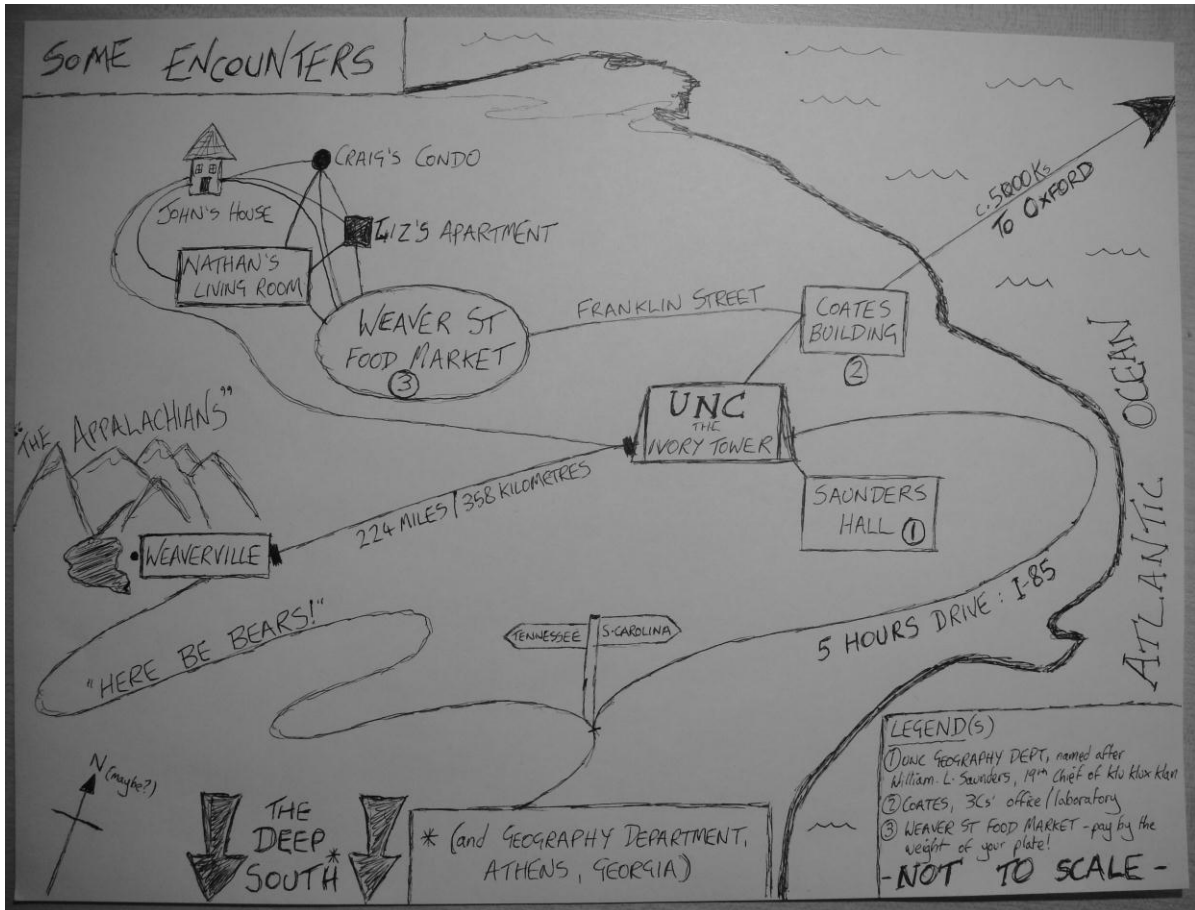
// **Tim**, a sometimes PhD student in geography, activist, computer mastermind, freelance cartographer and just started a home based bakery with his partner; // **Liz**, PhD student in geography, activist, member of edu-factory, obsessed with Argentina; // **Sebastian**, adjunct lecturer in geography, PhD deals with counter-cartographies along the Straits of Gibraltar, married to...; // **Maribel**, recently completed PhD in anthropology, interested in the politics of *precarity*, gave birth to second child, // **Sara**, in November, now the youngest member of 3Cs, younger sister of former youngest member, // **Gabriel**, (or 'Gekko' for short), three-year old, proficient in English, Spanish and some Arabic – team cheerleader; // **Tu**, PhD student in geography, interested in Foucault, previously studied in China; // **Craig**, PhD student in geography, critical cartographer, interrogates Google and self-confessed devotee of the Frankfurt school; // **Laptops**, lots of them; // **Nathan**, PhD student in geography, activist, new to 3Cs, strong affinity to Palestine; // **Cecilia**, Craig's partner, theatrical lighting designer, poses searching questions at 3Cs meet-ups and makes large prints of the collective's work; // **John**, co-founder of 3Cs, Chair and Professor of the Department of Geography, theoretical force, pays all the bills, and; // **Larry**, not part of 3Cs but an interested interlocutor, Professor of Cultural Studies at UNC, appears elsewhere in the thesis.

Encounters//venues

Weaver Street Food Market, Carrboro // John's house // Nathan's living room // Liz's apartment // Saunders Hall, UNC // Craig and Cecilia's condominium // 3Cups Coffee House // Geography Department, Athens, Georgia // Coates Building, UNC // Google Chat // Skype // Tim's uncle's place, Weaverville, NC // Oxford and London, UK.



//4.3// Fieldwork; the God's eye trick // Oxford to Chapel Hill



//4.4// Fieldwork encounters; not to scale; the ivory tower // Carolina and beyond

According to Liz and Craig, 3Cs' mapping practices employ what Deleuze, in referring to Foucault, calls a 'new cartography', a practice that creates new possibilities and other realities (Deleuze, 1999); holding fast to the notion that we are, they are, I am, "a cartographer" (Foucault cited in Deleuze, 1999: 38). Tracing alongside Deleuze, Sebastian and John (in Pickles and Cobarrubias, 2009) argue that this new cartography does not attempt to trace and *re-present* reality as a state science. On the contrary, it sets out to map in diverse ways, cartographic techniques that might transform relationships and potentially produce new spatial knowledges and practices; new geographies (Deleuze and Guattari, 2004b). As such, 3Cs did not start out to reproduce hierarchical forms of (mapping) power by claiming to have the only valid map or method of mapping. Instead, 3Cs original and continued premise was and is to map possibilities and alternatives as a modest practice of mapping rather than as an overt appeal to a definitive state science. To do so, 3Cs draws upon *autonomist* theories of social change (influenced by Italian *autonomia*) and performances of militant research pertaining to the conditions of knowledge production.

[An interlude]

What is autonomia?

Whilst the performances of *autonomia* and their performers are geographically and historically diverse, the notion refers broadly to a series of social movements and attendant theories that emerged out of workerist activity and agitation in 1970's Europe. The most notable and prominent of these movements was the Italian based *Autonomia Operaia* whose members numbered Antonio Negri and Franco Berardi (aka Bifo). *Autonomia Operaia* was not a political party, but a self-styled architect of spaces of, and for extra-parliamentary encounter between disparate autonomist actors.

Analogue radio was a particularly important technology in, and site of performance for generating and mediating these encounters. Conceptually, *autonomia* emphasises the primacy of resistance and the autonomy of the working class; that is to say it diagrams the working classes as capable of mobilising independently from institutions normally assigned as representative of their causes and demands, such as trade unions. In contradistinction to classical Marxism, the working class is rendered as the active agent in history, while capital is understood as perpetually reactive. Importantly, autonomy is not made analogous to independence; meaning, in this context, that whilst the latter is understood to act hermetically outside of society, the former notion ostensibly recognises, and works within some semblance of a society, but at the same time asserting the ability of working classes to work and mobilise autonomously without recourse to some form of vanguard institution or representation. *Autonomia* also valorises, as the name would suggest, autonomous, everyday moments of working class resistance that might occur even at an individual level; slow-working, socialising with colleagues beyond allotted break-times, work-to-rule protocols, absenteeism to name but a few tactics.

These approaches remain influential in contemporary iterations of autonomous practice in several ways, outlined as follows by Craig and Liz (Dalton and Mason-Deese, unpublished). Firstly, activists continue to use terms such as ‘counter-power’, or ‘power from below’ to refer to the agency of social movements and working class actions. These sorts of powers are distinct from, and as significant as the powers exercised by the state and/or capital (Colectivo Situaciones, 2001). Secondly, autonomist thinkers and activists have expanded the notion and remit of the working class and its latent potential beyond the factory. Mario Tronti, a leading proponent of

operaismo/workerism, and other autonomists conceive of a ‘social factory’, recognising that production occurs in many sites and that workers take many forms (Lotringer and Marazzi, 2007); a stark recognition of the ubiquity of immaterial labour, namely the significant proportion of labour which is hugely productive but unaccountable in wage terms because it falls outside of normal conceptions of manufacture (for example, academic work and service industry). Thirdly, autonomist Marxism favours a nuanced position ‘inside and against’ capital, neither claiming to be outside capital, nor completely subsumed by it (Tronti, 2007). For Böhm et al (2008: 27), “autonomy is often posed either as a positive process of worker self-valorisation, a practical negativity involving the negation of state power, or as the preservation of the autonomy of nations, people and local communities from hegemonic regimes of development”.

Why, though, the interlude?

Why does autonomy matter here?

3Cs interest in *autonomia* and the propagation of autonomous processes points to both a particularly prescriptive reading of a theoretical set of ideas, and signals divergent trajectories in which 3Cs and this research apprehend certain conceptual traditions. This is not a juncture at which the point becomes to adjudicate the relative merits of either interpretation or translation of ideas, but it is to *make difficult the difficulty*²¹ that emerges from fieldwork encounters whereby concepts are set to work, or put at risk. In this case, there is an interesting relationship between Deleuze, Guattari and autonomy, one that serves to demonstrate nuances in the way in which these

²¹ Many thanks to Andrew Barry for conjuring this phrase; one that attends to the continual displacement of conceptual questions in the doing of research, and which puts in all-too sharp relief, the modulating intensities and variable ‘critical distances’ between fieldwork actors.

concepts are appropriated and inflected by 3Cs. Deleuze and Guattari were keen supporters of *Autonomia Operaia* at a time when it was being repressed viciously by the Italian state; Guattari in particular was conspicuously active in France's variant of *autonomia*; *autonome*, and a indeed a friend of Negri (see one such collaboration in Guattari and Negri, 1990). It is this relationship between Negri and Guattari that has come to be emblematic of a particularly North American engagement with Deleuzo-Guattarian ideas, mediated specifically by the publishing house, Semiotext(e). Founded in 1974 by Sylvère Lotringer, Semiotext(e) has become renowned emissary of continental European philosophy based in the USA; the ideas of Deleuze, Baudrillard, Guattari, Foucault, Negri, Lyotard amongst others, synthesised in a particular manner to serve and pervade the US academic environment. To that end, Semiotext(e) maintains somewhat of a conceptual monopoly on the form in which the likes of Deleuze and Guattari are translated and appropriated (Cusset, 2008). In specific regard to 3Cs, their reading of Guattari, for example, is inflected heavily by his involvement with Negri; and is thereby more reliant on an interpretation of Guattari that valorises the more activist and *autonomist* of his collaborations and thinking. The problem here is that there is little else to count on in terms of English language translations of such ideas outside of Semiotext(e)'s narrow publishing purview, to the extent that even critique is kept somewhat in-house (see Lotringer et al., 2001)²². Moreover, in the context of 3Cs

²² It is arguable, however, that the *translating* work done by Lotringer et al, was not a purification or troublesome mediation of certain aspects of modern continental philosophy, insofar as the likes of Deleuze and Guattari were active participants in establishing a foothold in the USA for the likes of Semiotext(e) (again, see Cusset, 2008; Lotringer, 2001). In concentrating primarily on the contextual inflection of French thought, there is the risk, conversely, that the influence of American literature, such as Kerouac or Ginsberg, on Deleuze and Guattari's own work is underplayed (Deemers, 2011). One might also speculate that Guattari in particular would not be preoccupied or concerned with policing the lines of flight taken by the translation of concepts and theories; "just as an artist borrows from his precursors and contemporaries the traits which suit him, I invite those who read me to take or reject my concepts freely" (Guattari, 1995: 12)

performances, there is the risk that their brand of activism re-inscribes the kind of limitations of the 1968 uprisings worldwide that Guattari, with Deleuze, dismissed out of hand for their tame predictability and belief in a teleological revolution. Such a take on Guattari also stands at odds with a non-representational inflection of Deleuzo-Guattarian thought that attends less to its potential for militant activism, and gestures more towards processual philosophy, immanence, and the variegated geographies of micropolitics/micropolitical geographies.

In sum, conceptual tensions emerge; points of departure to consider what is at stake in the performing of ‘counter’ tendencies, but also for signposting and acknowledging the incipient antagonisms and awkward intensities at play in the fieldwork.

Interlude over, for now, even if the tensions and concerns intensify and spike again, as surely they will later in the chapter. A turn instead here, to the production and editing of 3Cs hallmark project, the disOrientation guide; a fieldwork trace of both mapping into knowledge, and mapping into critique.

disOrientation 1 and 2

“This isn’t *really* a map”, was Denis’ first comment having glanced at 3Cs’ recently published disOrientation guide 2.0 (dg2); “it’s a piece of activism with lots of maps within it”. Denis, a veteran critical cartographer (Wood and Fels, 1992; 2009; Wood, 2005; 2006; 2010; 2011), and locally based friend of 3Cs, seemed to be right; where was the legend, the compass point, the contour lines, the geodesic markers? Where was its direction? There was more type than images; a visual artefact more comic than cartography.

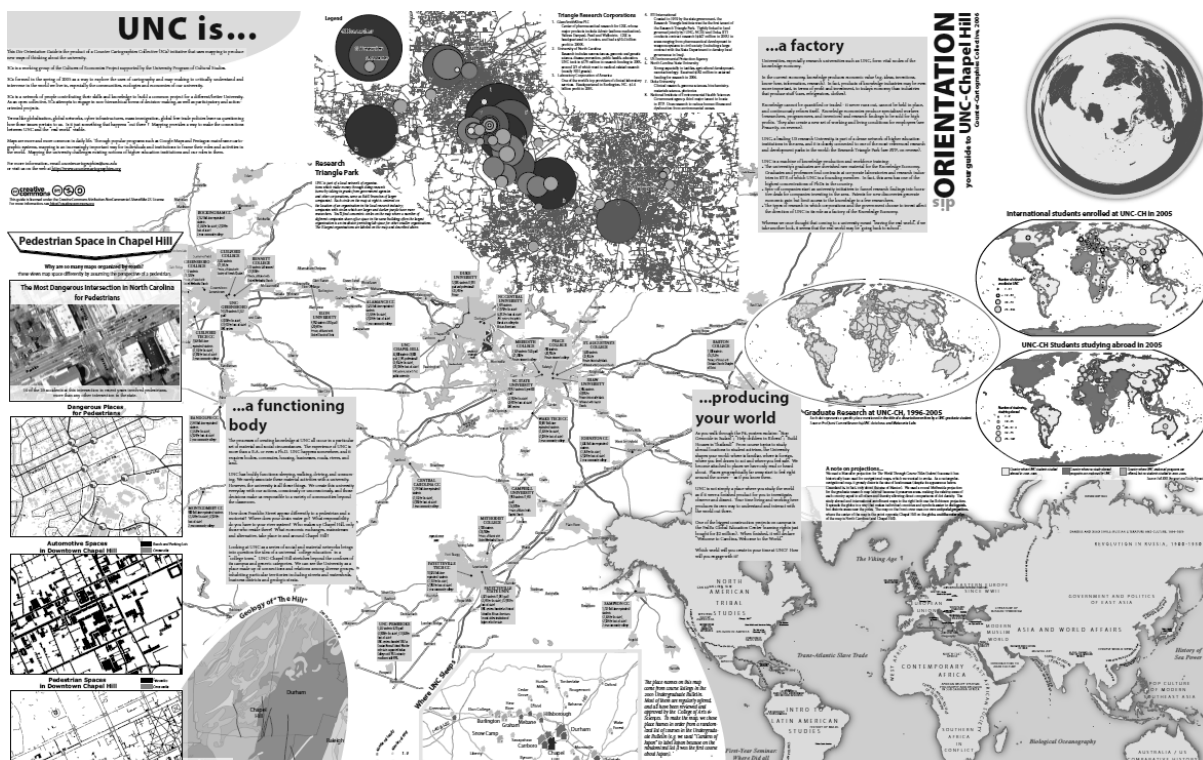
3Cs disagree, to a point. What they do is not defined, in a strict sense, by the Euclidean norms of a professionalised cartography. Their instincts, are to unsettle the orthodoxies of both cartography-as-royal-science and the university's use of mapping to orientate student-bodies in a particular way. dg2 then performs exactly as stated; it is a technique or technology of disorientation, a challenge to what counts as mapping and a disorientation of bodies on the university campus. From the front page of dg2; questions abound; "Crisis...at school?... Who feels the pinch?... Which classes will be cancelled?... Will we be able to graduate?" Questions generating and marshalling particular affective atmospheres and visceral dispositions, playing on the tentativeness of becoming a fresher, anticipating and pre-empting the terror of budget cuts yet to happen. Indeed, agitating and disorientating in similar measure.

As the suffix 2.0 implies, dg2 is the second iteration of the original disOrientation guide (dg1), first published in 2006. They are quite different technologies; their content, style and inscriptions a partial reflection of the turnover of bodies-theories-agendas in the collective, but as 3Cs do not claim to be representative, in a totalising manner, of a certain phenomena or thing in the world, an exercise in comparison here would be to miss the point; dgs 1 and 2 speak in different terms to different bodies. Both dg1 and dg2 are guides to the University of North Carolina at Chapel Hill (UNC-CH), concerned with generating new ways of thinking about the university; they are both published under a Creative Commons licence whereby work can be licensed in a manner which does not conform to the restrictions of traditional copyright. In some cases, this licensing regime allows reproduction or derivative works without restriction and without recourse to needing authorial permission, as stated in the small-print of dg2; "[P]lease reproduce as much as possible for non-commercial uses, and feel free to make

your own mash-ups using our map as long as you share them under the same license [sic]". Not all Creative Commons licences are the same, and some variations demand more attribution and restriction than others; a discussion which re-emerges in Chapters Six and Seven in attending to OpenStreetMap and geopolitics. It is, however, important to state upfront that whilst Creative Commons licences jar deliberately with the norms of intellectual property ownership, there is a risk that Creative Commons in and of itself might re-inscribe the licensing conventions it seeks to undo.

For now; back to disorientating, back to disOrientation.

disOrientation guide one: dg1



//4.5// **disorientation 1** // dg1 2006

dg1 (above) is a glossy, fold-up guide; black and white on one side, colour on the other. It is crammed with sub-maps detailing anything from the geology of the Chapel-

Hill-Durham-Raleigh ‘Triangle’ region²³, to the geographical distribution of international students at UNC-CH. It hosts and performs a dizzying amount of information, and what is striking about dg1 is its theoretical breadth; on the colour side of the guide, maps are used as foils for the title proposition, “UNC is...”. Three text boxes follow in response, UNC is... “...a factory”, “...a functioning body”, “...producing your world”. Conversations with John reveal that each response was an experiment in how different theoretical angles (Marxian, Deleuzian/Actor-Network Theory and Foucauldian respectively) might overlap or conflict with each other cartographically. The experiment amounts to a theoretical cacophony (or perhaps contradiction) that performs on the map without the propositional screaming of, “this *is* Marxist”, or making the blatant semiotic argument that, “this *is* there”.

For the physical geographers, there is a small inset mapping the geologic cross-section of the Chapel Hill area. The trough formed by the Triassic Basin, separating Chapel ‘Hill’ from the rest of North Carolina appears as a none-too subtle proxy for ivory towers and academic isolation in the midst of ex-Confederacy America, but perhaps this is to read too much into it, to overcode signs (Deleuze and Guattari, 2004b) for the sake of overwrought meaning. The reverse side of the guide/map is printed mainly in black and white and titled “Reorientations”; a gesture towards Deleuze and Guattari’s (ibid) ‘deterritorialisations’ and ‘reterritorialisations’. To this end, disorientation and reorientation are ongoing, relational processes with no defined geodesic cartography. The predominant technology used on this side of dg1 is lists; lists or gazetteers of local

²³ The ‘Triangle’ is a region of North Carolina centred around the cities of Chapel Hill, Durham and Raleigh (hence the Triangle that can be drawn between these not entirely distinct urban centres); an area associated with a high concentration of both Research and Development industries, and academic institutions, notably University of North Carolina-Chapel Hill, Duke University, Durham, and North Carolina State University, Raleigh. The Triangle reportedly has the highest concentration of PhD qualified population in the USA.

progressive organisations, lists of ethical retailers in the Triangle region, a list of constitutional rights which the reader can cut-out if they find their civil rights affronted; Point One, for example, “Remain silent. You are not required to answer questions. Think “UNC”; “Uh, No Comment””.

Then appears the dominant motif of dg1; ‘precarity’. The term precarity finds itself sprawled across the map in several different places, yet another definition is required; according to dg1, precarity is, “a lack of security or stability in life, and it refers to the entire gamut of experiences such as: temp-work, retail, day labor, SJL (Shitty Little Jobs) in a fast-food joint”. Precarity does not exist in the dictionary, but it hinges on the meaning of precarious, and as Sebastian summarises, “precarity is the term popularly used in many European countries to refer to and politicise the neutral and even positive sounding term of ‘flexibility’” (Cobarrubias, 2009: 15). dg1 simultaneously combines this critique of marketisation and precarity in higher education governance whilst engaging the map-reader to think productively about how they, as undergraduate to lecturer, navigate the spaces of the university; recognising at the same time that the university and the world are one of the same thing. 3Cs asks, what is the potential of precarious bodies in the university? To this question there is no straightforward response, but in the same way 3Cs define precarity, much could be said about what this potential might amount to; “a bunch of ambivalence” (3Cs material, 2009: no pagination).

disOrientation guide two: dg2

dg2 feels, looks and smells different; the texture and tonality of a newspaper, the mustiness of recycled newsprint and the run of dimples along the edges of the sheet where the guides have been perforated. Three years have passed since the publication of dg1, and the gloss has worn and faded. Black and white this time, as much due to budget cuts as down to deliberate stylistic flourishes. The precariousness in funding is something 3Cs has to live with; its main financial backer is the university, yet it is the university administration which is in the cross-hairs of the collective. Tensions within the group have increased since John was installed as departmental chair in the intervening years between dg1 and dg2's publication and subsequent, considerable reduction in his active involvement with 3Cs. Relationships, however, are congenial enough for the time being. 3Cs know the bind they are in; bank-rolled by the very institution they critique, biting the hand that feeds them; but the collective and collective's mentality is that there is no binary or dialectic between them and the university; on this issue they are characteristically bullish; "we (they) are the university" (3Cs material, 2009: no pagination). Instead, moving beyond the method of critique instantiated by JB Harley (1989), 3Cs are not purporting to deconstruct the university, rather they are attempting an imagining and a mapping of other, alternative forms of universities.

They do so in a higher education sector that is arguably more complex, variegated and stratified than those of the UK and western Europe, and it is perhaps the acute political, historical and economic asymmetries in American universities that provoke 3Cs into cartographic action. UNC, for example, an early example of state endowed education, constructed in part by slave labour, finds itself caught between the

politics of the North Carolinian state legislature, the academic, cultural pressure of its neighbouring, private institution, Duke, and the overwhelming demand to liberalise its management and future capital projects by inviting and folding in private investment. Combined with fully fledged market in tuition fees, it is the logics of competition, ranking and liberalisation that invoke the cartographic ire of 3Cs. By way of an immediate, mapped response, in the 'A People's History' section of dg2, they evoke a potential futurity, to be sure, an immodest desire; "Fall 2012: UNC-CH re-opens as a free university under worker control"; an evocation of a futurity without arriving there completely, a cartographic propagation of the virtual without actualisation.

DISORIENTATION?
(your guide to the University of North Carolina at Chapel Hill)

PRECARITY ON CAMPUS
Precarity is about not being able to afford health-care, about being on a visa that won't allow you to change jobs or not being parents at all. It is about not being able to pay your rent or mortgage, about graduating with no real debt, you have to work for years just to pay it off. Precarity is about not being part of a collective organization to improve your working conditions. Look at the name on the map to find the laborers on campus - the people who teach classes, hold labs and sections, serve food in lunch, students, etc.

NAVIGATING BORDERS AT UNC...
New spaces may focus on the US-Mexico border or cities by the development, but underneath the UNC are important nodes for generating class and politics: the movements of international migrants. Since 2011, international students and their work have been intensifying studying and Homeland Security's bureaucracy. A core region for HSI, the Research Triangle and its corridors connect people from all over the world: international students, scholars, laborers, workers, or like workers and domestic staff they read UNC, IBM, and other localizations more competitive and profitable.

UNC 1960 - 2009 A PEOPLE'S HISTORY
Below is a slightly ordered timeline of major events from 1960 to 2009. For more information on any of these events, please visit the UNC website: www.unc.edu/history

- 1960: The first Black undergraduate students are admitted to the university.
- April 4, 1960: UNC students begin picketing at the segregated College Café, leading to mass arrests and picketing of picketing lines.
- May 1960: The Duke Legislature passes the "Duke Student Voting System" publishing members of the Communist Party for speaking at state-sponsored meetings.
- February 9, 1961: In a bid to defuse tensions on the 50th anniversary of the 13th Amendment, the UNC Board of Trustees passes a resolution to establish the UNC Board of Trustees.
- 1966: In the most famous protest of the Spelman Five, Student Body President Paul Patton and the UNC Chapter of Students for a Democratic Society force the Board of Trustees to establish the UNC Board of Trustees. The Board of Trustees then passes a resolution to establish the Spelman Five as trustees in 1967.
- February 22 - March 24, 1968: Black-led student organizers strike to demand more just working conditions and better pay. This marks the first "one-point" strike in UNC history.
- December 1968: The Housekeeping Association wins a lawsuit against the university, claiming that the Housekeeping Association was a labor organization under the National Labor Relations Act (NLRA).
- 1980: UNC development of the 1000, a local branch of the Black Panther Party, and the Black Panther Party (BPP) in the UNC system.
- April 1980: Students stage a 17-day strike in South Building, forcing the university to meet a wide range of student demands, including the creation of the UNC-CH union.
- April 2008: Students and faculty members march on the Board of Trustees meeting calling for the university to be a public institution and for the university to be a public institution.
- Fall 2012: UNC CH re-opens as a free university under worker control.

//4.6// disorientation 2 // dg2 2009

Much like dg1, dg2 (above) is an exhibition of maps, a series of disorientations, but perhaps now it operates more as a polemic and rallying-cry piece as compared to

the theoretical machinations of dg1; a call to students and disaffected staff to organise or unionise in the midst of job losses, grant cuts and visa restrictions. Put differently, dg1 a map to think with, dg2 a map to intervene with. dg2 turns the world on its axis (depending on what geodesic projection is considered *accurate*), distorts borders, plays dismissively with scale, transforms the US Border into a pseudo-Böhr diagram of electrons and turns the USA into a basketball court, but hardly a level playing field. There are rankings and competitions, yet more lists; the performativity of them all (although my over-enthusiastic lobbying to the rest of 3Cs to insert the word 'performativity' into dg2 came to nothing). It has reams of text; do maps have this many words? Again, is this a map; an object-ification of co-produced spatial knowledges? What is at stake when one begins to think about representation and non-representation? Pondering not what dg2 shows but what it could do and how it came into being; how would dg2 circulate, what would it produce, what would it destroy? At the time of publication, a moment of critique, and not necessarily in the affirmative register:

"now that I've been here for a week or so, I think I can get away with slugging off the map a little. It's polemical and looks good, but it's missing the 'ideas' that were drawn in dg1, the Deleuzian stuff, the Marxian factory – perhaps they are hiding away somewhere, somewhere behind or in the map, but I'm nervous about bringing up theory with the others. 3Cs wonder if John will be angered by some of its [dg2] content. They suspect any anger he does harbour will be tempered by the street-cred the map will bring to him and the department"

//diary entry 21.09.09

In these words and diary scribbles, the semblance and emergence of an awkward intensity, even cartographic distance, between fieldworker, 3Cs and their diverging expectations. The point here however, is not critique for critique's sake, and not because of some misplaced sense of innate capacity for judgement (Descartes, 1968 [1641]),

“the point of critique is not justification but a different way of feeling: another sensibility” (Deleuze, 2006b: 88).

Disorientating materials; generating disorientation

Now to go backwards so as to trace a cartography of the present; to witness and intervene in the production of disorientation, of dg2; to start, as always, in the middle of things. Perhaps not to go backwards even, but to acknowledge a tendency towards the continuum that is duration, to accept that, “time is out of joint, time is unhinged” (Deleuze, 2008: vii).

The fieldwork begins late on in the production process of dg2, but I was able to become involved in the latter stages of its generation; the editing, the checking, its promotion and distribution, its movements in the world. How, though, does 3Cs actually operate? Here, at Craig and Cecilia’s condominium, Carrboro on a late Sunday afternoon;

“Sat in the living room, pouring over a large screen which is magnifying the image from a much smaller laptop. Disorientation guide 2. Or maybe it’s just me disorientated. 3Cs are working to finish the second edition of the guide. Liz, Craig, Tu, Tim, Cecilia and Nathan are negotiating a revision of student flows; whether to go for abstraction or not – the world as known, drawn and mapped by Mercator. I’ve skipped a bit from the process, but then MSG (Maribel, Sebastian and Gabriel as they’re known by their food additive acronym) arrive; a right family affair.

Cecilia has arrived back from the printers with the latest large proofs of the dg2. Like my usual problem with power-points, there seems to be too much text to take in. Laptops abound and the assured materiality of tangled cables. Everyone is working separately but I get a sense that you know this is productive. Now they are talking through design edits. Was it Disorientation 2.0? Disorientations? 2009’s Disorientation guide? Enough – Tim wants to jump back into the real world.

Now for a to-do list, although that didn’t quite happen. People calling for a break, but what for? Maybe time to go out and breath for a while? Edits are slowly coming together, and then UNC 1960-2009, a Peoples History needs to be finished. Speaking of temporality, this [diary entry] is all over the place. We’ve just come back from eating – somewhere up on Weaver drive or road, I’m not sure. Self-service, weigh your own food,

probably came to around \$5. And now we're working again and I begin to remember how it feels to be a newbie once more. Of course everyone is being very polite with oxford boy in the corner, it is early days and early hours yet. Knowing too that this diary entry might re-appear in the thesis (in its supposedly and all too conveniently hygienic raw form) also seems to play on what and how I write. Even in this moment of self-reflection, I realise I've stopped listening to what's going on in Craig and Cecilia's living room. Except to say that it's ice-cream time now. Tim is intense, and his somatic intensity (burning stares) seems to transpose into the way he makes edits to dg2, cutting fact from 'trope', "why can't this point be more critical and less descriptive". The kind of binary I hate. Heavy eyes, shoes back on, a little jet lag creeping in for the evening, and back home for now; thanks for the lift, Liz".

// diary entry 13.09.09



//4.7// **editing dg2**// Craig and Cecilia's condo

At the same time as overcoming the spatial-temporal-somatic disruption that is jet-lag, I was learning to become part of 3Cs; understanding how to behave and operate in an affinity group, learning how to map. Everything started tentatively enough; the group sounding me out, checking the fieldworker's credentials. Accents got in the way. Here, at one meeting;

“Maribel in particular commented that she couldn’t understand me, but then again, I don’t really understand myself half the time. Switching instead to Spanish seems to work. In any case, much was discussed about the global flows of the student map and some of the caveats to what otherwise seems to ‘represent’ (!?) a space of smooth, linear and arbitrary flows of people. Liz commented that of course maps can’t show everything, but the collective were keen nonetheless to somehow transmit that there are barriers/restrictions (and I guess opportunities) to/for student migration”.

// diary entry 16.09.09

We played around with the maps on dg2 constantly. Modifying and tearing cartographies on a laptop; spinning America this way, dragging Indonesia dangerously close to Florida, or swatting Greenland off the face of the Earth. All a good laugh, but it was alarming how caught up and preoccupied 3Cs were in discussions about scale, projection and accuracy. Positioned as a counter-cartographies group, the assumption might be that they would be keen to eviscerate all the Cartesian or Euclidean norms of map-making, but that would be to underestimate their palpable desire for a certain cartographic ‘credibility’. This might be in part attributable to Tim’s professional training as a cartographer, but it is also a realisation that dg2, for it to *do work* or obtain some sort of *efficacy*, it needs to tap into a particular affective regime which resonates with the students and other members of UNC who are going to read, modify or trash the guide. In other words there has to be something cartographically familiar, in a Euclidean sense, about the guide, even if it is turned upside down or transformed into a comic book routine.

Moreover, and away from the sense of ‘caricature’ aligned with the notion of countering mentioned at the start of the chapter, to ‘counter’ does not necessarily mean to ‘other’, or to produce some form of alterity. Following Taussig (1993), 3Cs partial-mimesis of certain Euclidean cartographic conventions is not a straightforward

imitation, or even parody of geometric orthodoxy, but is instead an experiential recombination of these cartographies which allows them to experiment in devising and animating more-than-one world, more-than-one politics. In order to disorientate, there has to be another articulation from which it derives and deviates; a form of cartographic invention based on imitation of orthodox cartographies (cf. Barry and Thrift, 2007).



//4.8// to do, to edit, to meet // Nathan's apartment, Weaver St Market, Coates Office



//4.9// no mapping without food; a welcome Carolinian refrain // John's kitchen

With the final proofs signed-off and bundles of dg2s printed off and bound-up in coarse white string, it was time for 3Cs to push their work into the world, and see who and what might talk back.



//4.10// bundles // dg2

Disorientation out in the world

“Sunday, but written on Monday. Bundles of dg2s, literally thousands – tied up in string, ready to launch to the news-stands of campus, Chapel Hill, North Carolina, and perhaps beyond as emails fly and presentations/seminars/colloquia take place across the States in the months to come. Bundles and bundles of dg2s on newspaper paper – black and white, coarse paper with those dimples on the frayed margins of the pages. Here’s the news, now read it, feel it, act on it. Maybe just bin it.

So we’re all sat in Nathan’s apartment. His flat screen television listing the ubiquitous ‘to-do’ list – primarily to sort out the ‘Peoples History’ section on the web and also to sort out the 3cs website and prepare it for a dg2 micro-site. Quite mundane stuff and I would say there was limited (or muted) euphoria about the completion of the guide, save for Gabriel who instigated a loud cheer later on in an impromptu meeting at the pizza place in Carrboro plaza”.

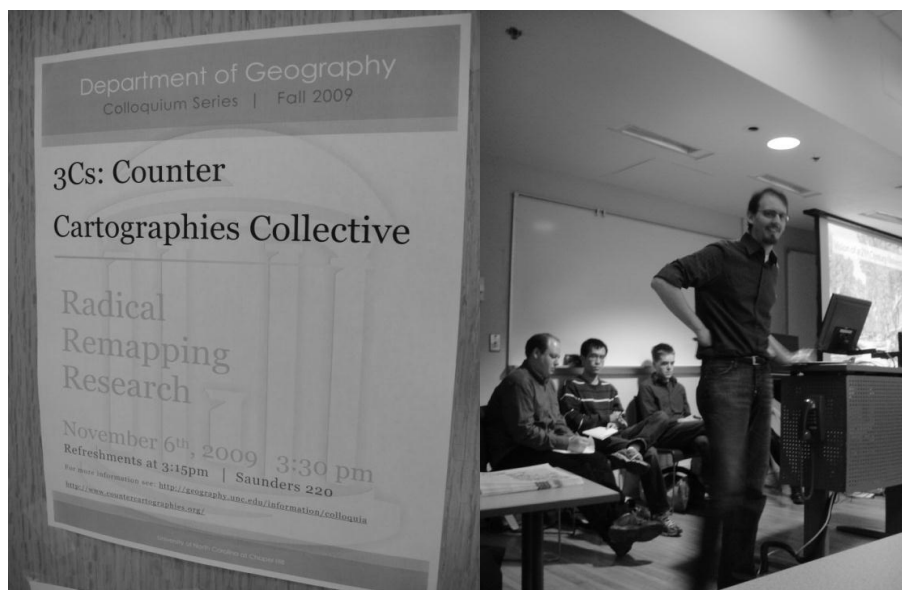
// diary entry 27.09.09



//4.11// **dg2 distribution**// UNC Cemetery

dg2s fly around campus continually through October and November 2009 and 3Cs are busy appropriating slots during undergraduate classes to draw attention to the newly published maps. A few of us join the ‘Black and Blue’ campus tour led by

anthropologist Professor Tim McMillan; a walk through the historically concealed space-times of slavery and civil rights activism at UNC; a pause at the UNC cemetery allows us to audaciously and shamelessly hand out some more dg2s²⁴. Nathan speaks to Tim on the boundary of the graveyard and offers 3Cs help in generating a map to accompany the tour; Professor McMillan seems genuinely fascinated. Elsewhere, dg2 is making its way round the common rooms, classrooms and trash cans of campus. What follows? Some interested takers, a lot of blank expressions in lecture theatres and the occasional bizarre comment from a postgraduate research student, “it’s [dg2] gay and socialist”. So there you have it; dg2 angers some, baffles a few and quietens most. It does not appear to deter 3Cs who manage to book one of the colloquium slots in the geography department for mid-November 2009.



//4.12// colloquium time, 3Cs style// Saunders Hall

²⁴ UNC, one of the USA’s first public universities, founded in 1789, was done so, in part, on the back of white supremacist endowment and associated slave labour. The Black and Blue tour, running regularly since 2006, is a revisionist drift around the campus highlighting the hitherto suppressed narratives of the university’s history. In specific regard to 3Cs, its sponsor department, Geography, is currently housed in Saunders’ Hall, named after William L Saunders, whom between 1869-70 was the chief organiser of the Klu Klux Klan in Chapel Hill and North Carolina. This awkward association continues to be a flash point between 3Cs, other students and the university administration. The latter, as yet, has refused to rename the building.

John wants me to get involved in the colloquium and “speak a little about my life”, but the others (like me) were less keen; this was about dg2, not about the visitor who keeps talking about non-representational theory. I get let off the hook. When it comes to the event, it works out to be a glorious shambles. Attendance was approximately fifty percent less than it normally was for other colloquia on a Friday afternoon at 3pm (departmental politics) and for their own part, 3Cs do not really get it together; each takes it in turn to speak, and despite rehearsals earlier in the week, it was dis-jointed and by their own admission, a little bit crap.

The colloquium, ostensibly concerned with ‘radical remapping research’ became a platform to both lambast the UNC administration for its neo-liberalising tendencies and to promote the work of *edu-factory*, an international collective which over the last two years has initiated and built a network of students and researchers engaged in transformations of the global university, sharing theoretical and activist struggles in bringing about the evolution of the global autonomous university²⁵. What this autonomous university might look like is unclear, much like the uncertainty generated and left behind in the wake of dg2; what comes next is not something 3Cs will prescribe; only the object of vitriol, the free-market in education, has any shape or cartographic enunciation to speak of. In one sense, the colloquium was a successful failure insofar as the group had no intention of following academic convention, much in the same way as they attempted to elude convention through the disorientation guides. They agitated, they diagrammed; they got their point across, even if it fell upon deaf ears. The colloquium was over, and it was time for happy hour down the bar.

²⁵ Edufactory, a transnational collective of sorts, and its opening gambit; “As once was the factory, so now is the university” (Edufactory, 2011: no pagination). At the time of writing, the collective is embroiled in the series of *Occupy!* protests that are emerging around the planet in response to austerity measures established in the face of financial economic downturn.

In love and struggle

“This is where 3Cs enters. As an outwardly political affinity group, I’m interested in how the collective generates and mobilises different kinds of maps in ways that cannot necessarily be categorised as a type of ‘resistance’ or ‘counter’ politics in the face of some amorphous political hegemony. I’d be interested to witness how affect infiltrates the mapping process and open the possibility of generating lines, cartographies and maps which don’t necessarily conform to orthodox expectations of maps. I also want to engage in a discussion/argument about how an activist politics of representation might be re-worked through non-representational approaches and moreover, how these approaches might manifest themselves outside academia through vernacular, everyday, community politics”.

// Excerpt of email from author to 3Cs, anticipating fieldwork // 18.06.2009

In hindsight, this digital opening gambit to my encounters with 3Cs, with its invocation of affect and non-representational theory, was likely a step too far, not to mention making the suggestion, without a trace of subtlety, that the terms ‘resistance’ and ‘counter’ are somewhat overwrought in critical cartography. In hindsight, not the wisest paragraph to send to your proposed host in anticipation of three months of fieldwork; your host whose website is laced, generously, with the words, ‘counter’, ‘resistance’, ‘autonomy’, ‘radical’, ‘struggle’, ‘militant’. These tensions relate back to the opening space-times of this chapter, a lingering suspicion with the notion of ‘counter’ cartographies, an ostensible cartographic struggle between a subaltern entity and a state-like, bounded, identifiable power; an asymmetrical power geometry. This part of the chapter aims, therefore, not to diagram a counter-cartography that needs necessarily to push against a pre-figured ‘other’, but instead attempts to cultivate an understanding of counter-cartography that is more productive, or affirmative, in and of itself.

To be sure, many groups, collectives and organisations have appropriated mapping in the name of resistance, radicalism or some other kind of recalcitrant action, even if only as a cartographic metaphor, to the extent that it has been accused of becoming, “tiresomely ubiquitous” (Bosteels, 2001: 148); part of what Rocheleau (1997: 3) calls, “the new mania for mapping within social movements”. To that end, 3Cs are no different in their flight to deploy cartography as a means of political articulation. Moreover, 3Cs share traits and methodologies with the plethora of social movements that have a long heritage in the USA (Dreier, 2008), and which became especially profligate during the 2008 Presidential election campaign in which Barack Obama was elected to the White House. Indeed, part of the success of the Obama campaign has been attributed to the explosion in social movements which mobilised support for the former Illinois Senator; Norquay (2008) estimating that at least eight-thousand online affinity groups emerged in support of Obama following his victory in securing the Democratic nomination.

Goodwin and Jasper (2003: 3) define a social movement as, “a collective, organised, sustained and non-institutional challenge to authorities, power-holders, or cultural beliefs and practices”. Such a definition resonates profoundly with the ethos of 3Cs, and certainly the technologies and techniques implicated in the performances of 3Cs appear not much different to a ‘conventional’ social movement; for example, we met regularly on Sundays at someone’s house, and again on Wednesdays at Weaver Street Food Market. Aside from these meetings, emails were the most important conduit of communication, alongside GChat (live messenger service hosted by Google, useful for ad-hoc conference calls and for flogging second-hand furniture), Skype and Facebook. Moreover there was a clear, albeit unspoken, division of labour amongst 3Cs, a division

facilitated by Microsoft Excel spreadsheets and Microsoft Word documents projected via the television screen of whoever's house happened to be hosting the meeting. At one particularly dark nadir in *being radical*, 3Cs even devised a questionnaire to gauge and provoke further responses to dg2; the device was more New Labour²⁶ than it was new cartography.

Tim was good with a particular brand of professional cartography, so he designed the various maps; Liz was handy with collaboration, so Liz organised the classes and lectures that 3Cs would hijack to spread and distribute the disOrientation guides; Tu mined facts and figures to substantiate claims and statements; Nathan took responsibility for collating and organising the historical space-times which were deployed in the 'People's History' of dg2, and more importantly was largely responsible for doing the cooking on Sunday meetings²⁷; John gave the 'ok' to various budgetary decisions, and I became 3Cs' note-taker, if only for a few months. Unofficially, I was also meant to deliver a primer on non-representational theory, to be an emissary for affect and the virtual, but the perpetual awkward intensity of radicalism got in the way, and so for 3Cs at least, such concepts, notions and book remain resolutely marginal.

If then, 3Cs could be mapped or diagrammed themselves, albeit in instrumental terms, they would most likely resemble a classic social movement situated at the heart of a liberal college town. Even in the case of some of 3Cs' characteristic technologies and performances that do not fit this straight-jacketed conception of social activism, say for example, the Collective's use of a 'drift' to generate ideas, materials and interventions,

²⁶ The return of the Labour Party to government in the UK during the 1997 election has been attributed, to a large extent, to the party's appetite for, and mobilisation of focus groups, surveys and pollsters; techniques that found macro-political traction from the late 1980s onwards (see Gould, 1999).

²⁷ 'No mapping without food'; a welcome Carolinian refrain throughout the fieldwork.

such techniques find their established precedents elsewhere. The 'drift', for example, which 3Cs appropriated and deployed, before knowing they would become known as 3Cs, was a technology, and historically familiar performance of just that; drifting. Student bodies drifting through the UNC campus on Labour Day 2005, intervening in other-bodies trajectories, cultivating and gathering experiences of bodies which are embroiled in (im)material labour, yet bodies which receive no official respite on a supposed public holiday. The drifters sparked conversations, produced surveys, invited others to draw maps with chalk and blackboard. It is not difficult to witness here the parallels between 3Cs' drift and the famed *dérives* of Guy Debord's Situationist and Letterist Internationals, even if as Craig and Liz acknowledge, pounding the sidewalks of Chapel Hill is a long way from strolling Paris by night. Hints here, too, of Bill Bunge and his graduate students wandering the streets of Detroit (Bunge, 1969). 3Cs' appropriation and modification of Situationist methods might be at once understood both as imitating a well known method, but also as the composition of a novel technique in which, "[B]orrowing is not a problem in itself" (Guattari, 2009b: 23) and through which the classic *dérive* is contrived in a productive manner that serves their political purposes.

The Situationists and their famed *dérives* were themselves once considered radical, but what then of 'radical cartography'; what passes the threshold of being or becoming *radical*? This is relevant insofar as counter-cartography is often freighted, or conflated with the radical; but what could radical cartography entail? This is a question that remains thoroughly unanswered, in part because the idea of radical cartography presents itself as an oxymoron; 'cartography' saddled with its Euclidean heritage of standardisation and precision versus the loaded, fiery potential of the notion, 'radical'.

Nonetheless, the editors of the *Atlas of Radical Cartography* (of which Sebastian and Maribel are contributors) attempt a definition, “[W]e define radical cartography as the practice of mapmaking that subverts conventional notions in order to actively promote social change” (Bhagat and Mogel, 2008: 6). More questions and puzzlement arise, if only because there are slippages across different space-times as to what ‘social change’ and ‘conventional notions’ could involve. Then again, what counts as radical cartography is not up for debate here, and it is certainly not the role of this chapter to judge 3Cs’ fidelity to the concepts they employ. The point is not to adjudicate 3Cs in these terms, but to acknowledge the limits placed on cartography when notions such as the radical have already been pre-figured, where all surprises have been pre-codified (Rabasa, 1993). Saul Alinsky’s *Rules for Radicals* is useful here; Rule Twelve: “[T]he price of a successful attack is a constructive alternative” (Alinsky, 1971: 130). Rule Twelve for the pragmatic radical is not so dissimilar to a Foucauldian ethic of a productive, affirmative critique. In these terms therefore it might be more appropriate to re-think counter-cartography in productive and affirmative terms; not as an exercise in criticism and fault finding (Williams, 1995), but as a practice that suspends judgement (Butler, 2004), so as to, “multiply not judgements, but signs of existence” (Foucault, 1997: 23) and to allow for a, “means for a future or a truth that it will not know nor happen to be” (ibid: 25); a technique for proliferating the virtual.

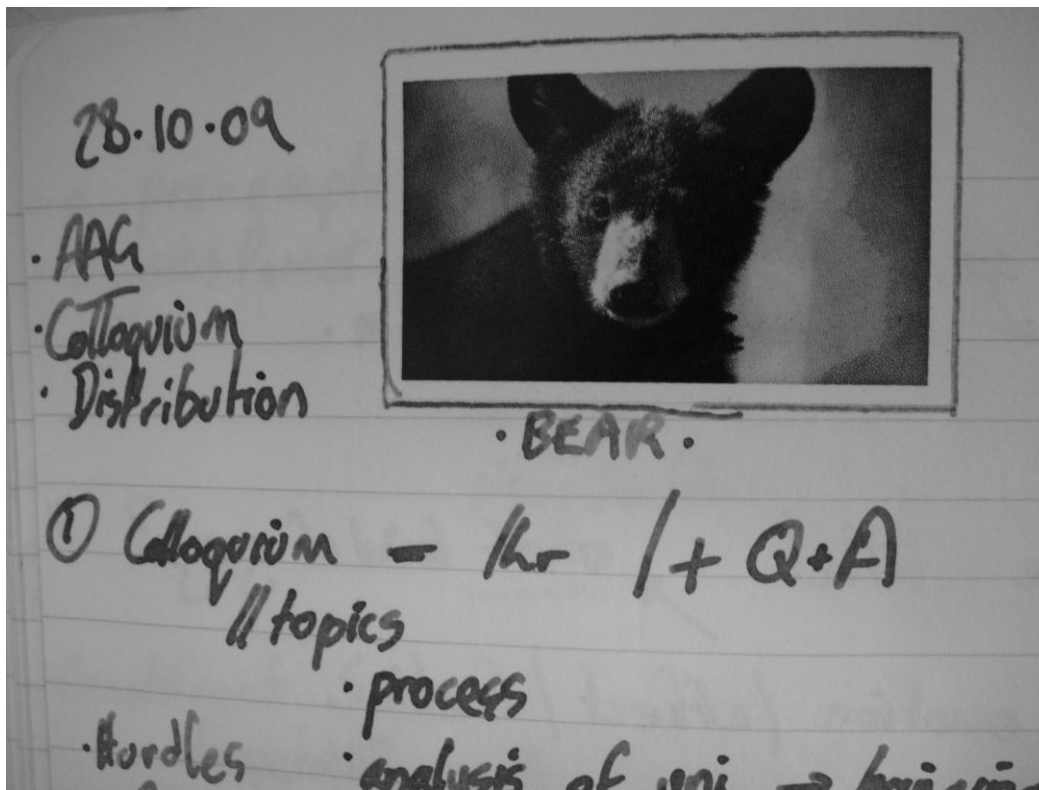
3Cs generates and deploys critique, in its affirmative guise, as a mode of critical cartography. For 3Cs, critique does involve criticism of certain material and immaterial relations, but more importantly, critique also engenders invention; recombination and re-composition; critique as a social machine (Raunig, 2008). 3Cs are productive and proficient, not in a free-market sense as might be expected, but in the sense that the

process of production is valorised as a way of thinking, mobilising and moving political concern. For Sebastian and John, the performances of 3Cs do not correspond to a long held cartographic logic of binaries, of 'either/or', but instead they adhere to a, "logic of proliferation and dissemination (and/and/and/and/and), and a practice of representational production that evokes and constitutes new maps and their constitutive worlds" (Pickles and Cobarrubias, 2009: 8). The 'and/and/and/and'; a thoroughly Deleuzian take on productivity; the relational becoming of yet more worlds, of yet more possibilities.

Indeed, 3Cs make it their business to diagram alternative spaces, actual and virtual. Moreover, 3Cs is productive in mixing-up what gets crafted, being acutely aware, as Maribel and Sebastian put it, that, "activist maps have different forms and goals; from cartoonish agitprop found in zines and flyers to communicate a point; to street maps for particular protests designating targets, safe zones and tactical areas" (cited in Herb et al, 2009: 339). 3Cs in its performances politicise the a-political, opening new spaces of contestation and tension (Barry, 2001); witnessed as such in dg2 making visible and political the (im)material labour of academia and the growth of university administration and its seemingly benign and innocuous higher education metrics in the form of as institutional rankings. Amongst the rhetorical bombast and sloganeering of 3Cs, there is also a profound reflexivity and recognition of the partiality of their performances, of their maps; the collective surmising that their maps are never final, but instead that their performances open up, "whole new conversations, trajectories and possibilities" (3Cs material, 2009: no pagination). Indeed a map, as a stable, material artefact is not always the end-point of a 3Cs performance or

collaboration; unfinished and partial sketches, acts, traces and walks are just as important to the Collective.

Crucial to the working of 3Cs is the generation of particular affective atmospheres and spaces conducive to mapping collaborations. As Craig and Liz suggest, “connections and trust among friends create an open atmosphere for a collaborative process of mapmaking and theoretical heavy lifting” (Dalton and Mason-Deese, unpublished: 26). This atmosphere is no more a natural given than it is always harmonious; conversations can be fractious at times, and how to be or how to become and how to behave in affinity groups such as 3Cs has to be learnt, even if the conventions are imperceptible at first. Over North Carolinian barbecue and free-refill sodas, 3Cs foster and agitate thoughts and ideas from each other, generating an assemblage in which it is permissible to be as critical or as generous as one needs to be, but one in which a residue of conviviality and friendship remains after thought. It is this same assemblage which falters in its departmental colloquium that will protect you from prowling bears in the Appalachians (see **Fall Break** overleaf). As in signing-off the Collective’s emails; in love and struggle, 3Cs.



// 4.13 // Bear // fieldwork diary

Fall Break

During the Fall break, 3Cs travelled to Asheville, a town near the North Carolina/Tennessee state border, nestled in the Appalachians and plagued by black bears rifling through residents' trash cans. A bear was spotted by a neighbour in the garden of our house, looking for scraps of food. Nonetheless, Tim stubbornly slept outdoors in a tent, keeping watch on the stellar cartographies above, whilst on the tentative lookout for prowling scavengers, virtual and actual. The rest of us woke each day wondering if Tim had made it through the night. For the remainder of the break, the bear was the omnipresent spectre and non-human companion in all of our discussions and mappings; an avatar for the melancholy of mid-term, and the lurking futurity of budget cuts in higher education, or more pressingly, the 250 kilogram animal ready to make short shrift of our bodies. Thankfully, Craig allayed the self-perpetuating and melodramatic fears swirling amongst 3Cs by declaring that he had some training* in warning off bears.

Those wise words, if ever you need them, "Should you encounter a black bear, don't turn your back, and maintain continual eye contact, after which, everything will turn out just fine".

*No documentary proof of any such training exists.

In sum, it is important to caution against the unbridled celebration of the “potential of counter mapping for meeting ostensibly progressive political goals” (Hodgson and Schroeder, 2002: 80), and to resist the urge to regard counter-cartographies as a panacea to spatial injustice (Bauer, 2009). Irrespective of its name, 3Cs are not necessarily caught up in any kind of simplistic oppositional politics that the term ‘counter’ and its connotational baggage would ordinarily conjure. Instead of taking issue with the dilemma of for and against (Foucault, 1990), 3Cs have grappled, to varying degrees, with the Deleuzian notion or ontology of process and emergence, whilst at the same time taking seriously a more productive sense of resistance and a more generous ethic of what it is to counter, that is to say, “to resist is not to be against, anymore, but to singularise... all and any acts of resistance are acts of creation and not acts of negation” (Rolnik, cited in Cobarrubias and Pickles, 2006: 17). Allied to this process and practice of affirmative critique is the register and tenor in which 3Cs can articulate; that of micropolitics, to which the chapter now turns.

Micropolitics

One of the concepts to feature more prominently amongst 3Cs’ group material is that of ‘micropolitics’. Its presence was particularly striking primarily because it resonated with the conceptual concerns and investments of this project. Micropolitics; what it could mean, how it is understood and articulated by others? One of the contentions of this thesis is that mapping could be regarded as a micropolitical tactic, a modest tactic in the navigation and generation of everyday spaces (De Certeau, 1984), particularly in the context of indigenous or community counter-mapping whereby generating political spaces cartographically has been useful on a ‘small-scale’ in articulating and enunciating certain arguments. Reading alongside Deleuze and

Guattari, and Felix Guattari in particular, it is clear that micropolitics isn't necessarily scalar, bound necessarily to the local or to the small, but instead it is transversal; a politics mediated by and articulated through affect; a politics of generating collective assemblages of enunciation, or put another way, a politics of 'giving voice', making things visible or altering the materiality of something or someone.

Micropolitics is a motif, a concept, a refrain, that will appear throughout this project, but for now, what did 3Cs make of micropolitics? Having posed the question none-too-subtly in a Mexican diner on the outskirts of Chapel Hill, there was a fair amount of consternation. Sebastian wasn't convinced that they had used the word on the website, and even if they did, it didn't really mean much to 3Cs. Craig was similarly nonplussed by the idea. Timing; never discuss micropolitics over a burrito on a Sunday night. Tim on the other hand made it clear that how 3Cs worked was micropolitical; "look, we never meet in an academic setting, we always meet round each other's homes...and eat together...it's an informal but productive way of working; editing maps in Weaver Street food market – taking the mapping into the community". From this I got the sense that Tim's take on micro still meant small-scale, and again whilst it remains the case that it is not the ambition of this research to hold 3Cs to account against what they post on their website, there is clearly a dissonance between 3Cs' rendering of micropolitics, and the arguably more productive notion of what it could mean to act micropolitically, as put forward by Deleuze and Guattari (2004b).

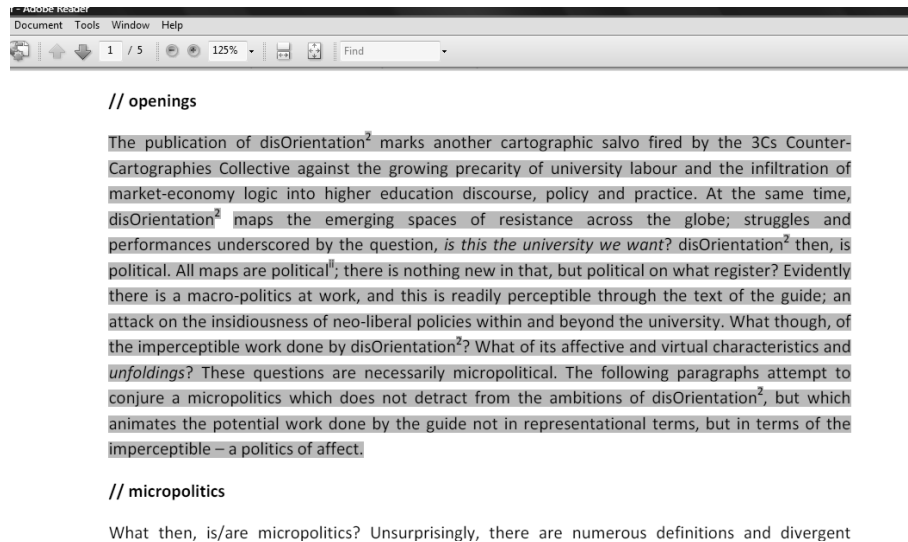
The outcome of this evidently unwelcome questioning was that 3Cs asked me to investigate the idea of micropolitics and produce something for the Collective, and perhaps to put an end to my incessant interrogation at inopportune space-times. I was unsure what this 'something' was meant to be, or what it should look like, so I resorted

to writing; something familiar, something secure. By this point I was already under the impression that 3Cs did not have much time or patience for affect, evidenced by an enduring suspicion of Deleuzian immanence and the supposed behaviourist undertones of Brian Massumi's iteration of affect and the virtual. Serendipity led me to a text on the politics of Deleuze and Marx by Nick Thoburn (2003). The text draws links between the autonomy of affect and the machinations of the Italian *autonomia*, encountered earlier in the chapter. This felt like suitably middle-ground; a concession to the militant activism of 3Cs and the micropolitics of Deleuze and Guattari. I set about writing some words about dg2, deliberately altering the tonality of what I might normally set down in an academic paper; the conceit of the fieldworker. Below are the openings, to a piece entitled, 'a cartographic micropolitics?' circulated to 3Cs and posted on my research blog in naive, but hopeful anticipation of feedback.

Openings

The publication of dg2 marks another cartographic salvo fired by the 3Cs Counter Cartographies Collective against the growing precarity of university labour and the infiltration of market-economy logic into higher education discourse, policy and practice. At the same time, dg2 maps the emerging spaces of resistance across the globe; struggles and performances underscored by the question, '*is this the university we want?*' Disorientation then, is political. All maps are political, there is nothing new in that, but political on what register? Evidently there is a macro-politics at work, and this is readily perceptible through the text of the guide; an attack on the insidiousness of neo-liberal policies within and beyond the university. What though, of the imperceptible work done by dg2? What of its affective and virtual characteristics and *unfoldings*? These questions are necessarily micropolitical. The following paragraphs attempt to

conjure a micropolitics which does not detract from the ambitions of disorientation, but which animates the potential work done by the guide not in representational terms, but in terms of the imperceptible, or rather the non-cognitive, a politics of affect.



// 4.14// Openings // screenshot

The account concludes by stating:

“The primary purpose of...cartography is thus not to signify and communicate, but to produce assemblages of enunciation” (Guattari, 1995: 128).

Cartography and mapping are devices that suffuse Deleuze and Guattari’s works, not as metaphors, but as ways of working through the rhythms of capitalism and everyday life which do not conform to the classical dualistic or dialectic readings of power and struggle. Moreover, whilst Deleuze and Guattari label cartography a ‘royal science’, they both saw in mapping the wider possibilities for the creation of different articulations of spaces and politics. This all needs an empirical moment; dg2 seems an ideal place to begin.

Can dg2 be read or understood micropolitically? As suggested earlier, dg2 is not simply an artefact promoting resistance versus a nebulous hegemony, the hackneyed asymmetrical power-geometries of old, but instead it goes some way cartographically to offer tactics, or lines of flight for others to generate their own articulations of the university and beyond. In Stengerian terms, dg2 is a form of an ecology of practices²⁸, a tool for thinking in the middle of things; a thinking without the scaffolding of definitions and pre-ordained ideals, but importantly not divorced from its surroundings (Stengers, 2005). It is also a thinking through the middle of things with a Spinoza (1677); that we do not know yet what dg2 is capable of doing. What work therefore does dg2 do and what constitutes a cartographic micropolitics?

For Rolnik (2005: np), such a micropolitics relies upon a fundamentally different understanding of cartography, one that stands in contradistinction to its Euclidean function;

“Cartography...accompanies and creates itself at the same time as it is involved in the dismantling of certain worlds - their loss of sense - and the formation of other worlds; worlds that create themselves to express contemporary affects...”

Put differently, a cartographic micropolitics might be figured as a simultaneous process of undoing and reconstituting worlds through a specific harnessing of desire and affect; a type of virtual diagramming.

²⁸ In thinking about the role and practice of science, Stengers (2005) works through the notion of an ‘ecology of practices’; a thought process that considers what is at stake (in practice and politics) when science claims to have made discoveries about the world. In other words, when science discovers things of the world, attendance to an *ecology of practices* interrogates what demands and obligations are then simultaneously impinged on the practice of science. To this end one might consider, upon what does counter-cartography impinge upon its own practices when it makes cartographic claims of and for the world?

dg2, if one is to distract from its prescriptive qualities, offers a range of potential strategies in the section 'New Waves of Autonomy'; a cartography not yet completed, still unfolding; mapping emergent struggles across the globe, but recognising the partiality of the story, asking others to contribute virtually and online. To borrow from Brian Holmes (2009: 318), dg2 offers, "a cartography of escape routes leading beyond the black holes of neo-liberal control".

I take the reading further.

dg2 is a de-territorialisation; a coming undone of structures and codes. The guide picks apart visas, global migrant streams, ranking logics and competition; it is the unsettling of the university and the world. As with every de-territorialisation however, there is a concomitant re-territorialisation; the coming together, the re-articulation, perhaps even a space for optimism; again 'New Waves of Autonomy' offers a speculative hope, or at least unqualified potential, as do the calls to organise, but without determining what form or body this organisation must take.

dg2 *disorients*. It does work on the body. For students that have been recently oriented officially by the university, dg2 unsettles the official accord between body and campus. Reactions will be (maybe) visceral first, from the gut; layoffs, precarious labour, crisis. It is difficult to be more than tentative here, because affect is not about policing what people can or should feel, but it is interesting to think what lines of flight dg2 might induce or provoke; a line of flight being a path of mutation, pathway connections between bodies which release new capacities to act and respond; lines of flight can take forms not obviously recognisable but as they are realities in and of themselves, they are, as Deleuze and Guattari (2004b) contend, hugely dangerous for the constitution of societies. How these affects and lines of flight are measured is not easily resolvable, but

perhaps can be detected by the conversations, movements and new maps that are generated elsewhere in the university and the world in response to, or encouraged by 3Cs cartographic provocations.

dg2, as a both a cartographic artefact and cartographic performance, could be situated in what Guattari (1995) labels the 'ethico-aesthetic' paradigm. In pushing against technocratic politics, Guattari valorises creative processes in generating different subjectivities and spaces. The ethico-aesthetic project involves a distancing from structure and instead looks to creative freedom to deal with problems which emerge in the world. As documented widely, through positivist and rationalist thinking, the abstract came to be seen as the polar opposite of the intensely experienced. Of course, abstractions of things/phenomena can only come about once those things have been experienced in some way. dg2 then, whilst an abstraction, has also been/is experienced and lived, from its origins in coffee-shops, people's living rooms, discussions/arguments in university campuses, through to its material publication and its journeys, effects and affects in the world. For Guattari, cartography itself is an ethico-aesthetic act that provokes an event of existence. In terms of the ethical, Guattari states that the aesthetic project has ethico-political implications because, "to speak of creation is to speak of the responsibility of the creative instance with regard to the thing created" (Guattari, 1995: 107). To this end, 3Cs has a responsibility toward the affective dispositions/spaces/atmospheres that emerge and modulate from dg2; this responsibility is realised through 3Cs acknowledgement of *partiality* in their accounts, *collaboration* in their remit and *affinity* in their performances.

To conclude this section, recall the notion of autonomy and its potential micropolitical implications, particularly with regard to affect and the virtual. How does

affect and autonomy play out in micropolitics? Affect, as intensity goes, is intensely political, sometimes in a subversive way. For Deleuze and Guattari (2004b), affect operates as a dynamic of desire within assemblages to manipulate meaning and relations. Affect is subversive because it can be detached from geography, time, identity and the singular body; affect is autonomous (Massumi, 2002). “What makes affect autonomous is that it escapes confinement (by a particular body) and limitation by what actualises it (emotions)”, (ibid, 2002: 35).

As suggested beforehand, Thoburn (2003) argues that the autonomy of affect can be freighted or aligned to the particular conception of Italian *autonomia* and its associated political activities. In the same way that *autonomia* is not concerned, in theory, with policing or dictating what form power should take, affect, likewise, is not about, or found in, the fixation of identity or meaning, but instead is concerned with the production of different forms of socialised, immaterial and affective works. Put another way, *autonomia* and affect have no pre-figured political or policy end-game, but instead deploy a range of creative and unsettling tactics which seek to produce alternative (or multiple) practices, articulations and even different worlds. The contention here is that maps do not ‘possess’ or create (straightforwardly) affect, because affect does not originate from an individuated source; instead, the argument is that in the *doing* of the mapping, affect mediates and is mediated. How this affective register might be diagrammed is by no means obvious. That said, the act of diagramming here would not be to locate and place affect on the Euclidean grid through an attendance to geometric mapping, but it would instead require the cultivation of somatic dispositions and thought-experiments that are open to the variegated lines of the virtual; diagramming

then as a form of invention, or responsiveness to emergent networks, assemblages or situations (Barry, 2001).

What then of autonomy and the virtual; the realm of potential (Massumi, 2002)? As Böhm et al (2008: 27) suggest, "...because autonomy is never completely captured by any of the practices which are done in its name, it remains a promise that social movements can continue to appeal to". Put another way, autonomy is neither fully attainable, nor is it impossible; social movements can never be entirely autonomous, but by the same token, autonomy cannot be completely subsumed by power; instead autonomy remains a virtuality, "a kind of hope trying to actualise and experience" (ibid). In continually re-iterating, re-inscribing and repeating the claim to autonomous activism, research and cartography as if it was a refrain, 3Cs ensure that besides the actual material carto-political performances produced, that these enunciations are accompanied by the virtual promise of alternative spaces, of other possible worlds.

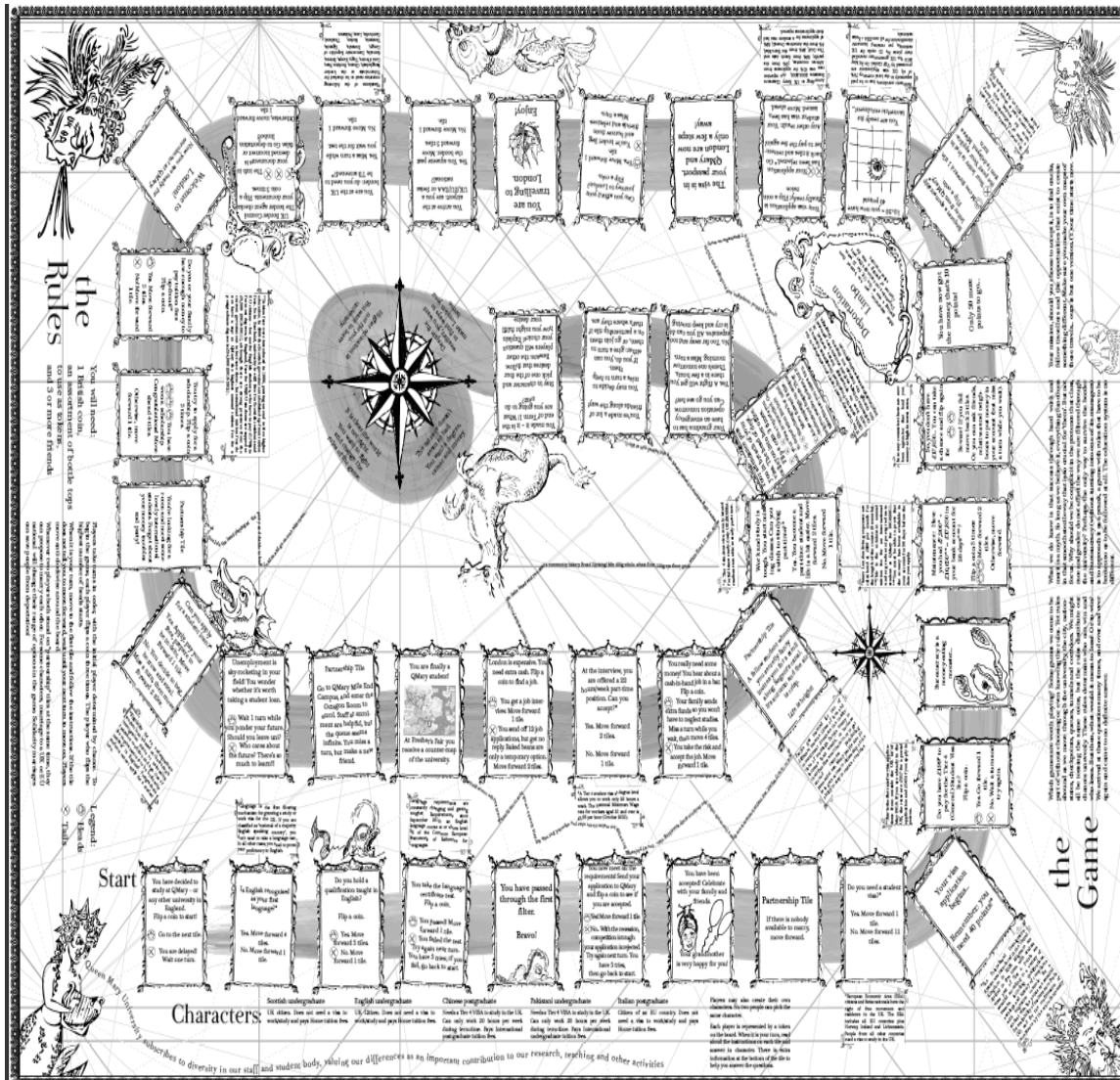
Postscript; encounter-cartography

Since finishing the fieldwork in Chapel Hill, 3Cs have been travelling to universities across the USA and Europe to share dg2, instilling ideas and maps to whoever will listen and giving talks at poorly attended seminars in Oxford²⁹. One of 3Cs more recent collaborations has been with Queen Mary's, University of London, working on a project entitled, "Counter\mapping QMary: finding your way through borders and filters". Drawing again on Situationist impulses, the counter-map takes the form of a board-game tracking immigration policy, living conditions on campus and resistance movements within the university, "all with rad techno-baroque stylings" (3Cs website

²⁹ Liz was a guest speaker at a School of Geography, Oxford, Departmental Seminar in February 2010, entitled, "Disorientation". Eight people attended.

material). In his reading of Leibniz, Deleuze contends that the Baroque creates the fold which in itself, “invents the infinite work or process” (Deleuze, 2006a: 39), endlessly producing folds, “pushing them to infinity” (ibid: 3), proliferating, “mystical experience” (Conley in Deleuze 2006a: xi). Perhaps the game has Baroque inclinations beyond its intended aesthetic styling; throwing dice in order to open and contract micropolitical space-times, generating a tentative, “architecture of vision” (Deleuze, 2006a: 23) that in a Deleuzian-Baroque manner, decentres both the map and the subject, or at least unsettles the orthodox injunction of the cartographic gaze.

The game can be viewed here: <http://www.countercartographies.org/activities-mainmenu-38/1-news/77-counter-mapping-qmary-map-released>, and see below.



// 4.15 // Rad techno-baroque // QMUL board-game

Elsewhere, 3Cs released in 2010 a call for submissions for a new book; “A Guidebook to the Unbounded University: Cartographies of Knowledge Production in Struggle”. The proposal begins, “[T]he university has exploded like a meteorite into a thousand fragmentary spaces of knowledge, affect, production and struggle”, and so proposes to produce, “a guidebook from below to a place which is of our own imaginings. Through this book we will dream together, share demands and cautions, escape routes and itineraries and help to call the rhizomatic university into being”. I tentatively send the following chapter proposal;

“Postcards from across the water: navigating through the ivory tower(s) of Oxford”

Using tourist postcards depicting various scenes from Oxford University, the proposed piece would be a critical pictorial guide to the quirky cultures, peoples and politics of the UK’s oldest university. As the site of the world’s original ivory towers, Oxford is a maelstrom of privilege and poverty, town and gown conflict – a rhizomatic space in which the UK’s class riddled anxieties are played out. Specifically, the guide will sketch:

- University buildings/Ivory Tower(s) the micropolitics of not sitting on the grass
- Academic dress/disciplining the body
- Beyond the bubble; migrant encounters outside the college walls
- Audit cultures and encroaching neo-liberalisation; working through and struggling against the UK’s Research Assessment Exercise (the assessment which determines university funding according to ‘productivity’ within a 4-5 year period).
- Coalition cuts; working through the huge cuts in higher education and massive job losses across UK universities.

3Cs responded by email; they are excited by the idea of postcards; something distributed, something material, something shared. Both the Queen Mary collaboration and the book proposal are symptomatic of 3Cs incessant productivity and ongoing, transversal encounters; sharing their ideas and methods without themselves policing the borders of what counter-cartographies might be capable of. Time passes however, book ideas ebb away, recombinant intensities and bodies migrate; the collective changes; mapping once again the technology and practice of occupation³⁰; “Man is no longer man enclosed, but man in debt” (Deleuze, 1992: 6).

A brief space-time of reorientation.

Having traced a genealogy of 3Cs and narrated various spaces-times generated by the collective, a necessarily partial account of the mapping process, there are three points on which to conclude this chapter. Firstly, 3Cs demonstrate vividly that

³⁰ Various members of 3Cs have participated in the round of ‘Occupy!’ protests that are erupting across the globe since early 2011. Tim has been mapping the spread and extent of these protests, whilst creating maps (or rather plans) for the occupation of individual buildings.

cartography and mapping is very much part of the *bricolage* of both contemporary social activism and those processes and space-times often characterised as radical politics. 3Cs brand of counter-cartography extends far beyond the valorisation of the map as sheer artefact; if anything, the materiality of a discrete map is perhaps less important to the collective than the generation of performances and events; a cartography of performance; a cartography in the performing. The map then is an important motif in the adhesion and congregation of (un)certain actors, but this kind of counter cartographic assemblage emerges and modulates in and through distributed experiences, shared events and rhizomatic performances. Insofar as the world is witnessing an upsurge or renaissance in cartographic intervention and activity as alluded to in Chapter One, the works and performances of 3Cs are a signal restating of mappings' salience in the enunciation of political demands and desire, whether macro- or micro- political.

Secondly, despite the term 'counter', which presents itself as somewhat of a misnomer, there are other ways of diagramming the cultures and geographies of counter-cartographies through the work of 3Cs that draw closer to a conception or notion of vernacular mapping. Specifically, 3Cs demonstrate through their activities that the term 'counter' does not necessarily denote or imbibe sensibilities of the oppositional, the angst-ridden or the attritional. Instead, and in this instance, 'counter' entails something more generative or productive, not necessarily in an optimistic or euphoric sense, but in a productive manner insofar as other virtual and actual spaces are brought into being by the work and performances of 3Cs. The idea of counter-cartography in this context would be akin to an affirmative critique; the suspension of judgement and its replacement with the generation of an alternative concept or space; a

form of machinic invention. One could consider the practices of 3Cs as a form of vernacular mapping to the extent in which the space-times of conviviality and affinity are considered more significant to the constitution and practices of the collective, than the metrics of material output or success measured against static indicators of quantitative productivity.

Conversely, this is not to deny that 3Cs are not sometimes straightforwardly *critical* in the tenor of the vocabularies and practices deployed, or that negation does not play a significant part in their broad ethos; anti-budget cuts, anti-liberal, perhaps even anti-theoretical. In that respect, there is an evident antagonism between the countering tendencies of 3Cs and a non-representational 'reading' of their practices. To that end, counter-cartography here cannot be understood either as brute resistance to power, nor an unqualified affirmation of alternative worlds that could come into being. Instead, counter-cartography might be rendered as a compositional process of diagramming that involves the invocation of negation as much as it does creation.

Thirdly and finally, whilst 3Cs are theoretically inclined insofar as it takes seriously the work of Deleuze, Guattari and Foucault in cultivating a 'new cartography', generating lines of flight to bring into being other spaces, it is nonetheless important to remark that 3Cs and their attendant performances do not mark a clean break with a long and varied lineage of counter-mapping practices. To go further, much of their mapping harbours a residual conservatism both in its resemblance to a conventional form of social activism prevalent in the United States, and in the manner in which its desiring technologies and techniques craft maps that hold on to a certain Euclidean respectability, in other words, forms of cartography that bear some geometric orthodoxy so that they continue to do the (dis)orienting work that maps always

perform. For that reason, there is a sense in which 3Cs are anti-theoretical in the cartographies that they espouse and perform, a sensibility that became increasingly palpable as the space-times of fieldwork wore on. Nonetheless, the politics of 3Cs is not one of straightforward attrition, but one of vernacular processes; compositional processes that to be sure, invite discord and negation, but that also invite a wider sense of what it means to map, and what mundane, outrageous or familiar performances might be caught up in the vibrant space-times that are counter-cartographies.

From counter-cartography to geeky-mapping, the following chapter marks a shift toward a different case study, a movement toward a different cartographic intensity, but one that both continues to track the contemporary re-enchantment with cartography and that holds on to the ethos of thinking-otherwise about everyday mapping processes; to consider how else such technologies and practices can be folded into the notion of vernacular mapping.

// Chapter Five

Geeky mapping: editing the world

Geeky mapping: editing the world



Maps for the everyday

All mapping has a politics.

All mappings are political in their performance.

Two familiar, interconnected and well-rehearsed refrains in critical cartographic discourse. Maps can be political in relation to the ends to which they are made to work; inscription devices generated to agitate, articulate and gesture, as demonstrated by 3Cs in the previous chapter. They are also political insofar as maps are forms of encounters with, and for space; they are engagements, interruptions, orientations, iterations; edits of worlds. To map then, is to edit the world. A hefty claim, to be sure, so what might it mean to edit the world? What is involved, and what is at stake in the editing? To think through these questions, this chapter attends to the emergence of online, everyday, pedestrian, mundane mappings; a burgeoning field of technologies and practices labelled variously throughout geography in conflated terms such as ‘participatory mapping’, the ‘geoweb’, ‘volunteered geographic information’, ‘participatory public geographic information systems’, ‘virtual mapping’, ‘digital mapping’, through to ‘neogeography’ and ‘neocartography’.

Specifically, I focus here upon OpenStreetMap (hereafter OSM), one of the most striking examples of a geographical application to emerge out of an interactive suite of online practices and communities known as Web 2.0 (Haklay, 2010). In brief, OSM is a

Wikipedia for maps, which is to say that the map is generated and edited by its online users. Therefore what the world becomes, at least in cartographic terms, is entirely at risk, and perpetually susceptible to alteration and change. Empirically, joining OSM was used as a technique of thinking through how human and non-human assemblages can intervene cartographically in the world, and how the practices associated with OSM relate to a long heritage of geographical enquiry into the roles of maps and mapping in the abstraction and experience of space, place and politics.

This chapter does three things. Firstly, it explores what OSM is, and interrogates its relationship both to contemporary and traditional cartographic practices, and also to wider performances embroiled in crowd-sourced knowledge production, particularly geographic knowledge. Secondly, the chapter mobilises and animates several fieldwork engagements with OSM, namely digitally virtual engagements via the OSM wiki and mail-lists, through to avowedly more *analogue* encounters at events known as ‘mapping parties’. Thirdly, drawing on this partial narration of the cultures, technologies, actors and performances of OSM, the chapter concludes by articulating what it might mean to edit the world, and how the subjectivities associated with editable mapping could inflect the ethico-political entanglements of cartography. The argument here is twofold; one, that these vernacular cartographies valorise the experiential as central to the craft of mapping, thereby undermining rationalist accounts of abstraction as distinct from experience and two, that these mappings cultivate certain ‘geeky’ subjectivities; particular ways of knowing and intervening in the world which are prompting geographers to re-think the natures and practices of cartography.

The evocation of ‘geeky mapping’ in this instance is not a deferral to condescension or insult, but an appeal to what the idea of geek could entail; the

amateur-expert, the massively creative, an assemblage of infuriatingly and simultaneously inaccessible and accessible. The geek and the geeky are amongst the constitutive acts of vernacular performances, apprenticeships in and for the everyday; recalling as Haraway does (1992) that the vernacular is not a scalar flight to localism, but rather is a multiverse register (James, 1996) of co-produced assemblages, practices, actors and subjectivities of varying durability; a register which constantly elides capture in representational terms³¹. Moreover, these geeky, vernacular engagements with, and generation of the world, predominantly through the digitally virtual, are emblematic of the growing worldwide interaction with, and dependence on knowledges cultivated through and with the online. If geeks are the constituent demographic of OSM users, and OSM is a device with which to inscribe and edit worlds, then what subjectivities are associated with geeky mapping, and what kind of politics might be at stake here? What kind of political intensities might resonate with those of 3Cs, and how do these play into creating a grammar around vernacular mapping?

This chapter should be read as the first of two chapters that deal substantively with OSM; whilst the current chapter attends to fieldwork based in the United Kingdom, Chapter Six will draw on fieldwork in Peru. In keeping with OSM digital etiquette, users are referred to according to their OSM username/avatar, for example, the founder of OSM, Steve Coast is known as Steve C, and so on.

³¹ Following November et al. (2010: 595), James' multiverse might be understood, "just as real as the 'universe' of commonsense but that it has not been prematurely unified through a continuous physical space".

OpenStreetMap

“OpenStreetMap is a free editable map of the world. It is made by people like you” (OSM Wiki, 2011: no pagination).

So far, so clear; OSM is a free, editable map of the world, made by people like me. That is to say me and 350,256 others who have registered as users of OSM since its inception in July 2004, founded by University College of London computer science graduate Steve C. At the core of OSM’s reason for being is the impetus to provide free geographic data to everyone; free in the sense of restriction-free, rather than cost-free; geodata free from commercial and copyright restrictions and liabilities concealed in the maps and mappings of, for example, Google Earth or the UK’s Ordnance Survey. In the case of Google, whilst access and use of its ubiquitous Google Earth or Google Maps platform is ostensibly free, the data which appears in the programme is licensed by Google from geodata agencies such as Navteq who “earn a fraction of a cent every time someone clicks on the map” (User: Maron). Unsurprisingly, this revenue gathering is consolidated by a panoply of restrictions governing the use and attribution of Google’s images and maps.

By contrast, OSM’s web-based map is entirely user-generated, propagated on a wiki-system and its attendant cultures and philosophies. A wiki, derived from the Hawaiian word for ‘fast’ (Wikipedia, 2011) is a collaboratively generated and user-edited website that uses simple web-based protocols for its creation and modification, such as a ‘What You See Is What You Get’ (WYSIWYG) text editor which means exactly that; what is typed on the editor is what will appear on the final webpage, as opposed to requiring specialist literacy in coded protocols such as Hyper Text Mark-up Language (HTML) whose specialised scripts and algorithms are the building-blocks of the majority of everyday websites. In practical terms, there is one primary map that is

visible to the website viewer, but its singular visualisation belies the underlying and countless sources of data and the billions of bytes wrought through lived experiences on which it is based. This 'singular' map can also be divided and manipulated by users in order to be put to work in different ways outside of the specific cartographic context of OSM.

Of the 499,155³² (and rising) registered users, only a small fraction contribute regularly to the editing of the map. A recent demographic profiling of OSM mappers by GIS academic and OSM user Muki has revealed that the majority of users are male, European, and moreover, that approximately fifty-one per cent of users have formal training in the use of GIS (Haklay, 2010); or, as user Blackadder puts it, "most of us are geeks". Supporting the rank and file mappers is the OSM Foundation, a not-for-profit company that acts as a governing mechanism for OSM, and to give the organisation a legal identity, an increasingly pressing necessity as OSM addresses ongoing questions about the licensing and distribution of its data.

Returning to the wiki platform, once setup with a free OSM account, the user can begin contributing to the map; to begin changing the cartographic world; an edit here, an edit there, a pathway over there, a line where there was not one before. Altering the world in ways in which users cannot be sure of; "what is geography if it is not the drawing of a line?" (Olsson cited in Pickles, 2004: 3), the co-constitution of things in the doing of cartography; "what is a thing...if not a tying together of the lines – the paths of growth and movement – of all the many constituents gathered there?" (Ingold, 2007: 5). Despite its name, OSM is not just preoccupied with streets; points of interest (POIs), lakes, trees, shops, petrol stations, military zones, churches, all the features you would

³² As of November 2011; a twenty-one percent increase since the start of this project in 2009.

associate with *everyday* maps are also admissible, and what makes it on to the map is governed largely by the training, whim and intuition of the individual user, and of course by the ephemeral conventions of wiki-culture. Likewise, the virtual and analogue performances by which data is gathered and processed are similarly variegated.

In brief, there are two ways in which to participate in OSM; firstly, participation can take the form of *fieldwork*; a process of going out ‘into the field’ in analogue bodily terms, through surveying and recording, with GPS devices, pens, pencils and notebooks, areas of the world not yet part of OSM’s coverage. Secondly, participation can be remote; working from networked computers, using secondary and the third-party sources of data to edit the map. Not all OSM geodata is user-generated from scratch; the organisation has various agreements with agencies which have released caches of geographic data, for example, Yahoo provides low-resolution satellite data images to OSM, whilst Ordnance Survey, somewhat ironically, has released layers of data that are now outside of copyright. Both the Yahoo and Ordnance Survey sets of data can be used as ‘base layers’ in the OSM map-making process, using these layers to triangulate and cross-reference tracks, points of interest and other mapping features with user-generated data, or in some cases, for OSM users to trace over. Participation, whether ‘actual’ or remote, can also be individual or collective; as sedentary as working from a laptop indoors, or as kinetically as hiking or biking outdoors as part of a mapping party. In both modes, experience and encounter are what propels the cartography; points, data, tracks orientating bodies, and bodies orientating points, data and tracks.

Uploading

Once the OSM user has generated and collected the required information, the data is uploaded on to the central OSM database and server, currently housed in an air-

conditioned room at University College London. The amount of data stored is immense and growing with every second. At the time of writing, 2,657,904,519 GPS points have been uploaded on to the database. Once the data is uploaded, the user chooses one of the several map editors (engineered for different levels of user-proficiency), to manipulate the traces, points and ways into intelligible map data; the map is drawn, then rendered, and within hours, the map with its changes becomes publicly visible and available, but of course the map's work is never done, and it can be modified, altered, improved or indeed vandalised at any point. The publicly visible map is based on a spherical Mercator projection, covering between eighty-five latitudinal degrees north and south, the consequence being that that slithers of Arctic and Antarctic territory are missing from the map. According to Steve8 in Ramm et al (2011: 7), "this results in a perfectly square world map. The projection severely distorted the map in the vicinity of the poles, but that is a small price to pay for the ease of use that comes with the square form".

Under a 'Share-Alike' Creative Commons Licence, the data used to render the map, or indeed the map itself, can be used, copied and manipulated in any form by any actor (user or non-user), as long as OSM is credited for the data, and that any resulting derived product is likewise shared without additional restriction under the auspices of Creative Commons licensing. This has resulted in the generation of countless 'mashups', or hybrids, of OSM data spliced or combined with other programmes, software and sets of data to create a slew of geoweb applications such as 'OpenCycleMap', 'OpenPisteMap', and search engines that produce geo-located results using OSM derived data, for example, Nestoria, a property search engine which allows prospective home-buyers to locate available properties on maps created with OSM data. OSM has also enjoyed

becoming something of a cause celebre in recent times, particularly during 2010 when it received media coverage for its mapping of post-earthquake Haiti (see Neis et al, 2010) and its collaboration with residents of Nairobi in mapping the slum centre of Kibera (see Hagen, 2011).

In relation to its growing public prominence, OSM is interesting to geographers in three respects. Firstly, OSM is part of a broader culture of crowd-sourcing whereby the production and marshalling of ideas, knowledges, spaces, and indeed politics, is not carried out by an individual entity or defined by a singular subjectivity, but is instead part of an ecology of practices (Stengers, 2005) in which what matters and what is generated is at risk (Latour, 2008), liable to alteration at any moment by any actor, just as cartographically, OSM is at risk. Secondly, despite the relative novelty of OSM's digital platform, there remain strong resonances with the manner in which cartography has been traditionally conceived and practiced; specifically, that the role of mapping is to survey, to abstract (to withdraw), to diagram, to render, and to contest what is included and omitted from the map, to argue 'what counts'; a performed typology of cartographic orthodoxy that endures its digitisation. Thirdly, there is something to be said about experience and abstraction; OSM deals in abstractions, but it also deals in experiences insofar as these abstractions are generated in the mapping; that is to say that the digital and analogue experiences tied up in OSM cartography amount to lived abstractions, further disrupting the Euclidean representational settlement of abstraction held in distinction from reality, divorced from experience; the myth of maps as mirrors of the world (Rorty, 2009).

The fieldwork traces that follow, at the same time as illustrating what could be entailed in editing the world, also narrate cartographic performances that re-work the

relationship between abstraction and experience, contending that they are not polar opposites of ontological or epistemological spectra, but instead very much entangled with one another; that abstraction is a folding into experience and vice-versa. The question that then arises is what kind of cartographic ethics and politics is left?

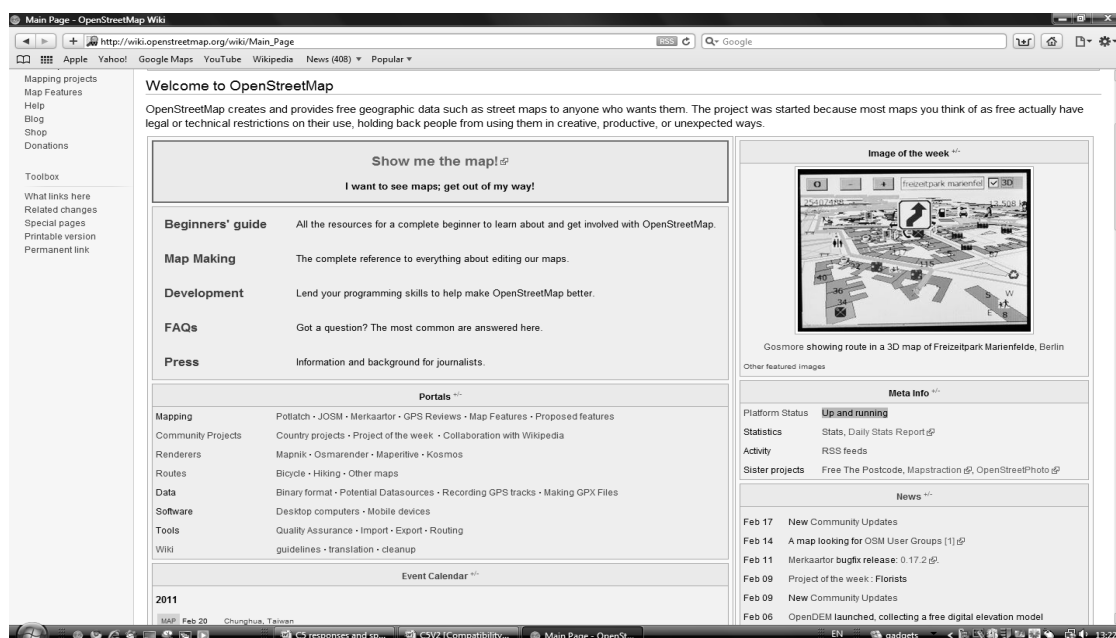
Navigating the virtual

OSM exists and works in part through the virtual in two registers; the digitally virtual, and the temporally virtual, although this is not to claim that these registers are entirely discrete. The former is regarded commonly as a digitised realm of existence held in distinction to 'real life'; something not quite there (McCormack, 2009). More productively, the digitally virtual can be conceived as a generator of various spatialities; a hugely complex series of digital relations between all manner of actors and assemblages. The pervasiveness of online social networking sites such as Facebook and Twitter provides some measure of the digital imbroglio many bodies are caught-up in, although it is important to acknowledge that this is far from being a geographically universal trend.

The temporally virtual refers specifically to that which is real, but not actual; the realm of unqualified potential, of uncertain futurities; the virtual through the thought-in-motion of Bergson (1992; 2001; 2004), Deleuze and Guattari (2004b) and Massumi (2002; 2011). If a map's work is never done, its becoming always in the making (Kitchin and Dodge, 2007), and that this notion of processuality is aligned with thinking about the temporally virtual, then it becomes possible to render a cartography that always has room for more, a cartography freed from pre-figured readings, and a cartography that generates unrecognised and speculative potential. This might appear vague on its own

terms, so what does the virtual have to do with OSM? In response, a focus first on the virtual in its digital sense would be helpful.

OSM begins in the digitally virtual. To view or edit the map, a computer is a prerequisite, to become a mapper, the body needs to create a digital iteration of itself; a user-name, an avatar, a personalised wiki-page. The wiki is a constantly modifying portal of swirling digital bodies and relations; a platform for support, advice, argument and a depository for materials crafted along the way; GPS traces, user-diaries and data-dumps; the wiki is a productive set of spaces, a springboard for generating yet more spaces. Mapping parties and events begin their existence posted on the upcoming events board; the main page of the wiki akin to an organisational bulletin, a school newsletter; 'Image of the week', 'Project of the week', 'News', 'Events', 'Community Portals'. It is a good starting place for the novice, or 'newbie' as they are known in OSM circles.



//5.1// Main page screenshot // OSM wiki

In addition to the wiki, the main mechanism and vehicle for interaction between OSM members is the mailing lists, of which there are hundreds in use, satisfying different purposes and interests; for example, there exist separate lists for individual countries, or lists that pertain to particular themes such as ‘accessibility’ or ‘geocoding’. In all there are one-hundred and eighty lists, implying countless emails, servers and numerous moderators. Too many to subscribe to for fieldwork purposes, so I joined just two lists; ‘talk’, for OSM user discussion and ‘newbies’, for more obvious, amateurish, reasons.

Over two years two-thousand emails dropped into the digital inbox from the ‘talk’ list alone. The protocol for participation is to send a message via email to the list server. Once this is completed, the server compiles the message with those from others, and disseminates the messages in the form of a digest email. On some days, a user’s email inbox would receive upwards of ten digests, depending on both user activity, and generally, the extent of user agitation with the published content. In the same way that OSM begins in the digitally virtual, so too does the fieldwork; a few excerpts from mail-list discussions follow.

As always, it starts in the middle of things.

**** **

Date: Wed, 30 Sep 2009 08:04:03 -0700 (PDT)

From: Richard Fairhurst

Shit, you mean you actually have a productive job rather than just posting inconsequential rubbish to the mailing lists all day?

Aside from being a support network, and a facilitator for sharing cartographic ‘best-practice’, the OSM mail-lists can be less collegiate at times; an outlet for venting

frustration, a medium for straightforward insult³³. Then of course there is the specialist vocabulary, the 'geek-speak':

**** **** **** ****

2009/10/1 Nick Whitelegg

To try and support as many as possible - Qt is another option when the Symbian version becomes available, Android is interesting but maybe not widespread enough yet, iPhone is platform specific (and has to be approved by Apple which is a big problem), .NET again is platform specific.

The mail-lists can also perform the role of a political forum, a space for influencing things, for changing cartographic practice:

**** **** **** ****

2010/6/2 Steve Bennett

Excellent. Finally a rational argument against tracing in certain situations. We could even begin to formulate policy:

"Tracing imagery in areas where there are active local mappers using ground survey methods can kill enthusiasm and stunt the final quality of the map. Consider asking on the appropriate mailing list before doing it, particularly in densely populated areas."

What Steve is drawing attention to is the practice of remote mapping; a practice in which a user edits the main OSM map by tracing over third-party sourced imagery, in other words, mapping minus the messiness of needing to visit and survey the area in question or space of concern. This is a common practice, particularly in the UK and USA where there exist masses of geodata outside of copyright which can be employed as a

³³ In academic geography these trends have been mirrored by similar mail-lists, notably the Crit.Geog Forum.

foundation for OSM mapping by simply uploading the image to the mapping editor, tracing over it with OSM stylings, saving the work done, and within several hours, watching the map rendered public.

Assuming the third-party geodata is copyright-free, remote mapping is entirely legitimate; a quick-fix, a legal cartographic high that other OSM users and myself indulge in regularly, but as Steve's message suggests, there is something unedifying and unseemly about the remote performance; the subject of early controversy in OSM's short history. Here, working solely in the digitally virtual is regarded as not enough for two reasons; firstly, it rides against the prevailing ethos of OSM to encourage communities to map, to meet in analogue terms and perhaps have some fun along the way. Secondly, there is an urge for *actual* experience to be pivotal to the mapping process, not just for the sake of cartographic hobbyists, but for the integrity and veracity of OSM cartography itself; that ground survey methods are the guarantors of map quality, able to do the work of legitimising the map's existence and accuracy; a familiar mapping impulse to 'ground truth', one that stretches across the history of cartography and is certainly not unique to OSM.

Whilst many users valorise the importance of primary surveying, there are no signs that remote mapping will become a prohibited practice; in part because there is no one single decision maker in OSM able to instigate this change, but also because there is a recognition that the map and any of its many parts are susceptible to ongoing change and editing; whether or not a section of the map is traced from user-generated GPS data or from third-party sources, both variants are liable to alteration by other users. Editing, then, is always at risk, provoking frustration from some users, but at the

same time the process has helped in part to bring about a re-enchantment with mapping in its openness to continual modification.

For many users such as Davespod, the whole issue is far less contentious:

**** **

Date: Thu, 9 Dec 2010 04:56:46 -0800 (PST)

From: davespod

The thing I hate about getting in discussions on here is that I always end up sounding more hard-line than I really am. I certainly wouldn't discourage someone from having a go and tracing something from imagery to try their hand at OSM - in fact I would encourage it.

Ultimately, the conceptual and practical gap between remote mapping with third-party data and mapping-through-surveying is not so pronounced. Even if a user goes out into the world to survey an area, that user at some point needs to return to the digitally virtual and pack the world into bytes so as to re-present that world in a recognisably cartographic form. In sum, whether the map is crafted from surveyed data or third-party data, both modes involve some form of remote sensing, or remote sensibility; human and non-human bodily experiences generating, abstracting and catalysing cartographic traces³⁴.

Interestingly, in both cases, OSM mappers are keen to distance themselves from the messiness of experience; to rescue a moment of cartographic credibility through Euclidean positioning and separation whereby, “vision stands metonymically for absolute and fixed knowledge about the viewed subject” (Kimball Smith, 2008: 161) and

³⁴ Goodchild (2007) writes of amateur mappers in terms of ‘citizens as sensors’, but does so in a manner that questions the relative veracity and precision of their work compared to professional cartographies. It misses the opportunity to take seriously the notion of bodies as sensors (remote or otherwise) or techniques of the sensorial. For OpenStreetMappers, bodies are the sensory technologies that generate the maps.

in which the cartographic gaze, “sees through the space of history as if it was never there” (Carter, 1987: xiv)³⁵. One way in this cartographic distance and is achieved and maintained is via the online mapping editors through which data is uploaded and manipulated. They act as nodes of critical distance, a hygienic surgical theatre in which the world is operated upon and fixed. Of course the editors are anything but hygienic, riddled with programming bugs, beta (prototype) malfunctions; repositories of discarded GPS files; an expanding landfill site for digital waste. More prosaically it is difficult too for users to keep their hands clean of this supposed cartographic detritus or to maintain any semblance of ‘critical distance’, particularly when they are the authors of the editors themselves; programmers who endure intolerable back-ache hunched over laptops, pouring over cartographic algorithms for the sake of maintaining OSM’s vitality; eyes propped open by tar-like coffee and effervescent energy tablets³⁶; “observing eyes are still important... but they are joined by manipulating hands” (Mol and Law, 2004: 53).

Either through surveying by fieldwork or by proxy, editing-the-world, in part, is a bodily foray into generating mapping experiences that complicate, if not entirely undermine the tale of a professional cartographer’s distance from the world which they purport to represent, experiences which narrow the gap between subject and object,

³⁵ A gaze perpetuated through instruments, such as the telescope; illustrated here in Garcia Marquez’s fictional Colombian village of Macondo; “In March the gypsies returned. This time they brought a telescope and a magnifying glass the size of a drum, which they exhibited as the latest discovery of the Jews of Amsterdam. They placed a gypsy woman at one end of the village and set up the telescope at the entrance to the tent. For the price of five reales, people could look into the telescope and see the gypsy woman an arm’s length away. “Science has eliminated distance”, Melquíades proclaimed. “In a short time, man will be able to see what is happening in any place in the world without leaving his own house.” (García Márquez, 1984: 58).

³⁶ User diaries of OpenStreetMappers often tell of caffeine and vitamin-pill fuelled stints of late night mapping; a cartography of addiction (Coonfield, 2008) and unspoken pains of poor bodily posture.

map and mapped. Try as cartographers might, the mappers' observing gaze, to paraphrase Foucault (1989), does not refrain from intervention, but instead is altogether interventionist, disrupting any separatist accord between observation and experiment³⁷.

Partying, OSM style

The digitally virtual is rarely absent when it comes to mapping with OSM; even when surveying through fieldwork, digital technologies are recurrent insofar as GPS devices and laptops are almost de rigueur for the OpenStreetMapper. OSM places huge emphasis on human bodies coinciding with these technologies and cultivating other bodies as remote, compliant sensors that go out into the world and map. To that end, the signature event of OSM is the 'mapping party', a way of combining mapping with socialising, a meeting of fellow geeks and newcomers; space-times for generating and editing worlds over a weekend.

What follows is a series of interwoven geographical stories, or cartographic episodes, narrating moments from mapping parties in Witham, Essex, Glasgow and Andover, Hampshire. In borrowing (or downright thieving) techniques and creative flourishes from recent experiments by geographers in the performances of writing research (see, for example, Lorimer and Wylie, 2010; McCormack, 2002b; Wylie, 2002), these stories tamper deliberately with any sense of temporal chronology, whilst at the same time illustrating the practices of OSM mapping as a means of 'writing otherwise'

³⁷ The diagramming and mapping of space have been crucial techniques in legitimising the observant gaze, and in doing so, naturalising the abstraction of subject from object; "The observing gaze manifests its virtues only in a double silence: the relative silence of theories, imaginings, and whatever serves as an obstacle to the sensible immediate; and the absolute silence of all language that is anterior to that of the visible" (Foucault, 1989: 132).

some of the motifs associated classically with cartography such as accuracy and surveying. They are stories of non-linearity, of cartographic bricolage (De Certeau, 1984) and of mapping subjectivities. Moreover, these stories are an attempt to hold onto something that is happening, namely the processes of editing the world and their performativity thereof. Editing maps and editing the world can be as stochastic, muddled and chaotic as it can be systematic, precise and ordered; in either case it is certainly precarious and risky and it is to this occasional cartographic schizophrenia and uncertainty which these stories write of and for.

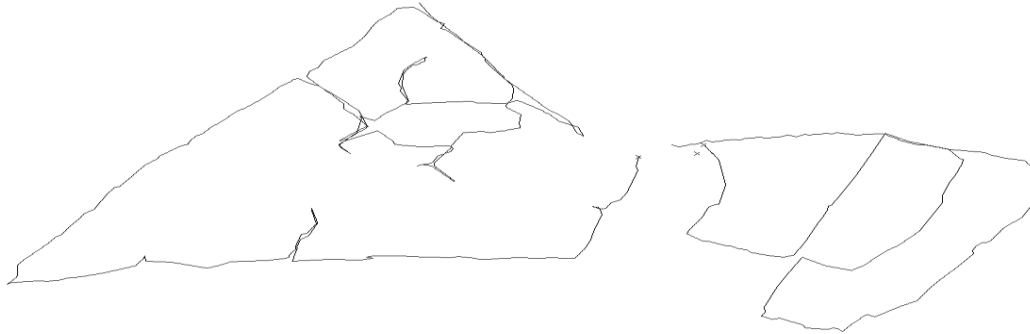
That said, this being a project embroiled in maps, there is some degree of cartographic orientation on-hand for guidance, and which speaks in particular to the geeky-affective regimes and atmospheres at play in OSM events. These orientations come in the form of one, GPS traces and two, geodesic co-ordinates. The GPS traces are spatial riffs, a paean of sorts to Spinoza's geometric method, the lived traces of walks, bus and train journeys taken in or near the accompanying geodesic coordinates; namely the marker of where the mapping party took place. Known colloquially as 'electronic breadcrumbs', they are the spectral remains of a day or two's cartographic toil, pseudo-memories and digital inscriptions of an event and its lines, but more importantly, the knitting together of abstraction and experience; a nod to the interstitial space-times of cartography and the crumbling ontological separation of the world and its representation. Some of the traces also signal failure; GPS calibration malfunctions, random lines generated between errant extra-terrestrial satellites and handheld receivers, relations independent of human design; lines, patterns and space-times more broadly emblematic of the setbacks and errors encountered in the performance of geeky mapping. Failures, which however, are central to the ethos and practice of

contemporary wiki-knowledge production; failures that can be internalised and acted upon with an unprecedented digital immediacy and dealt with by, potentially, a huge online authorship.

Similarly, the geodesic markers (longitudinal and latitudinal coordinates) act as spatial refrains, not to anchor the account to any particular locality, but to perform literally as points of departure for the stories, and also to provide resting points for the reader, in the same way a map might offer a momentary pause and downward glance from a hiker on the move. Both the GPS traces and geodesic markers are resolutely of a Euclidean vocabulary, but that does not mean necessarily that they must be understood in geometric and cognitive terms alone; these stories, instead, offer a way to think vernacular cartographies through experiential registers.

Fieldwork traces

LONG. 0° 38' 11" E; LAT. 51° 47' 60" N



Witham is a town in Essex; a reassuringly concrete fact writ-large in the geographic compendium par excellence, the atlas. Witham's cartographic existence is less assured; the rest of it is yet to be mapped, by OSM that is. The GPS handheld device ordered online several days has not arrived, and concern is building that I will be turning up to the mapping party on the designated Saturday much like a kid arriving at the school gates without uniform. It is bad enough that this will be my first OSM mapping party, previous parties in Maidstone and Haslemere fell by the wayside due to volcanic ash³⁸, but apparently the other mappers did a good job; not total coverage of the Kent and Surrey towns, but nearly there (as reported by TimSC who co-ordinated the Maidstone mapping party and participated in the Haslemere event). Total coverage? SteveC (2010) suggested this was an ambition OpenStreetMappers needed to divest themselves of; the virtue of a wiki is to always be in the making, never to be complete.

³⁸ The 2010 eruptions of the Eyjafjallajökull volcano in Iceland caused widespread disruption to aviation across north-west Europe for several weeks. The matter of concern or manifested controversy here however was less the particles of volcanic ash themselves, but their cartographic rendering and modelling. Competing measurements of aircraft tolerance to differing levels of ash by multiple jurisdictions highlighted the awkward, mischievous and politically febrile entanglements of scientific representations (see Ulfarsson and Unger, 2011).

What is a mapping party?

“A big aspect of getting OSM off the ground was the mapping parties: getting drunk and arguing with people” (SteveC, 2007: 22).

A mapping party is an event at which OSM newcomers and veteran geeks gather to map an area of the world that is yet to be mapped, or to edit maps already drawn. They are informal affairs held normally over weekends, organised by one or two dedicated OpenStreetMappers, invariably book-ended by milky tea in the morning and warm beer in the evening. In the interim, the gathered mappers walk/drive/cycle to blank areas on the OSM map with GPS devices and/or pens/pencils/paper in hand, they set about walking the streets, recording their tracks and marking waypoints and points of interest along the routes taken; all of which are inscribed through either digital or analogue means, or by a hybrid craft of both. Once the points, tracks and lines have been recorded, the data is then uploaded on to one of several OSM map editors and duly edited. The maps are rendered and are, as stated on the website, made available to the world; or at least to those with a broadband internet connection. From the OSM wiki:

“The Mapping Party is a convivial, community event. After the mapping is finished, the participants share food and drinks, and enjoy themselves. It's a party, after all!”



//5.2// **Witham** // rail station

Why Witham?

Again, from the wiki:

“Although a residential land-use area has been added for Witham, very few of the roads have yet been added. Checking the ‘nonames’ layer also shows that most of the roads currently mapped are lacking street names. As an introduction to OSM, Witham therefore lends itself to both GPS mapping to add missing roads and paths, and walking papers to add missing road names and POIs. It is believed that there is also a shared use cycle/foot path running parallel to an ever increasing length of the A12 which is currently unmapped. Some of this might also be mappable”.

A fieldwork scrapbook:

<i>Provisional timetable</i>	<i>Fieldwork technologies</i>
Coffee available from 09:30	1 x Garmin™ eTrex HCx GPS device
10:00 An introduction to OpenStreetMap	1 x digital camera
After the introduction, go mapping, or stay and use the promised wifi to demonstrate OSM uses and methods to any interested attendees.	1 x mini video-camera
12:00 to 12:30-ish, lunch break starts.	1 x voice recorder to note points of interest, landmarks and street names
13:30-ish to 14:00-ish, head out mapping again, or stay and demonstrate uploading the collected data	1 x notebook
14:00-ish, brief interlude for Mensa regional meeting	1 x laptop for uploading GPS data
15:30-ish to 16:00 - clearing the room. Call in to say goodbye or map until you head home.	Walking papers and paper base-maps for digital upload later

// STOP PRESS // The GPS device has just arrived in the post. Excellent news.

LONG. -1° 15' 59" W; LAT. 51° 44' 53" N, heading south-easterly



It is an early start on Saturday morning, travelling from Oxford to Witham via London. Changing trains at Didcot, boarding Coach D, I peer down the carriage to see a dozen or so early risers staring at newly installed television screens on the backs of seats. No one has paid the £3.95 subscription to watch re-runs of Gavin and Stacey. Instead everyone is making do with watching a yellow spot flashing in the centre of a map. As the train pulls out of the station (speed: 16, 17, 18mph; altitude: 177ft according to the GPS locator, but thankfully not airborne), the flashing yellow spot remains fixed in the centre, but the base-map slips from right to left at jagged intervals; from Didcot, down a touch to the southeast, and on to Reading. In this instance, CloudMade, a company founded by OSM enthusiasts and now sponsoring OSM technically and financially, has used the base map generated by OSM (the map created and edited by OSM users) and customised it for the needs of the train company; superimposing a separate GPS controlled cursor upon the base-map to geo-locate the train for the duration of the journey; a good example of a mapping-mashup using copyright restriction free data.

Sat down, I rush all too earnestly to get the map displayed on the individual back-of-seat screen, somewhat disappointed that one can only zoom-in a single iteration. The disappointment gives way to surprise and smugness on realising that the map had been generated with OSM data. Serendipity; the anorak, geeky subjectivities of

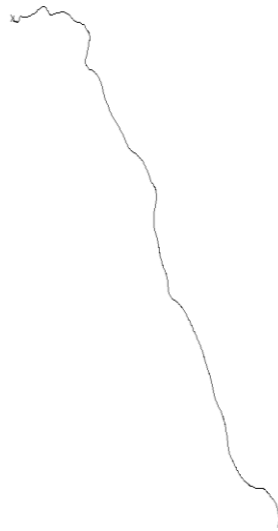
train-spotting and the lines, contours and legends mapping collide in Coach D. Crowd-source mapping was making its mark in public, a feat I was about to become a part of.



//5.3// OpenStreetMap on the 06.29 to Paddington // Carriage D

The emerging map plays into the (un)folding of both the journey's duration and the modulation of the carriage's muted affective atmospheres (Bissell, 2010), but the earlier sensation of smug amusement is an isolated one; "it may, perchance, have happened to you, when seated in a railway carriage... to hear travellers relating to one another stories which must have been comic to them, for they laughed heartily. Had you been one of their company, you would have laughed like them; but, as you were not, you had no desire whatever to do so" (Bergson, 2008: 11).

LONG. -4° 16' 24" W; LAT. 55° 52' 16" N



Jump to Scotland, momentarily.

Diary entry, 22 May 2010:

This morning's activities started at 10.28 when I arrived at the Electron Club in central Glasgow. Tim (OSM user, Hawkeye), the organiser, is outdoors with the laptop; still no internet connection available. Nick, Nick (!) and Scott arrive a little later. Friendly guys, and they start a bit of geeky banter and technical one-upmanship. Not much talk for the first few minutes as laptops are booting-up, and the obligatory show and tell of GPS devices get underway. My eTrex device provokes a few raised eyebrows; how could this decent piece of kit be in the hands of such an ignoramus? Running before walking. Tim opens the mapping party, but after thirty seconds of his introduction, it's clear that by OSM standards, Glasgow is pretty-well mapped; covered, done, completed, sorted. My heart sank a little, I wanted to be mapping new territory, discovering terra-incognita – the Road to Botany Bay all over again - but it was not to be. Nonetheless, it threw up some interesting

and recurring questions; what's the threshold for completion; why carry-on mapping if completion has been reached; how does OSM detect and account for change?

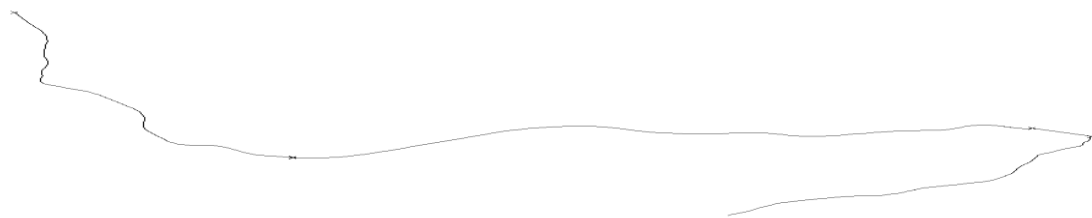
Hawkeye decides that tracks and ways would not be the priority today, but instead it would be nodes and waypoints; marking points of interest, not tracks (for example postboxes...how interesting; not roads). I'm being flippant. As usual, we divvied-up the city between us; Tim headed to Queens Park across the Clyde, whilst the rest of us stayed north of the river. I claimed the western riverside; speaking personally, an unfamiliar part of the city; somewhere to explore and perhaps get lost in. After downing another coffee we walked to Glasgow Central rail station to drop Tim off, whilst the rest of us split up. I wandered to Buchanan Street station to catch the metro train, or the Clockwork Orange as recognised by its local cipher, in hope of reaching the riverside. Instead the ticket machine swallowed a £2 coin without change and I made a futile circuit on the inner circle until reaching St Enoch at which point I alighted and double-backed to the riverside walking. It was hot and sunny. The Clydeport ship-building gantry imposed its shadow across the Clyde; evocations of a smoky industrial past, and now a huge piece of iron street-furniture; it brings the present crashing into the past again. Whilst the GPS was more or less redundant today, it was a chance to think about the pedestrian moments in mapping, to film parts of the mapping; to think about the spaces moved through, the moving spaces and the spaces generated or modified throughout.

Whilst this kind of mapping can be tedious and frustrating in its repetitive nature, it nonetheless marks a break in cartographic thought. Whereas western, royal-science, cartographies in the past have been comfortable with asserting ground-truthing claims of veracity and completeness, the surveying and editing processes involved in cartographic performances like those of OSM are, on the other hand, a tacit

acknowledgement of partiality, of incompleteness and of the riskiness of mapping; an uncertainty about what could be beyond the reach of a GPS device or a map. Perhaps, then, such practices amount to a cartographic form of hesitation that fuels and motivates yet more episodes of vernacular mapping.

Now from Glasgow, back to Witham; a 437 mile journey headed south-east in the duration here of a page-break.

LONG. 0° 38' 11" E; LAT. 51° 47' 55" N



“I don’t think we’ve met before”, said Ed. No we hadn’t, but he interrupted gluing posters in the window panes of the White Hart Hotel to shake hands. Ed had organised the Witham mapping party and was setting up his power-point presentation, that for today only had a dual audience as the event was timed to coincide with a regional meeting of Mensa (of which Ed is regional secretary). “You do know there is a Mensa meeting on later this afternoon?” he asked. Yes, I knew, even if the IQ was not up to the job. Ed is from Clacton-on-Sea, not far from Witham, and is proud of his role in mapping most of Essex from Billericay to Walton-on-Naze for OSM. How did Ed get involved? His friends had been doing some mapping, so he brought himself a Navi™ GPS device and set off on his bike through the country lanes surrounding Clacton. It appealed to his professional sensibilities as a software programmer. An Oxford educated mathematician, Ed is keen on detail, and prefers accuracy to guesswork.

The previously quiet function room, carpeted in seventies decor suddenly reverberates with the strange beats of what sounds like lift-music on steroids. Ed had loaded a video called, “2008: A Year of Edits”. Produced by ITOworld, a data visualisation supplier which in common with CloudMade, has a quasi-sponsoring relationship with OSM, the video shows a spinning globe set against the pulsating sound track as lines flash across parts of the planet, each flash animating a newly generated addition or edit to the OSM map during 2008. The brightest and most intense flashes occur where one might expect them to occur, in Europe and North America, but there are not many places left on the planet where the odd trace has not yet permeated. India strikes me as particularly bright³⁹.

We discuss the recent efforts of OSM in mapping Haiti following the massive earthquake that struck the country in January 2010. Ed did a lot of mapping of southwest Haiti, deliberately avoiding Port-au-Prince; the area that had received most of the mappers’ attention and cartographic efforts. The difference in OSM coverage between the pre and post earthquake maps is stark; more so because these maps had been rendered without taking a single step in Haiti itself, but traced remotely from CIA and Yahoo satellite imagery.

Pause, for one second; perhaps that is not entirely true. We look at the ‘raw’ data base layer of Haiti; there are a cluster of thin blue lines in the corner; blue lines denote user generated GPS traces which in turn suggests that there are OSM mappers actually present in body in Haiti. I’m surprised, Ed is taken aback. Until that is, we zoom out and realise we are not looking at Haiti at all; we are gazing at a base layer image of Clacton, Essex. Embarrassing, but perhaps it demonstrates that when everything is reduced to

³⁹ The video can be viewed here: <http://vimeo.com/2598878>

its cartographic data primitives such as *nodes*, *ways* and *relations*, Clacton and Port-au-Prince do not appear that dissimilar; a pointer towards the familiar limits of abstraction from the world and the assumptions made about those abstractions. When the world is packed into lines as it is in this case, it serves as a reminder of how pervasive cartographic reason has been in western thought and governance; that disparate assemblages, cultures and things can be convened and disciplined through geometric abstraction.

OSM user Nigel sends a text to Ed, he can't make it today, he is going to the theatre in Yorkshire tonight; a long drive ahead. Participation at such events is always a numbers game.

Fortunately for me, an OSM novice, a 'newbie', Ed was preparing an introductory talk on mapping techniques and editing software to his Mensa colleagues and other interested mappers, of which there were not that many, fourteen of us in total, if that. He outlined OSM's reasons for being, and the utility of the map; it can be crafted to any use the user wants, whether it be for cycle maps, maritime charts, or apparently, icing cakes.

Cakes are in fact integral to OSM lore for two reasons. Firstly, the areas to be mapped are transformed into 'cakes', or rather diagrams that are used to divide the area of concern into identifiable, digestible tracts; a cartographic mapping tool borrowed from baking to order, discipline and manage who maps what. Secondly, cakes form an important litmus test of whether a map is genuinely free from licensing restriction. For example, to ice a cake with the transfer of a map sourced from Google would be to violate Google Maps' Terms of Service (which states that derivative works, even iced cakes, are not permissible). Conversely, to ice a cake with a transfer of an OSM map (as

per the photo below) is entirely acceptable, assuming that the resulting cake is available to share, in both its derivative forms and its devouring. It is in these micropolitical (and simultaneously macropolitical) gestures that OSM and similar groups stand out from their traditional cartographic antecedents; characterised by a stubborn refusal to be reined in by copyright restrictions or corporate vindictiveness, and instead marked by an editing of the world that produces other forms of knowing and navigating space, whereby the map is not mimetic, but instead a device, a tool, a technique, a cake for being in the world.



//5.4// **OSM Cake** // thanks to the Marikina mapping party (Philippines) for this photo

The video, '2008: A Year of Edits' is on a continuous loop; grating. Tony, from Mensa, starts asking questions. In fact, the other Mensa members join in with difficult questions; what scale do you render the maps? Isn't that data copyrighted? If we mark a waypoint in front of a pub, then we'll be marking where our bodies are located in front of the pub, not marking the pub itself; how can we be accurate? "What projection are we using here... a transverse Mercator, yes?"

A transverse Mercator? Even Ed was stumped⁴⁰.



//5.5// **Ed's introduction**// White Hart Hotel

Data copyright? This is an awkward one. In April 2010, Ordnance Survey was forced into releasing a vast amount of geo-data that had previously been under strict licensing and commercial control. Not anymore; now anyone can access the Ordnance Survey 'Open Data Service' which includes street map data. Consequently, to reproduce this data without permission is now entirely legal⁴¹. A great success surely; the outcome OSM had been fighting for ever since its inception? Technically yes, but Ed looks a little forlorn. Now that OSM users can use Ordnance Survey maps as base-level, third-party imagery, he was concerned that no-one would turn up to Witham. Why get up and walk around Witham when one can sit at home and transpose data from one map to the other? Indeed, why bother at all? All the questions that emerged digitally in the mail-lists previously now find themselves posed in analogue. The ability to customise maps is

⁴⁰ Developed protractedly by Carl Gauss and Johann Krüger in 1825 and 1912 respectively, the Transversal Mercator projection retains the central meridian line of the original Mercator projection, but unfolds the image of the Earth in a concertina fashion so as to display the terrestrial poles (Jackson, 1978) and narrow the proportional areal disparities between landmasses.

⁴¹ Chapter Seven discusses the regimes of licensing and institutional copyright in further detail.

one response to such questions, and the sense I get from talking to OSM mappers is that they are keen to maintain a 'unique' render of the world not tainted by data from Ordnance Survey or other cartographic agencies.

More importantly OSM urge users to cultivate experiences in an empirical and bodily sense, to allow the 'field' to underpin and legitimate the maps generated. Experience being understood here as, "the instant field of the present [that] is always experienced in its 'pure' state, plain unqualified actuality" (James, 2003: 69). Paul Carter (2009) asks the question, how can we live with our maps differently, away from an understanding of maps that renders them as hegemonic or disempowering? One response might be that editing the world with OSM offers a way of living differently with our maps through the valorisation and pursuit of experiential cartographies that involve messy movement traces, "a geo-graphy, where geography merges into performances to produce a different design in the surface" (Carter, 2009: 14); a vernacular mapping.

Bodily experiences too are central to the performances of being an accomplished amateur, of being a geek; as Hennion (2007: 101) suggests in relation to amateurs, "the meticulous activity of amateurs is a machinery to bring forth through contact and feel differences infinitely multiplying". In terms of OSM, there is some conflation of the notion and ethos of both the amateur and the geek, even if many of the active members are professional cartographers or trained formally in GIS. Geeks, such as myself and my fellow OpenStreetMappers, inscribe their geekiness in the *doing* of mapping activities through which they experience, modulate, hone and generate, in addition to familiar cartographic materials and artefacts, various affective dispositions, atmospheres and

spaces; transversal registers that play into the vitality of vernacular mapping processes, and that themselves are generative of a particularly carto-geeky creativity.

However, simply because OSM relies on the work of amateurs themselves working through and generating vernacular sensibilities, it does not follow therefore that some form of disciplining is absent from the practice of vernacular mapping. On the contrary, these vernacular impulses are trained by informal hierarchies of experience⁴² and technologies and conventions that promote a regime, or at least, sensibility of self-governance and self-discipline. For example, in relation to disciplining the amateur, cartographic ‘errors’ present in the map are detected by automatic scripts, algorithms and programme robots (created by OpenStreetMappers who possess programming skills). On detection, errors are deleted automatically, a record of which is posted publically on the OSM wiki; a list-like discipline of name and shame that quickly striates the amateur-amateur from the amateur-expert, and to follow Schaffer (1988: 119) in relation to amateurs and astronomy, “‘mere’ observers [become] relegated to the base of a hierarchy of management and vigilance, inspected by their superiors with as much concern as... the stars themselves”.

What might count as geekiness is the manner in which geeks attend to their matters of concern in a ‘perplexed’ mode. To paraphrase Hennion once again, for OSM mappers to work in perplexed mode means to be on the lookout for what mapping does to them, to learn to be affected, to be, “attentive to traces of what [mapping] does to others; a sharing out among the direct sensations to be experienced (or whose

⁴² Levels of user experience are made visible and judged by online ‘league’ tables of data aggregation; for example, the number of GPS traces uploaded and the number of edits made. A self-regulating system of rewards in the form of virtual medals and ad-hoc digital badges of honour exists to entice mappers to be more productive.

experience is being sought), and the indirect relays that permit one to change one's own judgement a bit, while relying in part on the advice of others" (Hennion, 2007: 104). OSM could be said to rely upon these embodied experiences as central to its propagation and maintenance because it is in these experiences that a particular sociability and sensibility of geekiness is cultivated; a geekiness that sustains and promotes a variegated, creative and sometimes baffling expertise; the hallmark of OSM's cartographic energies. The geek does not precede the mapping. Instead the geek and the mapping are co-constitutive, always in the making.

Circle back to the event. Witham, still.

Ed has finished his presentation, and spare GPS devices are loaned to some of the other first-time mappers. Everyone starts pushing buttons; some walk out of the pub straight away, they know what they are doing. They are OSM veterans. For others, looks of extreme bewilderment become etched on their faces. It is going to be a long morning. "Don't worry" says Ed. OSM is just about *nodes*, *ways* and *relations*.

Stop there. Nodes, ways, relations?

Node: A *node* is the basic element, building block, of the OSM scheme. Nodes consist of latitude and longitude (a single geospatial point)

Way: A *way* is an ordered interconnection of at least two and at most two-thousand nodes that describe a linear feature such as a street, footpath, railway line, river, fence, power line, area or building outline. One way is characterized with uniform properties; for example, priority (motorway, trunk roads), surface quality, speed, etcetera.

Relation: A *relation* is a group of zero or more primitives (nodes and ways) with associated roles. It is used for specifying relationships between objects, and may also model an abstract object.

Nodes *Ways* *Relations*

Nodes, ways, relations; the OSM data ‘primitives’, the cartographic building blocks of the OSM map, but taken further with James and Spinoza⁴³, they are also constitutive of a geometry of subjectivities in the making. If nodes, ways and relations are the digital protocols of how the map can be drawn and edited, then so too are they the analogue and affective functions of a geeky subjectivity; geeks as nodes, as individuated actants, but nodes only insofar as they are put into motion with other geeks and technologies to generate ways and relations; ways as technologies of bringing cartographies into being, and relations as the necessary co-fabrication of both the maps themselves, but also the space-times and events in which the map is forged; “the relation itself is a part of pure experience; one if its ‘terms’ becomes the subject or bearer of the knowledge, the knower, the other becomes the object unknown” (James, 2003: 4). Geeky subjectivities are thoroughly relational; co-constitutive relations and assemblages of technicity, expert and amateur bodies.

There is no a-priori body known as the geek, and likewise the term geek cannot be reduced to a culturally constructed pejorative label assigned to certain people in order to marginalise those bodies. There is something more inventive at stake here, specifically the generation of space-times and co-constitution of geeky subjectivities

⁴³ OSM’s concern for nodes, ways and relations is resonant of Spinoza’s (1996 [1677]: 69) preoccupation with, “lines, planes and bodies”.

that promote creativity and expertise outside of and beyond proscribed institutional norms. Much like the movement embedded in maps, to paraphrase Carter (2009), this geometry of subjectivities is neither fixed nor linear, but instead rhythmic; a pulsating geometry of relations and creativity through which maps and micropolitical gestures emanate. Nodes, ways and relations, then, are more-than editorial metaphors for the assemblages at work here, instead they are more urgently caught-up in the very cultivation of these assemblages.

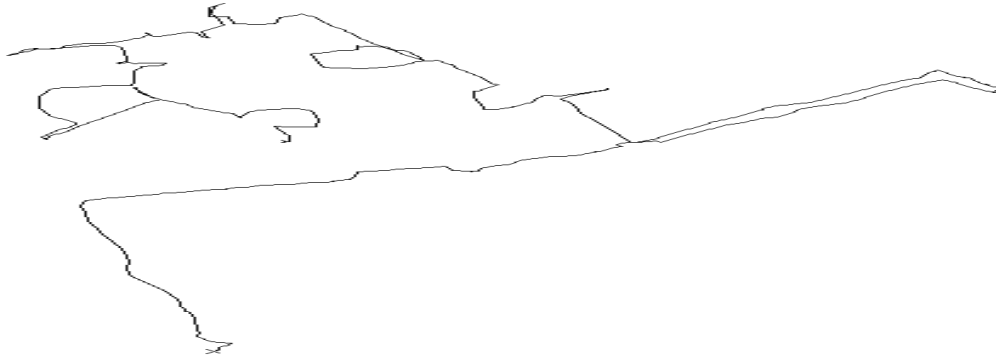
Nodes, ways, relations.

Still some looks of bewilderment. “Let’s just get out there”, suggests Ed; good idea. Firstly, we need to cut the cake, or more specifically, the sector cake of Witham; the town divided into palatable areal chunks which lack roads, points of interest, or are indeed devoid of mapped space altogether. We pick the slices of Witham that we want to traverse and map. Some pick slices nearby the pub, some pick slices that involve a riverside walk. I pick slice eighteen. No more than a lucky number, a gut feeling, and something alluringly trapezoidal about the slice. Ed passes me a walking paper for slice eighteen on which he has already kindly outlined the sector with an orange highlighter. Sipping quickly the last dregs of coffee, we say farewell for now. Slice eighteen is ten minutes walk south of the pub.



//5.6// Ed slices the cake // White Hart Hotel

LONG. -1° 28' 46" W; LAT. 51° 12' 28" N



The mapping continues apace in Witham, but no let up here in the disorientation of vernacular cartographies. A trip now, to Andover.

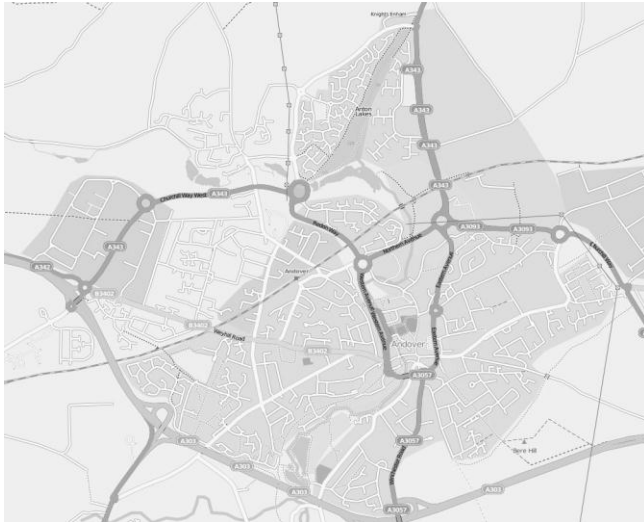
Andover, as illustrated above in its Euclidean and geometric modes; a medium sized industrial, military town in northern Hampshire, flanked by the A303 trunk road from London to south-west England. Nathan from 3Cs has joined me, having flown over from North Carolina for his Spring break. Is this how he wanted to spend his vacation? By coincidence, he and his family hail from Andover, Illinois, a tiny settlement with Swedish heritage. No such heritage here, save for some Iron-age forts in the surrounding countryside, but the coincidence is a nice touch. We meet AndyS and NickW in Cafe Nero on the High Street. Little do the passers-by and fellow coffee-drinkers know of our ambitious plot to walk, survey and map Andover in one day. With the just four of us in attendance, things feel a little awkward, and then Nathan departs to catch a bus to nearby Stonehenge; so he was not here for OSM after all.

AndyS pulls from his folder a hastily printed OSM of Andover, depicting the glaring omissions and blank areas which would need to be covered today. I pick randomly a blank sector to the north-east of the town centre; a good twenty-minute

walk away; its areal extent a complete unknown. As usual, we split, agreeing to meet back in the evening for a drink. That innocuous looking cartographic segment materialised into a twelve mile walk in and around the nebulous and rhizomatic roads, paths and tracks of Andover's north eastern outcrop. Mapping, it turns out, is the onset of somatic aching and fatigue, bewilderment matched with an unusual urge to 'capture' everything, to monopolise movement cartographically, the supposed innate impulse that Harmon (2004) speaks of in the introduction. Overleaf, snapshots of walking Andover, of mapping spaces half-way made, roads and pathways in semi-completed or ruinous states; followed by a cartographic storyboard of tracing and tiring.



//5.7// **“On the road map you won’t drive off the edge of your known world” (Massey, 2005: 111)**
// Andover mapping party on the map, at the end of the road, and broken paths.



Andover, as it existed in OSM form prior to the mapping party. Note the swathe of featureless grey in the north-eastern corner. This would be my cartographic responsibility for the mapping party. Unqualified potential.



A close up of terra-incognita; north-eastern Andover waiting to be brought into cartographic being. No orientation for the journey and no glimpse of the fatigue that awaits.



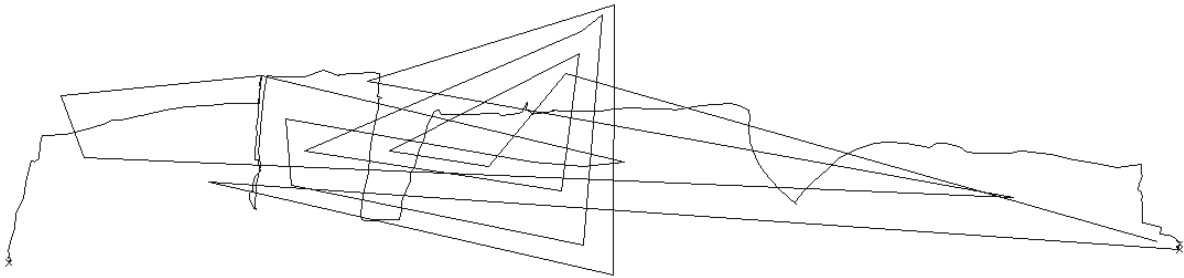
11 miles of walking, of twists and turns on asphalt; patches of green and residential roads emerge as the GPS traces transform into rendered OSM imagery. A cartographic reminder of a map's work never quite done.

Those urges to capture everything, to monopolise movement cartographically, to laud diagrammatically over Andover as Captain James Cook did so in Botany Bay, Australia (Carter, 1987); where do these urges come from? In part, they stem from the discursive and cultural baggage that has become welded to cartography; the discipline's associations with colonialism, monopoly and meta-narrative. Importantly, the focus of this thesis on the experiential is not meant as a disavowal of other well-known linguistic and discursive registers of cartographic practice. Following Wylie (2002), to divorce the experiential from the discursive in its entirety would be somewhat disingenuous. In the case of pacing around Andover, swashes of Cartesian and Euclidean thinking pervade the somatic rhythms of mapping, as bodies are simultaneously orientated and disorientated by cartographic norms and orthodoxies that have been codified and handed down through generations, through textbooks and now through wikis.

That does not then entail a valorisation of Euclidean cartography or Cartesian logic, it is merely a way of writing-otherwise these mappings, of thinking through how notions such as objectivity and straight-lines, whilst seemingly disciplinary and stifling, can actually be generative of a panoply of bodily dispositions, and indeed political possibilities. Put simply, to achieve and trace a straight line for OSM in Andover, bodies must move, sweat, ache, meander and blister; they need to coalesce with non-human bodies and learn to be affected in the process; it is then the virtual potential of these cartographic bodies in motion that invigorate these kinds of cartographies, whereby their production and affects are recombinant and continually at risk, not prefigured as per the cartographies of past officialdom.

To return, overleaf, swiftly, 129 miles eastwards, to orbiting satellites and Witham.

LONG. 0° 38' 11" E; LAT. 51° 47' 52" N



Acquiring Satellites

So this is it. Now I am isolated.

That, as ever, is not strictly true; the GPS, the voice recorder, the walking paper, the camera, the fieldwork mentality; faithful companions all the way.

On reaching the edge of slice eighteen I am immediately lost. The edge of the cake starts on Laurence Avenue, but my body is stood on Howbridge Road. Looking at the walking paper, and other maps of Witham I had printed the day before, I ignore the growing irony that to make a map is to need a map of the area you want to map. Standing under the nearest bus stop for shade I will desperately for Howbridge Road to transform into Laurence Avenue, but the map is having none of it. Orwell's Spanish civil-war encounter with a naive militiaman in Catalonia enters my head, "obviously he could not make head or tail of the map; obviously he regarded map-reading as a stupendous intellectual feat" (Orwell, 1938: 58).

Turn on the GPS device, this will help for sure. "*Acquiring Satellites*" reads across the GPS screen. It is not every day one can claim to have acquired a satellite, yet it has become a necessary step to locate my position in the absence of accurate paper maps,

local knowledge and common sense. After two minutes, the GPS has a three-dimensional lock on my position, meaning it can detect both altitude and geodesic position. I am now working in conjunction with the satellites 'Navstar' 32, 48, 61 and 64. Navstar 64 happens to be the latest satellite put into service, launched on 17 August 2009, now orbiting at an altitude of 12,548 miles at a rate of 1.73 miles per second. Cosmic numbers to be sure. Back down to Earth, quickly.

A road name would do for now, but even that is not forthcoming, as the GPS is only pre-loaded with a perfunctory road map of the world. A further £150 would buy a premium upload for UK road data (Ed later tells me that I should have downloaded OSM base maps on to the GPS for free. I'll do that when I get home).



//5.8// **Acquiring satellites** // but still getting lost

The GPS is not helping, so in walking a little further to the next street, I realise that I am in the right place, but that the OSM walking paper is inaccurate; not entirely unexpected, as this was one of the very reasons for convening a mapping party in the first place. My first edit; delete Laurence Avenue, replace with Howbridge Road; just

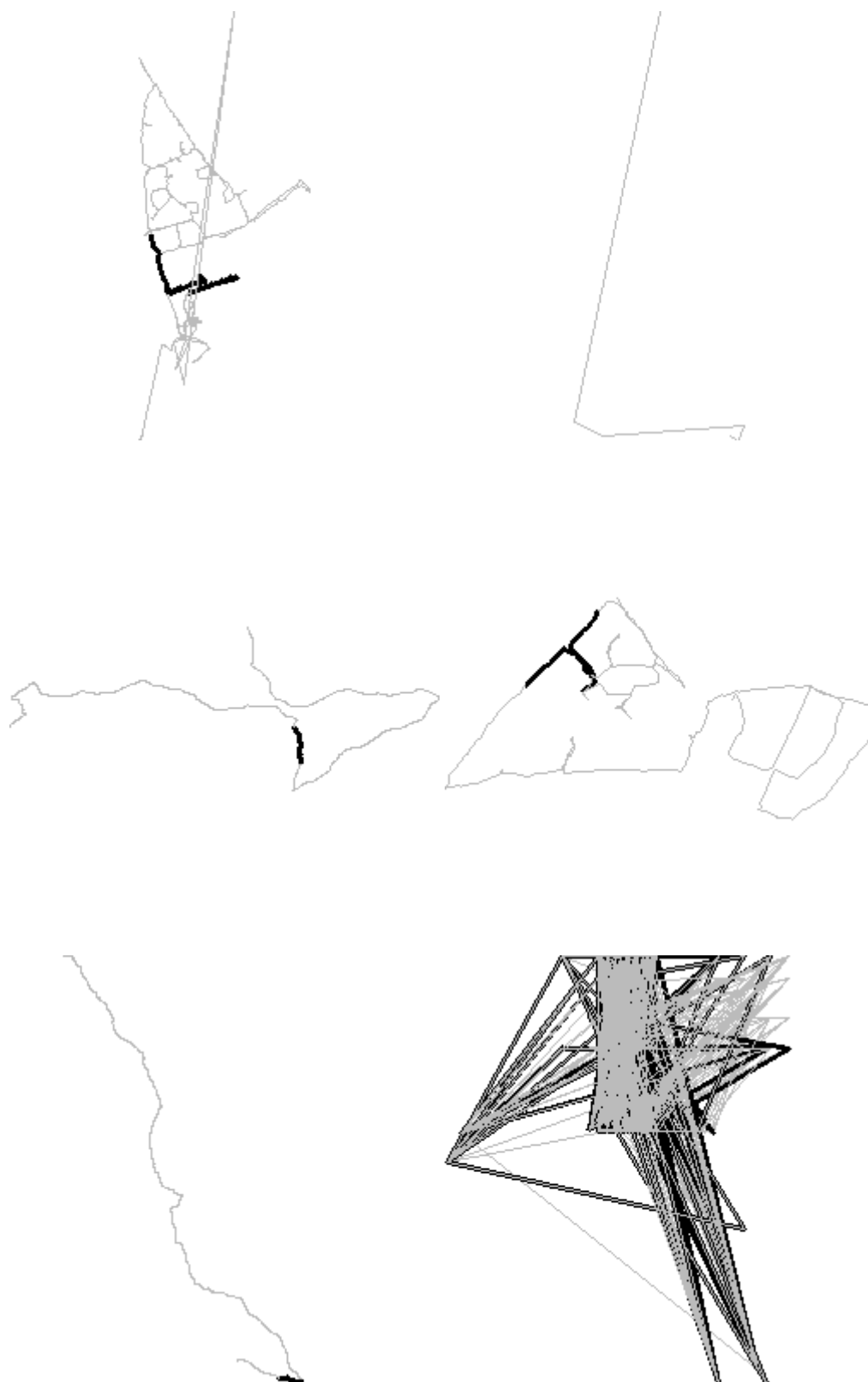
scribbles on the walking paper. Stood on the corner of Pelly Avenue; this is where I'll make a start. It does not yet exist on the OSM map, so for all concerned, it is somewhat new territory. There was no such novelty for the passer-by who asked if I was lost; "are you ok, you look lost?". Spot on. I have no idea where I am, but I explain what I'm doing, and thank them for their help. They walk off, non-plussed. The GPS device is back on; holding down firmly the cursor button on the GPS to mark a waypoint. Point 001. Over the course of the day, I mark forty-two waypoints, designating street corners, points of interest, and anything else that struck me, sometimes literally, along the way.

Mapping, vernacular or otherwise, demands multi-tasking; sketching an outline on the walking paper as one goes, maintaining orientation, marking waypoints, checking the status of the GPS, labelling all points of interest (including postboxes), taking photographs, making voice recordings, ensuring to walk down every road, every pathway, every cycle lane, making sure that the trajectory of one's walking route is not too erratic so as to generate a bizarrely stochastic electronic breadcrumb trail on the GPS which would become a nightmare to upload and render into a map. Whilst the GPS takes care of the lines walked, I struggle to mark points of interest in-between the lines, approximating their position on the paper map. At the same time I and the other mappers (wherever they have gone) need to appear inconspicuous and non-intrusive. Understandably a few glares from residents emerged; watching my cyclical and repetitious movements around the estate; forced at one point into a double pirouette to calibrate the GPS compass. Irksome, I already had a sense of where north was without the dance, but at least now we're calibrated. More importantly, the GPS acts as an authenticator of my presence, a reliable witness in the mapping; it feels that to be

without one would be to jeopardise the sense of cartographic legitimacy OSM is trying to engender.

Walking with my head down, peering at the traces emerging on the GPS, pacing at around 3.7 miles per hour, but there is no sense of scale, so I'm cramming pencil lines depicting roads into an unnecessarily small sketch map, not entirely confident that this is not a mistake, or that experienced OSM users won't make derisory comments about the day's mapping when I upload the GPS traces on to the OSM server. From a God's trick perspective, the number eighteen slice doesn't appear that large, but of course walking in and out of its labyrinthine roads and pathways soon elucidates the feeling of considerable areal space, and a realisation that a cartographer will never capture everything that is here, even in a lifetime of mapping. This was going to take several hours, so I ring Ed and tell him I'm skipping lunch to continue mapping (it extricates me from the Mensa meeting too).

Relations with the GPS device are ambivalent. On the one hand, their helpful triangulation of position can provide moments of endorsement (Lorimer and Wylie, 2010); guarantors of location. You are here; you are in the right place; human and non-human in geometric harmony. On the other hand, they stir tension, argument and tears, setting humans off on labyrinthine nightmares, to the edge of their worlds. Safety net or banana skin, GPS devices have replaced protractors and compasses as the cartographer's instrument of choice; powerful remote-sensors that have revolutionised mapping procedures, but devices that have something of the Latourian black-box about them. Overleaf is a compendium of GPS traces generated (some independent of my volition; namely traces drawn autonomously by blips in device calibration) during the course of several fieldwork events with OSM.



//5.9// **GPS traces** // a gallery of fieldwork inscriptions and calibration failures (bottom right), the black segments denote timestamp markings

As suggested earlier, calibration failures and glitches, far from being setbacks, are generative points of contention, talking points for geeks; problems that require solutions; in sum, despite OSM's strive for accuracy, the ethos of failure is one which is cultivated and celebrated as a productive ethic in experimentation; if you have an idea, or a glitch, do not, as OSM's founder suggests, worry. Instead, "JFFI: Just F*cking Fix It" (Steve C, 2010).

LONG. 0° 38' 11" E; LAT. 51° 47' 52" N



Continue walking, continue mapping slice eighteen. A Witham's summer day, the neck starting to feel the Sun's presence more urgently. There's Howbridge Junior School, there's the Jack and Jenny Pub, there's the bus stop for service ninety. All waypoints, all useful nodes of information; mining for data, gorging on GPS signals; guilty pleasures for sure. This feels like a civic service, a good deed in the mapping. Slice eighteen has a rhizomatic quality about it; there is a road through the gap in the houses, but I don't know how to get there, and I cannot be sure that I've not already walked that path. Two, slightly off-parallel thick lines on the GPS suggest that indeed I've been here before, so doubling back on myself, I find a pathway that has been missed. Kids on bikes ask me what is going on, so I ask for their help; which streets do they live on, what cycle tracks do they use, is there a shop round here I can buy a coke? It is a brief but useful

cartographic event, a mini-convening of publics, something that should be encouraged; a distributed kind of wayfinding with others and a type of oral mapping which has a heritage far longer than paper bound, Euclidean cartography.

Four hours pass extremely quickly, but in a spirit of cautiousness, I do another loop of slice eighteen, and treble-check that the GPS traces have been saved to the memory card, with waypoints intact. Time to head back to the pub. A few other OSM users had turned up who had not been in attendance in the morning. Most of them drove their cars around the bypass and environs of Witham, collecting vast amounts of geo-data from just a few hours work. Our function room booking is about to expire, so Ed and the others provide a rapid tutorial on uploading the data to the OSM server and then using various OSM editing packages to render the map. One is known as 'JOSM' (Java OpenStreetMap), but is designed for advanced OSM users. The one I should use, says Ed, is called 'Potlatch'; an online, flash-based editor programmed with beginners in mind. Apparently it has an intuitive user-friendly interface, so it's a case of trusting Ed on that one, and emailing him with a ream of naive questions on arrival home.



//5.10// **Tools of the trade** // Howbridge Road

One last question before we depart. “Do you find OSM mapping addictive?”, I ask the assembled mappers. “Addictive is probably the wrong adjective to use”, replies Ed, but he offers no alternative. Personally, I do not know; there was something about tracing slice eighteen that enticed me to want to get out and do more before others get to it first. An obsessive geekiness in the mapping, the quest for spatial affirmation and a sheer junketing for the ludic qualities of this kind of mapping (Perkins, 2006); perhaps an experiential jouissance to mapping not found in the state-led cartographies of early nation-state Europe. In one sense, the likes of OSM does not mark a reclamation of mapping for the everyday, as people are mapping all the time in some form or other, but

what it does do is disturb and inflect the meanings of Euclidean cartography; where what counts as accurate and precise is up for grabs.

LONG. -1° 15' 59"; LAT. 51° 44' 53"



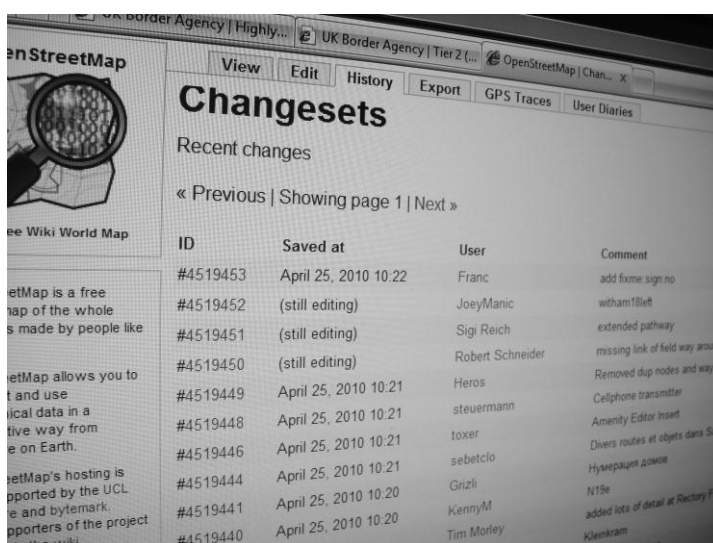
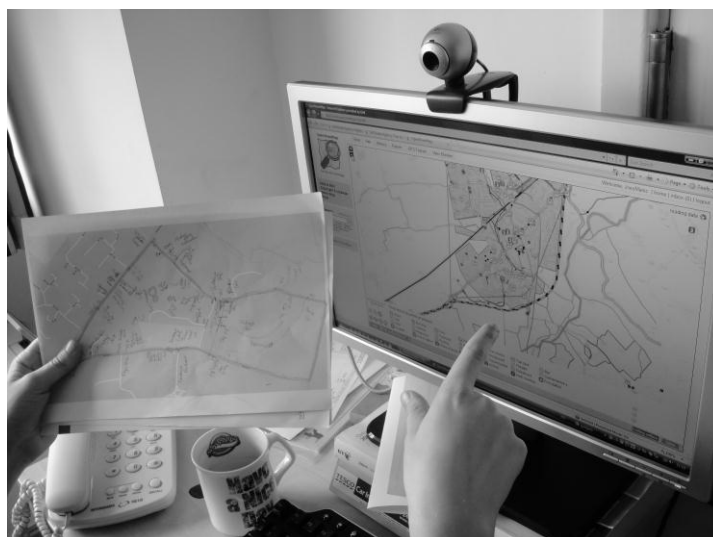
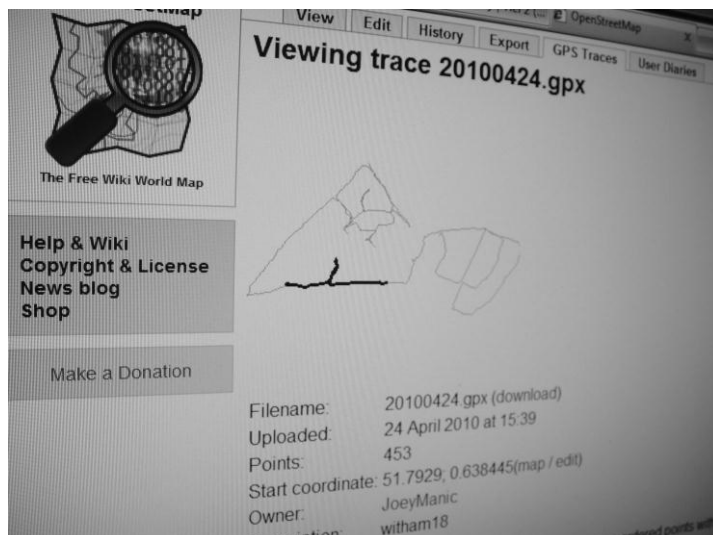
Editing

It begins with uploading the geo-data on return to Oxford. This involves a transfer of the data from the GPS device to a PC using a USB cable. Viewing the traces is more difficult because they are saved in a specialised file format (GPX), but for instant gratification, one can view, tour and fly cartographic paths on Google Earth. But that is not the point here. Firstly I log into my OSM account. When I initiated this project over a year ago, I set my username as **joeymanic**; in hindsight, a mistake. I am unable to change it, and when attending the OSM annual conferences in 2009 and 2010, the delegates were known and identified by their usernames. Cue lots of strange looks, awkward small talk and significant backtracking.

Once logged on, I upload the GPS trace to OSM's depository of GPS traces, a veritable gallery of lines, pathways and journeys; thousands upon thousands of them. The traces are time-stamped meaning that the GPS lines are animated at certain intervals of the journey, whilst indicating the direction of the route taken to generate

those lines. Neat, but it's not entirely clear what purpose this serves. There is then a time-lag between uploading the GPS trace and its acceptance for use (anywhere between thirty minutes to a week, depending on file size). The process is moderated both digitally by sophisticated automated editing scripts and also by human users who have earned administrator privileges and will randomly check various traces for quality control. I'm glad to report that my trace was accepted within the hour.

With that hurdle jumped, I open the Potlatch editing programme which displays the bare-lines and data clusters of the OSM master map; the edit is not live, so I am free to experiment and make mistakes with the map without harming the integrity of the primary (public-facing) version. I locate Witham, and eventually the rough outline of slice eighteen. With nothing to go on geographically, I overlay the GPS traces generated that morning on to the base map. The lines are admittedly messy, but one can soon visualise the roads and the pathways emerging. The waypoints are added next. I could draw the roads from the GPS lines alone, but cartographic reason compels me to upload Yahoo satellite imagery of Witham as a backdrop to the base map. For novice users, the underlying satellite imagery acts as a useful cross-reference to their own work, a mapping safety-net of sorts. Fortunately, the majority of the GPS traces coincide spatially with the satellite imagery, and I can go about drawing the virtual lines on the screen using the mouse, adding road names incrementally. Not all the lines are congruent with the satellite imagery, but OSM users are entitled to a little cartographic licence from time to time. I too am keen not to slavishly follow pre-figured lines, but instead trust some of the off-kilter GPS traces.



//5.11// Uploading GPS, editing the world, history of edits // digital and analogue

The key to good editing according to other OSM users is to be systematic and methodical; draw the lines of the map following the route of the time-stamped trace, and take your time. No such thing happened on Saturday evening; a road here, a path there; carelessly missing features out; over-enthusiasm and eagerness to see the map in action. Each node, way or relation must be assigned a tag which then generates the appropriate symbol, line or graphic on the map. Most features and symbols are obvious enough: 'residential road'/'a-road'/'church'/'school', but there is sufficient ambiguity in the system for argument amongst users to break out. Those arguments, as illustrated earlier, can occur through mail-list discussions. One such argument was a debate held over the course of a month on whether residential roads should be rendered as a 0.7 point white line, or a 0.12 point white line. This might appear to border on the obsessive, but it is also a large part of the (re)enchantment of mapping, a re-assertion of the geeky sociability so important to OSM, and indeed part of the sheer joy and frustration of mapping; the collective generation of geographical knowledge, and doing a good job of it.



//5.12// **Slice 18, Witham** // before and after mapping party

Editing the world

What might it mean to edit the world was the question that opened a chapter about geeky mapping; about OpenStreetMap. In concluding this chapter, I make three points in response to the question.

Firstly, there is a straightforward ontological argument to be articulated; that to edit the world in this context is to affect, and be affected by, the map and the practice of mapping. To edit is to intervene in the material generation of the map and in the performances of the mapping process itself, whilst at the same time acknowledging their performative roles in engendering and altering the worlds they help to inscribe. Put otherwise, to draw a cartographic line of a pathway, for example, is not merely to represent an external reality, but it is a gesture and gesturing that can alter a body's relational encounter to that pathway. Maps here are no longer the determinant agents of bodily movements, but are susceptible themselves to re-orientation through editing; an interesting choreography between map and user therefore emerges whereby neither can any longer be considered or rendered in discrete terms.

Secondly, to edit the world is to be experiential; to create and propagate a series of lived and living abstractions, even in the most prosaic, pedestrian and everyday of practices. Abstraction here is not then understood as a diagrammatic withdrawal from the world as Lefebvre (1991) might suggest, nor is it a flight to conceptual obfuscation. Instead, abstraction is experiential, not artefact; "seen in this way, abstraction is an irreducible part of the ontogenetic character of the worlds we inhabit" (McCormack, 2012: 6/7). Indeed, to edit the world is to weave in and out of the interval between abstract and experience (Manning, 2009), eventually dissipating that interval altogether. Those cartographic experiences then, "grow at the edges" (James, 2003: 45),

bleeding into one another and paving the way for yet more mapping. Editing the world is also a processual, ongoing exercise of abstraction; cartographic experiences in the making. For OSM, lines, icons and maps are conjured and edited through experiences; via movement and bodily and digital encounters. Importantly, the experiential is the one of the defining characteristics and signal mode of OSM; it is the nature of its interactions and encounters that cultivate certain geeky atmospheres and assemblages, and indeed the production of the geeky itself depends on the availability and repetition of certain performances and experiences that make space for particular subjectivities. In turn it is these geeky impulses that fuel the creative, quirky and affective performances that make OSM distinctive in the history of cartographic practice and orthodoxy. Geeky subjectivities are formed through the emergence of cartographic relations, acknowledging that, “something in the world forces us to think. This something is not an object of recognition, but a fundamental encounter” (Deleuze, 2004b: 139). If these encounters are generative of geeky subjectivities, then there is also something to be said of how encounter, specifically cartographic encounter, inflects the way in which space is diagrammed and itself produced; that valorising encounter could be a tactic in wresting cartography away from its Euclidean foundations, and orientating mapping towards being a micropolitical intervention in and for the everyday.

Thirdly, to edit the world is to open up the virtual in both its digital and temporal registers. Evidently, OSM is predicated on digitally virtual networks, but perhaps less obvious is how OSM might relate to the temporally virtual. One might argue that OSM is constantly working on the cusp of the this iteration of the virtual; continually crafting recombinant cartographies that are always in the making; composed of human and non-human communities in which anticipation and incompleteness are motivations for

cartographic creativity. All types of map evoke a certain virtuality, or opening of futurity insofar as the work done by a map can never pre-figured; a speculative, anticipatory atmosphere concerned with how bodies might encounter and dispose themselves toward a map, and how mapping might then (dis)orientate those bodies. However, because the OSM map is perpetually at risk and continually susceptible to alteration, the virtual potential of this type of crowd-sourced map is perhaps more significant than as with traditional, paper-based cartographies. Moreover, editing the world is not an ontological act, but is instead ontogenetic; edit begets edit, propelling yet more editing and so undoing entirely the idea of cartographic stasis and the attendant notion that representation is equivalent to spatial fixation.

Generating the virtual in this context does not necessarily equate to straightforward potential in an optimistic sense. Potential here is unqualified, and sometimes invoking the virtual means leaving things open to fail. To edit the world then, is to also put the world at risk, in cartographic terms at the very least; allowing the map to be torn and modified at every twist and turn. To edit the world in the manner OSM edits the world is to engender a cartographic ethics that pushes again towards the ethical sensibilities of Spinoza; an openness to what a map might show, what a map might be capable of without codifying what a map *should* show, or what it *must* be capable of articulating in normative terms.

Although some of OSM resonates with 'cartographies of old' in its concern for accuracy, precision and verisimilitude, it nevertheless marks a shift in who can become a cartographer and how a distributed, diffuse cartography can be made to work for a range of different actors and reasons. OSM's geographically distributed authorship is perhaps its most salient and political characteristic; that it can be rendered and torn in

any location, for any location; modifiable to map a bike-lane, a slum, a supermarket, the aftermath of a catastrophic earthquake; to map also what is possible, to anticipate what might come next.

What *does* come next in the thesis is a chapter that, whilst remaining empirically alongside OSM, travels to Lima, Peru. In doing so, its aim will be to analyse the broader political context and concerns in which OSM might be understood as 'open' in normative terms, and to then explore, conceptually, how part of what it means to be a form of vernacular mapping entails the notion of becoming an eventful mapping.

// Chapter Six

Eventful mapping

Eventful mapping



Perdido/Lost

We're completely lost, somewhere astray in Pueblo Libre, an inner city district of Lima, Peru on a humid, overcast August afternoon. Limeños call this type of weather 'garúa'; an omnipresent, lingering fog generated by dry easterly winds blowing in from the Pacific, colliding with the lower western slopes of the Andes.

Melancholy.

Ten of us stand scattered aimlessly across the street with GPS devices in hand. Our task, ostensibly, is to survey the area for OpenStreetMap, but instead we're entangled in the prosaic space-times of orienteering, or rather dis-orienteering. Some look upwards, raising their GPS devices as an offering to satellite gods; but for them, as for Plath⁴⁴, the skies remain empty.

Some tamper with (specifically, hit) the bruised casing of their GPS devices, trying desperately to get a three-dimensional fix on our location. How are we meant to find our way out, let alone map this place, this uncharted territory, in OpenStreetMap terms at least? Finally, Navstar satellites 22, 36, 61 and 63, orbiting the Earth at 1.6 miles a second start communing with our handheld technologies and vice-versa, a virtual relay of signals travelling at least twenty-four thousand miles from nominal sea-level to satellite and back again. We have a lock on our position; longitude, latitude and altitude, the basic geodesic primitives needed to map; relief all round, we know where we are, for now, and we continue onwards, amateur cartographers in the making.

⁴⁴ Sylvia Plath (1977)

Empezar de nuevo/ Start again

This chapter starts in the middle of an event, a fieldwork tracing, a cartographic episode of way-finding and getting lost with human and non-human company. Indeed 'getting lost', much like it was in the scenarios and space-times of the previous chapter, is a necessary ethic in the *doing* of OpenStreetMap (OSM), a continual series of experiments in orienteering in which the resultant maps gain their representational, affirmative logic and ostensible accuracy not through a seamless history of discovery, but instead through a far more vulnerable, contingent and chaotic process of disorientation. In holding on to a sense of cartographic bewilderment, this chapter considers what else is at stake in the notion of vernacular mapping by stretching what maps and mappings can do; thinking cartographies as events, or eventful, and thereby generating a vocabulary around the notion of eventful mapping.

The reasons for doing so are threefold. To think through eventful mapping is to continue, firstly, the project-in-motion of diagramming what processual mapping could entail beyond simply repeating the axiom that cartography lacks ontological security (Kitchin and Dodge, 2007). Likewise, this project ties in with the broader non-representational motivation for animating things, actors and concepts normally taken as representations (notably, maps), as events in their own right (Thrift, 2000). Secondly, attending to the eventfulness of mapping is a thought-experiment in complicating accounts of certain cartographies that are reducible straightforwardly to discussions of scale, or the concept of the digital divide (for a detailed profiling of the geographies and politics of the divide, see Graham, 2011). To be sure, problematic asymmetries of public access to particular digital technologies do exist, but the issue of access and entitlement has a somewhat more troublesome ecology than a binary account of those people who

have, and those who do not have. Thirdly, and pivoting off the previous point, to engender the notion of eventful mapping is to animate the creative, micropolitical and spatial vibrations of the kinds of cartographies that are (dis)orientating the initial decades of the twenty-first century, and such it ties into the signal concerns of this project, namely that of asking questions of the affective, virtual and performative registers of mapping.

These questions are posed in the context of using OSM outside of its European-North American comfort zone, and pushing its deployment in Lima, the capital city of Peru. The reason for fieldworking in Lima is because within Latin America, and in particular, Peru, maps and cartography have throughout its relatively short post-Incan and post-imperial history⁴⁵ folded into a volatile and violent narrative of Spanish colonialism and ongoing border disputes with its neighbouring countries, in particular with Ecuador to the north⁴⁶ and Chile to the south. As such, Peru's cartographic network remains dominated by the military, having no civilian equivalent of the UK's Ordnance Survey. This cartographic monopoly is then set against the rapid emergence of crowd-sourced and participatory mapping in Peru; itself implicated in a complicated, rhizomatic cartography of affinities, contradictions, concerns, pressure, viruses, environments, hackers and undercurrents in anything from anti-mining protests⁴⁷ to

⁴⁵ The Republic of Peru was declared an independent sovereign state on 28 July 1821.

⁴⁶ The formal border dispute between Ecuador and Peru ended with the signing of a territorial treaty on 26 October 1998.

⁴⁷ November 2011 has witnessed the latest in a long history of protests against the imposition of extractive industries in Peru. The most recent (and current) protests are cited in the Cajamarca region in the north of the country where the US based Newmont mining company propose to excavate a huge gold mine at a cost of US\$4.8 billion.

campaigns for free, unrestricted software⁴⁸. OSM is part of this burgeoning cartography, and the fieldwork on which this chapter draws is an attempt to both illustrate the complex geographies of events, and to question why it might matter to think about eventful mapping. To be sure, the notion of eventful mapping could be explored in any location worldwide, but what is afoot in, and interesting about the situation of Lima is the intensifying of a stark contrast between official and vernacular mappings, and the extent to which OSM, which as yet has a limited presence in Peru, is involved in the cultivation of such eventful, vernacular cartographies. On that point, this chapter is not intended as a comparative study of OSM in Peru versus the use of OSM in the UK and elsewhere in Europe; it goes without saying that some practices, things and norms remain the same, or transversally similar, whilst other performances and actors are radically different. Instead, the chapter continues the ongoing experiment of becoming a cartographer whilst at the same time putting at risk the notion of event, and eventful mapping.

This chapter does its work in three parts.

The first part constitutes a brief conceptual discussion of the event, following Crampton's (2010) assertion that maps, like events, leave cuts in the world. The event has become a familiar heuristic in cultural geography of late, although that is not to suggest that there exists any consensus over the definitional rendering of event and eventful. Having foregrounded the conceptual entanglements of the event and eventful, the chapter moves on to a geographical story-telling of the fieldwork in Lima which occurred in the Peruvian winter of 2010. The third part of this chapter is a chance to

⁴⁸ In September 2005, the Peruvian government passed a law mandating the use of open source software by the state and its institutions.

dwell; to question what is at stake, politically, cartographically, ethically, geographically, in both the specific context of practising OSM in Lima, and also in conducting this thought-experiment into eventful mapping. Moreover, what does eventful mapping bring conceptually and empirically to the broader notion of vernacular mapping?

El evento/The event

Before travelling to Lima in the following section, a discussion of the notion of the event is needed to foreground how it could work or collapse in a cartographic context, although this dialogue is not a promise of a coherent historiography, as the event, in its conjuring in continental philosophy hardly lends itself to straightforwardness; in any case, “clarity comes of obscurity and endlessly is plunging back into it” (Deleuze, 2006a: 102). As suggested earlier, the idea of the event has gained considerable traction in cultural geographies over the last decade (Dewsbury, 2007; Bassett, 2008; Constantinou, 2009; Constantinou and Madarasz, 2009; MacCannell, 2009; Shaw and Graham, 2010), notably as a conceptual strand in non-representational modes of thinking. Such thinking is characterised by both its acting against, “a curious vampirism, in which events are drained for the sake of the ‘orders, mechanisms, structures and processes’ posited by the analyst” (Dewsbury et al, 2002: 437) and its, “attention to events and the new potentialities for being, doing and thinking that events may bring forth” (Anderson and Harrison, 2010: 19).

In complicating matters from the start, John Mullarkey (2006: 100) remarks that, “the philosophy of the event (or events) can be as abstract as anything in philosophy”, Gilles Deleuze too noting that, “the event by itself is problematic and problematising” (Deleuze, 2006a: 64). Hardly an encouraging start, yet nonetheless, I want to take advantage of this tension accompanying the notion of event so as to diagram what work

it could do in the realm of cartography, the caveat being that this will likely entail inflicting a certain amount of violence towards other interpretations of the event, and indeed, that efforts to introduce the event to mapping might consequently fail.

So, what is an event? Outside of its everyday definitional iteration as some form of occurrence, “something that happens” (Dewsbury, 2007: 452), an alternative response to this question is to turn to the divergent conceptions of the event between Gilles Deleuze and Alain Badiou; a virtual debate between the two French philosophers that has become a proxy for wider arguments about the nature of events and the threshold of eventhood or eventfulness.

For Badiou (2005; 2007), an event is a totally disruptive occurrence, a singularity without directly assignable causes, a rare and momentous change in the order of things, a totemic movement that stands alone and leaves a cut in the world; think of, as Bassett (2008) suggests, the French Revolution, the resurrection of Christ, Cantor’s revolution in set-theory, or more recently the assassination of JFK or 9/11 (the numeric rendering of an atrocity, this somatic marker (Connolly, 2002) sits unnervingly well with Badiou’s own predilection for the hugely complex algebra and mathematics that characterises his work). Events take place in evental-sites; demarcated, identifiable and therefore cartographically recognisable localised areas, assigning such events unique spatial-temporal signatures. For an event to come about, it needs to be named, and as Dewsbury (2007: 453) surmises, “only then, with fidelity to its moment is the event deemed to have happened”. This fidelity is not only important in the act of bringing the event into actual existence, it is also significant for what occurs next, in the post-evental situation, or scenario; impacting on what kind of politics might emerge, recombine or fail from a signal event.

To be sure, a perfunctory summary of Badiou's rendering of the event, but it is worth noting in this instance that the event denotes a very particular occurrence with a decisive spatiality and temporality (events, according to Badiou, do not pertain to a duration in the Bergsonian sense), and that strict parameters are upheld for what passes the threshold of being an event. It is, as Mullarkey (2006: 115) remarks, a heroic theory of the event, "where only the best in science, art, love and politics will do". Cartography, despite its widely-documented performance pieces in carving out space-times across the globe and its moments of inglorious colonial heroism, does not in this conceptual context, seem to occasion being an event in the Badiouian sense or take on any form of 'eventhood'. Perhaps cartography lacks the shattering resonance or stark evocation of something *big* happening in the world? Yet this seems curious against the backdrop of Badiou's events which are understood to be transformative of the world; more so because, as demonstrated across the work of critical cartography and in the previous two chapters, maps and cartography are themselves generative of changes; transformations in, of and for the world.

I would argue too that cartography has a geography and a temporality that reaches beyond a prescriptive, delimited space-time, a form of Euclidean thinking exceeded by assemblages of human and non-human relations cultivated by the types of cartography this thesis is concerned with (Badiou also expresses that events can only ever be exclusively human, clearly a problematic position in the context of this research). Events, as explicated by Badiou, jar awkwardly with ideas of a processual and productive, everyday mapping which is perhaps more mundane than it is turbulent. To take seriously the notion of eventful mapping therefore, a re-orientation towards Deleuze's take on the event is needed. This is not meant as a cursory abandonment of

Badiou's version of this philosophical curio (there are important ethical commitments established by Badiou to note in respect of the event), but an opportunity to think events and eventfulness differently, in a counter-posed register.

As Deleuze (1995: 141) himself states, "I've tried in all my books to discover the nature of events", and as a result, his take on the event is more diffuse and less rigidly prescriptive than Badiou's account; a version of the event that this chapter is inclined to find more productive. In one regard, Deleuze's take on the event is not dissimilar to Badiou's own insofar as Deleuze recognises the event as a singularity⁴⁹, and to do with change; "turning points and points of inflection" (Deleuze, 2004a: 63) as he labels them in his evental work, *The Logic of Sense*. That, however, is where the similarity ends.

Drawing on, amongst others, monist philosopher Gottfried Leibniz, "the first important theoretician of the event" (ibid: 196) and the process philosopher Alfred North Whitehead⁵⁰, Deleuze makes the contention that events are continually unfolding, immanent intensities and becomings always in the making, the perpetual actualisation of the virtual; or in other words, "events happen, and are happening all the time" (Rose, 2010: 346). Deleuze, then, "allows events to multiply endlessly in truly Bergsonian fashion" (Mullarkey, 2006: 115). Events here do not necessarily pertain to the

⁴⁹ Singularity is understood here as a point with neither width, nor breadth. A point that gives matter *tendency* or a sense of the virtual. Singularities, for Deleuze, are points, "that can be seen in series, as inflexions or emissions of events... a decisive point and a place where perception is felt in movement" (Conley, 2005: 253).

⁵⁰ For Whitehead (2011/1922: 21), events are, "spatio-temporal happening[s]", perpetually folding and unfolding fields of experience. There is then, "no such thing as an isolated event" (ibid: 26), but instead, events understood as series of happenings and processes; hence Deleuze's sense of the ongoing duration of the event. What is particularly interesting here, in the context of vernacular cartographies, is Whitehead's attendance to the event of the bodily life of the observer, what he terms the, "percipient event" (ibid). It raises the questions, what role is there for perception in the performing and performances of everyday mapping, and to what extent can perception be harnessed or animated in cartographic terms; or put differently, is perception taken seriously in the act of cartographic observation?

momentous, apocalyptic or revelatory, but are instead conceived as changes immanent to the convergence and permutation of things, materials and forces, virtual and actual; or, as Dewsbury (2007: 452) puts it, “the coming to the presence of other worlds”. Crucially, events enrol the incipient agencies of non-humans; a critical point in cartography is to be understood and diagrammed as eventful.

Furthermore, Deleuze’s events have no strict temporal or spatial margins, they have no beginning or end in a chronological sense, or written otherwise, events are, “transforming moments that release from the grip of the present and open up the future” (Caputo, 2006: 6)⁵¹. The invocation of the future is not here a straightforward speculation on things and spaces yet to come; events are not entangled in furnishing a pre-figured next minute, day or tomorrow, but instead are involved in generating a certain futurity; a potential without vectors or determinisms. Indeed the significance of the event in the context of this research is not just that it has no precedent, but that it also has no determinant outcome; that the event is about opening up encounters, and augmenting potential forces consisting, as DeLanda (2005) claims, of affects and capacities, material and immaterial.

How then, is the event to be understood, actualised and reckoned in this research? Whilst the aim here is not to arbitrate on the relative merits of either Badiou’s or Deleuze’s version of events (besides, there is much more to the notion of the event beyond the thinking of these two, eminent French philosophers)⁵², there is some cause

⁵¹ “...the event is itself a splitting off from, or a breaking with causality; it is a bifurcation, a deviation with respect to laws, an unstable condition which opens up a new field of the possible” (Deleuze, 2007: 233).

for a conceptual inclination toward valorising a sense of the event as processual on Deleuzian terms, contra Badiou's more emblematic, temporally rooted event. The intention here is to manoeuvre the notion of event in such a manner that will inflect the thought-experiments weaving through this chapter; experiments in understanding the map as event, with its own duration, and mapping as eventful, replete with its own myriad macro and micro politics. Moreover, and not to dismiss Badiou's iteration of the event outright, this manoeuvring also involves cultivating a certain fidelity to the event in order to both bring it in to being and to generate and sustain the event's duration (McCormack, 2003; Dewsbury, 2007).

In sum, the *notion* of the event called upon here is one that understands and diagrams it as, "part of a continuity (perpetual movement, becoming)... but at the same time built of discontinuity" (Deemers, 2011: 6). Moreover, the event is taken to be the ongoing folding of affective tendencies and spaces; it is neither something that, "shifts, transforms, mutates over time, nor a static structure that remains across time... it is that which repeats, but repeats differentially" (Colwell, 1997: 7). The reason then for paying attention to the event in these terms is to animate the affective and virtual tonalities of vernacular mappings and vernacular geographies; in other words, to trace those fugitive

⁵² Derrida and Foucault, as with many post-structuralist and process philosophers, also espouse an anti-essentialism in discussions of the event; a tactic for sidestepping a Hegelian teleology of history without recourse to valorisation of a straightforward presentism. Foucault, in particular laments the loss of the event amongst structural meta-narratives of politics and history (in which cartography itself was a signal motif). As such he insisted on paying a close attention to events as a manner in which to attend to archaeologies (and genealogies) of certain knowledge and power regimes. This attention, Foucault labelled as a method of *eventalisation*. Specifically, eventalisation, "means making visible a singularity at places where there is a temptation to invoke a historical constant, an immediate anthropological trait or an obviousness that imposes itself uniformly on all. To show that things weren't 'necessary as all that': it wasn't as a matter of course that mad people came to be regarded as mentally ill; it wasn't self-evident that the only thing to be done with a criminal was to lock them up; it wasn't self-evident that the cause of illness were to be sought through individual examination of bodies; and so on. A breach of self-evidence, of those self-evidence on which knowledges, acquiescences and practices rest: this is the first theoretico-political function of eventalisation" (Foucault, 1996: 277).

molecular registers that Deleuze and Guattari (2004b) identify as missing from macropolitical renderings and analyses of events⁵³. Moreover, in working through a Foucauldian sensibility of and for *eventalisation*, attending to the event in processual terms disrupts and questions the sometimes self-evident practices and claims that surround cartography; it abandons a reliance on cartography's meta-narrative, whilst making visible the lines, actors, genealogies and politics of mapping.

In holding on to the event, on to the sense of something happening and thinking through the processual emergence of vernacular mappings, the chapter turns now to a space-time of geographical story-telling, to a series of fieldwork accounts of OpenStreetMap in Peru, to an experimental mapping of the event and a sketching of eventful mapping in Lima. Events, becoming as they do, exceed their textual capture and logographic representation in straightforward terms. Likewise, "there is no general model for the catalysis of an event" (Massumi, 2002: 81). What follows then is not a totalising, self-contained narrative, but a spatial story interspersed with several loose ends and not-too certain beginnings, an attempt at writing duration, a modest attentiveness to the past(s) folding and crashing into the present(s), of maps and mappings expanding and contracting futurities in the making.

⁵³ Deleuze and Guattari (2004b) point here to the 'failure' of the 1968 uprisings on the basis of a singular reliance on, and macro concern for, orthodox political identities: class, ideology and race.

Trazos llenos/Eventful tracings⁵⁴

“Writing stories was not easy. When they were turned into words, projects withered on the paper and ideas and images failed. How to reanimate them? Fortunately, the masters were there, teachers to learn from and examples to follow” (Vargas Llosa, 2010: 1).

Circulating disorientation

To Lima then, *la Ciudad de los Reyes*, the City of Kings.

Well, not yet, not quite. First; RDU, Raleigh-Durham airport, North Carolina, Terminal 2; again. Halfway journeying to Lima, in transit through familiar, friendly terrain, just ten months after having departed Chapel Hill and the macro-micropolitical worlds of 3Cs. The five hour stopover is just long enough to navigate US immigration and catch up with friends from 3Cs over Carolinian barbecue. Craig is leaving for New York soon, MSG had returned already to Spain and Liz, is still Liz. Undoubtedly though, 3Cs was on the move again, not sure of either its future directions or very existence as a collective. Leaving the air-conditioned fridity of the InterState-40 diner, and into the blistering humidity of the southern subtropics, the body is jolted back into a heady and increasingly jet-lagged atmosphere of déjà vu and disOrientations; 1 and 2. This pleasant, rhythmic space-time of circulating reference does not last long before it is back on a plane for a short flight to Miami, followed by a manic dash for the overnight connection to Lima, and an evening of turbulent oscillations between dozing, dreaming, and staring pathetically at the in-flight map; distance to destination: 2,989km, 2,957km, 2,889km; nearly there. London to Lima, indirect; a bizarre and frustrating avionic cartography in of itself.

⁵⁴ There is no extant, straightforward translation of ‘eventful’ into Spanish; here the literal translation is *full tracings*.

Eventful uncertainty

“An event starts out of apparent uncertainty and foments a wider band of uncertainties as it expands and morphs” (Connolly, 2011: no pagination).

In drawing out the lines of this uncertain and emerging cartographic event, there are lines that require tracing; lines running back and forth from a catalogue of ideas, shots in the dark and emails from several months before departure to Peru; where the chapter's opening story of getting lost crashes into a space-time of gazing at OSM's public map from the comfort of a desk in Oxford. Andover, Glasgow and Witham; the UK OSM mapping parties, had been cosy affairs. Despite the odd, agitating blister on soles of feet, becoming a mapper in the UK was a relatively straightforward process; there are plenty of OSM users and GPS devices available, internet connections are ubiquitous and the terrain is easy-going; rolling hills, genteel countryside and the ever reliable suburbia of middle-England (and Scotland, of course) is just that, reliable.

Tethered to this sense of settled familiarity was a growing unease at the lack personal lack of cartographic responsibility. In my participation with OSM so far, I had been only a follower, a cartographic apprentice – and necessarily so; entering the world of crowd-sourced cartography entailed a protracted induction into the norms, sensibilities and subjectivities of geeky mapping and vernacular cartographies. Now it is time to step-up a level, to both put this research at risk, and to also return the favour to OSM by promoting the project somewhere in the world that it had not yet reached, cartographically at least. One caveat; this is not a tale of the heroic, gung-ho researcher, taking mapping to the masses, or a pseudo missionary geo-pageant of a western

evangelism for open-source software; the bridging of the great digital divide!⁵⁵ On the contrary, whilst it would be disingenuous to deny a frisson of excitement (and anxiety) in the doing of fieldwork, the thoughts, ideas and work emerging were already being mediated by continually unfolding assemblages of wiki-users and technologies; a virtual collaboration of actors, unbeknown to each other, in producing spaces and events yet to come into being.

Staring, then, at the OSM map on a laptop screen, several features jump out, but not so remarkably that they would necessarily evoke surprise. The US is well covered by OSM, as is the UK and continental Europe, Germany especially so. South America however is a different story; sparsely populated by cartographic features, incomplete tracks, missing cities, missing countries even. Easily resolved by cartography for sure, but who or what is going to take responsibility? Staring at the map once more. OSM's bare South America resonates with the sentiments of a medieval rendering of the 'new world' by famed English cartographer, John Speed in his 1626 map *America*. Amongst the embellishments and adornments embossed on the map, the by-line reads, "America with those parts in that unknowne worlde [sic]". Speed's admission of unknowing seems unduly self-critical; his cartographic efforts in South America stand in stark and favourable comparison with the modest visualisation offered by the OSM map of today;

⁵⁵ There is, albeit not obviously, a politics to participation. The intention here, however, is not to invoke an ethos of participation or to use participatory techniques as either a pedagogical method (see Mountz et al, 2008), of constructing community through cartography (see Parker, 2006), or as a substitute for ethics and ethical concerns (see Brun, 2009). Participation in this context is more problematic insofar as it is a process motored by actors that themselves are not fully formed and whose roles are never proscribed in advance, indeed, "participation precedes recognition" (Massumi, 2002: 231). Participation, then, has a speculative geography in which actors fold in and fold out of both *being participant*, and *becoming eventful*. Participation here is as much enrolment into the affective, as it might be into the 'democratic'; "bodies do not merely *find* themselves in positions of relative or interlocking distribution, but *participate* in the production of the fields of force through which they aggregate" (Woodward et al, 2010: 273, emphasis in the original).

particularly when considered that Speed himself never travelled to the Americas. One resonance that does however vibrate between these medieval and open-source cartographies is a similar reliance on a type of speculative remote sensing; an extrapolation of a virtual cartography based on combinations stellar geometries, satellite imageries and moments of informed guess-work.



//6.1// (left) America, 1626, John Speed and (right) South America, OSM, 2010

South America, then, is a glaring example of paucity in OSM's global coverage; a proto-terra-incognita for OSM, but minus the colonial flourishes. Having previously studied participatory mapping in the coffee-growing region in Colombia (Gerlach, 2008), I concentrated my attention on a neighbouring country, Peru. Being the former political, administrative and religious centre of Spain's colonial ventures, Peru has a

particularly interesting and troublesome cartographic heritage, a legacy of mapping that continues to manifest in unrest⁵⁶.

To matters more prosaic than macro-political, I scan the OSM wiki for evidence of recent cartographic activity within Peru's territorial borders. None, save for a lone tourist and OSM enthusiast who has uploaded and rendered a sketchy track of the 'Inca Trail' to Machu Picchu. Hiram Bingham, the Yale archaeologist credited with both 'discovering' the lost city of the Incas (a highly dubious accolade) and for being the inspiration behind the fictional cinematic hero, Indiana Jones (Heaney, 2011), sets the tone for much of the historic colonial and neo-colonial cartographic rendering of Peru in writing; "in view of the probable importance of the ancient Inca city which we had found on top of the ridge between the peaks of Machu Picchu and Huayna Picchu, our first task was to make a map of the ruins" (Bingham, 2003: 188). The immodest cartographic impulse displayed by Bingham is one that ambulates throughout most mapping practices, but such a tone will need to be tempered in this context so as to generate a more diffuse and distributed event.

Lima is the first location, pouring over the map that *captures* the attention. It is a huge, chaotic city, Peru's economic and political hub; a point of departure, and arrival for cartographic fieldwork.

⁵⁶ For other tales of cartographic unrest and dispossession elsewhere in Latin America, see Galeano (2008).



//6.2// OSM coverage of Lima, Peru, May 2010 // OSM screenshot

The screenshot illustrating OSM's stochastic coverage of Lima was taken in May 2010. There are huge gaps in the map's coverage, hastily appended roads which lead to blank spaces, magnolia coloured sectors of nothingness where there should be mapped evidence of residential sprawls, markets, schools, industries and clusters of activities. Before setting out for Lima, it is necessary to establish the motions of a cartographic event⁵⁷, the by-now familiar mapping party (*reunion de mapeo*, in Spanish), by posting an advert on OSM's wiki event calendar. This involves copying a digitally virtual template for previous mapping parties and customising it as necessary; in this case it included producing versions in both English and Spanish. Below is the digital, wiki, skeletal code for the event:

```

{{place|name=Lima|type=city|area=Peru|image=|lat=-12.08|long=-77.01|zoom=12}} <!--
delete if this isn't a city -->

{|style="float:right"|
<slippymap h=400 w=480 z=12 lat=-12.08 lon=-77.01 layer=mapnik />|}

```

This as yet indecipherable code is then translated by the wiki-server into intelligible text and graphic information, and the beginnings of a cartographic call-to-arms. In English and in Spanish, this translates as a proposal for holding a mapping party in the Lima city district of Pueblo Libre, a lower-middle class municipality some three miles south-west of the colonial city-centre, and one mile north east from the Pacific coast. The great Venezuelan leader of numerous Latin American struggles for independence from Spain, *El Libertador* Simon Bolivar, resided in Pueblo Libre before becoming the first president of an independent Peru. Having been previously called Magdalena Vieja, the district was renamed Pueblo Libre (Free Town) in honour of Bolivar.

Creating the digitally virtual premise for the mapping party, this cartographic event, is straightforward; a case of altering a pre-existing template. Having posted the advert online, however, the feeling that soon encroaches is an unnerving sensation that no-one will heed or respond to the call for participants, that the fieldwork has bitten off more than it can chew, that the search for cartographic responsibility has now become a menacing burden. It was of course, too late, something was happening; the event had been listed on the wiki, and now it was a case of watching and waiting for others to get involved. For the time being, this small cartographic act of repair (Bottoms and Goulish, 2007) is underway, and patience is required; perhaps a hint of luck and serendipity too. The cartographic event is now in the making, but in taking Deleuze's event seriously, the event was already in the making, or at least unfolding out of other vibrations, intensities and happenings. Moreover, these folding and unfoldings combine, emerge and vibrate beyond a cognitive or representational capture; emergences that never sediment into the conceptual convenience of a bounded geography, but which nonetheless retain

some semblance of a congealed materiality that afford the sense of something occurring (Woodward et al, 2008).

The screenshot shows a Wikipedia page for the event 'Fin de Semana de Mapeo en Lima'. The page layout includes a top navigation bar with 'Page', 'Discussion', 'Read', 'View source', and 'View history' tabs. A search bar is located on the right. Below the navigation is a banner for OpenStreetMap's license change. The main heading is 'Fin de Semana de Mapeo en Lima', followed by a summary: 'Lima es una ciudad en Perú ubicada en la latitud -12.08, longitud -77.01'. The main content area is titled '¿Qué es OpenStreetMap?' and contains text explaining the project's goals and the mapping party event. A map of Lima is displayed in the center. To the right of the map is a sidebar titled 'Lima, Perú' with various links for browsing, editing, and external resources. The left sidebar contains navigation options like 'Main Page', 'The map', and 'Toolbox'.

//6.3// Wiki-advert for Lima mapping party // OSM screenshot

Una pausa – a pause.

Waiting in anticipation for responses to the wiki advert for the mapping party, it is worth pausing, dwelling for a moment before continuing the geo-narrative and posing the question, what is going on here? For Badiou, this is no event; it lacks a clearly demarcated evental site and is missing the strident temporality of a sudden, momentous change. The rhythm is, to some extent, unremarkable, everyday, mundane. However, something is afoot, and it would be misguided to foreclose the notion and doing of eventful mapping simply because the rumbling intensities of this cartographic

micropolitical action have not reached the collective cognitive and somatic registers that Badiou suggests, the French Revolution apparently achieved.

The aim hitherto has been to elide a linear narrative; a cartographic telos. It remains, therefore, a partial account, and there are actors, assemblages and goings-on beyond what has been narrated so far. In other words, outside of the immediate push of this particular story, there are multiple other lines and stories working autonomously of this one. This all plays into the complex geography of the event, a rhizomatic cartography that is not for one singularity to police. That said, despite the complex spatialities and the independent lives of other stories, and notwithstanding the embryonic status of this account, there are futurities emerging from the mix, or indeterminate potentialities (Massumi, 2007: 13) provoked from these provisional eventful moments, and for now, these futurities, these unqualified virtual space-times of potential give rise to a certain affect, or affirmation of hope. Waiting nervously, in the midst of this pause, hope is a motif to be harnessed, staving off despair at every juncture. Hope, after all, “opens up the present, enables bodies to keep going” (Anderson and Fenton, 2008: 78). In that case, it is time to move on; to continue drawing lines.

Hacia adelante - Onwards

It is not long before a response arrives. Events spread quickly through fibre optic cables and wiki-culture. Javi, a fellow OSMer, geek and GIS professional from Spain gets in touch by email to write that he is being inundated with messages from Peru about the Lima mapping party. Why, he asks, had I not been in touch? An elementary error; a missing subscription to the Peruvian OSM mailing list. OSM activities live and die by the mailing list. Quickly rectified, emails rush into Oxford from Lima; the exchanges are hugely encouraging, and grasping to an existential commitment to hope appears at last

to be paying dividends. Omar is the first OSM user from Peru to get in touch, introducing himself as a free-software activist, and member of the collective, 'liberate.pe', again, a forum for promoting and advocating open-source software. Omar writes that for the mapping party to happen, GPS devices will need to be provided in addition to some degree of introductory tuition for new users. Moreover, he requests that I present papers at seminars on free software at two universities in Lima. Suddenly the force of event registers in the pit of my stomach. A daydreamed volley of confessions by email constitute the virtual reply; "Dear Omar, I'm not quite the technical expert you might imagine me to be, in fact, I'm a human geographer that likes to use words such as affect, virtuality and performance, best wishes, joe". An exaggeration, to be sure, and in actuality the reply is in the affirmative to everything Omar requested. Now is the time to be cultivating some fidelity to the event and to be taking responsibility for its initiation and continuation.

Javi, coincidentally, was also planning a trip to Peru, but would be travelling to the southern end of the country, to the city of Arequipa where he would also establish a mapping party. From having no mapping parties thus far, Peru was about to be assaulted with mapping parties in stereo, and somewhat awkwardly, both initiated by *gringos* (Latin American Spanish slang for foreigners, usually reserved for North American tourists, but often applied more broadly). Buoyed by a mix of excitement, hubris and sheer neo-colonial arrogance, Javi and I speculated that the Lima mapping party would be the first OSM mapping party in Latin America. Javi laughed and promptly shattered the illusion; there had already been a mapping party in Havana in June 2009. Shame, but it would surely still be the first mapping party on the continent of South America? Wrong again; the Merida mapping party in Venezuela beat Lima to it by

one week. A signal reminder here of the dangers of cartographic hubris, and the need for a sensibility of geographical modesty in attending to events.

Interestingly, whilst wiki-technologies on the one hand widen the potential user-ship or production base of particular knowledges, it does not necessarily follow that joined-up thinking occurs or that clear lines of communication are forged. On the contrary, because wiki-interfaces can be customised, or put differently, individuated, fragmentation can result. For example, Omar in later email exchanges suggested that there were at least fifty people in Peru previously registered with OSM, but that those fifty users had no awareness of each other's existence, and had no idea of how to communicate with each other; this is despite the fact that every state on the globe has a digitally virtual space on the OSM wiki in which users from that country can list their presence. There is no formal route to find these spaces; it is, as with much of wiki-programming, a case of experimentation, of bricolage, of trial and error.

For now, several other Peruvian users get in touch, having stumbled accidentally on details for the mapping party, or having heard about the event through word of mouth, and as ever, with the aid of serendipity. As Ivo, a professional cartographer emailed, "I stumbled upon your blog", adding that Latin America has been, "very successful in popular mapping... more so than in Europe. While in Europe users of non-corporate maps are a strict minority, in South America, non corporate maps are the first or close-to-first choice when loading a GPS device". Elsewhere, Johna, a friend of Omar, emails stating that whilst OSM is, "the perfect technology for helping peasant and indigenous communities", there is "zero movement" by OSM within Lima and Peru more widely. The event is starting to generate reasons and a rationale for its *becoming*, it is coalescing around and re-enforcing its own logic, rather than being the result of

generalising or external laws. The emerging rationale of the event is not merely to be a fieldwork experiment for individual research purposes, but it is working to give OSM a push; to get things, peoples and technologies moving, but in way that does not assign or lend ownership of the project to any one particular actor, so as to maintain the ethos of distributing effort. Indeed, more users got in touch, wanting to use OSM for all sorts of disparate and interconnected projects; from taking on the expansion of extractive industries elsewhere in Peru, to identifying incidents of environmental contamination in the country's extensive Amazonian basin to the east of Lima. Again, the event was evoking futurities of action, but care would be needed not to contract the potential of this event, to limit or police what might come of it.

¿*Volverse viral?* - Going viral?

Time to dwell. How has this event started moving? What geography is taking shape and how is the event disseminating, spreading and coalescing? One of the leitmotifs of user-generated online content and Web 2.0 more broadly is things and phenomena, 'going viral'; house-parties advertised by Facebook spiralling out of control, and legal super-injunctions smashed by Twitter trending are just two markers in the change of how knowledges, news and gossip – how worlds - come to be produced, witnessed, embodied and sensed. Despite the topical magnitude of such things going viral, there is remarkably little scholarship engaging with these trends (Wallsten, 2010). That said, there are efforts in political science and commercial marketing to apprehend the potential of viral movements, propelled by the dominance of social media technologies in, for example, the Obama electoral campaign of 2008. For Boynton (2009: 12), "going viral is vernacular", in the sense that for ideas, videos, propaganda to

become contagious, they need to be transferred by ordinary, pedestrian forms of communication; word of mouth, chat, gossip.

Gossip predates Web 2.0, but the latter has engendered a new market and platform for the generation and propagation of the former. Crucially, Web 2.0 allows bodies to witness each other in virtual, immediate terms; what they are saying, how they are behaving. Web 2.0 is predicated on participatory, user-generated fora; wikis, dashboards, interfaces, virtual 'post-it' notes, comment boards; spaces for confession, for affirmation, for indexing what is popular. The indexing feature in particular is especially potent as this seemingly benign metric is hugely performative; Google, for example, is able to profit on this indexing, whereby companies can purchase entitlements to be listed at the top of the search engine (Bennett, 2009; Farman, 2010). 'Going viral' is clearly a play on epidemiology, the sense of something untoward encroaching on and pervading vulnerable bodies. Whilst it is not the intention here to overextend the biological analogy, it is useful to consider what the idea lends in terms of thinking 'going viral' as a *process*. Things and events are not a-priori infamous, popular or well-known; instead considerable work has to be done in order to make things visible; moreover this work is done in the middle of a curious assemblage of human bodies and digital algorithms. Going viral does not entail a total loss of human control of content and distribution, to state otherwise would be an abrogation of responsibility, a lack of guarantees for human behaviours. That said, the sheer spatial extent with which things might spread, allied with the collective performative action of humans alongside indexing functions does not afford total control to human users. Hence the difficult ethical questions that arise and which are set to become increasingly pressing as litigious actors bring forth court cases against geeks and gossipers.

In the spaces and practices of vernacular mapping, whilst going viral is not essential, a similar, if not more modest in tenor, process is required in which there needs to exist some form of hook, whether conceptual or practical; some matter of concern (Latour, 2004), through which cartographic publics aggregate. Alongside this hook, there needs to be the platform for indexing or listing the matter of concern; a reflexive technology that facilitates the witnessing of activity and usage. OSM provides these techniques in the form of the event calendar and the event page; by permitting full user editorial activity, participants in events can be listed, which in itself tends to attract and draw others in to getting involved. In this case, the Lima mapping party has not gone viral, only a handful of people have made a hit on the event page. Its vitality, however, relies on the same processes that cause things, actors and events to explode and become sensible. Whether going viral or remaining modest in spatial proportion, the process of actor enrolment still involves an ecology of speculation and mouse-clicking; surfing web-pages without any pre-figured direction, following lines of interest and curiosity, bouncing off some web pages, dwelling on others; perhaps not even consciously.



//6.4// **identi.ca feed promoting the Lima mapping party (identi.ca is the open-source equivalent of Twitter)**

The geography of this event as it emerges and resonates has no obvious, geometric cartography; with emails and ideas shooting between laptops, universities and people, it is difficult map in any straightforward manner, process and direction. Intuition will have to suffice for now. Luckily, as individuated micropolitical and affective interests begin to coalesce and collide, the need for a singularised actor to marshal the event in any one direction appears to be lessening, a welcome personal relief for sure, but more importantly, it is curious to sense and witness the event, or events, as inhabiting lives of their own. This sense is not constituted by a form of a viral autonomy, but edges closer to a viscerally registered intensity that things are moving onwards without too much strain, “an affective tone that gives rise to the consistency of...a particular movement-experience” (Manning, 2009: 40). This sense and these sensations do not add up to the visual proof of an event happening in the present, but give rise to the virtual semblance of evental compositions in motion (Massumi, 2011), of the potential for events to emerge.

The choreography of communications and ideas preceding actual arrival in Lima has set in train an eventful mapping, without, as yet, a single map having been drawn, an eventfulness in which the world has not been given in advance (Doel and Clarke, 2007).

Nota breve desde el futuro – a brief note from the future



Comunidad OSM-Perú





Comunidad OSM-Perú





by eximii (CC-BY-SA)
1er Mapping Party - Pueblo Libre

- Mapeo inicial en Lima y Cusco, usuarios extranjeros.
- Avance de mapeo en Lima y Cusco, inicial en nuevas ciudades (Arequipa, Trujillo, Chiclayo), usuarios peruanos.
- Organización de la comunidad limeña en 2010:
 - Primer Mapping Party (Agosto 2010), en Pueblo Libre, con apoyo técnico y logístico (GPS) de usuarios extranjeros.
 - Participación en FliSol 2010 y conferencia “Cartografía Social, Territorios y Tecnologías Libres” en la UNI.
 - Traducción al español de documentación de OpenStreetMap, JOSM y HotOSM.

//6.5// Slide-show// FliSol, April 2011

Fast-forward to a space-time beyond the present chronology of the fieldwork.

April, 2011, eight months on from the mapping party, an as yet untold story in this chapter, the Peruvian OSM mailing list bursts into a flurry of activity, having been dormant for much of the intervening period. An email from Manuel, a newcomer to OSM, described how he was promoting the wiki for maps at FliSol (Latin American Festival for the Installation of Free Software); yet another forum for geeks and geekiness. FliSol is a continental-wide movement and series of festivals founded in 2005, comprised of sub-movements for the individual countries of Latin America. Due to the timing of the presidential elections in 2011, the Peruvian sector of FliSol held their annual conference in April. It was encouraging to note from Manuel’s presentation that the previous year’s cartographic experiment had not been a one-off, and that the event continues to bubble and inflect everyday experiences. However, there was ambiguity over what to make of Manuel’s slideshow comment that the first mapping party was lead by *usuarios extranjeros* (foreign users). That is not to deny the obvious immigrant status of my presence in Peru, but to make the implication that this was a

foreign lead expedition seems a little wide of the mark. No doubt this prickly sensitivity comes down to slippages in translation.

Stop; a return now, finally, to a moment of arrival, still in the middle of events and cartographic happenings.

Llegada en Peru – arrival in Peru.

Mapping backwards. Tracing and tracking back once more, to August 2010, to some tables and chairs in Taberna Quierolo, a fusty, no-nonsense bar in the historic centre of Lima, two blocks from the Presidential Palace and the Basilica Cathedral of Lima. Sitting patiently, waiting for fellow mappers to arrive. Ernesto Guevara, on his formative travels through Latin America in the 1950s writes of the city, “Lima is a pretty city, which has already suppressed its colonial past beneath new houses” (Guevara, 1952: 133). In those intervening fifty-eight years it seems also to have buried its prettiness. The colonial architecture of the centre is well-maintained, but the city’s edges bristle with a permanent-transience; hastily built, slum communities clinging to the steep, arid edges of the Andean foothills; make-shift homes which have been make-shifting for the last twenty to thirty years, ever since the height of the galling violence of the Maoist rebels, *El Sendero Luminosa* (The Shining Path), forced millions of rural Peruvians to abandon the countryside and seek refuge in the ostensible safety, but urban chaos of Lima.

“Hola!” Johna arrives at the bar with his partner, Mar, only one-hour late, which if any attention is paid to the clichéd stereotypes of Peruvian chronological sensibility, is close enough to being on-time (in any case, what does it mean to be late if we’re to take accounts of duration seriously?). Soon after, Omar joins the group alongside Luis, a

professor of sociology at Lima's San Marcos University. We had agreed to meet before the mapping party itself, partly to get to know each other, but primarily because there were innumerable logistical problems to resolve, top of the list being where to congregate for the mapping party. The first location suggested was a cafe in a shopping mall in Pueblo Libre; it had wireless internet (essential), and it borrowed directly from the experiences of starting UK mapping parties in a banal coffee shop. Although we did eventually agree to meet in the cafe, there was a residual awkwardness amongst us, not least because a cup of coffee is not affordable for everyone in the group⁵⁸, and because finding an equidistant location is difficult as we all live in disparate parts of the city. When a two mile journey takes on average two hours by Lima's notoriously unreliable and downright dangerous bus system, it is not a straightforward decision (walking this distance in some parts of the city is simply not a good idea). Still, the conversations turn to other topics; of self-organisation, of mapping, of travelling, of promoting environmental awareness, of **balloons**.

Balloons participated in the story of mapping Lima several months before this cartographic experiment. Jeff Warren, a researcher at MIT's Centre for Future Civic Media, visited Lima in January 2010, bringing with him hundreds of helium-ready balloons and a similar number of cheap digital cameras. Having made contact with Johna, and a Lima based activist collective known as *escuelab*, Jeff and his balloons travelled to the edges of the city, to the settlements of Juan Pablo II and Villa El Salvador, where day-to-day life is precarious, and where ownership of the land is legally insecure because of the haste in which these communities were assembled in the late 1970s and early 1980s. Jeff suggested that high resolution imaging and maps would help settle

⁵⁸ At best, the average monthly wage of a Limeño (a resident of Metropolitan Lima) is 1148 Peruvian Nuevo Soles (PEN) (GBP 274). The average price of a regular coffee in Lima is 6.50 PEN (GBP 1.55).

land title dispute claims between the residents of Juan Pablo II and the municipality of Lima; he and his team obtained these images through balloons and their inflation. Put simply, digital cameras were tethered to helium balloons that under the control of guiding ropes, were allowed to ascend to an appropriate height, at which point plan photos of the worlds below were captured. The resultant imagery resembles that of the compositional mosaic images generated by Google Earth, but of course, the resolution is higher, and the derivative cartography more refined, facilitating a more 'accurate' land-title/territorial claim. Riffing on McCormack's (2008) account of aerostatic bodies, of lighter-than-air balloons, Jeff's vibrant red helium balloons offered a technology and technique for making things visible in a cartographic manner, thus lending a community an immanent, immediate and indeed cheap form of remote sensing. At the same time the balloons invoked a prosaic eventfulness and *eventuality* through inflation, ascension, floating, descension and mapping; "a collective event of spectacular witnessing" (ibid: 31) in the spaces of vernacular cartographies. Red balloons; constitutive of modestly affective or eventual micropolitics that hint at the atmospheric and virtual cartographic heritage of Lima.

With balloons and ideas floating in our minds and our stories, we call time on our meeting in Taberna Quierolo, and bid each other *hasta luego*, until later; until the mapping party, the event still emerging, resonating and transforming.



//6.6// Up and away, and mapped. Photos used with permission of Jeff Warren, MIT

Reunión de mapeo – mapping party

Saturday morning arrived, the day of the mapping party, and suddenly the event and all its attendant hopes and anxieties are lifted from the digital realm in to the rhythms of analogue life. At 9.30am a short but spine-deforming bus ride transports two amateur mappers to the edge of Pueblo Libre, who then navigate to the second floor of the San Miguel shopping mall. Onwards to the agreed meeting point, the banal coffee shop. Taking a seat next to a power socket, I arrange the cartographic arsenal of weaponry on the table; stickers, badges, pencils and notebooks. OSM had also entrusted us with seven GPS units on loan, plus another unit which is to be donated to the Peruvian OSM community if they want it. Notwithstanding this considerable generosity, these units were showing their age; two years old, which in geeky terms, makes them strong candidates for antique obsolescence. It had taken two hours the previous morning to calibrate the units because they had become accustomed to use only in the UK. The GPS devices fall into a kind of virtual malaise whereby the units struggle to divest themselves of previous calibrations and the digitised traces of their host country in the face of being introduced to a foreign territory. Eventually, the GPS satellites that orbit infrequently over the UK finally hovered and passed over Peru, and the units found their place in the world.

Meanwhile in the cafe, an undercurrent of scepticism swirls as fears of no-shows begin to set in. Thankfully, Tom from Belgium arrives. Working temporarily for an environmental NGO, he wanted to know what all the fuss was about. Both being *gringos*, we get into what was veering dangerously towards an ex-pat exchange of gripes about life in Lima; the worst possible kind of conversation. Reliably, Johna is an hour late, but with him are several others who had not been at Taberna Quierolo; some students, an

IT consultant, and an environmental activist. Sadly, Omar couldn't make it, despite being one of the most vocal supporters of the project. A reasonable turn out nonetheless, and time to press on with mapping. I set to work by giving a broad overview of OSM, followed by an explanation of how to use the GPS devices and outline of what the aims for the day were. Perplexed looks all round.



//6.7// Perplexion // Tom, Johna and Johan

Not enough time to answer questions now or to ease bafflement; the cafe manager is becoming increasingly irascible at our occupation of two sofas and three chairs, aggravated further by the fact that the last coffee purchased by an apprentice vernacular cartographer was over two hours ago. In any event, we really must be going. We set out walking to Avenida Bolivar, at the heart of Pueblo Libre, the start of the area selected for our modest experiment in Peruvian OSM. To expedite the cartographic mission, we split into two groups, although Miguel decides to go it alone. We switch on

the ancient GPS devices, beckoning the signal into being. Typically, the tardiness of the GPS unit to geo-locate our bodies augments the wearying sense of collective disorientation, and we find ourselves lost, returned to the beginning of this chapter, a vignette of listlessness and melancholic eventfulness. The tale concluding as it does, with eventual terrestrial-orbital calibration, quickly returns our bodies to comforting Euclidean sensibilities, and with latitude, longitude (and gratuitously, altitude) affirmed, we continue on, amateur and vernacular cartographers in the making.



//6.8// Lost, but then found.

Walking, pacing, filming and tracing; mapping, the creative vector of experience (Manning, 2009). Animating Pueblo Libre into cartographic being through sketching material and immaterial traces. With every step taken, vernacular mappers are performing the event and the event likewise performs the abstraction, the living,

experiential abstraction. The humidity mixed with depressed winter temperatures makes for uncomfortable mapping, for both perspiring humans and misty-screened GPS devices alike. The shape of the sector in the mapping is not dissimilar to the trapezoidal section eighteen of Witham, although somewhat less inverted in the centre. The repetitions, of techniques, movements and gestures bring memories of previous mapping parties crashing into Lima.

The event gains an affective consistency and congeals to some extent through the movement of bodies and the adhesive materialities of cartography; of paper, pens, vectors and satellite algorithms. The semblance of an evental site emerges, but not in the Badiouian sense of the geographically defined site, but through a Spinozan sensibility of bodies' concrescence and union; "When a number of bodies of the same or of different magnitudes are constrained by others in such a way that they are in reciprocal contact with each other, or if they are moved with the same or different degrees of speed in such a way that they communicated their motions to each other in some fixed ratio, we shall say that those bodies are reciprocally united to each other... they all together compose one body or individual, which is distinguished from the others by this union of bodies" (Spinoza, 1996 [1677]: 42). This bodily unison forged in the cartographic space-time puts into relief the sensation of event, the sensibility of geographies happening.

// *Nuestras fronteras, hemos apostado: una historia corta*

// Our boundaries, we have staked: a very short story



In the middle of mapping the indivisible streets of Pueblo Libre, a resonant, cartographic tale, set one-hundred and eighty-five miles east of our immediate cartography, in the Chupaca Province (in English, the “Heroic Province”), of Tupac Inca Yupangui, the leader of the Incan Federation in the late sixteenth century. Here, the story, as told by Incan witnesses to a council of Spanish conquistadores:

“In the year one thousand five-hundred and ninety-seven, the eighth day of the month of August... Tupac Incan Yupangui, himself, had walked from the boundary. Seven men in the witness report that we traced without trying, without recounting. I know that in this way – in this way – others also, boundaries, our landmarks, our uplands we have staked”.

Translated from Quechua into Spanish, then English; cited in Beyersdorff (2007).

La quietud - Stillness

At rest, still, waiting. In this way, our boundaries, our landmarks, we have staked. Three hours in to the mapping, however, cartographic enthusiasm begins to wane as hunger starts to amplify.

**//6.9// Still // Juan Carlos, Miguel, Johna, Mar**

Having originally divided into two teams, we reconvene on a patch of rough, damp grass at the nominal centre of our micropolitical universe. Between us we had marked some four-hundred waypoints and collectively, clocked somewhere close to one-hundred kilometres of walking; much of it circuitous, some of it in parallel with others, some of it walked alone. In this moment of becoming or being sedentary, of chancing a self-conscious breather, there was a conversation and an exercise of collective attunement to being still (Bissell and Fuller, 2009), to figuring out in the haze of cartographic fatigue what we had achieved, or what we had missed; a meditation on what we had seen, heard, smelt and felt throughout the duration of our walks. There was surprise at how many twists and turns had to be made to ‘capture’ everything, to

account for every road and pathway; a bizarrely labyrinthine drift considering Lima's urban topology is that of a classic grid-system. Bewilderment at a lack of consistency too; gated, well-appointed houses astride crumbling, uninhabited tower blocks with twisted steel cables poking expectantly into the sky. Now a growing realisation surfaces that some of these affective moments and atmospheres will disappear or dissipate in the rendering of the map, yet at the same time there is a lingering hope that in the stories told alongside and with the map, that these vernacular cartographies (even Euclidean ones) are not entirely redundant in the cultivation of micropolitical actions. However, before we start rendering, that hunger needs to be staved, so onwards to small eatery down the road.



//6.10// Walking papers and soup

Re-energised by food, we walk a kilometre to Maria's apartment, commandeered by the vernacular mappers to be their situation room for the afternoon. Maria, a geography student from the nearby Pontifical University, was not afforded much choice in the matter and within minutes, ten mappers filed into the cramped surroundings of her first floor apartment overlooking the busy Avenida Jose Sucre. The first thing to do, as is the case wherever you are in the world with OSM, is to locate power sockets and to boot up laptops. Immediately, four laptops compete ferociously for two power sockets; Maria's parents look on from the doorway in the corner; puzzled and understandably

troubled. At first glance, it seems unimaginable that this much resembled cartography, and the sight of seven GPS units piled in the centre of the table arouses suspicion from the two screeching, green parakeets (Moni and Tufi) overseeing proceedings from their cage behind what has quickly become *la Mesa de Mapeo*; the Mapping Table (it resonates far better in Spanish). To counteract the ear-piercing squawks of the birds, warm mugs of mellow coca tea are placed in the middle of the table; it offers the same buzz as a strong coffee, but thankfully without the palpitations⁵⁹.



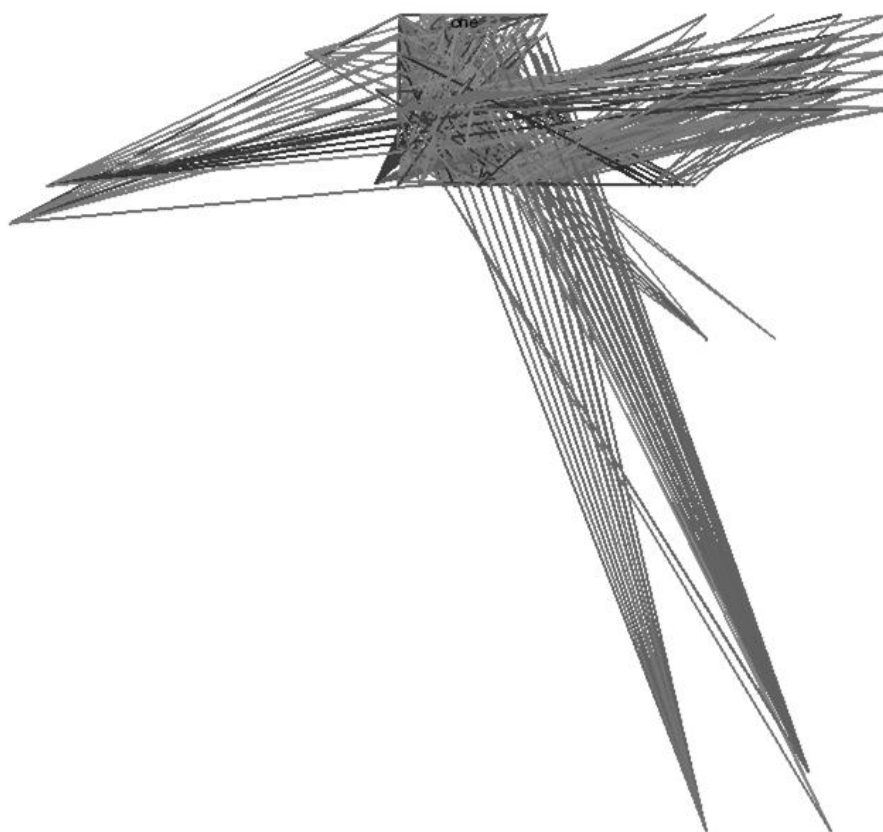
// 6.11// La Mesa de Mapeo

Tom needs to leave the mapping party for work, but Omar soon makes up the numbers again, having endured a three hour torturous bus ride to get here. We update him on the morning's eventfulness, swiftly moving on to the business of uploading the GPS data and rendering the maps through the OSM online editors. Problems of

⁵⁹ Coca-tea and Coca-derivative products are currently illegal in the UK, part of an ongoing controversy over the legal and cultural status of the Coca plant, cultivated primarily in Bolivia and Peru (see Pereira, 2010).

translation come to the fore, in both English-Spanish transactions, but more irritatingly, in converting the digital traces of the GPS units into intelligible, GPX file data. The GPS units, being as they are ancient, record their data in a largely unused and near obsolete file format known as NPEA. To render OSM maps, we need GPX files, therefore translation between the two file formats is required. None of us know how to do this, so we turn our hand once more to cartographic bricolage, to muddling through with experimental intent, drifting in the internet until we locate the tools with which to translate the files. Honing our collective geeky sensibilities, we download the free software, avoiding commercial and proprietary programmes at all times, after all, we have already stated an existential commitment to freeware and open-source materials. As Omar loads the translation software on his laptop, whilst plugging-in the data from the GPS device, there is the nervous anticipation to see what these lived abstractions will look like, if indeed, they have been recorded properly in the first place.

Omar loads the first trace; 8%, 52%... Loading... 87%, 94%...



A gasp, a chuckle, exasperation. *Mierda. Damn.* That has not worked at all. These GPS super-nova like explosions occur when the unit has not been calibrated properly. In this case, the lines that are determinedly spiking outwards from the image's centre are the traces of the unit attempting to reach out, digitally, to an orbiting satellite; in failing to do so, the spike inverts towards Earth, and back to the GPS device; this orbital, extra-terrestrial relay continues until synchronisation occurs. To matters more earthly, this image provokes worry amongst the vernacular mappers, and pessimism sets in; a hint that perhaps the morning's work was in vain. The image overleaf shows the sector of Pueblo Libre in OSM as it was in July 2010; largely blank, a cartographic nothingness bounded by Avenida Mariano Cornejo in the north, and Avenida Bolivar to the south.



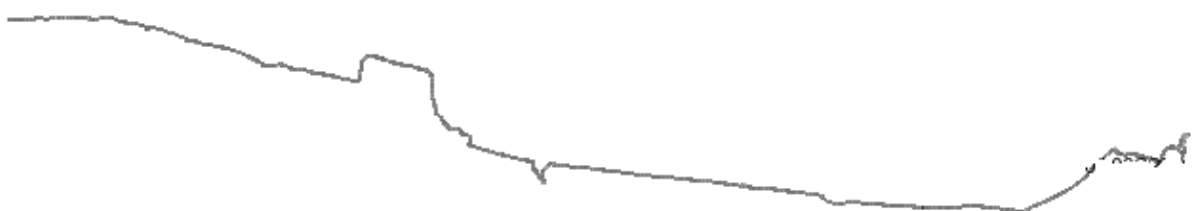
Flustered by the initial GPS trace failure, Omar uploads Johna's file:

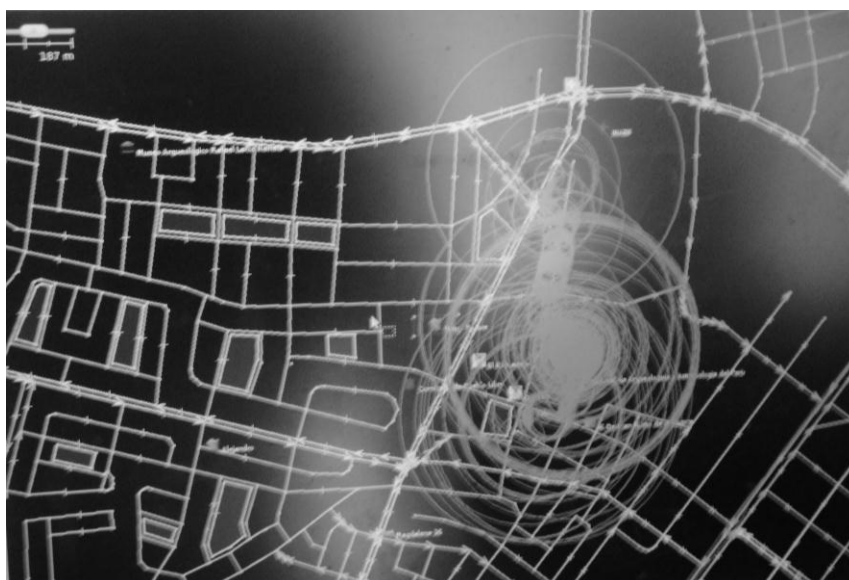


Success and relief in equal measure; a four mile walk, pacing at an average two point one miles per hour. Lines of the event continue to emerge, next to upload, Miguel's trace:



Mar's footsteps:



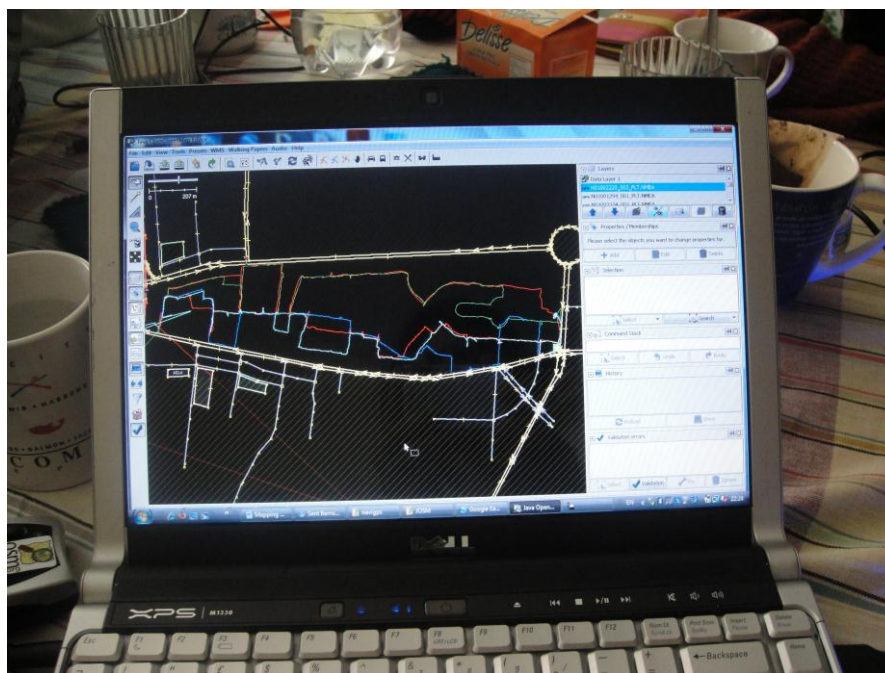


// 6.12 // Itchy chins and spiralling traces

Everyone, the mappers, the laptops and the parakeets are reaching the end of their tethers. However, stubborn experimentalism wins the afternoon, and the GPS traces are fused together to facilitate the drawing of what will become the actual map. With impeccable timing, a paean to today's cartographic event starts vibrating in not-quite-there stereo; Edith Piaf crackles into life, singing *Je ne regrette rien* through the

tinny speakers of Omar's laptop. The chanteuse had been singing intermittently throughout the afternoon, but it never occurred to anyone to ask Omar, why?

The individuated traces finally assembled on the OSM editor, JOSM, in full Technicolor:



// 6.13 // Collaborating GPS traces

With these traces in place, the map is rendered as per the process described previously in the Witham, Glasgow and Andover mapping parties. The only thing left to do now is wait several hours whilst the OSM automatic script protocol moderates the edits and approves the changes for final inclusion into the main, public map. It has been a long day, a curious eventful space-time where things have failed along the way, but whereby micropolitical gestures have been generated in and through the map and performances of mapping. What political or geographical work these gestures might go on to do, affect or modify remains something to be considered another time, which is why we call it a day for now, and look forward to meeting again later in the week for a

series of seminars over two nights; one in the School of Social Sciences at the University of San Marcos (Johna's university) and the other in the Department of Geomatics at the University of Engineering (Omar's university).



// 6.14 // Pueblo Libre on OSM, five hours following mapping party

Saberes Nomadas – Nomad Knowledges

With the maps now rendered, visible to digitally connected worlds, and whilst the affective energies of the cartographic weekend dissipate into somatic memories, another opportunity emerges to slow down and dwell on what these eventful mappings have provoked, however spectacular or mundane. This is a chance to partake in the durational eventfulness of the map (Manning, 2009), to consider what is at stake

politically in the cultivation of crowd-sourced cartography in Lima. At the risk of essentialism, OSM related performances in Peru quite clearly operate in a different constellation of macro-political, representational tendencies, intensities and regimes when compared to of those practiced in the UK, and as a result, there is a sensibly different affective tonality to the apprehension and use of vernacular mapping techniques in Peru. That is not to suggest however that in attending to the processual unfolding of events, there are no similarities or resonances whatsoever; the cartographic impulse remains largely the same across jurisdictions.

The seminars then, arranged by Johna and Omar at their respective universities, and the reflections these space-times in this chapter mobilised here as a technique for interrogating the eventful geography of the map; what materially or immaterially have the maps and mappings precipitated, or indeed, what has been lost or damaged as a result of this eventful mapping? What futurities and what politics, if any, have been prompted?

We meet on the Thursday evening following the mapping party at San Marcos University, the oldest established university in the Americas. A grand start for what would be a humble turnout to the seminar that itself had a similarly lofty title: “Critical geography and collaborative tools. Mapping the relations of power in the context of a country dominated by primary extraction”. The evening’s seminar consisted of a series of short presentations, including my own spiel about critical cartography and how thinking maps processually might lend an alternative conceptual vocabulary for performing maps in different political registers. In the following talks, it soon became evident that the introduction of OSM was tapping into a much more expansive network of ongoing mapping projects in Peru, including a project entitled *Mapas Parlantes*

(Talking Maps); a scheme involving the sound recording of Peruvian peasants articulating their non-Euclidean cartographies through oral story-telling, a sensible reclamation of peasant mapping that until the recent past had been dismissed as *croquis*, meaning ‘rough draft’ or ‘sketch’. Saddled with its connotational colonial overtones, the term *croquis* suggested that peasant cartographies were naive and not to be trusted (Orlove, 1993).



// 6.15 // Omar @ San Marcos

In other talks, the audience listened to stories of maps and communities pitting themselves precariously against the onslaught of extractive industries (Peru’s dominant industry) and also to accounts of honing the anticipatory potential of cartographies concerned with pre- and post-disaster management (Peru’s last deadly earthquake rumbled in August 2007, however, it faces continual risks from Andean snow-melt flooding and associated geological mass-movements). In starkly practical terms, it was clear that OSM had something to offer all these disparate mapping projects, particularly in terms of attenuating the dearth of official cartographic support by providing rapid,

localised response to events at minimal monetary expense. Moreover, because OSM is predicated on the experiential and worked through lived abstractions, it is very well placed to take seriously the rhythms and concerns of everyday, vernacular lives and risks in Peru.

At the other end of the political and ecological spectrum, a familiar refrain emerged; geekiness. Omar's talk was a vibrant campaign for free-software, *software libre*, citing OSM as a perfect example of what open-source technologies can do. In exactly the same ethos as 3Cs in North Carolina, and OSM in the UK, the vocal Peruvian campaign for free software demands that all restrictions such as copyright be abandoned, and the use of free-ware promoted. The geopolitics of licensing, restrictions and free software is a topic to be considered in the following chapter, but the levitating, white-tailed gnu (or black wildebeest) playing the recorder behind Miguel in the image overleaf demands a little attention now.



// 6.16 // GNU, white-tailed gnu and Miguel

The white-tailed gnu is the ungulate mascot of GNU, a project founded in 1984 by American MIT computer programmer and self-styled uber-geek, Richard Stallman (avatars include 'rms' and 'st iGNUcius'). The project is an ongoing and unfinished scheme to develop a Unix-style computer operating system which consists entirely of free software. To ensure the project is not confused with Unix itself, the branding 'GNU' is a recursive acronym for "GNU's not Unix". With regard to defining the notion of 'free', Stallman himself surmises, "[F]ree software" is a matter of liberty, not price. To understand the concept, you should think of "free" as in "free speech", not as in "free beer" (Stallman, 2011: website material). The use of GNU software and derivative protocols is pervasive in the hacker community, and amongst friends in the newly forged Peruvian OSM community, but whilst this commitment to free software might appear to be a geeky preoccupation, there is more at stake here than simply rehearsing the tenets of being free of proprietary control. In tandem with the non-profit company, 'Ushahidi', an organisation established in 2008 which facilitates open-source collaborations across the world, the likes of GNU are aiding the gradual dismantling of the legally restricted networks and policies of which the internet is riddled. The issue here is not cost, as GNU and others are relaxed about others profiteering from their products. What is more important to the likes of GNU is that people, groups and organisations have access to the source code of programmes, to the very building blocks of software, and thereby affording the ability to customise and tailor programmes according to need.

In the context of Lima, and the here and now, it is *software libre*, including OSM, that is helping Johna and Omar to engineer an online tool known as *La Cuidadora*, translatable roughly as 'The Carer', or 'The Protector'; a digitally virtual diagnostic tool

for Peruvians to geo-locate matters of concern and hot situations on an OSM produced map: oil spills, political violence, earthquakes, kidnappings, floods. As an open-source dashboard, people can update the map, with textual annotations if they wish, from mobile phones and computers via Twitter, Facebook and their open-source equivalents. OSM, an open-source tool worked through *La Cuidadora*, ties in simultaneously the micro and macro political, modest gestures of making things visible in calling attention to certain spaces and situations via a suite of cartographic provocations. What these provocations go on to effect or bring about in the world remains unqualified.

La Cuidadora is also part of an umbrella movement established by Johna and Mar known as *Saberes Nomadas*, Knowledge Nomads; an at-once digital and analogue forum for environmental and political activism in Peru. Eventful mapping might be understood itself as a form of nomadology, or nomadic cartography, which for Pickles (2004) was a mapping pre-figured by Bill Bunge in his previously cited drifts through Detroit, movements through spaces of despair and the excesses of Motown capitalism. In the case of OSM and other forms of vernacular mappings, whilst the very movement involved in the mapping plays into the conventional understanding of nomadism, more evocative in this context of eventful mapping is Deleuze and Guattari's (2004b) treatise on nomadology, in which nomads and their lives are characterised by movements through spaces outside of the rigidity and striations of the State; "[T]he nomad has a territory; he follows customary paths; he goes from one point to another; he is not ignorant of points (water points, dwelling points, assembly points, etc.). But the question is what in nomad life is a principle and what is only a consequence. To begin with, although the points determine paths, they are strictly subordinated to the paths they determine, the reverse happens with the sedentary. The water point is reached

only in order to be left behind; every point is a relay and exists only as a relay. A path is always between two points, but the in-between has taken on all the consistency and enjoys both an autonomy and a direction of its own. The life of the nomad is the *intermezzo*" (ibid: 419).

Put differently, this modest case study of eventful mapping in Lima is a technique in cultivating nomad knowledges, generating *saberes nomadas*, and orchestrating *intermezzos*; middle-grounds or in-between spaces and rhythms for thinking and acting micropolitically. OSM is, in part, a method for mapping pathways that are not, as Deleuze and Guattari suggest, bound by and vectored to pre-figured points. Instead, this form of eventful mapping deals in the construction of non-decomposable pathways (Massumi, 2002), themselves speculative and anticipatory rather than determined routes to fixed, representational points.

Conclusiones de anticipación

Eventful mapping is about diagramming worlds not given in advance.

This chapter has been a thought-experiment, animated through Peruvian fieldwork, in diagramming cartographies as eventful and considered thus, a speculation on why this eventfulness matters. To that end, the account draws to a close in the company of two conclusions.

The first conclusion is concerned with the natures of eventful mapping in relation to the conceptual and philosophical renderings of the event with which this chapter opened. Empirically, the Lima mapping party and associated seminars were events in a conventional sense, but were themselves eventful; a generative eventfulness that vernacular mappings more widely have brought to bear in the world over the last

decade. Maps are not just artefacts; in their production and circulation they now imbibe a wider suite of practices and performances. Conceptually, it was never the pursuit of the chapter to arbitrate between either Deleuze or Badiou's take on the event, although it was made clear early on that Deleuze's ontogenetic, processual event sat more comfortably with thinking through eventful mapping.

That said, in refracting to some degree through Badiou's version of events and in the case of OSM in Lima, the mapping process did conjure a certain evental site in a manner that cartographies have always been adept at producing and containing a particular space, and of course events are, "steeped in the plurality of settings afforded by local conditions" (Madarasz, 2009: 797). The notion of evental site might work in the context of Lima, but it would have to invite a broader array of non-conformist geographies, affects, futurities and non-humans which may exceed the strict scalar geometries implied by the term, 'site'; thus populating event spaces are dynamically composed of bodies, doings and sayings (Jones et al, 2007). It is this dynamic composition through which the site's own map, "is drawn according to its own internal 'logics', rather than any generalising laws" (Woodward et al, 2010: 273). This allows a consideration of an evental site, without recourse to the limiting spatial and temporal containerisation that Badiou insists upon.

Part of this unfolding event was also named, the Lima mapping party, a name around which people and technologies could congregate and coalesce, a naming that facilitates a fidelity to a particular geographical happening; the underpinnings of existential and participatory ethical commitments to events. However, despite this largely superficial naming, the affective and political tenor of the Lima mapping event is distinct, and would sit incongruously in the midst of a Badiouian event. This occasion of

eventful mapping is not the harbinger of monumental or heroic change as Žižek (2008) wants from his notion of events, nor is it reducible to the, “consequences or effects according to lines of economic or political causality” (Deleuze, 2007: 234). The affective atmospheres swirling in Lima tie into a wider processual geography and duration of events, flowing through mining companies, talking maps, geeky software and indeed in the continuation of this chapter. Eventful mapping here is as events are for Deleuze; happening all the time.

The second conclusion then, is to recuperate the event, and eventfulness for mapping, to cultivate a cartography that shimmers (Doel, 1999)⁶⁰, or put differently, an eventful cartography that, “manifests itself as a vibration resounding with infinite harmonics in a vast series, like the rising of something new that is at once public and private, potential and actual, and marked by intensities” (Dosse, 2011: 324). To do so is important, I argue, because politically, the eventfulness of vernacular mappings opens up (and conversely contracts) networks, collaborations, pathways and virtual geometries. To recuperate the event requires a valorisation of mundanity and the everyday, spatial registers through which the majority of life-worlds are enacted. Moreover, the event need not be rendered as a cut in the world, or as an incidence of cataclysm or planetary turbulence. Instead, events and eventfulness might be understood as therapeutic in the micropolitical sense, in the realm of small acts of repair (Bottoms and Goulsh, 2007), and vernacular mappings are one strand of this repair and recuperation; a strand which can be readily modified to any interest, hope or aspiration. To be precise, however, these eventful mappings need not be categorised as either progressive in the macropolitical sense or, “definitively mundane” (Woodward et

⁶⁰ Citing Fuller (1992: 169), Marcus Doel (1999: 3) suggests what is needed is, “a delirious cartography of thousands of plateaux, each one a shifting ice flow”.

al, 2010: 278). Instead, in eliding straightforward categorisation, the political valence of eventful mappings through performative evental sites is their, “unpredictable eruption of minoritarian events and spaces” (ibid: 278). What this chapter has attempted to do therefore is pay attention to the eventful contours of everyday experience and vernacular mapping in Lima, however unremarkable.

Whilst Massumi (2002: 187) comments that events are, “uncontrollable either in present moment or Euclidean space”⁶¹, it does not then follow that Euclidean technologies such as maps cannot be drawn to be generative of events, to be involved in the evental generation of *intermezzos*, of *saberes nomadas*, or to be deployed in the service of actualising the virtual. To think eventful mapping then is not an interrogation of a cartography’s relative efficacy in orienteering between fixed points, but is instead about tracing, diagramming and creating the conditions in which thinking and doing *otherwise* is possible; “[M]aking an event however small is the most delicate thing in the world: the opposite of making a drama or a story. Loving those, who are like this: when they enter a room they are not persona, characters, or subjects but an atmospheric variation, a change of hue, an imperceptible molecule, a discrete population, a fog, or a cloud of droplets. Everything has really changed” (Deleuze cited in Dosse, 2011: 325). Put differently, that even in desperate scenarios of getting lost with errant GPS devices in the middle of Pueblo Libre, there remains the potential that these ambulant, itinerant, affective, virtual, evental geographies – these eventful mappings – might diagram micropolitical cartographies in anticipation of worlds to come; a minor geopolitics to be explored in the chapter that now follows.

⁶¹ Likewise, it is worth re-iterating that the post-hoc narration of events will always be exceeded by their eventful excess, in part because the event, “is that part that eludes its own actualisation in everything that happens” (Deleuze and Guattari, 1994: 156).

// Chapter Seven

Minor geopolitics

Minor Geopolitics



Minor Concerns

The previous three chapters have illustrated the continued vibrancy of vernacular cartography as a mode of articulation or enunciation, as a hobbyist pastime, as a technology of anticipation and as eventful. As in North Carolina, the UK or Peru, these quotidian cartographies refuse stubbornly to disclose a singular or straightforward politics of representation, and instead involve variegated assemblages that are in the business of conjuring aesthetic, creative, geeky and micropolitical performances and subjectivities; folded in and through affect and the virtual. Furthermore, an implicit refrain threading through the preceding chapters has been one of disorientation, an ethic of ‘getting-lost’; both a technique of political disruption, for example, as deployed in 3Cs work, but also in terms of the methodological process of this research, namely the thought-experiment of ‘thinking-through-mapping’, and the deliberate unsettling of linearity allied traditionally to accounts of the cartographic.

Whilst the tactic and refrain of disorientation has been thus far productive in these respects, too much cartographic discombobulation leads inevitably to dizziness, exasperation, befuddlement, and potentially, nausea. To that end, this chapter marks a tentative step-back from the performances of vernacular mapping itself, and points to an empirical shift of attention toward the institutional and governing assemblages of modern cartography; the cosmologies in which vernacular mappings operate, modify and engender. This is neither to guarantee the promise of ‘orientation’, nor a move to

imagine or diagram an ostensible 'bigger-picture' in which mapping lies. Instead, this is an attempt to trace a proto-map of contemporary cartographies and their möbius-like molar/minor politics. What is on offer here is not cartographic clarity, but an interrogation of the *minor* and institutional concerns of the relationship between maps and geopolitics.

The reason for this move is because cartography, specifically as a Euclidean science, has long been embroiled in, or associated with a pernicious brand of geopolitics; a relationship which has both restricted mapping as an inaccessible, exclusive form of 'royal science' (Deleuze and Guattari, 2004b) and inflected how human geographers attend to abstractions, in particular maps which stir consternation for their role in past belligerencies. By way of tempering these spatial anxieties, and in contrast to this molar (or macro) geopolitics writ-large, I want in this chapter, improvising alongside Deleuze and Guattari (1986), to explore the underplayed 'minor key' of cartography, to diagram an otherwise-register of everyday mappings, lines and tracings; a minor geopolitics generated by mundane, vernacular contours of creativity. In doing so, I emphasise and develop arguments introduced in Chapter Four that vernacular mapping is part of what Guattari (1995) terms the 'ethico-aesthetic paradigm', whilst at the same time questioning how these mappings function in the broader and intersecting context of state-led, jurisdictional and institutional cartographies. The implication being that in doing so, mapping can be understood differently as a processual performance of what Guattari terms 're-singularisation'; of minor transformations not limited to the representational, or to the macropolitics of identity and territory. Moreover, whilst state and vernacular mappings might initially appear at odds with one another, there is a politics that seemingly holds them together

in productive tension when analysed through the institutional and licensing geopolitics of cartography.

The chapter is in two parts.

The first part works under the theme of cartographic cosmology and, based on fieldwork meetings with industry-leaders, explores how corporations and businesses such as the UK's Ordnance Survey and Google are responding to vernacular mapping, particularly those cartographies predicated on digital, crowdsourced platforms. Freightened to this exploration is a wider discussion on licensing norms and regimes, and the question of why this matters for vernacular mappers; 3Cs and OSM alike. How, for example, might intellectual property licensing enable or constrain the ethos and activity of vernacular mappers? Moreover, the first part of this chapter questions what is at stake for cartography as an industry, as a discipline, a process, a concept, and as a mode, or *dispositif* (Foucault, 2002) of governmentality. In sum, this part of the chapter rallies together the institutional and molar politics of cartography; a familiar geopolitics of state-led control, and the role of maps in re-inscribing the certitudes of elite political power.

This discussion then segues into the second part of the chapter which is concerned with developing the notion of a minor geopolitics. Again, working across all the research fieldsites, I argue that whilst these maps and mappings branch from a notably orthodox, Euclidean geometry and discipline, concern should be cultivated for the minor geopolitics of maps which always runs parallel in and through the molar political assemblages of cartography. That is to say that there is a minor geopolitics which works, to variable intensities and extents, across state and vernacular mappings, a politics concerned with the quotidian and the body. To ignore this minor register would be to miss the creative, performative, aesthetic, and affective potential of

cartography, thereby occluding the more urgent and pressing geopolitics of mapping; the everyday and possibly imperceptible changes in and for space.

Cartographic cosmology

Cartography's influence, reach and pervasiveness, specifically in the post-Enlightenment western-world is difficult to understate, to the extent that it has engendered and sustained an entire mode of thinking and zeitgeist which Olsson (2007) labels 'cartographic reason'; the application of geometric cartographic rhetoric, ethos and practice to dealing with abstract human relations. Propagating cartography's influence is an equally substantial architecture, or cosmology⁶², of political and proprietary institutions which in themselves have relied on the work of maps to bring into being and sustain their very existence. Indeed, the familiar historiography of modern cartography is one that runs parallel to the emergence of early European nation-states following the signing of the treaties that constituted the Peace of Westphalia in 1648. During that period, diagrams – accurate maps – were in urgent demand from those nascent fiscal units seeking to establish their territories and subsequent, protracted exit from the Holy Roman Empire. Today, in many jurisdictions, cartography remains a science and practice still allied very closely to the state, and in

⁶² Cosmology and cartography share traditionally a close relationship with each other, both as practices and technologies of orientation; terrestrial and stellar. Pognon (1984: 334), for example, defines cosmology as, "the science of the general laws which govern the physical world... in which the shape of the Earth and its relationship to the rest of the cosmos, or more exactly to the celestial bodies, are the very basis of cartography". Likewise, cartography has intervened in the valorisation of certain cosmologies, Zuber (2011), for example, illustrating how Mercator with his atlas projections, challenged the prevailing Aristotelian and Ptolemaic cosmologies of the sixteenth century. To that end, the notion of cosmology deployed in this chapter is one that holds on to the sense of the *general* spaces, conceptual milieus, institutions and architectures of contemporary cartography. However, it is not a cosmology that pertains either to a governing or metaphysical, fixed totality. Instead, it coincides with a Deleuzian cosmology; "one of infinite expanse and limitless movement... [where] lines endure, insist, subsist" (Strathausen, 2010: 1). Put simply, cartographic cosmologies might be understood here as uncertain assemblages of mapping concepts and practices.

particular, to the functions of state militaries, as outlined in Chapter Six concerning the cartographic heritage of Peru.

What role then, what significance, for the onset of vernacular mapping? The overwhelming concern from critical cartographic and geographical scholarship in this respect has been with the challenge posed by vernacular mappings to professional, more overtly *institutional* cartography; a concern that could be caricatured as a debate over amateur versus professional practice; echoing topical contestations over what 'Wikipedia' and other such forms of crowdsourced knowledge production have done to the traditional hard-bound, printed encyclopaedia. These debates held in the context of maps are then often reducible to arguments questioning relative levels of accuracy between the rival camps (Haklay, 2008), and the associated accusation by professional cartographers of the denigration of cartographic precision by upstart, hobbyist cartographers. Here, in paying attention to minor geopolitics, I want to abandon the ostensible amateur/professional dualism, primarily because as will become evident, there is significant blurring in personnel, practices and ethos between what this chapter identifies as the 'molar assemblage' of cartography (proprietary and institutional) and the vernacular mappings animated earlier in this research. Instead, in this section the chapter will concentrate on two signal examples of the molar assemblage; Google Earth and the UK's Ordnance Survey as a vehicle for examining the cartographic cosmology in which vernacular mappings operate and influence.

Google

In a thesis concerned with contemporary cartographic technologies and practices, it would be remiss to ignore one of the signal actors propagating the current boom in geo-locative business and research; Google. Amongst the most familiar and infamous cartographic programmes in its suite of geo-locational technologies are

Google Earth, Google Maps (with Streetview) and Google MapMaker. Google itself has morphed into a euphemism for cartel, behemoth and omnipresence, and has become the favoured focal point of punitive actions for several state monopoly regulators. In dominating the global user-interface of the internet in such superlative terms, Google has unsurprisingly come under fire from commentators across the political spectrum regarding its commercial and proprietary reach and in the specific context of cartography, Google is continually subject to litigious actions, involved as it has been in breaching civil privacy laws in Germany to overstepping the line in China and the USA insofar as sensitive locations have been revealed (and subsequently obfuscated) to web users by its virtual globe application.

In geography, Google, and in particular its cartographic programmes have been treated with caution, suspicion and optimism in equal measure. Google Earth in particular has been an object of keen fascination and distrust (Klinkenberg, 2007) by geographers and internet scholars (see Graham, 2010). Google Earth is curious in that it is a pastiche or mosaic of thousands of satellite images that Google has purchased and licensed from various jurisdictions and geospatial companies; the wrangling of many a corporate deal under conditions of tight security. Those satellite images are then assembled and stretched across a virtual globe, much like gluing wallpaper to a surface and which at certain resolutions, one can spy the joins and cracks between tracts of the digitally virtual world; it is not a, “simple mirror of a physical counterpart, but instead characterised by both black holes of information and hubs of rich description and detail” (Graham, 2010: 422).

Countering the flight to a dystopian and Orwellian critique of Google Earth, Kingsbury and Jones (2009: 502) look to the Dionysian play of the virtual globe, contending that, “we undersell its [Google Earth’s] capacities as an alluring digital peep-

box, an uncertain orb spangled with vertiginous paranoia, frenzied navigation, jubilatory dissolution and intoxicating giddiness". Indeed the ludic qualities of Google Earth, as with other maps, are often bypassed in favour of evoking their more troubling and mischievous social relations (Perkins, 2008), but at the same time, Kingsbury and Jones' (2009) own romanticised intoxication with Google Earth (Eades, 2010) is arguably a little too overwrought and saccharine. More prosaically, Google Earth can also be a distraction from work, a diversion, a journeying through a staccato of mouse clicks, zoom-ins/zoom-outs, spinning, dreaming and a series of anticipations, not least in affective and virtual registers. Google Earth could help plan a trip to the local library, a future vacation, or as in common with other maps, it might aid in getting lost.

Many of the concerns about Google Earth's provenance and influence on perceptions of space have been transposed from long-held preoccupations about paper-based maps (that maps lie, that they evoke the subjectivities of their proprietors are familiar tropes), and in that respect there is little novelty in the cartography itself of the application. What appears and *feels* different about the likes of Google Earth is something Ed Parsons, the Chief Geospatial Technologist at Google suggested in a meeting about all things Google and maps. Ed has himself a long heritage in the cosmology of cartography, having worked in the UK's Ordnance Survey prior to joining Google. For Ed, what is different about Google Earth and other similar digital applications from 'maps of old' is primarily in ethos; specifically that,

"the ego is placed at the centre of the map...and is the point from which the map becomes what it becomes" (Ed Parsons).

Google Earth can be customised and orientated to the whims, habits and desires of the user, or “constantly torn and modified” to borrow from Deleuze and Guattari’s (2004b: 13) treatise on cartography. Of course it is not all user-defined, and Google retains a measure of control over the parameters of what may and may not be visualised; but again, this is hardly a remarkable feature within the realms of cartography. Importantly, applications such as Google Earth (and also OpenStreetMap) are evocative of how contemporary digital cartographies have transformed maps into technologies of cartographic individuation insofar as that whilst the base map platforms are shared, the uses, styles, subjectivities, affects and journeys that emerge from these mappings can be contorted and bent to multiple demands, biographies and mundane experiments, in which maps appear to orbit around the user; acknowledging simultaneously that the map is caught up in the production of egos and cartographic subjectivities; part of the continual and relational cartographic ontogenesis that Kitchin and Dodge (2007) allude to.

Moreover, this proliferation in digital earths, these ‘mashup’ maps – the hybridising and welding together of base layer maps with other online applications – challenges the security of maps as stable, ‘immutable mobiles’ (Latour, 1987). Mobiles they might remain, condensed, contracted and packed away into the pocket smart phones of millions of people, but immutable they are not. In fact, they are almost entirely mutable, particularly in the case of open-source maps whereby the very code, the actual digital foundations of the map are subject to alteration by potentially anyone with the appropriate equipment and technical literacy. Google Earth and other similarly commercial digital maps feature a playful vulnerability to the extent that they are susceptible to individuation, but they also sustain an obduracy in the manner that cartographic data is collected, marshalled, licensed and distributed. It is then this

tension between the poles of experimental playfulness and proprietary control from which open-source, vernacular mappings such as OpenStreetMap have emerged by way of a challenge to restricted data.

Google Earth and Google Maps are resolutely *not* open-source, and their licensing terms are guarded jealously. That said, Ed Parsons went on to remark that Google have not been immune to ‘amateur’ impulses in cartography and as part of Google’s future business plans, there is scope to incorporate growing amounts of crowdsourced geodata into its cartographic applications, having done so since 2007 (specifically this has manifested itself as the crowdsourced programme, Google MapMaker). As Ed warned, crowdsourcing is not to be conflated with open-sourcing and what Google is currently doing is taking volunteered geographic data collected and generated by various publics, and then applying the same licensing restrictions on this data as it would with any purchased dataset. Clearly, this is where the likes of OSM depart in process from the likes of Google, even if Ed is an enthusiastic supporter of open-source movements such as OSM;

“I’ve always been an open-source evangelist”, said Google’s chief map-maker.

OSM share a mutual respect for Google, held together by similarly geeky impulses, and Ed has been a guest of honour at all of OSM’s annual conferences since its inception. His concern, however, with the likes of OSM is that their accuracy threshold is not robust enough for utilities and companies to use the movement’s work as a reliable source of cartographic data,

“they [utilities] simply don’t trust their maps yet... one day they might... perhaps, when OSM have been folded into a cartographic agency, company... or indeed, heaven forbid, until they become a proprietary organisation themselves!”.

Despite Google’s established notoriety as an organisation, as a verb articulated and practised in so many everyday lives, to Google and to have Googled, and as a core actor in the molar assemblage of cartography, there are also aspects to its considerable mapping repertoire that resonate with an ethos of the vernacular, albeit perhaps not ones envisaged by Google’s founders; namely the *realpolitik* that it does intersect and orientate millions of quotidian journeys, but more importantly, that it allows for a straightforward playfulness and experimentation in its use; a clicking through layers of the virtual world to arrive at a pixel that was never intended; a proto, speculative wayfinding which places energetic demands on the body; arching over a computer screen, eyes strained by the glare of the screen, repetitive strain injuries as the index finger becomes indelibly attached to the mouse or mobile phone keypad. The use and play of Google Earth is not so much a dry-run or avatar for a journey yet to be made, but is in itself a geographical and even geopolitical journey insofar as an excursion in Google Earth constitutes an experiential trawl through a strictly licensed stitching together of satellite images, overlaid lines and user-added photos of I-was-here and you-could-be-here destinations; transgressing at once the imperceptible fissures between molar and minor geopolitics, between a politics of territory and a politics of the body.

Google is a relative newcomer to cartography’s rapidly expanding cosmology, yet it and its cartography have rapidly become the leitmotif for a generation of internet users. Standing in stark, cartographic contrast to Google is the UK’s Ordnance Survey (OS) which celebrated its two-hundred and twentieth birthday during June 2011. OS is emblematic of a very particular type and practice of cartography, and in the following

paragraphs, I will explore how this venerable British institution is influencing and responding to the growth in vernacular mapping.

Ordnance Survey

An executive agency and non-ministerial department of the UK government, the Ordnance Survey was borne out of several regal decrees and Royal Commissions instigated by King George II from 1747 onwards, demanding the accurate mapping of Britain in the face of French insurgency during the Napoleonic wars; hence its explicitly militaristic nomenclature. In twenty-first century Britain, Ordnance Survey is more readily identified with ramblers than with armadas, yet nonetheless, the organisation remains one of the most prolific and respected cartographic agencies in the world. That respectful deference, however, is not shared universally, and for groups such as OSM, Ordnance Survey constitutes their *bête-noire*, particularly with regard to polarised ideas and protocol on cartographic licensing and distribution. To investigate what OS made of their pariah status amongst OpenStreetMappers, I met with one of its research teams on two occasions; discussing themes around participatory mapping, how to map the everyday, and to assess the very future of the molar assemblage of cartography.

A significant portion of OS's budget is ring-fenced for internal and commissioned research and there are normally between six and eight active research units working at OS's Southampton headquarters. At the time of doing fieldwork, one of these units operated under the title, 'Vernacular Geographies', a label OS's Chief Executive Officer, Vanessa Lawrence, had employed in the UK's Geoforum Annual Lecture in January 2010, six months prior to the meetings with the research team. The articulation of 'vernacular' by a cartographic giant was yet another moment of reassuring serendipity along the research journey, despite a heavy suspicion that OS's iteration of vernacular would likely be an altogether different proposition to the one outlined here in previous

chapters; and indeed it was. For Glen Hart, Research Manager at OS, and his team, vernacular geography has a very specific definition; it is about the names assigned to local places by local people. The reason for researching these names is to, “better understand everyday perception of people’s residential areas” and also to, “assist emergency services and utilities by producing gazetteers of the vernacular names used”.

As such, OS commissioned Cardiff and Nottingham Universities to devise methods for collating vernacular names in those cities. In the case of Cardiff, for example, a website was established in which residents could submit and geo-locate names they felt were associated with particular areas. The response rate was low, and the research team in Southampton found themselves confronted with “verifying and moderating” the submissions, which as Hart conceded, “numbs the vernacular a little”⁶³.

⁶³ ‘Numbing the vernacular’ is something for which OS has previous form, having compiled gazetteers of locally ascribed place names since its inception, particularly evident in early-modern Irish history. Brian Friel (1980) in his play *Translations*, dramatises the sometimes violent nineteenth-century Anglicisation of Gaelic place names in the fictional Donegal town of Baile Beag by the Ordnance Survey section of the Royal Engineers. The forced cartographic rendering of Ireland was, in disingenuous terms, “proof of the disposition of the [British] legislature to adopt all measures calculated to advance the interests of Ireland” (Arden-Close, 1926: 107); “a gesture... to indicate presence” (Baile Baeg farmer Doalty to British surveyors in *Translations* Act III, Scene I). Tim Robinson (1986; 1995) too, in his compass-point oriented, two-volume *Stones of Aran (Pilgrimage and Labyrinth)* also notes the fervent cartographic endeavours of the time, aided by Irishman John O’Donovan, “the foremost expert of his age on the ancient manuscripts of Ireland, and an incredibly energetic fieldworker. For a decade, from 1834, O’Donovan travelled Ireland, recording place names, local history and folklore, and describing antiquities: his letters to the Ordnance Survey, written from the field to base, amount to a hundred and three large volumes – a vast mosaic of Ireland’s past as reflected in its ruins, lore and manuscripts, all held together as if by ivy, in a knotted and vivid account of his travels” (Robinson, 1995: 117/118). Whilst O’Donovan’s own efforts were meant to constitute a broader vernacular mapping of Ireland, the parsimonious British government insisted that only the crude geo-locative ‘data’ be retained; specifically place names and nothing else. As such, the majority of O’Donovan’s work remains unpublished.

The understanding of space at the Ordnance Survey – a vignette

A brief interlude, a fieldwork space-time.

The fieldworker is halfway through a meeting with the Vernacular Geography research team; Glen has just finished a sentence on changes to data regulation in the UK. It's an important theme, although distraction sets in. In the corner of the fieldworker's left eye, lines of removal men in the background are hauling boxes out of the office, on their way to be re-abandoned at OS's shiny new, purpose built headquarters, 'Explorer's House'. Paula, a psychologist, is also on the team. Foolishly, the fieldworker is curious;

Fieldworker: "I'm curious that there is a psychologist on a research team about maps... how did you end up working for OS, Paula?"

Paula: (*curtly*) "I applied for a job"

Glen: (*laughs heartily*)

Fieldworker: (*crushed*) "Ah right" (*awkward chuckle*)... "but what role does psychology have to play in vernacular geography?"

Paula: "you'll have to be more specific in your question, but it is to do with the personal, cognitive understandings of space, and how people navigate higher-level representations".

Fieldworker: "is navigation then an entirely cognitive practice? What about gut-feelings? The taxi driver on the way here said he found his way round Southampton through practice and gut feelings..."

Paula: "the problem with gut feelings is that they have to be understood in some context in the end, and that involves its cognitive framing, so when it comes to space...as I say, it's about dealing with higher-level representations, as basically memorising certain spaces. So when I moved to this area, the way I dealt with the new space around me was by drawing a mental map in my head... this is where the vernacular originates, comes from... so I know that at the end of my street, there is a trunk road, and I use that trunk road as an imaginary barrier to what I perceive to be my local area... of course the trunk road is a very real barrier too... it's far too dangerous to cross".

At the risk of over-coding this brief fieldwork exchange, what appears to preoccupy molar assemblages of cartography is a concern for the abstractly cognitive and a residual dependency on the tropes of mental mapping (Tolman, 1948; Kitchin, 1994); a geopolitics predicated on the Euclidean grid and the Cartesian settlement. For OS then, the vernacular constitutes a pre-figured notion, a Kantian mental category

through which the world might be diagrammed and understood, in terms invariably reduced to the local.



//7.1// Visiting Ordnance Survey // Southampton

Despite the narrow conceptual vocation afforded by OS to the idea of vernacular, there was at the same time an acute awareness from the research team that the vernacular is, “not our geography”, and moreover, that attempting to capture the vernacular, or multiple vernaculars cartographically is, “likely impossible, at least to do so consistently”, which is why for the Vernacular Geography research team, the project has more to do with compiling lists and gazetteers than it has to do with drawing maps. “Ironically”, starts Glen, “OS is probably better equipped to deal with the vernacular than OpenStreetMap”, hinting at the latter’s eschewing of the informal or unofficial in pursuit of the singular cartographic truth. If the vernacular is understood in purely linguistic terms as it is done so by OS in this context, then there is some viability to Glen’s contention, however, if the notion of vernacular is broadened in its conceptualisation to be inclusive of the mundane, the co-produced and the micropolitical, then it is the likes of contemporary mapping practices, such as OSM, which more closely resonate with this broader understanding of the vernacular, entangled as it is in everyday, bodily performances.

Perhaps the more salient point made by OS is the accusation of cartographic conservatism amongst *amateur* mapping organisations, and again in particular, OSM. As Laura from the research team suggested, “OS are regarded... at least here [in the UK] as having the gold star in mapping accuracy... that’s one of the reasons behind the strict copyright laws on our maps and datasets. I think others are jealous of our accuracy... and from what I know about OSM, they are constantly trying to imitate us”. OSM users would be quick to dispute, but in participating in their mapping parties and conferences, there is a sizeable appetite for cartographic orthodoxy in the want for precision, accuracy, and directly resulting from those agendas, the desire for cartographic credibility amongst its mapping peers. For all their disputation of licensing norms and traditional cartographic practice, OSM encourages within its members a cartosensibility attuned obsessively to the notions of accuracy and straight-lines that is arguably more overt in its expression than the pursuit of the same goals within the offices of OS and its employees.

That is not therefore to claim that OS do not themselves feel caught languishing in the wake of the growth of crowdsourced and open-source cartographies. Specifically, OS are concerned with these groups in two respects. Firstly, OS remain unsure of the nature and motivation of vernacular mapping groups such as OSM in the sense that they do not fully ‘get it’; so much so that at the conclusion of our final meeting, the research team from OS asked if I would prepare a briefing document on the profile, motivations and practices of OSM. I refused; a reaction partly attributable to a vague, disconcerting and confused quandary that this might constitute some form of cartographic espionage, but also down to the grubbier fact that OS would not be remunerating this service. Secondly, OS has needed recently to transform and reinvent itself in corporate terms due to remarkable statutory changes in data management brought about, in part, by the

explosion in primarily digital organisations that have disposed of the rule book associated with licensing and copyright.

Indeed, the OS written about here is certainly not the organisation that existed at the start of this research three years ago. Field (2010: 8) summarises, “OS effectively transformed from an executive agency of the UK government and Trading Fund [self-funding] which relied on cost-recovery in order to satisfy the Treasury, to a provider of free data”. This transformation came about, according to Glen, as, “one of the last decisions made by the Gordon Brown government”, when the UK state started to pursue an open-data agenda, not so much because of the political pressure levied by freedom of information activists, but because restrictions on data, such as those imposed by OS’s virtual monopoly on cartographic information, were stifling competition from private sector geo-locative industries. Therefore, under the newly created ‘Open Government Licence’, OS was forced to release massive amounts of previously restricted, Crown Copyright data. The irony now of course, as Field (2010) identifies, is that this huge release of geo-data has undercut one of the very reasons and motivations for the existence of vernacular mapping groups such as OSM; to force changes in the implementation and governance of restrictive licenses on geographic information. Paula suspects however, that for OSM users, it is a classic case of, “a model railway syndrome or mentality... it’s more fun just to play around with it, dismantle it and start again, even if you had a fully functioning railway in the first place”. This assertion might be regarded as somewhat dismissive, and many would argue from OSM that what they are trying to achieve goes far beyond the ambitions of sustaining a hobby; there is more at stake in creating a restriction free map of the world. That is not to deny that a sense of playfulness, experimentation and practices cartographic bricolage are amongst the reasons for OSM’s ongoing existence, but what links the molar assemblage of

cartography with the emerging presence of vernacular mappers, in both straightforward and problematic ways, is the issue of licensing, around which to some extent, the question of geopolitics turns; a recurring topic that has punctuated the preceding chapters and one to which the current chapter now returns as part of this diagramming of cartographic cosmologies.

Licensing

Maps as artefacts and mapping as a set of processes are both enmeshed in intra- and international licensing networks, caught up in a complex tangle of intellectual property rights, whilst at the same time also used as the tools and inscription devices that establish and maintain those very regimes of property, and revenue, protection. Cartography is bound up with licensing not merely due to its latent capacity as a science or political apparatus (Wood and Fels, 1992), but also because of cartography's potential; creative, political or otherwise. This potential then lends itself to becoming a commodity or asset, whereby, "establishing intellectual property is one way of securing control over the potential life of creative ideas with reference to both their production and their future use" (Strathern, 1996: 162). In specific regard to mapping, the imposition of licensing constraints not only involves the mercantilisation of cartographic knowledge (Lyotard, 1984), it also includes the speculative commercial valuation, or 'qualculation' (Callon and Law, 2005) of maps' and mappings' futurity, its virtual capacities.

For Ordnance Survey and similar purveyors of the traditional, paper based map, the licensing calculus was, prior to statutory overhauling, relatively straightforward; copyright restrictions were imposed on all data and products, for which their reproduction and use by others required payment. Datasets and products over fifty years old would then be released from copyright control, and thereby divested of the

previous conditions. The critique of this system is equally perfunctory; namely that this regime created a virtual monopoly on the control and dissemination of geodata, thus stifling competition and provoking a wave of distrust from users who were left unsure as to what the maps were revealing or concealing from view. Indeed, one somewhat perverse form of intellectual property protection used by some mapping agencies in the molar assemblage of cartography is the practice of laying copyright 'Easter eggs'; icons, features and signs that are labelled on the map, but not existent in the actuality that they are supposed to translate. For example, in the Bristol edition of the A-Z Map, one can find printed on the page detailing the suburb of Clifton, just off Canynge Square, the street, 'Lye Close'. Whilst Canynge square exists, both on map and in Clifton itself, Lye Close certainly does not; it is a 'trap street' and the only reason for its inclusion on the map is simply to strengthen the hand of the publishers should a legal dispute arise over copyright with third-parties that have plagiarised the A-Z material outright, hence proving that they had not done the mapping themselves. It is a strange form of cartographic spite, yet it is hugely effective in litigation, and demonstrates the measures cartographic agencies will pursue to guard their intellectual property, even if it turns out to be, riddled with lies.



//7.2// Lye Close, not in Bristol. Image courtesy of Steve C (with, of course, permission)

Working to counter both this type of licensing regime and its attendant and bizarre mode of enforcement, groups such as OpenStreetMap emerged to take on the assumed cartographic primacy of Ordnance Survey et al. In doing so, these groups have needed to rethink not only the cartography involved, but also the very licensing model to be employed, and in the instances of this research, both 3Cs and OSM licence their works under 'Creative Commons' (OSM is currently undergoing a protracted transfer to an Open Database Licence). Indeed 3Cs and OSM are predicated on making the licensing distinction between themselves as vernacular mappers and the molar, proprietary assemblage of cartography. To reiterate a point made in Chapter Four, the Creative Commons suite of licences, created by a Californian non-profit organisation of the same name, allows creative works to be licensed and distributed without the manifold complexity of standard copyright laws, and allows authors of such works to waive certain property rights, in expectation of a resultant broader distribution of the works involved. Wikipedia is a signal example of an (ongoing) work licensed under the auspices of Creative Commons; allowing users of Wikipedia to edit the content, and distribute unrestricted, any products or works derived from Wikipedia, without fear of copyright recrimination.

Criticism of the traditional copyright regime as once employed by Ordnance Survey has never been in short supply, but in recent years, despite being welcomed in broad terms as a worthy pursuit (Elkin-Koren, 2006), organisations such as Creative Commons have come under increasing criticism themselves for exacerbating the excesses of licensing arrangements. Berry and Moss (2008), for example, are suspect of the Creative Commons' practice of aligning of copyright with the notion of creativity, particularly when they fail to outline a definition of what creativity might entail. Indeed Kemp (2009) argues that the complexity and panoply of Creative Commons licences

available works only to stem creativity, and does harm to authors, artists and others that rely on the strict certitude of traditional copyright as a guarantor of intellectual property and revenue protection. Moreover, in the case of digital works, despite the complex and opaque politics of software coding⁶⁴ (Fuller, 2008; Berry, 2008) that undergirds the work of these alternative licences and in particular, the performances of OpenStreetMap, the imposition of Creative Commons licences serve only to further still black-box this politics and to overlay, or impose, what Deleuze would term a plane of organisation, or plane of transcendence (representation and stasis) on the micro impulses of creativity.

Put another way, the Creative Commons licensing regime is not entirely dissimilar from traditional copyright insofar it involves a molarisation of creativities, or in this case, cartographies. For an OpenStreetMapper then, for example, what starts as a drift in the countryside with a GPS device then becomes enrolled through its uploaded traces into the molar regimes of licensed property. Much the same goes for 3Cs; thereby creating for them an acutely awkward scenario that stands at odds with their core motivation of undoing the proprietary imperialism of traditional licensing regimes. Moreover, works or products assigned to Creative Commons enter into a one-size fits all licensing system that itself has no state-bound geopolitics, which can have the adverse effect of nullifying local and regional specificity; entering into a regime which remains largely tailored to United States intellectual property laws. Creative Commons might not reveal publicly its mooring (or miring) in legalese, but it still remains a form of pseudo or quasi copyright; 'copyright-lite'. For that reason, molar cartographers such as

⁶⁴ The development and distribution of code, or the practice of coding in the promulgation of digital software, is largely unregulated, and the invariable web of checks and restrictions on code are governed by its developers and proprietors. Moreover, the creation and process of code and coding is, to a significant extent, un-codified; or put differently, the expert, geeky and vernacular knowledge performances involved in coding make it exceedingly difficult to diagram a politics of genealogy of code.

Ordnance Survey could find themselves once again in the ascendancy over emergent mappings such as OSM because whilst the former organisation has been effectively unshackled from strict Crown Copyright laws, and handed a *fait accompli* to make the majority of its data publicly available without restriction, the latter finds itself in the midst of a difficult contortion of licensing regimes that have the potential to re-inscribe and exacerbate associated restrictions on creativity and distribution. Indeed, for OSM, the raging debate on licensing marks what its founder Steve C described as the movement's 'adolescent stage', and where OSM goes from here in terms of licensing will define its future position in the cosmologies of cartography.

In sum, vernacular mappings, or those cartographies identified as dealing in and for the everyday, work alongside and sometimes through the molar assemblages of cartography, tied together by the very licensing and legal restrictions that they seek to undo. The cosmology of cartography then, is a far more variegated scene than it is a simple dualism between professional and amateur cartographers. For cartography as a professional industry, suggestions that it might be heading for a dank nadir, or that cartography is dead, "thank God" (Wood, 2003: 4) are to a large extent, exaggerated. The abandonment of traditional licences has reinvigorated the market for geo-locational technologies and software, and as Google have demonstrated, the incorporation of crowdsourced data is for them, a low-cost source of volunteered, geographic information.

As a discipline, cartography has undoubtedly left behind pencils and protractors in the tool kit, but it is still a lively academic subject, taught in different arenas and registers, largely under the rubric of Geographic Information Systems and Web 2.0 applications. What remains constant across the teaching of traditional map skills to Googling skills is a Euclidean and geometric rigour in the discipline's demand for

objectivity and accuracy, and it is on these factors from which geospatial companies insist upon in order to profit. This links also to the process of cartography that remains a form of remote sensing, although arguably in current forms of cartography, there are far more proxies mediating the process from object to map and vice versa, a constellation of the satellites, GPS devices and wiki-codes which have characterised previous chapters.

Conceptually, cartography in its molar assemblage, as Ed Parsons described, has become a technology and practice of the ego, a series of common maps that come into being through their relational rendering by humans and non-humans performances and devices; but which are tailored to individual bodies. Consequently, recent cartographies display a mutability that was necessarily not inherent to paper-based maps; wiki technologies allow for the incessant updating of data, but because of this mutability, cartographies condensed on a smart phone are no more temporally durable than a paper-based road atlas which is immediately rendered anachronistic as soon as it falls into the abyss behind the passenger seat.

As a tool of governance, an apparatus of governmentality, or *dispositif*, governments might have ceded sovereign control over cartography and its deployment as a colonial guarantor (although to re-iterate, many countries, including Peru retain a choke-hold on state cartography via the military), but maps play a different, more subtle role in the governing of bodies; not just in a disciplinary sense insofar as bodies can be geo-located or surveilled in milliseconds and at alarmingly high resolutions, but also because of the sheer immanence of maps to human bodies, as near cartographic prosthesis in the shape of smart phones, search engines and a burgeoning field of locative industries. All of this; the complex web of licensing and the institutional architecture of mapping, constitute a vibrant and pulsating assemblage of molar

cartography which intersects with the most mundane itineraries of everyday lives and moreover, because of the explicitly geographical nature of this circuit, there is clearly a geopolitics to it all, but not necessarily a geopolitics that invokes immediately a picture of sovereign or hegemonic dominance; this is a politics that involves the generation of space in the bodily performances of mapping to the extent that the idea of maps as dispositifs take on a different valence, a different role. As Deleuze (2007: 343), refiguring Foucault, explains, dispositifs are apparatuses, “But what is an apparatus?... It is composed of lines of different natures. The lines in the apparatus do not encircle or surround systems that are each homogenous in themselves, the object, the subjection, language etc., but follow directions, trace processes that are always out of balance, that sometimes move closer together and sometimes farther away”⁶⁵. If anything then, the notion of contemporary cartography acting here as an apparatus has more to do with creating spaces of disorientation, than to do with ordering spaces of control as a technique of governance.

So far, the discussion has been centred around the molar assemblage of cartography, but despite its concern for the professional, proprietary mappings of Google and Ordnance Survey, molar concerns for institutional cartography also give way to the possibility of the work maps can do in a minor register through cultivating a series of creative, micropolitical and disorientating acts, gestures and spaces, all of which I now want to diagram in the second part of the chapter.

⁶⁵ Deleuze (2007: 343/344) continues, “untangling the lines of an apparatus means... preparing a map, a cartography, a survey of unexplored lands... ‘fieldwork’”.

Diagramming a minor geopolitics

So far the chapter has diagrammed the molar assemblage of cartography or put otherwise, traced its form and function as a royal science, or molar aesthetic. Moreover, the chapter has been critical of the licensing regimes involved in these circuits of cartography and their particular uptake and re-inscription, albeit under a different guise, by the emergent forms of vernacular mapping that have constituted the core focus of this research. The themes discussed in the previous section; licensing and the institutional architecture of cartography are necessarily tied by their inherent spatiality into a form of geopolitics, itself a variegated and troubling realm of discourses, performances and actors; one that has long been associated closely with mapping. It is not my intention here to concentrate solely on the terms of this association; well-rehearsed as it is elsewhere by geographers and political scientists alike. Instead, and notwithstanding vernacular mappings' obvious entanglement with the molar assemblage of cartography, I want in this part of the chapter to argue that geographers and critical cartographers should attend to the underplayed minor register of mapping; the semi-tone of cartography generative of spaces of mundane, yet affective, virtual and non-representational performances; quotidian processes which in common with all cartographies, are implicated in the processual cultivation and transformation of worlds; the very stuff of a minor geopolitics.

In making these arguments, this part of the chapter begins with a brief overview of how the troublesome relationship between cartography and geopolitics has been framed conventionally in geographical scholarship. Improvising alongside Deleuze and Guattari's (1986) reading of Kafka and subsequent iteration of the minor, the chapter continues by interrogating what conceptual work this notion might do in cartography. Having explored what the minor entails, the chapter then plays this register across the

fieldwork space-times of this research, focussing upon the question; to what extent are new forms of cartographic practice producing spaces that are simultaneously creative and geopolitical? Furthermore, in conversation with cultural theorist and 3Cs interlocutor, Professor Lawrence Grossberg, this part continues by animating maps and mappings as minor geopolitical refrains of and for space. Finally, in drawing the chapter to a close, the institutions that were examined earlier are folded back into an analysis of how the re-imagining of cartographic institutions, through processes of *institutionalisation*, is important for diagramming the minor geopolitical tendencies of contemporary vernacular mapping processes.

Belligerent dramas

“The traditional dualist oppositions that have guided social thought and geopolitical cartographies are over” (Guattari, 2000: 32).

In the same way Jacques Rancière (2009) said of aesthetics, so too could it be alleged of cartography, namely, that it has garnered a ‘bad reputation’, but whereas the former is accused of purloining the meaning of artwork, the latter has been tainted for its representational tyranny and profound involvement in a particularly pernicious brand of geopolitics (Dodds, 1993); a geopolitics characterised by colonial lust, imperial politicking and atomically propelled Cold War nightmares; Halford Mackinder and Henry Kissinger acting out these manifold ‘belligerent dramas’ (O’Tuathail et al., 2006) over the vertical and horizontal spread of a world map. What cartography lent to this crusading iteration of geopolitics was a pseudo-scientific, and institutional, rigour that it had hitherto lacked (Boria, 2008). In the mid-twentieth century, the heady alchemy of war, maps and geography would form a powerful triumvirate (Dodds, 2008), not only in discursive terms, but also in the performance of politics itself; maps bringing

into being the 'first', 'third', 'non-aligned' worlds and their attendant geographical imaginations. Cartography, as demonstrated in Chapter Four, has also been deployed in recalcitrant terms against the domineering envisioning of politically sovereign units (see Peluso, 1995; Nietschmann, 1995; Bhagat and Mogel, 2008; Paglen, 2009), but what both these hegemonic and counter-hegemonic actors have in common is a preoccupation with the representational valence of maps, in the same way Dittmer and Dodds (2008: 437) claim of the study of the history of popular geopolitics in which, "an overarching theme... has been a concern over geopolitical representation and discourse".

Held ransom by both a truculent heritage and an awkward raptness with representation; a dependence on spatial metaphors (Aoki, 1996), there has always been the risk that cartography's analytical purchase could deteriorate (Grossberg, 2010). Small wonder then that some geographers, specifically at the human end of the disciplinary spectrum, have presented with the symptoms of what has been diagnosed as a cartographic anxiety (Gregory, 1994; Painter, 2008), a map-phobia (Wheeler, 1998), or an acute strain of carto-neuroses (Painter, 2006), maladies in which, "geographers... find maps, with their categories and symbols, downright inimical to their core agendas" (Wheeler, 1998: 2). Resultantly, O'Tuathail (2010: 2) surmises, "there has been little debate on the alternative geopolitics... namely a more geographical geopolitics that disaggregates rather than homogenises actors, and, by implication, localises rather than globalises analysis and explanation".

This is an undoubtedly adumbrate summary of cartography's complicity and entanglement in a narrow realm of belligerent, representational geopolitics, and it would be disingenuous to render either geopolitics or cartography reducible to one another. Similarly it would be wrong to suggest that cartography was straight-jacketed,

uniformed and disciplined by solely militaristic demands; in fact, mapping remained a site of febrile creativity in which, “like futuristic artists, geopolitical mapmakers embarked on an audacious process of stylistic and technical experimentation, celebrating action, aggression and competition” (Boria, 2008: 301). That said, and by way of a reparative gesture to counter the sustained disillusionment with ‘aggressive’ mapping, and to get beyond the anxiety (Crampton, 2010), I want now to interrogate the notion of the ‘minor’, and how through consideration of this register, in thought and performance, this might enable a writing-otherwise of cartography and geopolitics; one which edges away from the representational geopolitics that preoccupies the institutions outlined in the first part of the chapter. This would constitute a minor geopolitics that, whilst not denying the contention that the drawing of a line can cost lives (Carter, 2009), acknowledges also that the philosophy of representation is dissolving (Foucault, 2002), and so it forms a politics which valorises the ethico-aesthetic potential of mapping in avowedly vernacular, prosaic and mundane performances.

Lines for the minor

“Show me the way to or through a minor city; a trajectory across the city through its sub-sites, alt.sites, non-sites; its irregularities and the irregularities of our movement; through its failures, mistakes, our failures and mistakes” (C.Cred, 2007: 121).

“Ontology, aesthetics and politics are inseparable at the moment in which philosophy becomes minor” (Nunez Garcia, 2008: 1).

“We need to minoritise” (Dewsbury, 2003: 1928).

To be explicit from the outset, as with the prefix ‘micro’ in micropolitics, the employment of the term ‘minor’, in the context of both Deleuzo-Guattarian cartographies and this research, does not entail an inevitable, facile or pejorative scalar flight to the local or the insignificant, nor does it stand as a notion counter-posed to what might be labelled as the ‘major’ or the ‘molar’. Moreover, this provisional signposting is not to dismiss nor police the parameters or the conceptual vocations enrolled into the minor, however in this instance I want to outline a (micro) politically more productive version of the notion, working alongside and through the poly-textural lines of flight drawn by “maverick geographers” (Jacobs, 1996: 379), Deleuze and Guattari.

The instantiation of the minor that I want to develop here calls on Deleuze and Guattari’s (1986) reading of Kafka and concomitant notion of ‘minor literature’. As both explain, a minor literature does not emerge from a minor language, but from a minority or minoritarian group working within the strictures of a major language, hence their take on Kafka; a Czech Jew writing in the major tenor, German, but deterritorialising the language so that it can be written and apprehended *otherwise*. Summarised by Bogue (2007), the three outstanding characteristics of minor literature are: one, the

deterritorialisation⁶⁶ of language; two, the connection of the individual to political immediacy and, three, the collective assemblage of enunciation⁶⁷. Added to these characteristics, the minor might be understood also as tentative, uncertain and experimental; a register which involves reterritorialisation as much as it does deterritorialisation whereby the minor and major are held in a productive tension (Massumi, 1996). Importantly, what Deleuze and Guattari contend of minor languages is that they (as with all languages) are modes of action; not idle descriptors of the world, but enactors of worlds. This sense of the minor plays across to maps and mappings; also modes of action embroiled in the generation of spaces; spatial technologies of deterritorialisation and reterritorialisation. Recalling part one of this chapter which diagrammed cartography's institutional and statist architecture, it might seem inconceivable that mapping could work in and for the minor, however the point is that its minor impulses beat alongside the rhythms of molar, major cartographies. They are not distinct, countering forces in the form of a blunt dualism (Bradshaw and Williams, 1999), but a susceptible weave of lines working at different registers; the molar evoking identitarian collectives whilst the minor pulsing through affective desires.

The minor might also be understood through the very architecture of cartography itself, that of lines, “[s]omething abstract yet real. Something architectural. Something corporeal. Something incorporeal. Something transversal. Something inbetween” (McCormack, 2004: 212). Whereas molar lines take on the role of tracing familiar political shapes and concerns, minor lines offer far less in terms of spectacle

⁶⁶ Deterritorialisation as a process of, “coming undone” (Deleuze and Guattari, 2004b: 322); a line of flight that points to the creative vectors of an assemblage (Parr, 2005).

⁶⁷ The signs and incorporeal transformations associated with, or attributed to bodies (Deleuze and Guattari, 2004a).

aligned to the 'old loves' of class, gender, of identity. Instead, minor lines are lines of flight, "the rupture, the nomad line" (Raunig, 2007: 227); lines which we do not see or witness by sight, "because [they are] the least perceptible of things. And yet it's along this line of flight that things come to pass, becomings evolve, revolutions take shape" (Deleuze and Parnet, 2006: 64). Counter to the Euclidean, geometric vectors of molar cartography, minor lines of flight are transversal, overcoming the strictures of horizontality and verticality, instead developing, "constellations that are a-centric, which do not move on the basis of predetermined strands and channels from one point to another, but right through the points in new directions" (Raunig, 2007: 205). They are lines through which the virtual might be actualised whereby continuous variation, change, is the norm; an, "affective coefficient of knowing that things could be otherwise" (Bogue, 2005: 118). The drawing of these minor lines, and the lines themselves, have no model; they are a becoming, a process (Deleuze, 1995). "Fractional and molecular" (Doel, 1996: 426), such minor lines are becomings belonging to geography, "orientations, directions, entries and exits" (Deleuze and Parnet, 2006: 2). Escapist and subversive at times, yet more importantly, "relentlessly transformative and inextricably relational" (Katz, 1996: 489), this is just a limited characterisation of the lives of minor lines.

Where do these minor lines take us?

It is easier here to advertise the 'nots' in response to this question. These lines do not take us to a pre-determined destination, indeed they might not lead anywhere, especially as the hope for the existence of a fully formed destination seems a dream too far. Their texture and obduracy cannot be relied upon; like intensity, minor lines wax, wane, condense and evaporate. A pause. An affirmation in the guise of negation; minor

lines will not tell you where to go. Instead, recall Witham, Andover and Glasgow; a dizzying repertoire of fieldwork traces in which lines, digital, gestural, pencil, inscribed and ephemeral play into the weave between abstraction and experience. Major and minor lines colliding through processual sequences of surveying spaces themselves coming into being; humans and non-humans, “laying a trail of life” (Ingold, 2007: 81), contributing to the very texture of space. Recall too Deleuze and Guattari’s manifesto for the minor; firstly, that it deterritorialises. Deterritorialisation is a process of “coming undone”; a disarticulation, or in this case, a disorientation, and exposure of bodies to new formations, assemblages and ecologies; to ways of thinking and mapping otherwise. Deleuze and Guattari’s use of a spatial term is no accident, and it plays into their multiverse of cartographic thinking and doing; the rendering of other rhizomatic formations; other political assemblages; other ways of becoming in and through worlds that do not keep pace with molar rhythms. OpenStreetMap demands deterritorialisation; the disarticulation of cartographic norms, of the fascisms replete in the licensing regimes of molar cartographies. Through the mapping, through the exposure of software and code, cartographic worlds are pulled apart, de-contextualised, so as to allow for the process of editing begin; a practice of drawing lines, simultaneously altering the re-presentation of the cartographic and the transformation of space; the ongoing negotiation between the molar and the minor.

Immanent to this deterritorialisation is reterritorialisation; not the reinstatement or repetition of something or an assemblage that has gone before, but whereby the elements and spaces caught up in deterritorialisation recombine and enter

into new relations (Patton, 2005)⁶⁸. What is politically salient, and indeed dangerous about the oscillation between deterritorialisation and reterritorialisation is that the assemblages and potential combined and recombined, caught up in the mix, are never given in advance.

Witham, Andover and Glasgow. Walk those lines again, if that is, they are still there. Wiki protocols render these lines susceptible, vulnerable, but also vibrant in their continued editing. The GPS traces, the miles paced, the irksome repetition of repetition, the burning of gestural traces into the asphalt, the bizarre choreography of stuttering stops and starts, somatic vectors; lines with no real intent other than in the experiences from which they at once emerged and modified. Minor lines are neither the cause nor effect of anything. Against all odds, lines refuse linearity. To draw a line in or for Witham, Andover and Glasgow does not guarantee ownership of that trace, or that the line offers a direction, just that these lines generate the potential to go somewhere or to think/feel differently in space. In North Carolina too, minor lines run through the re-imaginings of a much-maligned institution, the neoliberal university; a practice of countering through cartographic affirmation and through the deliberate technique of disorientation by deterritorialisation. If they could, 3Cs would deterritorialise the university brick by brick, but instead they settle for a disarticulation of the student body; collective and individuated, opening up drifts and pathways for bodies to inhabit the university in ways divergent from molar, official modalities.

Deleuze and Guattari's second injunction to the minor; the connection of the individual to political immediacy. Recall Lima, the tangle of terrestrial and celestial

⁶⁸ "Deterritorialisation is always bound up with correlative processes of reterritorialisation, which does not mean returning to the original territory but rather the ways in which deterritorialised elements recombine and enter into new relations" (Patton, 2005: 70).

bodies; relays between humans and satellites moving between the melt of the humid city air and iciness of the orbital vacuum; a cartographic event tied into the biographies and politics of ten amateur mappers, and much more besides. Amongst these bodies were witnessed and practised, molar political concerns; politics of identity, of environment, the politics of capital 'P' Politics in Peru. There was also, however, an imperceptible politics to it all, a slew of minoritarian impulses not readily detected by GPS devices or walking papers. Anxieties, hopes, indifference, boredom, excitement; swirling affects, un-mappable virtualities; the non-representational vectors of representation. In the doing of the mapping, in the creative space-times of cartographic experiences, bodies are eminently and immanently political, drawn into the geopolitics of editing space; lines etched not just on the map, but throughout the body. In a Spinozist sense, these experiential cartographies can augment and diminish bodies' capacities to affect and be affected by other relationally entangled bodies, again putting them at risk to ongoing deterritorialisation and reterritorialisation. For Spinoza, a cartography of expanding affective encounters and capacities might be one way to reach ever increasing perfection in the service of God; for others, it might be another method for attunement toward geographical and minor geopolitical sensibilities; an ethic for knowing and inhabiting the world otherwise, attending not to its Euclidean identity but to its processual eventfulness.

In Witham, Andover, Glasgow, Chapel Hill and Lima, the line between abstraction and experience has been put under strain; neither is abstraction a withdrawal from the world, nor experience the realm of transcendental reflection (McCormack in Anderson and Harrison, 2010). Moreover, the relationship between the two cannot be diagrammed as diametrically opposed forces. To expand on a point made in previous

chapters, the connection of individuals to political immediacy arrives through the minor geopolitics of vernacular mapping, a geopolitics in which the interval between the abstract and experience is dissolved. However, this dissolution is not always apparent or straightforward. Maps and mappings can play into a type of cartographic schizophrenia between abstraction and experience. On the one hand, maps are used deliberately to hold apart the two domains as distinct; the lines drawn acting as a narration of a past experience, whilst relying on an assumed correlation, or closeness, between the abstract and experience as a guarantor of accuracy and verisimilitude. At the same time, as argued previously, these abstractions are lived, are experiential, just as experiences can be abstract or abstracted. This is not a dialectical relationship because, as with other the dualisms invoked by Deleuze and Guattari, both abstraction and experience are immanent to one another, and if the notion of relationality, following James (1996) is taken seriously, it becomes incompatible and indeed disingenuous to pull apart either abstraction or experience from one another. A minor geopolitics then, acknowledges the political immediacy and immanence of human and non-human bodies, whereby the process of mapping is one technique for inducting bodies into both the politics of experience and experiential politics.

Refrain for space

A distinguishing feature of a minor geopolitics and a minor geopolitical analysis are its attendance to affect and the virtual; somatic intensities and unqualified futurities. Put otherwise, the semi-tonal registers of affect and the virtual are caught up in the processes of becoming minor. Having written extensively on the role of affect in everyday life and politics, I interviewed Larry Grossberg, Professor of Cultural Studies at UNC and 3Cs interlocutor/occasional sceptic, during the fieldwork in North Carolina.

For Larry, affect is taken to be a range of bodily intensities, but without the emphasis on the somatic immanence that characterises the work of, amongst others, Brian Massumi. Affect here then is, “the quantitative and material reality of any event, line of becoming or mode of thinking” (Grossberg, 2010: 193). Whereas for Massumi there is no void between the folding of affect and the virtual, for Grossberg, there is always mediation. Maps, likewise, are often considered as mediations; the filters between bodies and external spaces, between the abstract and experience, and perhaps in this case, between the actual and the virtual. I put the question to Larry; is the map a mediation between the actual and the virtual?

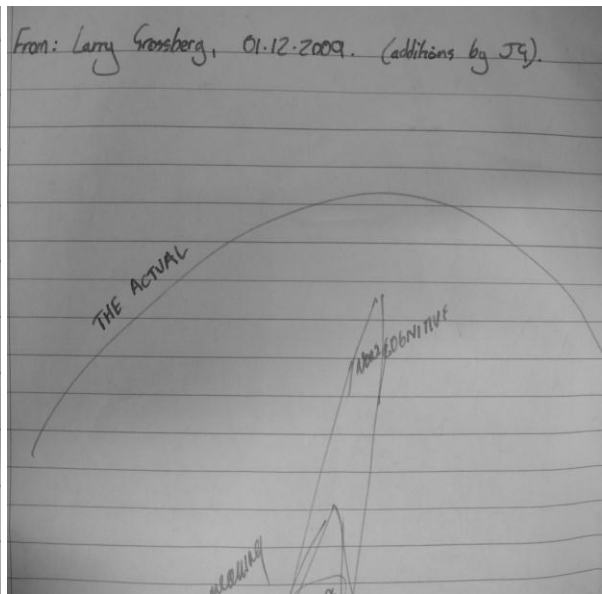
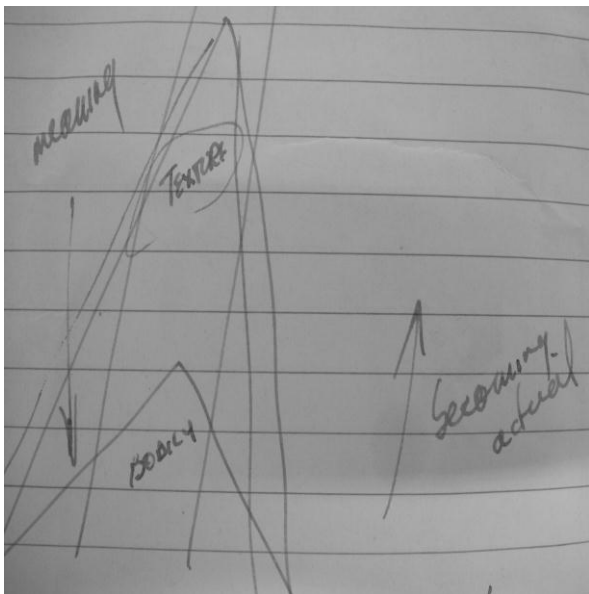
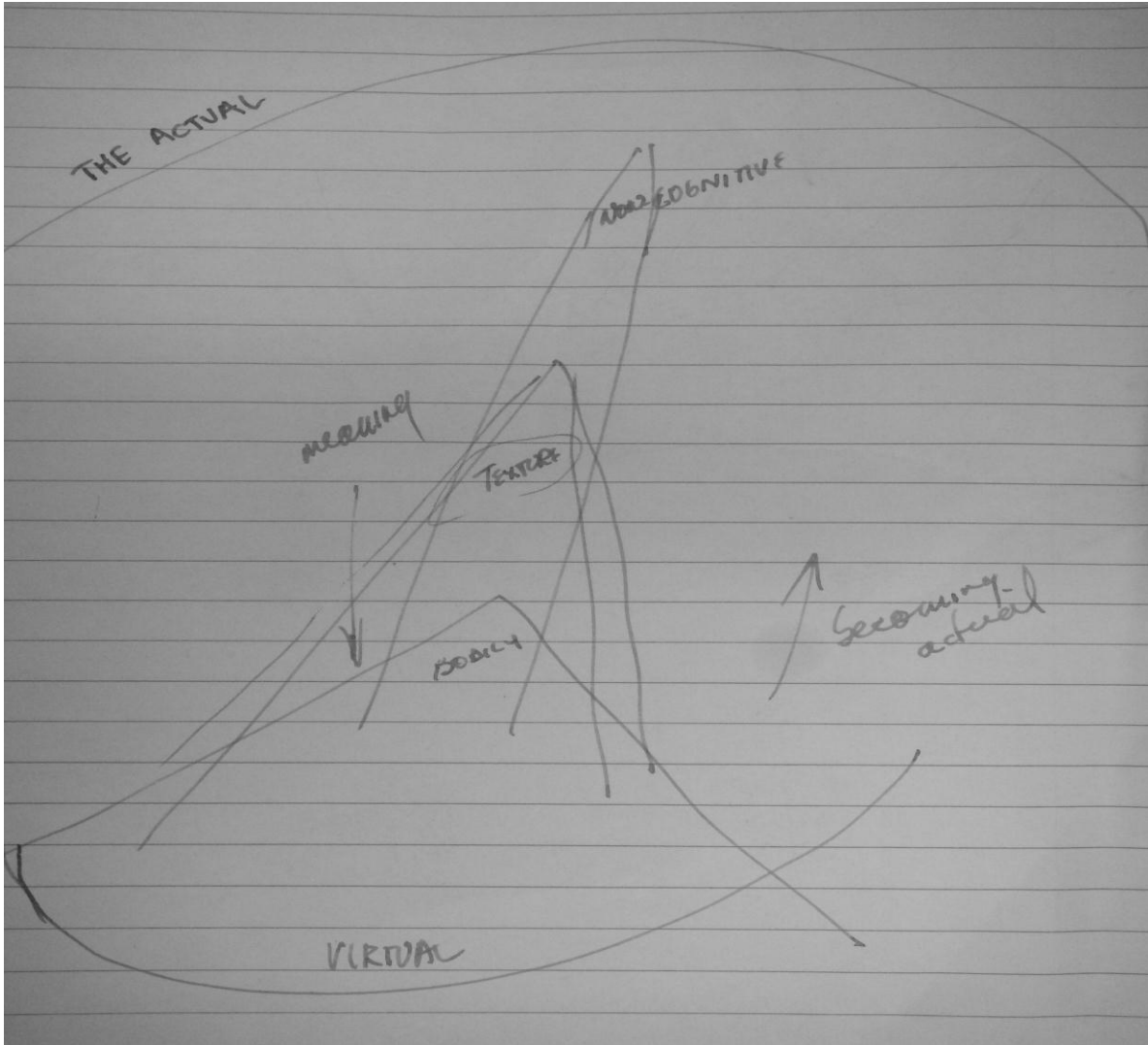
Larry: “Yes, I think so. In my thinking, what stands, what produces the actual from the virtual are symbols and machines. A map can be part of the machine, but one of the arguments cultural studies has made is that you can’t talk about texts by themselves. So you know, maps aren’t anything until they’re part of a larger assemblage in which they then becomes productive as an inscription of something”.

Fieldworker: “So to pass from the virtual to the actual, are you saying that a body needs to pass through a filter of some sort, some sort of frontier... if you don’t mind me punning on a cartographic theme?”

Larry: “That’s assuming that mediation constitutes a screen or filter, which to my mind, it does not. It’s in the book I’m finishing off now... mediation is not the movement through a medium... I see where the confusion comes from though, it’s the ‘media’ in mediation... so then in the sense that I want to convey, mediation is the movement of events, bodies...things...objects...the whole gamut, from one set of relations to another as they’re constantly becoming something other than what they are. Mediation is that space then between the virtual and the actual... of becoming actual”.

Mediation in this instance is not the arbitrator between two distinct ontological domains, but resonates with the processes of deterritorialisation and reterritorialisation. Mappings, as performances, and if understood as mediations in the manner outlined here, open bodies up to sets of emergent relations, whilst maps as relational artefacts (and performances in themselves) can also expose different assemblages to one another. The durational eventfulness of mapping has the capacity to expand the virtual, whilst the map may play into actualising, augmenting or contracting that virtuality.

I asked Larry to draw a map of the relationship between the actual and the virtual. It is a challenge readily accepted, and the result overleaf.



//7.3// Actual-Virtual, Larry Grossberg (2009)

Drawing a map with a fountain pen in the gusty wind on the steps of UNC's communication department is not the easiest of propositions, and the most startling aspect of this cartographic intervention is that the actual and the virtual are diagrammed as seemingly two distinct registers. In the process of becoming actual from the substrate of the virtual, things need to pass through the vectors of the bodily, of the textural and the non-cognitive. Somewhere in the middle of the movement, meaning is inscribed. The gap between the virtual and the actual appears overwrought, but it is perhaps the function of the map which encourages these domains to be held apart even if in *actuality*, they are not; much like the schizophrenic relationship between abstraction and experience. Of course Larry makes no claim to police the folding and unfolding of the virtual and the actual. It is a thought experiment, prone to productive failure, and as Grossberg (2010) suggests, cartography loses its political and analytical purchase when it makes claim to being an omniscient, totalising grid. What Larry's sketch-map points too is an, "interval of uncertainty" (DeSilvey, 2012: 6) in the process of actualising the virtual, and perhaps what is lacking here, for a minor geopolitics at least, is the process of things becoming virtual through cartographic performances.

How might maps and mapping performances actualise the virtual? Another question I put to Larry.

Larry: "if you take the 3Cs map [unfolds dg2 across the table], it could be read as a piece of agit-prop, or to stretch things, a kind of collective assemblage of enunciation... a rallying of affect to a particular cause through this mapped articulation. Maps could be an orientation to becoming actual".

Fieldworker: "a kind of affective wayfinding...maybe?"

Larry: “there is something in that wayfinding. There is a need to...there’s something about navigating through space that is, I think - I mean - there’s a reason when Kant talks about the sublime that his images are spatial images; the ocean, the sky. When a Hegelian might say well history is the sublime...well not for Kant...the sublime is spatial. There is something about space which presents a challenge, to which humans have always responded, and if you call what they respond with a map despite whatever it might look like, yes, they have an innate need to draw a map but that map might be the night sky or whatever the aboriginals had in the way...they didn’t draw maps, but they certainly had cartographies of space. I think there is something about the cartography of space which is crucial”.

Fieldworker: “crucial to what?”

Larry: “crucial to some kind of sensibility, as well as to power... or just crucial to survival. Cartography might be our response to the sublime. If the sublime is both that which is most immediately awe inspiring and terrifying, it is the habitat of our lives... space is that which is awe inspiring and terrifying because... it has no beginning and no end... it is like the ocean, it’s why navigation begins on the ocean and in some ways why some of the earliest maps are navigational maps... because it is awe inspiring and terrifying, and so you must have an orientation; you must have a map. Yes, the map is our orientation to the sublime. How’s that for a nice poetic?”

Fieldworker: that’s a great poetic, particularly for Kant having been a physical geographer of sorts. It’s difficult to think, however, that a map might be an orientation to the sublime, particularly if we’re thinking in terms of god...

Larry: “The sublime of course is the origin of god. You know you look up at the sky and it’s the sublime and you invent god. In that sense, god is a map. God is a map because it orients you to the sublime”.

Fieldworker: “I suppose too that god and gods are used as orientations to other destinations too, probably in a more traditional sense of following a pre-determined route to a pre-determined place – whether heaven or hell... sorry... I’m reaching a little here. As well as being an orientation to the sublime, what about the idea of the refrain? This is something you’ve talked about in other work related to the cultural work done by music... especially your take on Bruce Springsteen. Obviously the refrain has a particular meaning in music, but it’s also been taken up in the work of Deleuze, Guattari and others...”

Larry: “Uh-huh, well I was going to say you know that if you argue...this is getting highly philosophical about a realm I know not enough about, but if you argue that maps are a response to the sublime and the sublime is pure affect, then maps are the refrain. Yes, maps are like...maps are the equivalent of the song. Here’s an interesting idea. If the song is the refrain in time, then the map is the refrain in space. That’s the problem with philosophy, it can often sound wonderful, but whether or not it’s useful is a different matter, but yes, maps are kind of the refrain. As Deleuze says about the refrain, in a way it inscribes the boundary of the interiority and the exteriority but never as closed fixed boundary, but always as a porous boundary between the virtual and the actual. Even if we leave out the sublime for a moment, of course maps remain a refrain to everyday directions, or to places we don’t know about yet”.

With the cold wind now gusting vindictively and the over-sized coffees finished, the interview draws to a close, but the question of the refrain, for now, remains open.

In music, the refrain is the talismanic referent point in a song or composition; a repetition to which a tune is anchored, often the cathartic moment of vibratory crescendo and resonance in which all singers and instruments join in. Maps might also be understood as refrains in this sense, as the central point of reference in the practice of wayfinding; the repetition of glances between cartography and movement, a refrain which attempts to maintain some semblance of orientation, focusing haptic and visual senses in the practice of mapping. In doing the work of a minor geopolitics, refrains can also be worked through the thought-experiments of Deleuze and Guattari, and in particular those of Guattari; “in life, one can only hold on to momentum. Subjectivity needs movement, directional vectors, ritournelles, rhythms and refrains that beat time to carry it along” (Guattari, 2009b: 69).

Refrains, ritournelles, ritornellos; affirmed as “affective blocks of space time” (McCormack, 2010: 213) in rhythmic and plastic forms (Guattari, 1996), methods and techniques for both thinking through the processual natures of experience (McCormack, 2010) and for opening up enunciative territories through their diagrammatic and sensory functions (Guattari, 1996). Cartography in its major tenor pursues identities and molar organisations, but in its minor tonality, the performances involved in vernacular mapping play on refrains to open bodies to recombinant spaces and assemblages; the refrains of stop-starting, the holding aloft of GPS devices to empty skies, disorientation, loss, discovery, tracing, “some of which work, some of which don’t; some of which cross a threshold of consistency, some which don’t” (McCormack, 2010: 216). The subsequent opening of enunciative territories by refrains, whether musical or cartographic, does not allude to any kind of representational moment of coherence, but instead points again to the work done through deterritorialisation and

reterritorialisation (Buchanan, 1997). Enunciation, as Guattari contends, sometimes involves the loss of control, and the proliferation of multiple, pre-personal forces; the enunciative as an ontogenetic form in of itself. These enunciations are also relational, hence the term collective assemblage of enunciation; the third and final characteristic of Deleuze and Guattari's minor.

Cartography, as a minor geopolitics is significant between it does away with the distinction between the subject and the object (a distinction that cartography as a major, molar science continues to espouse) and instead produces relations between, "particular possibilities of acting or agency and particular possibilities of being acted upon" (Grossberg, 2010: 190). Minor geopolitics through mapping valorises bodily technique and experience, acknowledging that the political is never fully formed, but always in the making. In this sense, the notion of minor politics sits closely with the idea of micropolitics, one which has featured prominently in the previous chapters. Both the minor and micro have similar genealogies, and to conflate the two would not be a contradictory manoeuvre, however, what distinguishes the minor from the micro is a particular insistence that minor language, art, performance, politics works immanent to molar, major formations; a minor cartography then works to deterritorialise molar cartographies in every sense of the term.

Mapping as a form of minor geopolitics might be understood as an, "ordinary, hesitant set of practices, shot through with doubts and phantoms" (Thrift, 2000: 382), and because of this level of susceptibility and vulnerability, there will inevitably, "be minor lines that won't come out into relief" (Massumi, 2009: 18). That said, it is important to recast geopolitics in this way – to amplify its underplayed minor key - so as to firstly, take issue with geopolitics' continued ocular preoccupation and to diagram

the affective logics which complicate questions of power (Carter and McCormack, 2010) and secondly, to oppose a purely intensive usage of cartography to all symbolic or simply signifying usages of it (Deleuze and Guattari, 2004b). Un-tethered from semiotic and representational mooring points, cartography takes on a greater political vibrancy, becoming part of a minor geopolitics, a, “cartography of affects, on the level of daily relationships” (Guattari, 2009b: 46), molecular assemblages of desires, affects, virtual spaces, working transversally; a politics of desire that questions all situations; affective dispositions which make affirmations *toward* the better, not ones *in* the better. The explicitly geopolitical moment arrives not in the visual distribution of power, but in the “distribution of the sensible” (Rancière, 2009: 25), the orientation and disorientation of bodies toward affective, virtual and quotidian spaces, bound up in the performances of lived abstractions. Out of this geopolitics comes a creativity, not one wrought out from nothing or individual genius, but from mundane repetition, adaptation and the evocation of refrains, a form of cartographic bricolage centring on what Guattari (2008: 158) campaigned for; “a multiplicity of objectives within the immediate reach of the most diverse social groupings”.

Folding the institutional

Since the molar and minor assemblages of cartography are not discrete empirical entities or conceptual concerns, it is important to (re)fold into this account of a minor geopolitics the significance and role of the *institution* in mapping. The two signal examples of professional cartography that opened this chapter, Google and Ordnance Survey, cannot be cast straightforwardly as anti-vernacular or anti-minor, even if their own geopolitics are enmeshed in the concerns of territory and the state. Despite both their corporate and commercial backdrop, Google’s and Ordnance Survey’s practices

and products still fold into the itineraries and orientations of everyday lives. As Deleuze (1995: 169) states, “there’s a whole order of movement in ‘institutions’ that’s independent of both laws and contracts”, later continuing that, “every institution imposes a series of models on our bodies, even in its involuntary structure, and offers our intelligence a sort of knowledge, a possibility of foresight as project” (Deleuze, 2004a: 21). The point here is not to abandon cartographic institutions outright, as the solution, or replacement would likely derive from the very molar processes and performances that *minorities* seek to undo. Instead, in cultivating the minor, it is a question of on the one hand, institutional invention, and on the other hand, transversality. In dealing with the former, institutional invention, it is concerned with asking more of institutions, to question, “how do we invent artifices, create institutions that force the passions to go beyond their partiality, producing moral, juridical and political feelings?” (ibid: 167). Likewise, attending to transversality is about disrupting the geometric structures and habits of molar institutions such as Ordnance Survey, or “thawing frozen institutional organigrams of power/knowledge, and in putting transportation back into the analytic transference relations as a means for transformation” (Genosko, 2009: 54).

In accounting for a Deleuzian sense of invention and a Guattarian take on transversality, what emerges here is a minor geopolitical concern for the processes of *institutionalisation*, rather than the static artifice of an institution; “*process over structure*” (Polack in Dosse, 2011: 61 emphasis in original). Taken out of Deleuze and Guattari’s focus on psychoanalysis and instead running analogue to the research context of vernacular mapping, the current challenge being posed by contemporary cartographic practices is the extent to which the likes of Ordnance Survey are mired in

the institution, and conversely, the likes of OpenStreetMap are involved in the transversal processes of institutionalisation. If, as Genosko (2009: 50) suggests, “transversality is the measure of an institution’s influence on all its denizens”, then the recent turn to opensource and vernacular cartographies might suggest that Ordnance Survey’s institutional relevance is indeed waning. However, does that necessarily imply that OpenStreetMap and other examples of vernacular mapping are therefore in the processual entanglement cartographic institutionalisation? Any resulting judgement rests on vernacular mappers’ ability to, “occupy the creative spaces of an institution and contributed to its ongoing elaboration in a kind of sculptural process” (ibid: 29). OpenStreetMap seem to be undertaking this occupation of sorts, even if the process is unstable and unclear at times. There is schizophrenia in its aims; a strong desire to re-imagine and re-enchant the ethos and process of cartography, yet there exists a residual conservatism in the holding on of the Euclidean tenets of cartography as professed by the likes of Ordnance Survey; in an almost mimetic manner.

What OpenStreetMap is doing however is less a practice of imitation and more a process of singularisation, or more precisely, a performance of re-singularisation, that is, “a self-organising process that at its most basic level concerns bringing together ensembles of diverse components (material/semiotic; individual/collective)” (Genosko, 2001: 129), or, “an open-ended process of transformation... the destabilisation of established habits, procedures and practices” (Montgomery, 2011: no pagination). It is then these performances of destabilisation, of re-singularisation and of institutionalisation lie at the heart of becoming minor, as Guattari (1996: 128) suggests, it is these processes which act as, “a point of proliferation and of possible creation at the heart of a constituted system”. Put differently, OpenStreetMappers have to some extent

asked of cartography what Guattari (1995: 135) asked of the psychoanalytic institution, namely, “how do we work for its liberation, that is, for its re-singularisation?”; it remains to be seen if they can provide answers that are suitably transformative to the natures and practices of cartography. As the popularity of vernacular mapping performances grow, Ordnance Survey et al. will likely also be forced into a process of re-singularisation themselves, to generate errant forms of cartography that stray the Euclidean line; “even in the most rigid bureaucracies, there are always processes of singularisation, frictions and uncertainties” (Montgomery, 2011: no pagination). Turning on the concept of a minor geopolitics, it will be the minor mapping actors that attune themselves to processes of institutionalisation, not those molar actors that cling to the institution as artifice, that will become increasingly prominent in future cartographies which themselves work less through the cognitive Euclidean line, but increasingly more through bodily, affective, virtual and emergent spaces. Indeed, “the power of minorities rests with the multiplication of connections among their elements and the forging of lines of escape and errant territories” (Genosko, 2009: 140).

Minor conclusions

The aim of this chapter has been to diagram the varied cosmologies of cartography, at first tracing the institutional milieu of mapping, locating where vernacular mapping fits in this sprawling cartographic architecture, then secondly, re-staging the intimate relationship between cartography and geopolitics. In an experiment to think *otherwise* about both mapping and geopolitics, it was necessary to hold apart, temporarily, the molar and minor assemblages of cartography, if only to conclude that both registers work immanent to each other. They are not, as per similar concepts in Deleuzo-Guattarian thought, dualisms or straightforward binaries. The first

part of this chapter demonstrated the ongoing ‘non-conformism’ of cartography as a practice, and the continually changing nature of the cartographic industry. Despite the onset of vernacular mappings, the molar circuit of cartography remains a huge industry, propped up by a complex and fraught schema of licensing regimes; regimes which the likes of OpenStreetMap and 3Cs seek to undo in a molar-political gesture, but at the same time risk re-inscribing through the reification of ‘copyright lite’ schemes such as Creative Commons. Despite this incipient drift to other forms of pernicious licensing, the second part of this chapter outlined a manifesto of sorts for a minor geopolitics, at once intended as a reconciliation for cartography’s complicity in certain imperial desiring machines, but also inferred as a technique for riffing on the underplayed semi-tonal keys of the minor, duetting alongside Deleuze and Guattari; holding on to the somatic and generative moments of experience, a geopolitics which puts emphasis on the ‘geo’ as lived through ontogenetic bodies, human and non-human, affective, virtual and actual, even living through cartographic abstractions.

Ingold (2007) suggests that the bodily, gestural lines – lines which go for a walk – lines that infuse minor geopolitical acts, have no business in the discipline of cartography, however, considering the varied methods involved in the performances of OpenStreetMap and 3Cs, this chapter responds that it is these very lines, affective, virtual and performative which underline the vitality of contemporary cartographic practice. Finally, because it remains probable that cartography will continue to be allied to and recognised as a form of royal science or molar aesthetic, the totem of representation, it therefore becomes more pressing to suggest that the valence, influence and the affective, political push of maps lies not in their visual tenacity, but

instead, in their virtual capacities to, “create the opposite dream... to create a becoming-minor” (Deleuze and Guattari, 1986: 27).

// Chapter Eight

Lines for vernacular mapping

Lines for vernacular mapping



Mutant coordinates

...through lines, contours and legends...

“...the essential thing was to have a map, to draw several maps, and to travel endlessly so as to succeed in drawing maps” (Serres, 1975: 176).

...through lines, contours and legends...through fieldwork traces...

“Now we are in a better position to draw a map”
(Deleuze and Guattari, 2004b: 244).

Countering, geekiness, eventfulness and minoritising; vernacular performances and space-times cultivated through and between North Carolina, Essex, Peru and two signal cartographic institutions. Made sensible, in part by a series of fieldwork traces, these sites and performances whilst variably resonant in their cartographic intensities⁶⁹, are not however reducible to one another, nor readily surmised conceptually under the aegis of a ‘conclusion’. Instead, this final chapter acts as a coda-in-progress to the lines, contours, legends and indeed the refrains that have modulated throughout the thesis. Put differently the point here is to write lines *for* vernacular mapping, an incomplete orientation guide for geographers and cartographers toward a vocabulary, practice and politics of everyday cartographies. To write such lines is to

⁶⁹ “By intensity I mean the immanent affirmation of a process in its own terms” (Massumi, 2011: 84).

ensure an ethical consistency across the injunction of not stultifying the myriad lines of flight, conceptual, empirical and political, emanating from the cartographic performances diagrammed throughout this project. Consequently, the lines that follow are not re-iterations of claims made in the preceding chapters; they are not abstracted coordinates from what has gone before, but instead they might be said to constitute the positioning of “mutant coordinates” (Guattari, 1995: 106), proto-locative points that disrupt the staid geometries of Euclid and affirm, instead, the minor geographical vectors of vernacular mapping.

In diagramming these mutant coordinates toward a vernacular mapping, the central considerations of this chapter are twofold. The first of these considerations is rendered as a ‘vernacular semiotics’ in which the conventional sign-signifier relationship and determinist logic assigned to cartography is ruptured by the cartographic performances that have been continually animate throughout this project. Nonetheless, a different kind of semiotics is affirmed, one that takes care of abstractions (Stengers, 2008) through its attendance to the sometimes immaterial and non-representational registers and performative bodies of everyday mapping, specifically those concerning affect and the virtual. The second of these core considerations revolves around the tracing of a ‘cartopolitics’, one that puts into relief the micropolitical valence of vernacular mappings and that turns on the question stated originally in Chapter Two, namely that of ‘what is a map’? To pose this question is to also figure who or what might now count as a cartographer and indeed it raises the more prosaic quandary of why any of this matters; to geographers, to space, and to politics.

The intention of this chapter, as has been the case with the thesis in its entirety, is to offer a proto-orientation of what contemporary cartographic performances might be capable, rather than to signal an end to all cartographic voyages (Serres, 1975). Indeed, in holding on to the ethical energies of the cartographers Spinoza and Guattari (1996: 98), what these final lines promote are, “a speculative cartography that makes no pretence of providing a universal structural foundation”, a mapping that both complicates its own relations in the world and which diagrams a geopolitics that eschews the politics of the grid and affirms a geography of the minor; lines, that is to say, of and for the vernacular.

Vernacular semiotics

“There’s a profound link between signs, events, life and vitalism: the power of non-organic life that can be found in a line that’s drawn” (Deleuze, 1995: 143).

The analytic route between semiotics and cartography is a well-trodden one, diagramming as it does a straightforward linkage, through signs, between supposedly distinct ontological domains of existence. Following the semiosises of *inter-alia* Pierce, Saussure and Barthes, critical cartographers such as Denis Wood have attended in substantial detail to both the modality and function of cartographic symbols and also to the complex subtexts pertaining to mapping legends. This type of semiotics, however as suggested earlier in Chapter Two, fixes all too readily the complicated processes at work throughout mapping and in particular elides the somatic and non-representational vectors of contemporary cartographic performances. Put otherwise, the deployment of semiotics in its conventional guise lends no sense of the intense *geographing* involved in the craft of vernacular mapping. A turn, therefore, is needed toward a typology of semiotics that whilst maintaining some semblance of a traditional link between maps

and signs, also pivots on Deleuze and Guattari's (2004b: 215) "perceptual semiotics"; a once-again *fabulation*, or legending, of semiotics that is more processual than it is heuristic, and one that illustrates the vitality of the relations between cartography and life that Deleuze points to at the start of this section.

What has been markedly absent from all of the fieldwork traces animated throughout the preceding chapters are signs and symbols; very little has been made of the iconography of the cartographies involved. This is in part because the performances at play in this project make little reference to the technical minutiae of cartographic symbols, but also because as stated earlier, the semiotic accord of mapping has been well rehearsed elsewhere in critical cartography. To be more explicit, the mappings diagrammed in this project are, "no longer a metaphor for representation, signification and being, but for affect, intensity and becoming" (Deleuze, 1998: 88). Nonetheless, there is perhaps a sensibility of semiotics, albeit a vernacular one, at work within the fieldwork traces of this thesis.

Take, for example, the cartographic practices and techniques performed by 3Cs in North Carolina and OpenStreetMap in Lima; what is at stake in these performances is not so much the 'meaning' of the symbolic regimes entangled in the maps themselves, but rather what matters are the political assemblages generated and the political demands enunciated in the *doing* of the map and the mapping. The purpose of a vernacular semiotics in relation to these kinds of cartographies is therefore, "not to signify and communicate, but to produce assemblages of enunciation capable of capturing the points of singularity of a situation" (Guattari, 1995: 128). Moreover, whereas a conventional semiotic analysis has been deployed historically to hold apart the seemingly distinct modes of the abstract and the concrete, what a vernacular

semiotics does is to collapse the gap between these two assemblages (Deleuze, 1999) so as to make sensible those materials, actors and registers that would normally 'slip' through the map grid (Deleuze in Stivale, 1984).

What has been *happening* in this thesis, in these fieldwork tracings, if anything, is what Guattari would term 'semiotisation'; namely processes concerned with, "what happens with perception, with movement in space, with singing, dancing, mimicry, caressing, contact, everything that concerns the body" (Guattari, 2009a: 279). One could easily add mapping to this list and in particular its vernacular variant thereof. The animated performances of countering, coding, mapping and eventing all valorise the imbrications of bodies, human and non-human, into cartographic foldings and unfoldings. These performances in themselves demand a certain cognitive detachment from the mapping and the map, affirming at the same time an avowedly more distributed perception of space, a more broadly somatic involvement in mapping. This is a vernacular semiotics in which bodies, "of all kinds... connect and conjoin very different practices relevant, for example, to the arts, sciences, social struggles etc." (Guattari, 2010: 171) and whereby mutant coordinates act as muster points for collective politics, but only insofar as that cartography's competence extends.

What this 'competence' implies, put simply, is that no universal vernacular cartography exists; each case or site of vernacular mapping is embroiled in and generative of a particular singularity, event or matter of concern; the mappings of 3Cs and OpenStreetMap pertain to different competencies, to different evental happenings. That is not to state categorically however that there are no transversal resonances between these and other examples of vernacular mapping. Indeed, and to borrow once more from a re-worked semiosis, these cartographies perform in two respects as

assemblages of expression. Firstly, the cultivation of vernacular mappings occurs in the middle of individuated, collective and hybrid expression(s); an expressive and expressionist geographing in the affective and virtual meanderings with GPS devices, agitated political actants and not-quite-formed micropolitical enunciations. Secondly, expression here is not yielded solely or straightforwardly by the morphology, style and symbolism of the map as an artefact. That is to say, expression is not a linear or deterministic, functional flow between subject and object, between map and map reader. On the contrary, and linked to the first point, the expression of the map emanates primarily in the mapping, in its “configurations of subjectivity, of desire [and] instinctual energy” (Guattari, 2009b: 220).

The semiotic expression of vernacular cartography emerges then in the intractable folding of subject and object into one another so that, “the map expresses the identity of the journey and what one journeys through. It merges with its object, when the object itself is movement” (Deleuze, 1998: 90). Maps being understood as ‘assemblages of expression’ is one, tentative, provisional response, then, to the stated question, what is a map? To be sure, a none too surprising answer and one that might be articulated in respect of all kinds of map, ancient through to contemporary. Again, the difference here resides in the subtlety of the analytical meter, for whereas a map’s expression has conventionally been measured in its representational veracity and semiotic weight (its signifying ‘punch’), the expression of vernacular mapping does not necessarily need to pass the threshold of cognitive comprehension, nor register perceptively whatsoever. Indeed as demonstrated throughout the various examples of mappings at play in the preceding chapters, expression, virtual and actual, and its continual modulation is fundamental to the character and practice of vernacular

mapping. The pressing question that then remains for emergent mapping groups such as OpenStreetMap is the extent to which certain forms of expression are to be curtailed and circumscribed in the service of achieving a recognisably Euclidean cartography; the shift from a minor to a molar practice and politics, one that attains a certain *conventional* cartographic credibility.

A vernacular semiotics is therefore, in sum, to do with cartographic expression rather than with cartographic signification or posting vectors between pre-figured coordinates. It is a semiotics of, “impasses and breakthroughs, of thresholds and enclosures” (Deleuze, 1998: 89), a vernacular practice of, “rejecting all these modes of pre-established encoding, all these modes of manipulation and remote control, rejecting them in order to construct modes of *sensibility*, modes of relation with the other, modes of production, modes of creativity” (Guattari and Rolnik, 2008: 24, emphasis added). Moreover, these modes of expression and creativity need not attain some degree of infamy to be felt or sensed; indeed what translates across all the fieldwork traces is an acute inhabitation and generation of the mundane and almost ineffably prosaic. In writing lines for the vernacular then, a re-worked semiotics is one manner in which the sometimes immaterial expression of these cartographies might be enunciated. A turn to semiotics also segues into a consideration of politics, particularly when considered in Massumi’s (2009: 6) terms as, “an art of emitting the interruptive signs, triggering the cues that attune bodies while activating their capacities differentially”. In the following section therefore, the chapter considers more attentively what constitutes a map by outlining the mutant coordinates of a cartopolitics; lines written, once more, of and for vernacular mapping.

Cartopolitics

“There is in this story a political cartography that exceeds subject thinking” (Woodward et al., 2012: 13).

The notional rendering of a cartopolitics follows directly from the previous diagramming of a vernacular semiotics and indeed from the micro and minor sensibilities articulated elsewhere in this thesis; it is a politics detached from the representational. Before interrogating the concept of a cartopolitics in further detail, it is worth affirming one particular ethico-political point; one substantiated not only by this research, but also by the entire history of cartography itself. The point, to purloin a Latourian turn of phrase, is that *maps have never been representational*. From the Mercator projection of the globe which commemorates its five-hundredth anniversary in 2012 to the digital renders of OpenStreetMap that are no more than eight years old, maps have never been the linear conduits between reality and representation that many have imagined them to constitute. Where cartographies and cartographer’s imaginations have attempted to be so, they have invariably failed in a muddle of mistranslation (Olsson, 2007). In both the cases of Mercator and OpenStreetMap, the valence of their respective cartographies resides not so much in representation as it does in anticipation; for the former example of mapping this involved speculative navigations to undocumented territories whereas for the latter these anticipatory tendencies manifest themselves in the recycling and recombination of existing digital cartographies so as to craft re-imagined, speculative, *virtual*, futures.

Why make this point, however, regarding representation? To be sure, this is an increasingly well-rehearsed axiom and one unlikely to spark much controversy. The reason for doing so is because despite the heightened conceptual awareness of the non-

representational problematising of mapping, the broad, popular consensus is that the map remains the mediator amongst distinct ontological domains, indeed that maps are still valorised for their role in linking image with physical territory (November et al., 2010). In the context of this research, such a sensibility was particularly acute amongst many OpenStreetMappers in the UK whereby accuracy, detail and precision remain quasi-canonical. Does one, therefore, abandon the conceptual work done by critical cartographers and non-representational geographies in the face of such durational and obdurate Cartesian coordinates? Asked differently, is it disingenuous to think in non-representational terms when working here alongside space-times of representation and representational politics? In immediate response, no. The aim has not been to foist certain modalities of thinking on to the world. However one might argue that certain conceptual tropes to do with complicating representation have not been articulated, enunciated or expressed in ways that make *sense* to those in the craft or business of making maps.

Put simply, much has been made in conceptual terms of how there is no void between reality and its representation, but there has been little by way of affirming of how maps and mappings are embroiled in the generation of realities; actual and virtual. Where this work has been attempted in critical cartography and communication studies, analyses tend to fall back either on a pseudo discourse analysis or as hinted earlier, a semiotic decoding of cartographic images. The existential demand that remains therefore has to be that geographers, amongst other earth-writers, should invent techniques in which maps and mappings are animated as *sense-making* in terms more-than-cognitive; a demand that this thesis, in a modest, partial, vernacular, tenor, has attempted to respond to. Beyond this research however, there might be the

possibility for a more wide ranging enunciation of a cartopolitics, a vernacular generation, mapping and distribution of performances affective and virtual.

What is a cartopolitics? When reviewing some of the vernacular mappings animated in this project, the political assemblages and imbroglios to emerge are arguably not much different to the kinds of macro or molar concerns that are aligned traditionally to cartography; the gridded frameworks of identity, class, urban planning and their representation. Indeed as demonstrated in Chapter Seven, the non-representational, minor vectors of mapping run concurrent with the eminently more visible molar traces of cartography. The motivation of a cartopolitics, as per the constituent focus of a minor geopolitics, is to valorise and make sensible the molecular lines of mapping because as Deleuze and Guattari (2004b: 244) remark, "...good or bad, politics and its judgements are always molar, but it is the molecular and its assessment that makes or breaks it". If one accepts that cartographies are thoroughly interventionist in the becoming of worlds, then it pays to be attentive toward the molecular, micro, minor tendencies of mapping; toward affect and the virtual; toward cartographic event rather than cartographic essence (Raunig, 2010).

The space-times of loss in Lima; reimagining the university in Chapel Hill; refiguring walking paths in Witham; reports of 'vandalism' by Google employees on the datasets created by OpenStreetMap. Not immediately recognisable as cartographic moments, less so *affective* cartographic moments. Affect has featured in this thesis not as the empirically detectable coordinate of vernacular mappings, but as the (im)material push of cartographic events and assemblages; the awkward intensities, the (dis)orientations, the contouring and legending of prosaic wayfinding and mundane geographing. It is the affective intensities swirling in both the performances of mapping

and the map-as-artefact that lend vernacular cartographies its processual character and hence cartopolitical valence, perhaps even its radical danger; that, as not ever fully-formed, “affective maps... make room for the imagining of other ways of being and other logics of difference” (Seigworth, 2011: 315). A further response, therefore, to the question, what is a map; that it is, “never a condensed point of dimensional space-time at all but... rather a processual bundle of affect intensifications” (ibid: 316). As such maps continue to be influential in both remarkable and mundane registers not because of their semiotic persuasion, a logic that requires innumerable stages of coding and translation, but because of their affective, visceral labour generated in encounters and events; the performances of vernacular mapping; machines for cultivating conviction in others. In relation to affect therefore, a cartopolitics is one that takes seriously a Spinozan sensibility of devising techniques that augment the affective capacities of maps and mapping bodies; to make sensible through somatic registers how spaces are engendered and modified in the bodily goings-on of cartography, “a responsiveness in the direction of an expanded, multiplied capacity to be summoned, and an expanded capacity to respond” (Houle, 2005: 96).

A cartopolitics is also one that, in proliferating the mutant coordinates of affect, turns on the process of attending to the virtual and its actualisation through vernacular mapping. Indeed, as Anderson (2006: 738) remarks, “moments of affect are always accompanied by a real but virtual knot of tendencies and latencies that generate difference and divergences in what becomes actual”. Unqualified tendencies and sometimes unrealised potential have been continuous motifs in the mapping performances emergent in this thesis, or put differently, a series of futurities have been generated and then put at risk by differential mapping techniques. The invocation of the

virtual here as part of a cartopolitics relates back to the speculative traces and modes of anticipation that have been prevalent in most, if not in all forms of mapping. Speculation and anticipation might be regarded as somewhat specious in tenor, a flight to 'anything goes', but to some extent that is just how it will *have* to be, since as soon as the virtual finds its qualification in Cartesian coordinates, it is no longer the virtual; its potential turns to "gridlock" (Massumi, 2002: 3).

Vernacular mapping performances and vernacular maps find themselves in a somewhat complex position regarding their relations to the virtual. On the one hand, such cartographies and their attendant processes bring about the actualisation of the virtual through the drawing and enunciation of particular lines; analogue, digital, bodily; lines of flight, lines of escape, lines to nowhere. It follows in this respect that maps are not sets of positions and probabilities, but a, "set of vectors whereby the virtual and actual come to meet" (Holmes, 2009: 73). On the other hand, those processes of actualisation are simultaneously evoking, cultivating and recombining another virtual, another futurity; much like the concomitant processes of deterritorialisation and reterritorialisation in which assemblages are at the same time pulled apart and reconstituted in mutant, dicey, perpetually susceptible and risky formations. This complexity in dealing cartographically in the virtual is not a problem *per se*, but the argument is still to be had with cartographers of any tradition as to whether diagramming the virtual could or should enter into the ethico-political considerations of their craft. To do so would be to remind cartographers of the performative valence of maps, but again in terms that affirm the somatic entanglements of mapping, not merely their cognitive vectors.

Conceptually, the enrolment of the virtual and virtuality into a cartopolitics is a deliberate move to re-invigorate the political potential of lines, contours and legends and to complicate the spaces in which things, materials, actors actualise or become virtual. For Deleuze (1991: 100) and his fabulation of Bergson's virtual, "when the virtuality is actualised, is differentiated, is 'developed', when it actualises and develops its parts, it does so according to lines that are divergent, but each of which corresponds to a particular degree in the virtual totality. There is here no longer any co-existing whole; there are merely lines of actualisation, some successive, others simultaneous, but each representing an actualisation of the whole in one direction and not combining with other lines or other directions". In one sense, what Deleuze is pointing to here, and what is of significance to vernacular mappers, is that the role of cartography in generating virtual and actual lines does not ascribe to any particular telos or inevitability; some lines of flight will intensify, others will dissipate, some lines are more autonomous than others. What matters politically and geographically is that the vernacular lines cultivated in mundane cartographic performances exceed the relations between ostensible, pre-figured subjects and objects. Such is the autonomy of these lines that indeed it makes it impossible for objects and subjects to exist a-priori in any kind of static, Kantian sense. If the valence of vernacular mappings lies in generating political assemblages and political lines, actual and virtual, then it throws into doubt what counts as political and how mapping intersects in the enunciation thereof. Here, another proto-definition of a map perhaps; something that generates yet more maps, something that only comes into being through its ability to legend and contour the virtual, a machine or assemblage that throws things into doubt but which gestures at the same time to an alternative potential, an re-imagined series of worlds.

Vernacular mappings cultivate, however speculatively, a cartopolitics of affect, virtuality and performance. Maps, in sum, might be traced in Guattari's terms as 'aesthetic machines', or mappings as machinic processes; not in their automotive, industrial sense, but in their incessantly productive and inventive vectors. To be sure, it is difficult and to some extent eliding the point to imagine maps as *not* representations, but to think of them instead as aesthetic, anticipatory machines. Indeed as Guattari himself muses, "strange contraptions, you will tell me, these machines of virtuality, these blocks of mutant percepts and affect, half-object, half-subject, already there in sensation and outside themselves in fields of the possible" (Guattari, 1995: 92). That said, it is arguably no stranger than the contention that maps are said to do their work by seamless, abstracted representation from the sign to the signified. How one navigates, works, walks, knows through the map is not through the logos of representation, but through, "affective contamination" (ibid) in and between bodies of inconsistent materiality.

Focussing explicit attention toward affect and the virtual is one technique in which cartography and mapping more broadly might be unmoored from a totalising narrative; both for geographers and vernacular mappers alike. This shift in attention also has something to do with the recent massive uptake in domestic, digital cartographies and the need to generate a vocabulary around everyday mapping that burns multiple rhizomatic pathways to cartographies unbound (Pinder, 2007). Such cartographies are part of an understanding that, as Deleuze and Guattari (1994: 157) claim, "when we turn ourselves toward the virtuality that is actualised in the state of affairs, we discover a completely different reality where we no longer have to search for what takes place from one point to another, from one instant to another, because

virtuality goes beyond any possible function". In other words, mapping becomes a process of 'searching' for, or rather generation of mutant coordinates, for acting politically on and through molecular lines of flight, not on the striated molar lines of a tired and perpetually failing politics of party, identity and territory. A turn to affect and the virtual also affords the possibility of enrolling an eclectic suite of human and non-human actors into the cartopolitical fold, actors not normally admitted to the restricted echelons of macropolitical cartographies.

In response, therefore, to the question, 'who or what counts as a cartographer', the answer quite simply is anyone and everything, but what makes someone or something a cartographer, and specifically a vernacular mapper at that, is an actor that at once comes about through, and generates (dis)orientations for the everyday and moreover, an actor that acknowledges, in an ethico-aesthetic sense, the affective capacities and responsibilities they acquire through the vernacular interventions they compose. Foucault is famously quoted by Deleuze, as he is earlier in this thesis for proclaiming, 'I am a cartographer', hence the subsequent injunction that anyone has the potential to be a cartographer. Foucault on his own terms however, whilst he states that he is indeed a cartographer, does so on the premise that he is also many other things; "I am an instrument salesman, a creator of recipes, a guide to optical devices, a cartographer, a draftsman, a gunsmith..." (Foucault quoted in Stivale, 2008: 154). What one might take from Foucault here is that the conceptual purification of being a cartographer in singular terms is a dangerous one, at least in terms of attempting to wreak out individuated, molar identities. It follows therefore that vernacular mappers are cartographers only insofar as they are many other things and that they do not

attempt to extract a refined substrate of cartography and cartographic performance out of their broader quotidian assemblages, itineraries and geographies.

Some endeavours have been made in the preceding paragraphs to hone a response to the ongoing question, what is a map? Maps as 'aesthetic machines' was the latest of these Guattari-influenced, tentative offerings. Insofar as the chapter and the thesis as a whole has been embroiled in affect, the virtual and performance it would appear somewhat antithetical to these ontogenetic energies to hold down any particular definition of a map. Without doubt, it is easier to cast definitions as to what a map *is not* as opposed to anything in the affirmative. Nonetheless, the pressing emergence of vernacular mapping performances in the last decade provides some impetus to get a handle on what a map can do, if not what a map is. Consequently, one might draw this thesis to an ending, as ever, in the middle of things; that maps are intensive becomings. That is to make the claim that maps are processes; maps are mappings. A map emerges through the work that it does, which in the case of vernacular mappings is to simultaneously actualise the virtual, and to virtualise the actual. These processes are as intensive as they are micropolitical, placing demands on bodies that orientate as much as they disorientate; cartographically minor performances that territorialise as much as they deterritorialise. The ethico-political injunction then is to, "not stop completing, remaking, amassing, redesigning in order to rearrange cartographic criteria in the face of the urgencies of the present" (Pelbart, 2011: 76).

Maps, mappings, cartographies; geographing always in the middle of things are the intensive becoming and performing of lines, contours, legends and indeed spaces of, and for, the vernacular.

A Cartographic Coda: Middle Hope

Circle back, briefly, to Pueblo Libre, Lima.

The repetition of a well-travelled story;

Finally, Navstar satellites 22, 36, 61 and 63, orbiting the Earth at 1.6 miles a second start communing with out handheld technologies and vice-versa, a virtual relay of signals travelling at least twenty-four thousand miles from nominal sea-level to satellite and back again. We have a lock on our position; longitude, latitude, altitude, the basic geodesic primitives needed to map; relief all round. We know where we are, for now, and we continue onwards, amateur cartographers in the making.

A specious and all too convenient ending to the geographical vignette. Indeed, continue onwards one moment;

One by the one, no sooner had they started flickering into action, each of the GPS handsets reverted to specification and for want of a more technically proficient phrase, 'died'. From what we could tell, which wasn't a great deal, it seemed that the geometries over which the GPS devices were floundering didn't square up to our own itinerant wonderings. What did we expect? No, really, what did we expect? All this re-iterates is the gaping disconnect between the lively excesses of walking and a pre-figured, orbital grid; or at least it goes someway to demonstrate the mundane difficulties of aligning human bodies with satellites. What hope now of making satellite contact?

Indeed, hope is, as Spinoza (1996 [1677]: 106) suggests, "an inconstant joy, born of the idea of a future or past thing whose outcome we to some extent doubt". Vernacular mapping is an orientation towards hope and towards the virtual; even if the pragmatic trade off entails inconstancy, loss and frustration. The alternative

cartographic choice is to maintain a fascination with the seemingly constant allure of Euclidean geometries, “the Cartesian map of darkness” (Deleuze, 2006a: 102) in which surprise, contingency, geography, affect and the virtual are nullified.

The invocation of this modest coda is not to present a disingenuous and indeed false choice between hopeful and despairing cartographies; not least because minor and molar lines, contours and legends emerge contiguously. It is, instead, how one accentuates maps and animates the minor that matters. In an unqualified hopefulness, what this coda gestures towards is a, “geophilosophy able to localise and reflect upon the multitude of constitutive points of the various life forces of the world” (Dosse, 2011: 263). A tall order, undoubtedly, but one that might be actualised through the proliferation of vernacular mappings that are processually enactive through affect and the virtual.

How might one achieve this? Well, inasmuch as one interviewer suggested to the maverick cartographer, Deleuze (1995: 30),

“...you make space fundamental... and map out a ‘cartography’ of becomings...”

Why, then, map? Perhaps because ultimately,

“...you’re happier doing geography”.

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