

The Natures of War

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*for Neil*¹

In his too short life, Neil Smith had much to say about both nature and war: from his seminal discussion of ‘the production of nature’ in his first book, *Uneven development*, to his dissections of war in the twentieth and early twenty-first centuries in *American Empire* – where he identified the ends of the First and Second World Wars as crucial punctuations in the modern genealogy of globalisation – and its coda, *The endgame of globalization*, a critique of America’s wars conducted in the shadows of 9/11.² And yet, surprisingly, he never linked the two. He was of course aware of their connections. He always insisted that the capitalist production of nature, like that of space, was never – could not be – a purely domestic matter, and he emphasised that the modern projects of colonialism and imperialism depended upon often spectacular displays of military violence. But he did not explore those relations in any systematic or substantive fashion.

He was not alone. The great Marxist critic Raymond Williams once famously identified ‘nature’ as ‘perhaps the most complex word in the [English] language.’ Since he wrote, countless commentators have elaborated on its complexities, but few of them

¹ This is a revised and extended version of the first Neil Smith Lecture, delivered at the University of St Andrews – Neil’s *alma mater* – on 14 November 2013. I am grateful to Catriona Gold for research assistance on the Western Desert, to Paige Patchin for lively discussions about porno-tropicality and the Vietnam war, and to Noel Castree, Dan Clayton, Deb Cowen, Isla Forsyth, Gastón Gordillo, Jaimie Gregory, Craig Jones, Stephen Legg and the editorial collective of *Antipode* for radically improving my early drafts. I presented the penultimate version to a seminar at the University of Zurich in October 2014, and benefitted from the comments of Benedikt Korf, Timothy Raeymaekers, Rory Rowan and their students. I have also learned much from Juanita Sundberg, whose more-than-human geographies are always never-less-than-human. Finally, I am deeply grateful to Dan Clayton, Joe Doherty and their colleagues for their generous hospitality at St Andrews, and to Neil for filling so much of my life with such warmth and brilliance.

² Neil Smith, *Uneven development: nature, capital and the production of space* (London: Blackwell, 1984; second edition, 1990; third edition, University of Georgia Press, 2008); *American Empire: Roosevelt’s Geographer and the Prelude to Globalization* (Berkeley: University of California Press, 2004); *The endgame of globalization* (New York: Routledge, 2005).

have paused to note that ‘war’ was not one of Williams’s keywords (though ‘violence’ – ‘often now a difficult word’ – was).³ Williams was radicalised by the rise of European fascism; he joined the British Army in 1941 and served as a tank commander during the Second World War. Yet at its end he found the world had turned, and it was for that very reason that he sought to find the terms for a post-war world in which, seemingly, ‘war’ had no place.⁴

‘In 1945, after the ending of the wars with Germany and Japan, I was released from the Army to return to Cambridge. University term had already begun, and many relationships and groups had been formed. It was in any case strange to travel from an artillery regiment on the Kiel Canal to a Cambridge college. I had been away only four and a half years, but in the movements of war had lost touch with all my university friends. Then, after many strange days, I met a man I had worked with in the first year of the war, when the formations of the 1930s, though under pressure, were still active. He too had just come out of the Army. We talked eagerly, but not about the past. We were too much preoccupied with this new and strange world around us. Then we both said, in effect simultaneously: ‘the fact is, they just don’t speak the same language’.’⁵

I want to track backwards and forwards from Williams’s war-time experience to trace co-productions of nature and military violence in three different theatres: the mud of the Western Front during the First World War, the deserts of North Africa during the Second World War (an armoured campaign very different from the European theatre in which Williams served), and the rainforests of Vietnam. My accounts can only be sketches, but they share a way of thinking of ‘nature’ (in all its complexity) as a modality that is intrinsic to the execution of military and paramilitary violence. In much the same way that ‘space’ is not only a terrain over which wars are waged – the fixation on

³ Raymond Williams, *Keywords* (London: Fontana; New York: Oxford University Press, 1976); ‘war’ was not included in the expanded second edition (1983) either, though as he was composing that edition he wrote a scathing commentary on the Falklands War and its culture of distance: ‘Distance’, *London Review of Books* 4 (11) (17 June 1982) 19-20.

⁴ In 1951 Williams was recalled as a reservist to fight in the Korean War, but he refused to serve and registered as a conscientious objector. Dai Smith provides a detailed account of Williams’s war-time service in *Raymond Williams: a warrior’s tale* (London: Parthian, 2008); see also Stefan Collini’s careful review essay, ‘Upwards and onwards’, *London Review of Books* 30 (15) (31 July 2008) 13-16.

⁵ Williams, *Keywords*, p. 11.

territory that remains at the heart of modern geopolitics – but also a medium *through* which military and paramilitary violence is conducted, so ‘nature’ is more than a resource bank whose riches can trigger armed conflict and finance its depredations: the problematic of resource wars and conflict commodities.⁶ The spoils of war include the short-term bludgeoning of landscapes and the long-term toxicity of contamination (what Rob Nixon calls ‘slow violence’), but it is also important to trace the bio-physical formations – the conditions, provided the term is understood in the most active of senses – that are centrally involved in the militarisation of ‘nature’.⁷ For nature too is a medium *through* which military and paramilitary violence is conducted.⁸

I speak of ‘co-productions’ and ‘formations’ in order to signal three issues that will reappear across all three studies. First, each of these wars was conceived in large measure as what Paul Saint-Amour calls, in relation to the first of them, an optical war: they depended on geo-spatial intelligence, surveillance and reconnaissance which in its various forms provided the essential basis for the maps, plans and orders that activated the war machine.⁹ And yet the remote orderings of military violence were never autonomous projections onto a pure plane; they also depended on the bodies of soldiers whose apprehension of the battle space was always more than visual. In part, this was a matter of affect, but it was also a matter of knowledge – of what I call a *corpography* rather than a cartography – whose materialities also inflected imaginative geographies

⁶ Cf. Stuart Elden, *Terror and territory: the spatial extent of sovereignty* (Minneapolis: University of Minnesota Press., 2009) and *The birth of territory* (Chicago: Chicago University Press, 2013); Philippe Le Billon, *Wars of plunder: conflicts, profits and the politics of resources* (New York: Columbia University Press, 2012).

⁷ Rob Nixon, ‘Ecologies of the aftermath: precision warfare and slow violence’, in his *Slow violence and the environmentalism of the poor* (Cambridge MA: Harvard University Press, 2011) pp. 199-232.

⁸ I hope I’ve sufficiently emphasised the complexity of ‘nature’ to forego the scare-quotes from here on.

⁹ Paul Saint-Amour, ‘Modernist reconnaissance’, *Modernism/modernity* 10 (2) (2003) 349-80: 354.

of militarised nature.¹⁰ Second, those diverse stocks of knowledge about the battle space were invested in the co-production of a ‘trickster nature’. It was commonplace to describe the Western Front as a surreally empty landscape in which the capacity for military violence was hidden from view once men withdrew into the troglodyte world of the trenches.¹¹ But I have in mind a more pervasive sense of uncertainty instilled by a militarised nature: one where the earth and air could kill through an infected wound, a buried mine or a cloud of gas, and whose camouflaged landscapes could wreak havoc with the military gaze to dissemble and distract, lure and entrap. Third, this was a hideously hybrid ‘cyborg nature’ whose terrain and life-forms were saturated with the debris of violent conflict: burned-out vehicles and bombed-out buildings, barbed wire and exploded munitions, discarded weapons and abandoned supplies, toxic residues and body parts. So far so familiar, except that none of these entanglements was inert; they shaped the military operations that took place through them. In all three ways each of these battle spaces was composed of ‘vibrant matter’ that was often also deadly matter.¹²

The Western Front, 1914-1918

Many of those who marched off to troop trains and troop ships in the summer of 1914 – like many of those who cheered them on their way – were imbued with what

¹⁰ By ‘corpography’ I mean a mode of apprehending, ordering and knowing the battle space through the body as an acutely physical field in which the senses of sound, smell, taste and touch were increasingly privileged (over the optical-visual register of cartography) to produce a somatic geography or a corporeality. See Derek Gregory, ‘Corpographies’ at <http://geographicaliminations.com/2014/07/16/corpographies>, and ‘Gabriel’s map: cartography and corpography in modern war’, in Peter Meusbürger, Derek Gregory and Laura Suarsana (eds) *Geographies of knowledge and power* (Heidelberg: Springer, in press). Although it will be obvious from this that my discussion is confined to ground troops, it would be wrong to assume that those serving in the air force or the navy did not depend on their own, no less corporeal knowledges of atmospheres and oceans.

¹¹ ‘Troglodyte world’ is Paul Fussell’s phrase in *The Great War and modern memory* (Oxford: Oxford University Press, 1977) p. 36; Modris Eksteins observes that ‘the whole landscape of the Western Front became surrealistic before the term *surrealism* was invented by the soldier-poet Guillaume Apollinaire in his program notes for the Diaghilev production of *Parade* in 1917’: *Rites of Spring: the Great War and the birth of the modern age* (Toronto: Dennis, 1989) p. 146.

¹² Cf. Jane Bennett, *Vibrant matter: the political ecology of things* (Durham: Duke University Press, 2010).

would seem in hindsight a startlingly conventional and even pastoral conception of war. Hew Strachan cautions against juxtaposing ‘a sun-dappled and cultured civilisation and a mud-streaked and brutish battlefield’, and the symbolic power of the pastoral survived its encounter with the ghastly reality of modern, industrialised war.¹³ The iconic image of the Western Front is a sea of mud pock-marked with craters and riven by the stumps of shattered trees. It was a vivid presence both physically and imaginatively, but it was not universal. A few miles behind No Man’s Land lay an agrarian landscape that would have been familiar to most European troops – though not to the considerable contingents from other continents¹⁴ – and many of them took refuge in a reassuring rurality whenever they were removed from the front line. Moving up to the trenches from Belancourt on a glorious June afternoon in 1916 the young Max Plowman exulted in the scene:

‘The tall corn is ripening, and between its stalks poppies and cornflowers glow with colour. Through the valley we are descending a noisy stream finds its way, and on the hills beyond, great elm-trees stand like wise men brooding. It is a lush green country, full of beauty. The war seems far away.’¹⁵

¹³ Hew Strachan, *The First World War. Vol. 1: To arms* (Oxford: Oxford University Press, 2001) p. 114. Many writers suggest that, for the British at least, the war was seen at first as an escape from the dull compulsions of the modern world, but this imaginarity was soon shattered: see Eksteins, *Rites of Spring*.

¹⁴ My focus on the experience of British, Australian and Canadian soldiers – with some exceptions – is a significant limitation to the discussion that follows. It was not all white on the Western Front, but there are considerable difficulties in bringing the fragmentary materials from (for example) Indian troops who served in France and Belgium to bear on the themes I address here. The archive consists largely of censored letters dictated to scribes: see David Omissi, *Indian voices of the Great War: soldiers’ letters 1914-1918* (London: Palgrave, 1999) and Santanu Das, ‘Indian sepoy experience in Europe, 1914-1918: archive, language and feeling’, *Twentieth-century British History* 25 (3) (2014) 391-417. Since Omissi’s collection the experience of Indian troops has slowly come into sharper focus: see Andrew Tait Jarboe, *Soldiers of empire: Indian sepoys in and beyond the metropole during the First World War, 1914-1919* (unpublished PhD thesis, Northeastern University, 2013); George Morton Jack, *The Indian Army on the Western Front* (Cambridge: Cambridge University Press, 2014); Gajendra Singh, *The testimonies of Indian soldiers and the two world wars: between self and sepoy* (London: Bloomsbury, 2014). But none of these texts addresses the ‘natures of war’ in any extended fashion. Some contemporary accounts claimed that it was ‘impossible to imagine conditions more terrible for Eastern troops’: ‘No language can describe their sufferings, carried swiftly from a fierce tropical sun to the wet and winter of Flanders’: J.B. Merewether and Frederick Smith, *The Indian Corps in France* (New York: Dutton, 1918) p. 26. But these were the words of British officers, and Jack, *Indian Army* insists that there are good reasons to suppose that many Indian troops were more inured to the heavy rain and extreme cold than their British counterparts.

¹⁵ Max Plowman, *Subaltern on the Somme* (London: E.P. Dutton, 1928) p. 22.

Pastoral conceits like these – and they were by no means uncommon – were testaments to the horrors that closed in as the troops neared what Plowman later called ‘the palsied zone’. As he and his men marched towards Fricourt, they crossed the old front line. ‘The country here is stricken waste: the trees that formed an avenue to the road are now torn and broken stumps, some still holding unexploded shells in their shattered trunks, others looped about with useless telegraph-wire.’ Later still, he described the sun glaring down ‘on earth that has lost its nature, for, pitted everywhere with shell-holes, it crumbles and cracks as though it has been subject to earthquake.’¹⁶ As the landscape ‘lost its nature’ – a loss for which the all too human violence of war was responsible – so it also appeared less human. Yet even there, in the midst of all *that*, it was still possible to find sights and sounds that evoked the pastoral: the cornflower blue sky, the crimson rose, the fluting song of the lark. But these were all fleeting moments, and when he was finally relieved Plowman wrote that ‘it is cheering to be going westward: the farther you go in this direction the more human the world becomes.’¹⁷ The opposition between the ‘un-natural’ and the ‘human’ really pits the savage against the domesticated, but passages like these are double-edged. They form a repertoire of ‘Arcadian resources’ in Paul Fussell’s resonant phrase, which function as what he saw as a characteristically ‘English mode of both fully gauging the calamities of the Great War and imaginatively protecting oneself against them’.¹⁸ Protection here is about more than solace, I think, because opposing these imaginative geographies works to repress the transformation of

¹⁶ Plowman, *Subaltern*, pp. 39, 41.

¹⁷ Plowman, *Subaltern*, p. 103. The traverse between what he called ‘landscapes of peace’ and ‘landscapes of war’ was the fulcrum for Kurt Lewin’s topological phenomenology of the battlefield described in ‘Kriegslandschaft’ (1917), translated by Jonathan Blower as ‘Landscape of war’, *Art in translation* 1 (2) (2009) 199-209.

¹⁸ Paul Fussell, *The Great War and modern memory* (Oxford) pp. 231, 235. Not for nothing, as he reminds us, is the pastoral a favoured mode of elegy.

the domesticated *into* the savage which confirmed what Claire Keith saw as ‘the frightful interdependence of human death and environmental death’.¹⁹

This interdependence marked the climactic co-production of a militarised nature that mediated war on the Western Front in multiple ways. Its most immediate effect, which was registered within weeks, was infection. This was the first war in which deaths from enemy action exceeded those from disease, but the two pathologies were also closely connected. The British Expeditionary Force was unprepared for the threat posed to its troops from infected wounds; it had not been a serious problem on the dry veld during the Boer War, which had ended twelve years earlier, and so military surgeons continued to assume that a simple antiseptic dressing on a wound would suffice. But the presence of faecal bacteria in the heavily manured soils of France and Belgium combined with the use of high explosive shells which drove debris deep into the body ensured that many wounded soldiers contracted sepsis, tetanus or ‘gas gangrene’. The last in particular came as an unpleasant surprise, and one RAMC captain confessed:

¹⁹ Claire Keith, ‘Pilgrims in a toxic land: writing the trenches of the First World War’, in Jeff Persels (ed), ‘The environment in French and Francophone literature and film’, *French Literary Studies* 39 (2012) 69-85: 77; see also Chris Pearson, ‘The “mangled earth” of the trenches’, in his *Mobilizing Nature: the environmental history of war and militarization in modern France* (Manchester, Manchester University Press, 2012). One of Keith’s central points is the difference between French and British writing, but here they are surely at one. There is a passage in William Boyd’s *The new confessions* (London: Penguin, 1987) that speaks directly to the beginning of the process of military transformation:

‘Take an idealized image of the English countryside – I always think of the Cotswolds in this connection... You know exactly the sort of view it provides. A road, some hedgerowed lanes, a patchwork of fields, a couple of small villages... The eye sweeps over these benign and neutral features unquestioningly.

‘Now, place two armies on either side of this valley. Have them dig in and construct a trench system. Everything in between is suddenly invested with new sinister potential: that neat farm, the obliging drainage ditch, the village at the crossroads become key factor in strategy and survival. Imagine running across those intervening fields in an attempt to capture positions on that gentle slope opposite... Which way will you go? What cover will you seek? ... Try it the next time you are on a country stroll and see how the most tranquil scene can become instinct with violence. It only requires a change in point of view’ (p. 139).

This took speaks to Lewin’s ‘landscape of war’ (note 16); but once that point of view has changed, the process of destruction is already in train.

‘We knew nothing about it at all. Nothing like it had ever been experienced in South Africa on the clean, sandy battleground of the veldt, which had been the army’s last experience. Here, on the heavily manured soil of France, it was a different matter. You got this appalling infection with anaerobic bacteria and the men just died like flies. We got the casualties straight from Mons [the first major battle fought by the British Expeditionary Force, on 23 August] and the infection had usually set in by the time they got to us. If they had compound fractures, full of mud, it was the ideal site for the bacteria to flourish, and, if the men had been several days on the way, as most of them had, the wound was simply a mass of putrid muscle rotting with gas gangrene.’²⁰

By the end of 1914 120 out of every 1000 wounded contracted gas gangrene, and 25 per cent of them had died. Opinion over its treatment remained divided: debridement (radical excision) of wounds was known to be effective by November 1914 but was not widely used for at least two years, and aggressive amputation was often the standard recourse.²¹ But its pathology was quickly established. Here is a report from an advanced dressing station near Neuve Chapelle on 13 March 1915:

‘The condition of the wounds was indescribable, for many of them were two days old, and during that time the wounded men had simply lain out on the battlefield, the furious fighting rendering the evacuation of casualties an impossibility. In this country of heavily manured soil every wound becomes septic at once, and unless treated thoroughly it soon swarms with the microbes of putrefaction.’²²

²⁰ Lyn Macdonald, *The roses of No Man’s Land* (London: Penguin, 1993) pp. 11-12. It should be clear from this that gas gangrene had nothing to do with the use of chemical weapons on the battlefield, which I discuss below; it is a bacterial infection, *Clostridium myonecrosis*, which causes tissues to swell through the rapid subcutaneous production of gas.

²¹ Mark Harrison, *The medical war: British military medicine in the First World War* (Oxford: Oxford University Press, 2010) p. 29.

²² William Boyd, *With a field ambulance at Ypres* (Toronto: George Dorran, 1916) pp. 25-6. It was the risk of infection that transformed the military-medical machine, whose casualty clearing stations were dispatched close to the front line in order to tighten the evacuation chain. As Emily Mayhew, *Wounded: from battlefield to Blighty 1914-1918* (London: Bodley Head, 2013) p. 5 explains:

‘Speed was vital. The journey from wounding to treatment had to be made as short and as quick as possible. There was only one way to do that: surgeons and hospitals would have to get closer to the wounded. In the first months of 1915, with the Western Front fixed in the position it would hold until the last few months of the war, the entire British military medical system moved.’

Gas gangrene was much less of a problem in the Dardanelles or in Egypt – ‘wet weather and mud are much more dangerous than summer weather and dust’²³ – but the dangers of mud on the Western Front were not confined to microbial attack. Neither was the risk of infection the only medical problem aggravated by waterlogged ground. Infantry soldiers were particularly prone to ‘trench foot’, an immensely painful swelling of the feet brought about by prolonged immersion in cold, wet water. The worst cases were evacuated; if not treated promptly there was a high risk of gangrene. One Australian soldier wrote that those affected ‘suffered indescribable agony’: ‘The flesh on their feet became discoloured, turned black, decayed and rotted away, leaving the bones of the toes exposed. Amputation was the only remedy, but even then in some instances the flesh continued to decay, necessitating further amputations.’²⁴

It was the corporeal encounter with mud that, perhaps more than any other, defined trench warfare on the Western Front.²⁵ Mud was not a constant; the front line snaked 400 miles from the North Sea to the Alps, and conditions varied from place to place and season to season. Mud does not splatter Plowman’s pages until November, but when it does the effects are immediate. ‘When the trenches are in this condition,’ he

²³ Anthony Bowlby and Cuthbert Wallace, ‘The development of British surgery at the Front’, in *British medicine in the war 1914-1917* (London: British Medical Association) pp. 30-46: 35. In other theatres other diseases exacted a heavy toll: Harrison’s discussion of what he calls ‘war against nature’ focuses on malaria in Salonika, Palestine and East Africa. There were isolated cases of malaria in France and Belgium too, and in principle, there could have been epidemics in low-lying areas along the Western Front but in practice the ground was so degraded and polluted that any likely breeding grounds for the Anopheles vector were largely destroyed.

²⁴ H.G. Hartnett, *Over the top* (Crows Nest NSW: Allen and Unwin, 2009) p. 169. In the winter of 1914-15 over 20,000 cases of trench foot were recorded by the British Army, and by January 1915 700 cases a day were being evacuated to England. Troops were also vulnerable to a debilitating ‘trench fever’ (closely related to typhus) which was spread by lice: many sufferers had to be invalided out, and ‘chatting’ (removing lice from the body and underwear using fingers or lighted matches) became a daily ritual for everyone in the trenches and even in billets. One officer described lice as ‘indeed blood of our blood and parted from us by death alone’: Michael Glover (ed) *The fateful battle line: the Great War journals and sketches of Captain Henry Ogle MC* (London: Leo Cooper, 1993) p. 33. Other diseases were spread by the army of rats that infested the trenches.

²⁵ Mud was not only a problem there and then, as my discussion of Vietnam will show; more generally, see C.E. Wood, *Mud: a military history* (Washington: Potomac Books 2007). It was a highly variable medium, though I doubt that the US Army’s 1944 classification of mud into two types – Type I, ‘bottomless’ and Type II, which covered every other type – was especially useful.

wrote, ‘we can neither get to the Germans nor they to us. Both sides are glued where they stand, so that Heaven knows what purpose we serve here, or whether we shall ever get out again.’²⁶ That was a common refrain; for many soldiers at different times and in different places – especially in Artois, Picardy and Flanders – the earth was transformed into a mud of such cloying stickiness that it threatened to bring the war to a juddering halt. ‘At home one asks “Why does the Army not move?”’, complained Charlie May, but ‘Out here one changes the query, with much more reason, to “How can it?”’²⁷ Marc Bloch famously summarised his experience on the Aisne as early as 1914-1915 as ‘the age of mud’, and when Arthur Empey arrived at his first dug-out a year or so later he found that ‘the men slept in mud, washed in mud, ate mud and dreamed mud.’²⁸ Many recruits recoiled from the filth and grime. Here is a private at Passchendaele:

‘It is truly impossible for me to describe the wetness, the sliminess and the stickiness of the all-pervading mud. It clogged the fingers, filled the nails, smeared the face, ringed the mouth and clung to the stubbly beard and hair. The clothes were saturated with it, the mess-tins caked with it... Oh! the smell of it, the taste of it, the dampness of it and the filthiness of it.’²⁹

Everything slowed down and became more difficult. Horses, mules and artillery limbers strained to make it through the mud, and movement was reduced to ‘a laboured wallow through a shifting quag’.³⁰ It took one company ‘almost an hour to complete the 200 yards of communications trenches’ to relieve their comrades, sinking up to their thighs in ‘stinking, sticky black mud’; once they arrived they could only progress to their posts by taking hold of each leg in turn and ‘forcibly mov[ing] it bit by bit.’³¹ The noise of

²⁶ Plowman, Subaltern, p. 00.

²⁷ Gerry Harrison (ed.), *To fight alongside friends: the First World War diaries of Charlie May* (London: William Collins, 2014) p. 111.

²⁸ Marc Bloch, *Memoirs of war 1914-1915* (trans. Carole Fink) (Ithaca: Cornell University Press, 1980) p. 152; Arthur Empey, *Over the top* (New York: G.P. Putnam, 1917) p. 60.

²⁹ Private N.M. Ingram, in Peter Barton, *Passchendaele: Unseen panoramas of the Third Battle of Ypres* (London: Constable, 2007) p. 309.

³⁰ Harrison, *To fight alongside friends*, p. 111.

³¹ Hartnett, *Over the top*, pp. 103-4.

men struggling through the mud carried a long distance and often drew enemy fire. ‘The sound of our squelching through the mud was perfectly audible in Jerry’s front line,’ wrote one officer, ‘and he would follow us with these bombs until we reached our post, when he could open up with a machine gun.’³² Even when men were not weighed down by heavy kit and sodden greatcoats movement was an ordeal: ‘runners’ delivering messages slowed to a crawl, some nights taking two hours to cover 800 yards between the front line trenches and battalion headquarters.³³

‘At present,’ wrote one artillery major from Passchendaele in the summer of 1917, ‘I am more likely to die from drowning than hostile fire. It has rained solidly for three days and the place is knee deep in mud.’³⁴ The weather was extraordinary for August – another artillery officer there confirmed that ‘it rained absolutely continuously, one was as afraid of getting drowned as of getting hit by shells’³⁵ – but, ironically, the quagmire was also produced by artillery shells piercing the clay layer and forcing water to the surface under pressure. In any event, the fear of drowning was real enough. ‘Deep devouring mud spread deadly traps in all directions,’ recalled one British guardsman: ‘We splashed and slithered, and dragged our feet from the pull of an invisible enemy determined to suck us into its depth. Every few steps someone would slide and stumble and, weighed down by rifle and equipment, rapidly sink into the squelching mess.’³⁶ Those who fell into one of the myriad waterlogged shell-holes found themselves up to their waist in liquid mud and often had to wait for hours, even days before they were rescued. It was desperately difficult for the stretcher-bearers:

³² Edward Campion Vaughan, *Some desperate glory: the diary of a young officer, 1917* (Barnsley: Pen & Sword, 2010) p. 39.

³³ Alexander Stewart, *A very unimportant officer: life and death on the Somme* (London: Hodder and Stoughton, 2008) p.143.

³⁴ Major Roderick Macleod, in Nigel Steel and Peter Hart, *Passchendaele: the sacrificial ground* (London: Cassell, 2000) p. 138.

³⁵ Major Richard Talbot Kelly, in Max Arthur, *Forgotten voices of the Great War: a new history* (London: Imperial War Museum, 2002) p. 218.

³⁶ Private Norman Cliff, in Peter Hart, *The Great War: a combat history of the First World War* (New York: Oxford University Press) p. 365.

‘In normal conditions, even under fire, two men could carry a casualty from the line to the dressing-station. Now it took four, even six, men to haul a stretcher case to safety, and a journey of as little as two hundred yards could take two hours of struggle through the lashing rain and the sucking mud.’³⁷

Many never made it out. One young officer described his soul-destroying experience at Passchendaele in August 1917:

‘From the darkness on all sides came the groans and wails of wounded men; faint, long, sobbing moans of agony, and despairing shrieks. It was too horribly obvious that dozens of men with serious wounds must have crawled for safety into new shell-holes, and now the water was rising about them and, powerless to move, they were slowly drowning... And we could do nothing to help them.’³⁸

Even those who were rescued were still at risk. Another subaltern described laying the wounded on duckboards because they had run out of stretchers and then, during a lull in the shelling, ‘we heard this terrible kind of gurgling noise. It was the wounded, lying there sinking, and this liquid mud burying them alive, running over their faces, into their mouth and nose.’³⁹

‘We live in a world of Somme mud,’ reported Edward Lynch:

‘We sleep in it, work in it, fight in it, wade in it and many of us die in it. We see it, feel it, eat it and curse it, but we can’t escape it, not even by dying.’⁴⁰

Not surprisingly perhaps, some began to see the mud as possessing a diabolical agency through which it threatened to possess them:

³⁷ MacDonald, *Passchendaele*, p.123.

³⁸ Vaughan, *Some desperate glory*, p. 228.

³⁹ Lt. James Annan, in Lynn Macdonald, *They called it Passchendaele* (London: Penguin, 1993) p. 126.

⁴⁰ Edward Lynch, *Somme Mud: the experiences of an infantryman in France, 1916-1919* (London: Doubleday, 2008), p. 147.

‘At night, crouching in a shell-hole and filling it, the mud watches, like an enormous octopus. The victim arrives. It throws its poisonous slobber out at him, blinds him, closes round him, buries him. One more *disparu*, one more gone... For men die of mud, as they do from bullets, but more horribly.’⁴¹

It was, still more horrifically, much more than mud. Military operations commingled with the earth and the water so that the mud was mixed with barbed wire, bombs and bully-beef tins, and with organic wastes, dead animals and decomposing bodies, to form what Ernst Jünger described as ‘a garden full of strange plants.’⁴²

This ‘slimescape’, as Santanu Das calls it, confounded the neat and ordered lines of the battle space envisioned on the staff officers’ maps and plans.⁴³ The attack ‘could only have been ordered by a higher command that simply looked at map, put down a finger and said “We will attack there”,’ complained one officer on the Somme. ‘They could not possibly have had the faintest conception of what conditions were like.’ No Man’s Land was only 50 yards wide at his position, but ‘to cover that 50 yards through the mud would take five minutes’ – all the time under withering fire.⁴⁴ One of the artillery officers at Passchendaele watched through binoculars as the infantry struggled to keep pace with the carefully calibrated creeping barrage, which had been slowed down in an attempt to compensate for the terrain: ‘They were up to their knees in mud, and by the time they got half-way across it was virtually impossible for them to move either forward or back.’⁴⁵ Even his own ordnance made little headway; his fellow artillery officer said that ‘the extraordinary quagmire nature of the Passchendaele battle

⁴¹ *Le Bochofage: organe anticafardeux, Kaisericide et embuscophobe*, 26 March 1917, in Stéphane Audoin-Rouzeau, *Men at war 1914-1918: national sentiment and trench journalism in France during the First World War* (Oxford: Berg, 1992) p. 38. *Le Bochofage* was a French trench journal.

⁴² Andreas Huyssen, ‘Fortifying the heart - totally: Ernst Jünger’s armored texts’, *New German Critique* 59 (1993) 3-23: 15. Jünger’s conceit was not an uncommon one; Edmund Blunden – for example – described skulls ‘appearing like mushrooms’ from the despoiled earth, and barbed wire rattling ‘like rusty brambles or dead bine’ and standing up ‘like an unpolished hedge and horned with giant spikes’: *Undertones of war* (London: Penguin, 2000) pp. 11, 202, 210.

⁴³ Santanu Das, *Touch and intimacy in First World War literature* (Cambridge: Cambridge University Press, 2008) p. 37.

⁴⁴ Stewart, A very unimportant officer, p. 144.

⁴⁵ Macleod, quoted in MacDonald, Passchendaele, p. 149.

masked much of the effect of the shells, which sank so deeply into the mud that the splinter and blast effect was to a large extent nullified.’⁴⁶

Modern, industrial warfare seemed to be waged against the very earth itself. ‘Its new technology generated a capacity for destruction that no longer focused just on the killing of individual soldiers,’ Dorothee Brantz suggests: ‘Now warfare also included the obliteration of entire landscapes.’⁴⁷ Samuel Hynes says much the same. In his view, war ‘turns landscape into *anti-landscape*, and everything in that landscape into grotesque, broken, useless rubbish.’⁴⁸ For many writers, landscape is above all a visual construction – even a visual ideology⁴⁹ – and the power and significance of Hynes’s insight resides in its implication that through the production of this anti-landscape the privileges accorded to vision in the constitution of ‘optical war’ were challenged and even withdrawn by the soldiers most intimately involved in its execution.

Surviving the slimescape required a ‘re-mapping’, the improvisation of a corpography rather than a cartography, in which other senses had to be heightened in order to apprehend and navigate the field of battle.⁵⁰

‘[T]he visual topography of the everyday world ... was replaced by the haptic geography of the trenches and mud was a prime agent in this change. In an

⁴⁶ Kelly, in Arthur, *Forgotten voices*, p. 218. The same applied to German artillery directed against a British advance. ‘The mud which drags us down and breaks up our attacks has the merciful effect of deadening the blasts of shells and localizing their death-dealing power’: Vaughan, *Some desperate glory*, p. 208.

⁴⁷ Brantz, ‘Environments of death’, p. 74.

⁴⁸ Samuel Hynes, *The soldiers’ tale: bearing witness to modern war* (New York: Allen Lane, 1977) p. 8.

⁴⁹ Denis Cosgrove, ‘Prospect, perspective and the evolution of the landscape idea’, *Transactions of the Institute of British Geographers* 10 (1) (1985) 45-62. This is a powerful conception of landscape, but there are others. Of direct relevance to my discussion is John Wylie’s suggestion that landscape be turned ‘from a distant object or spectacle to be visually surveyed to an up-close, intimate and proximate material milieu of engagement and practice.’ For him, landscape thus becomes ‘the close-at-hand, that which is both touching and touched, an affective handling through which self and world emerge and entwine’, though he treats this in more idyllic terms than those I address here: *Landscape* (New York: Routledge, 2007) p. 167.

⁵⁰ This discussion is derived from Gregory, ‘Gabriel’s Map’; see also Becca Weir, “Degrees in nothingness”: battlefield topography in the First World War’, *Critical Quarterly* 49 (4) (2007) 40-55.

atmosphere of darkness, danger and uncertainty, sights, sounds and even smells are encountered as material presences against the flesh.’⁵¹

Sight was no longer the master sense for those on the front line, especially the infantry, because the terrain had been pulverized and its contours successively reworked by each barrage and offensive that it became ever more unrecognisable and its elements ever more transitory. Soldiers had to look for new markers – material or corporeal did not matter very much: ‘Left by the coil of wire, right by the French legs’⁵² – but they were all increasingly impermanent. One runner returning to Brigade Headquarters across the Ypres Salient ‘by a quicker but more exposed route’ looked for objects to help guide him. ‘I see a foot and it keeps me for the next time but it is not there long.’⁵³

There were three other senses that had to be heightened – three other sources of knowledge that had to be developed – if the soldiers were to survive. The first, of almost overwhelming importance, was sound. During an offensive soldiers were thrust into a world of ‘flat, unceasing noise’ that was intensely corporeal: ‘You could feel the vibrations coming up through the earth, through your limbs, through your body. You were all of a tremor, just by artillery fire only.’ Or again: ‘We lie on the shuddering ground, rocking to the vibrations, under a shower of solid noise we feel we could reach out and touch.’⁵⁴ Because the link between sight, space and danger was broken all along the Front, Das suggests there was an ‘exaggerated investment in sound’, in being able to parse the different sounds made by shells and bullets.⁵⁵ A.M. Burrage captures this as well as anyone:

⁵¹ Das, *Touch and intimacy*, p. 23; previous quotation is from p. 73.

⁵² Brantz, *Environments of death*, p. 77.

⁵³ Private Aston, in Weir, ‘Degrees in nothingness’, p. 42.

⁵⁴ Henry Holdstock, in Levine, *Forgotten voices*, p. 94; Lynch, *Somme mud*, p. 190.

⁵⁵ Das, *Touch and intimacy*, p. 81; for a fuller discussion see Axel Volmar, “‘In Storms of Steel’: the soundscape of World War I”, in Daniel Morat (ed) *Sounds of Modern History: auditory cultures in 19th- and 20th-century Europe* (Oxford: Berghahn, 2014) pp. 227-255.

‘We know by the singing of a shell when it is going to drop near us, when it is politic to duck and when one may treat the sound with contempt. We are becoming soldiers. We know the calibres of the shells which are sent over in search of us. The brute that explodes with a crash like that of much crockery being broken, and afterwards makes a “cheering” noise like the distant echoes of a football match, is a five-point-nine. The very sudden brute that you don't hear until it has passed you, and rushes with the hiss of escaping steam, is a whizz-bang... The funny little chap who goes tonk-phew-bong is a little high-velocity shell which doesn't do much harm... The thing which, without warning, suddenly utters a hissing sneeze behind us is one of our own trench-mortars. The dull bump which follows, and comes from the middle distance out in front, tells us that the ammunition is “dud.” The German shell which arrives with the sound of a woman with a hare-lip trying to whistle, and makes very little sound when it bursts, almost certainly contains gas.

‘We know when to ignore machine-gun and rifle bullets and when to take an interest in them. A steady phew-phew-phew means that they are not dangerously near. When on the other hand we get a sensation of whips being slashed in our ears we know that it is time to seek the embrace of Mother Earth.’⁵⁶

It was, in effect, a way of ‘seeing by listening’ so that, as Brantz suggests, ‘trench life was, in many ways, a synesthetic experience’.⁵⁷

The soldiers also inhabited an aggressive and intrusive smellscape. ‘The stench of a battlefield cannot be imagined,’ wrote Edwin Ware, a sergeant with the RAMC:

‘Blood; the dead, both human and animal; the acrid smell of explosives; the smell of lethal gases, whether fresh or stale; chloride of lime, used in the primitive sanitary arrangements; our own seldom washed bodies; and the putrid, churned-up mud. Men, sleeping under these conditions, often looked like the dead, with dull grey, waxen looking faces which appeared to be moist.’⁵⁸

⁵⁶ A.M. Burrage, *War is war*, pp. 78-9.

⁵⁷ Brantz, ‘Environments of death’, p. 76.

⁵⁸ Edwin M. Ware, *Diary*, p. 38 (RAMC/PE/1/707/Ware, RAMC Archive, Army Medical Services Museum, Keogh Barracks). Cf. John Ellis, *Eye-deep in hell: Trench warfare in World War I* (Baltimore: Johns Hopkins, 1976) pp. 58-9, who lists ‘the chloride of lime that was liberally scattered to minimise the risk of infection, the creosote that was sprayed around to get rid of the flies, the contents of the latrines, the smoke from the braziers and the sweat of the men.’

Above all, as Ware implied, the battlefield was saturated with the fetid odour of death. All smells are particulate, and there was something intensely, intimately physical about this apprehension of the killing fields. ‘I have not seen any dead’, Wilfred Owen wrote, ‘I have done worse. In the dank air I have perceived it, and in the darkness felt.’⁵⁹ It was commonplace yet it never became a commonplace. ‘I never grew accustomed to the all-pervading stench of decayed and decaying flesh,’ one artillery officer said, ‘mingled with that of high explosive fumes that hung over miles and miles of what had been sweet countryside and now was one vast much heap of murder.’⁶⁰ But there were other smells that, if you knew them, could save your life. At Passchendaele, one corporal recalled,

‘You got the smell of chlorine gas, which was like the sort of pear drops you’d known as a child. In fact the stronger and more attractive the pear-drop smell became, the more gas there was and the more dangerous it was. When you were walking up the track a shell dropping into the mud and stirring it all up would release a great burst of these smells.’⁶¹

The third sense was touch. Trench diaries, journals and memoirs are saturated with the predatory touch of the slimescape, the mud that invaded the body, ‘clogged the fingers, filled the nails, smeared the face, ringed the mouth and clung to the stubbly beard and hair’, and which could all too silently infect wounds and kill soldiers.⁶² But they could also be saved by their own sense of touch, and those same sources are no less full of men subsisting in dug-outs and crawling through the trenches, emerging to worm their way through the barbed wire and the mud. ‘Creep, crawl, worm, burrow’, Das reminds us, ‘were the usual modes of movement during a night patrol in no man’s land or while rescuing war-wounded in order to avoid being detected’ and each of them – there are others too: plunge, immerse, scrape – registers a shift from the visual to the

⁵⁹ Das, *Touch and intimacy*, p. 7.

⁶⁰ Lt R.G. Dixon, Royal Garrison Artillery, in Steel and Hart, *Passchendaele*, p. 198.

⁶¹ Corporal Jack Dillon, Second Bn, Tank Corps, in Arthur, *Forgotten voices*, p. 233.

⁶² Private N.M. Ingram, in Barton, *Passchendaele*, p. 309.

tactile.⁶³ Sight in those circumstances was of limited purchase, but where it was invoked it too became haptic, a facility described by Frederic Manning in *The Middle Parts of Fortune*, a novel based on his own experience in the Somme:

‘[E]very nerve was stretched to the limit of apprehension. Staring into the darkness, behind which menace lurked, equally vigilant and furtive, his consciousness had pushed out through it, to take possession, gradually, and foot by foot, of some forty or fifty yards of territory within which nothing moved or breathed without his knowledge of it. Beyond this was a more dubious obscurity, into which he could only grope without certainty. The effort of mere sense to exceed its normal function had ended for the moment...’⁶⁴

Stretching, pushing out, taking possession, groping: these are the probing moments of a profoundly haptic apprehension of the battlefield.

These apprehensions at once limited and extended the soldier’s field of mobility. This was further fractured by two tactics that re-militarised nature in different ways, one below and the other above ground. The first was tunnelling and mining, which revived a longstanding tactic of European siege warfare. It involved digging tunnels right across No Man’s Land and under the enemy’s front lines; once the end chamber had been packed with explosives, these ‘mines’ would be detonated to spectacular effect.⁶⁵ The tactic started almost as soon as the first trenches were dug. The French and the Germans engaged in small-scale mining along the Aisne as early as October 1914. In December the British dug a shallow tunnel near Festubert to support an attack led by

⁶³ Das, *Touch and intimacy*, pp. 7, 43. Das cites Merleau-Ponty to sharpen the contrast between ocular vision and touch: ‘It is through my body that I go to the world, and tactile experience occurs “ahead” of me.’ There were of course other registers in which touch was central, and Das also beautifully illuminates the homo-sociality of this subterranean world in which forms of intimacy with other men – not just ‘mother earth’ – were no less vital in rendering this stunted life endurable and meaningful.

⁶⁴ Frederic Manning, *Middle parts of fortune: Somme and Ancre 1916* (London: Piazza Press and Peter Davies, 1929) p. 224.

⁶⁵ For definitive, detailed accounts see Peter Barton, Peter Doyle, Johan Vandewalle, *Beneath Flanders Fields: the tunnellers’ war 1914-1918* (Stroud: The History Press, 2010) and Simon Jones, *Underground warfare 1914-1918* (Barnsley: Pen & Sword, 2010); see also Stephen Bull, *Trench: a history of trench warfare on the Western Front* (London: Imperial War Museum/Oxford: Osprey, 2014); ‘Tunnelling companies in the Great War’ at <http://www.tunnellersmemorial.com/tunnelling-companies>.

Indian troops but the explosive charge was never detonated. A few weeks later they had a rude awakening when ten small German mines were exploded in the same area beneath the trenches of the Sirhind Brigade. They were quick to respond, and by March the first dedicated Tunnelling Companies were at work in Flanders. It was difficult, dangerous work in which men risked being buried alive, drowned or poisoned from carbon monoxide. Conditions were ‘stuffy, filthy, oppressive, dangerous – just frightful’, according to one of the labouring infantry who crouched in the tunnels and carried the spoil away. He claimed he would have preferred the risk from a shell or a sniper, and an artillery officer who recognised ‘the poor pallid faces’ of the tunnellers said much the same: ‘We who lived or died at sap head or observation post, daily subject to bombing, shelling or sniping, pitied them from the bottom of our hearts.’⁶⁶ It was perhaps less oppressive for the tunnellers themselves, who were used to the work in civilian life, but the impact on unsuspecting enemy troops was horrific. One example must suffice. Hill 60 on Messines Ridge south of Ypres had been mined in 1915, but its re-mining in 1917 exceeded all expectations. A watching artillery officer recorded:

‘At exactly 3.10 a.m. Armageddon began. The timing of all the batteries in the area was so wonderful and to a second every gun roared in one awful salvo. At the same moment the two greatest mines in history were blown up... First there was a double shock that shook the earth here 15,000 yards away like a gigantic earthquake. I was nearly flung off my feet. Then an immense wall of fire that seemed to go half-way up to heaven. The whole country was lit with a red light like a photographic dark-room... The noise surpasses even the Somme; it is terrific, magnificent, overwhelming. It makes one almost drunk with exhilaration...’⁶⁷

Almost 700 German soldiers were killed within what they called the ‘diameter of complete oblivion’. Barely two months later photographer Frank Hurley peered down at the huge crater in horror:

‘After, we climbed to the crest of hill 60, where we had an awesome view over the battlefield to the German lines. What an awful scene of desolation! Everything has been swept away: only stumps of trees stick up here & there &

⁶⁶ Barton, Doyle and Vanderwalle, *Beneath Flanders Fields*, pp. 84, 190.

⁶⁷ Jones, *Underground warfare*, p. 160.

the whole field has the appearance of having been recently ploughed. Hill 60 long delayed our infantry advance, owing to its commanding position & the almost impregnable concrete emplacements & shelters constructed by the Bosch. We eventually won it by tunnelling underground, & then exploding three enormous mines, which practically blew the whole hill away & killed all the enemy on it. It's the most awful & appalling sight I have ever seen. The exaggerated machinations of hell are here typified. Everywhere the ground is littered with bits of guns, bayonets, shells & men. Way down in one of these mine craters was an awful sight. There lay three hideous, almost skeleton decomposed fragments of corpses of German gunners. Oh the frightfulness of it all. To think that these fragments were once sweethearts, may be, husbands or loved sons, & this was the end. Almost back again to their native element but terrible. Until my dying day I shall never forget this haunting glimpse down into the mine crater on hill 60, - & this is but one tragedy of similar thousands...' ⁶⁸

The effects of tunnelling were psychological as well as physical. On the Messines Ridge 19 separate mines were detonated at irregular intervals and after the initial explosions there was 'abject terror' in the German lines: 'There was no telling how many more mines had been planted or where the next one would go up.' ⁶⁹ This was a spectacular instance of a more general uncertainty. The infantry soldier had always sought refuge from bombing and shelling by burying his face and body in the ground. 'Sometimes you wish the earth would shrink,' one private said, 'so as to let you in'. ⁷⁰ Seeking 'the embrace of Mother Earth', A.M. Burrage called it, and in *All quiet on the Western Front* Erich Remarque explained:

'To no man does the earth mean so much as to the soldier. When he presses himself down upon her, long and powerfully, when he buries his face and his limbs deep in her from the fear of death by shell-fire, then she is his only friend, his brother, his mother; he stifles his terror and his cries in her silence and her security....' ⁷¹

⁶⁸ Frank Hurley, *War Diary*, 23 August 1917, pp. 20-22 [Mitchell Library, State Library of New South Wales MLMSS 389/5/1]. Ironically, Hill 60 was itself an artificial construction – it was a spoil heap from a cutting dug for the Ypres-Comines railway.

⁶⁹ Barton, Doyle and Vanderwalle, *Beneath Flanders Fields*, p. 193. This was in fact a mistake: the mines were supposed to be blown simultaneously but there was a failure of synchronisation.

⁷⁰ Private Thomas McIndoe, in Levine, *Forgotten voices*, p. 38.

⁷¹ A.M. Burrage, *War is war* (1930; Barnsley: Pen & Sword, 2010) pp. 78-9; Erich Remarque, *All quiet on the Western Front* (1928; New York: Random House, 2013) p. 41.

It was precisely that sense of security, a geo-intimacy born of knowing and depending on the earth, that was literally undermined by tunnelling.

Yet the second tactic was even more terrifying. Gas warfare turned the very air the soldier breathed into a potential enemy and, to Peter Sloterdijk, inaugurated a ‘new “ecologized” war’, a battle ‘conducted in the atmospheric environment [that] was about conquering the respiratory “potentials” of hostile parties’.⁷² Here too the French and the Germans led the way. The French were the first to use toxic gas shells on a large scale but these discharged tear gas which in most cases was not lethal, and when the Germans used similar shells against the British in October 1914 at Neuve Chapelle they too proved largely ineffective.⁷³ These were ‘Lilliputian efforts’, according to Peter Bull, and experiments by both sides with other systems were aimed at a greater harvest.⁷⁴ They yielded their first (poisoned) fruit on 22 April when the Germans launched the first lethal gas attack at Ypres. Unlike those earlier attempts this did not involve artillery – which is how the High Command persuaded themselves they were not violating the 1899 Hague agreement that prohibited the ‘use of projectiles the sole use of which is the diffusion of asphyxiating or noxious gases’⁷⁵ – and instead released chlorine gas from specially adapted industrial storage containers hidden in the German trenches and then relied on the wind to disperse the gas cloud. On that first, fateful evening more than 5,000 cylinders discharged 150 tons of chlorine gas. It billowed into a yellow-green cloud nearly six kilometres wide and 600-900 meters deep, which was then carried on a

⁷² Peter Sloterdijk, *Terror from the air* (first published in German in 2002; Los Angeles: Semiotext(e), 2009) p. 20. Sloterdijk also claimed it inaugurated the twentieth century – an unhelpful hyperbole – but it did have a profound effect on the social imaginary. ‘By poisoning the very air on which life depended and gradually, painfully corroding the body from within, it tested the limits of understanding and caused a breach in imagination’: Santanu Das, “An ecstasy of fumbling”: gas warfare, 1914-1918 and the uses of affect’, in Adam Piette, Mark Rawlinson (eds), *The Edinburgh companion to twentieth-century British and American war literature* (Edinburgh: Edinburgh University Press, 2012) pp. 396-405: 396. See also Tim Cook, “Against God-inspired conscience”: The perception of gas warfare as a weapon of mass destruction, 1915-1939’, *War & Society* 18 (1) (2000) 47-69.

⁷³ Ulrich Trumpener, ‘The road to Ypres’, *Journal of modern history* 47 (1975) 460-80: 462-3.

⁷⁴ Bull, Trench, p.122.

⁷⁵ Trumpener, ‘Road to Ypres’, p. 468.

north-easterly wind towards two French divisions at 2-3 meters a second. The gas attacked the bronchial tubes and victims suffocated by drowning in their own fluids. German infantry advanced behind the gas cloud which had breached the French lines, and while they did not press home their advantage all sides concluded that gas was the way 'to break the "riddle of the trenches"' by flushing troops from cover and ending 'the stalemate that had confounded all.'⁷⁶ But the reliance on wind as a dispersal vector was risky, not least because the prevailing wind on the Front was from the west – the initial attack had been postponed time and time again until conditions were favourable – and on 25 September the British launched their own gas cloud attack at Loos. This too went awry as a result of changing wind direction, and soon both sides had reverted to artillery delivery systems.⁷⁷ They also developed deadlier agents (all derived from chlorine), and from 1916 gas of more than 60 types was in every engagement by artillery on all sides for both offensive and defensive purposes.⁷⁸

These gases affected more than the surface and the short term. Chlorine and the far more deadly phosgene seeped into craters and shell holes, 'corrupting the very areas of relative safety where men took refuge'. Mustard gas lingered even longer. It was designed to disable not kill – a blistering agent, it burned the skin and caused (usually temporary) blindness – and repeated intermittent exposure deadened the sense of smell so a man could no longer detect it. Since mustard gas remained dormant for days, it 'consigned the soldier to a state of permanent unease' in which 'every puddle [became] an imagined trap'; in the winter of 1917-1918 there were reports of soldiers tracking frozen mud contaminated with mustard gas into their dugouts where it melted and gassed their companions.⁷⁹ Here too, the psychological effects of this militarised nature

⁷⁶ Tim Cook, *No place to run: the Canadian Corps and gas warfare in the First World War* (Vancouver: UBC Press, 1999) pp. 6, 212.

⁷⁷ Jonathan Krause, 'The origins of chemical warfare in the French Army', *War in history* 20 (4) (2013) 545-56 emphasises how aggressively the French sought to develop lethal chemical weapons after Ypres. Within two months the French military was using poison gas shells against artillery batteries in the rear of the German lines rather than relying on gas clouds to disable the infantry.

⁷⁸ Cook, *No place*, p. 4.

⁷⁹ Cook, *No place*, p. 27; Cook, 'Against', pp. 49, 58.

were as significant as their physiological ones. Gas turned out not to be the decisive weapon of the war; it accounted for around 1 per cent of British deaths although it caused disproportionately more casualties. One of its main purposes, Tim Cook concludes, became disruption: spreading surprise, uncertainty, and fear on the battlefield.⁸⁰ By 1918 gas made up 20-40 per cent of all shells within the artillery dumps on both sides and ‘all soldiers on the Western Front lived in an environment where gas was a daily fact of life...’⁸¹

In the face of these horrors, some soldiers came to regard themselves as having become as ‘un-natural’ as the militarised, industrialised natures in which they were embedded. The Tommy ‘will soon be like nothing on earth,’ wrote one officer on the Somme in January 1916. ‘If only we could be clothed in rubber all over and fed through a tube I think some real progress in our equipment might have been made.’⁸² He was only half-joking. The next phase in the emergence of this cyborg warrior can be seen in the tank battles that raged across the deserts of North Africa during the Second World War. But, as I must now show, even in the midst of this more fully mechanised warfare bio-physical entanglements remained immensely powerful – and the human body intensely vulnerable.

⁸⁰ Cook, p. 215; Edgar Jones, ‘Terror weapons: the British experience of gas and its treatment in the First World War’, *War in history* 21 (3) (2014) 355-75. In 1915 12,792 British soldiers were treated for gas but only 307 died. By 1916 GHQ concluded that the number of gas casualties being evacuated to Britain could be drastically reduced and treatment should be moved as far forward as possible since most cases recovered rapidly – though the long-term effects of exposure were largely unknown and unconsidered: Harrison, *Medical war*, pp. 106-9. By 1920 19,000 British veterans were drawing disability pension as a result of gassing; the long-term effects included tuberculosis and pulmonary fibrosis.

⁸¹ Cook p. 214. Edward Spiers, *Chemical warfare* (London: Macmillan, 1986) estimates annual gas dispersals on the Western Front as 3,870 tons (1915); 16, 535 (1916); 38, 635 (1917); 65,160 (1918).

⁸² Harrison, *To fight alongside friends*, p. 91.

The Western Desert 1940-43 ⁸³

The epic struggle between Allied and Axis forces in the Western Desert of Egypt and Libya – and above all the contest between the Eighth Army and the *Panzerarmee Afrika* ⁸⁴ – confounds its popular imaginings in two ways that affect my discussion. Rommel believed passionately that the Second World War ‘took its most advanced form’ in North Africa, ‘the only theatre where the pure tank battle between major formations was fought’. There, he said:

‘The protagonists on both sides were fully motorised formations, for whose employment the flat and obstruction-free desert offered hitherto undreamed-of possibilities. It was the only theatre where the principles of motorised and tank warfare, as they had been taught theoretically before the war, could be applied to the full – and further developed.’ ⁸⁵

I focus on these mechanised, motorised encounters for that very reason – the tank had been introduced on the Somme in 1916 but it did not come into its own until the Second World War – but the conflict in the Western Desert was not exclusively mechanised nor was its only watchword mobility. On occasion, as Rommel conceded, it ‘hardened into static warfare’, and military formations relied on infantry as well as armoured divisions. The landscape of trench warfare could then be reproduced in new, starkly arid but none the less familiar forms. During the siege of Tobruk in 1941, for example, the Allied garrison’s outer perimeter was the 45-kilometre Red Line, and behind its barbed wire barrier the infantry crouched in shallow trenches or in stone and scabbled enclosures

⁸³ The ‘Western Desert’ was how the British described the deserts of North Africa from the headquarters of their Middle East Command in Cairo; I have retained the usage as a matter of convenience and convention – it recurs in most of the English-language sources I use – but its imperial co-ordinates should not be forgotten.

⁸⁴ The campaign started in September 1940 with the Italian invasion of Egypt from its colonial bases in Libya; the successful British-led counterattack by the Western Desert Force prompted Germany to transfer troops to Libya. When the Afrika Korps was formed in January 1941 it was still nominally responsible to the Italian chain of command; in the summer of 1941 the Afrika Korps together with all other German units in the theatre was placed under the command of the *Panzergruppe Afrika* which in January 1942 became the *Panzerarmee Afrika*. Conversely, the Eighth Army, composed of British and Commonwealth forces, was formed from the Western Desert Force in September 1941.

⁸⁵ Erwin Rommel, ‘Rules of desert warfare’, in B.H. Liddell Hart (ed) *The Rommel Papers* (New York: Harcourt, Brace, 1953) pp. 197-203: 197.

(‘sangars’). Every night patrols would venture out into No Man’s Land, a strip between 400 metres and 6 kilometres wide that stretched to the enemy lines, and troops were rotated between the active Red Line and the reserve Blue Line to the rear.⁸⁶ There was none of the labyrinthine complexity of the First World War trench systems – the mazes of the Western Desert were the minefields, as we shall see – but the basic geometry would have been familiar to soldiers who, like Rommel and Montgomery, had served on the Western Front. Although digging slit trenches in the desert was exceptionally difficult, this verse from T.W. Ramsey’s ‘Eighth Army’ confirms that the horrors of the Somme continued to cast a long shadow over the landscape:

‘... we hated sand
 So loving warm, so thirsty for our blood;
 But still they might have sent us into mud
 A fathom deep – this was at least dry land.’⁸⁷

This leads to my second qualification: very little of the North Africa campaign was fought in a classical desert landscape, which would have caused problems for heavy armoured vehicles. ‘The desert is not what you expect – blazing sun and endless sand dunes,’ one veteran cautioned. ‘In fact the so-called Western Desert is mostly hard rock with a thin coating of dust.’⁸⁸ This is what made digging trenches such hard work and the desert such eminently ‘tankable’ terrain. The inland sand seas and dune-fields were the preserve of special (and specialist) forces like the Allies’ Long Range Desert Group and the German *Sonderkommando Dora*, whose business was reconnaissance and sabotage, whereas most of the fighting – including all the furious tank battles – took place on an undulating plateau of low mounds and long ridges 200-300 kilometres wide

⁸⁶ Infantry dispositions have received comparatively short shrift from military historians, but see Leah Riches, ‘The patrolling war in Tobruk’, Australian War Memorial, Summer Scholars Paper (2012) at <http://www.awm.gov.au/sites/default/files/ssvs-riches-2012-tobruk.pdf>. Similar, more short-term measures were adopted elsewhere, including El Alamein.

⁸⁷ *Verses by the Eighth Army: Poems from the desert* (London: Harrap, 1944); Eamonn Gearon, *The Sahara: a cultural history* (Oxford: Oxford University Press, 2011) p. 171.

⁸⁸ Adrian Jucker, *Memories of a Desert Rat* (n.p., 2014). A detailed description of ‘the zone of operations’ can be found in [Generalmajor] Alfred Toppe, *Desert warfare: German experiences in World War II* (Combat Studies Institute, US Army Combat Command and General Staff College, Fort Leavenworth, 1991) pp. 17-24; this is an abridged version of a two-volume study published in 1952.

covered by a thin scrim of loose gravel and rimmed by a great escarpment that dropped down to the road running along the coast. As R.A. Bagnold, the founder of the Long Range Desert Group had it,

‘The coastal plateau, which the army called “The Western Desert”, was firm and open; ideal country for mechanized troops, but totally unlike the broken dune-infested country farther inland. Our army knew nothing either of the difficulties or of the possibilities of operations in the vast dry hinterland.’⁸⁹

Inland, he said, military forces were operating ‘as much if not more against an unknown geography as against the living enemy.’⁹⁰

Bagnold and his men prided themselves on navigating by the sun and the stars. ‘We never relied on maps – they were useless,’ boasted one of his commanders; another described the interior as ‘the most “deserty” desert in the world’, ‘devoid of recognisable

⁸⁹ R.A. Bagnold, ‘Early days of the Long Range Desert Group’, *Geographical Journal* 105 (1) (1945) 30-42. One of the problems that any intensive militarisation of the interior would have had to overcome was the provision of fuel and other supplies; the LRDG established fuel dumps to support its minimalist operations, but the quantities required to sustain any larger motorised or mechanised formation would have been extremely difficult to secure. This is not to say that logistics in the main fighting zone were simple or straightforward. There too petrol was more of a constraint on military operations than water, and access to the coast road, the railway and the sea ports was vital. Many military historians attribute the pendulum swings of the desert war to logistics: as one side advanced its supply lines stretched until they were at breaking-point (unless forward supply dumps were captured, as happened at Tobruk in 1942), while as the opposite side retreated its supply lines contracted and it could launch a counter-offensive.

⁹⁰ Bagnold, ‘Early days’, 30. Bagnold knew what he was talking about: he was an accomplished desert geomorphologist with a track record of successful expeditions, and when he was recalled to the Army in 1939 he had just completed five years’ field and laboratory research that culminated in his canonical *The physics of blown sand and desert dunes* (London: William Morrow, 1941). Intimations of the deadly agency of that ‘geography’ can be found in Bagnold’s *Libyan Sands: travels in a dead land* (1935), where he describes his trucks becoming trapped by encroaching dunes. ‘At first the dunes had seemed quite friendly, without evil intent, too big to bother about such a tiny invasion of their empire.’ But then: ‘The dunes had selected this of all places for their attack, the exact centre of a lifeless circle of country...’ Even so, he later admitted that ‘Never during our peace-time travels had we imagined that war could ever reach the enormous empty solitudes of the inner desert, walled off as it has always been by sheer distance, by lack of water, and by impassable seas of huge dunes’ (‘Early days’). See also Isla Forsyth, ‘Desert journeys: from exploration to covert operations’, *Geographical journal* (2015) doi 10.1111/geoj.12136.

features' that could be plotted on a map.⁹¹ Pre-war expeditions had struggled with varying degrees of success to represent these featureless and trackless spaces – Bagnold included⁹² – but his wartime patrols compiled route-plots that were eventually worked up into detailed maps. 'What use they will be I am not sure,' he confessed to the Royal Geographical Society in 1945. 'The desert is now dead again, and sand blows over our old tracks, tinkling against our rusting petrol tins.'⁹³ He seemed to be saying that the landscape had been animated by what he preferred to call 'piracy on the high desert'. Perhaps orchestrated is a better word, or 'scored' in the double sense of being marked and set in motion, as the desert was forcibly registered through the co-production of a militarised nature. On the Western Front military violence had made the once-familiar landscape illegible even to European eyes, but here it was the pristine landscape that was unreadable and had to be articulated through the signs of military passage.

This suggestion can be extended from the interior to the main fighting zone. The Western Desert 'for over 1,000 miles (mostly in second gear) is sameness itself', wrote one ambulance driver; a 'desolate panorama that kept repeating itself', said another.⁹⁴ As a sapper charged with surveying the landscape observed:

'As much of the [Western Desert] is completely flat and featureless, there is nothing much to put on a map. I once heard an argument between two

⁹¹ David Lloyd Owen, *Providence their guide: a personal account of the Long Range Desert Group 1940-45* (London: Harrap, 1980); W.B. Kennedy Shaw, 'Desert navigation: some experiences of the Long Range Desert Group', *Geographical journal* 102 (5/6) (1943) 253-8: 253. 'Do not mistake navigation for map-reading', Shaw later elaborated: 'Map-reading is fully taught in the Army but map-reading presupposes maps and in Libya there was the rub': *Long Range Desert Group: the story of its work in Libya, 1940-1943* (London: Collins, 1945) p. 24.

⁹² See Zsolt Török, 'Crossing Borders: cartographic and military operations and international borders in the Libyan Desert before WW II', in Anne Ruas (ed), *Advances in Cartography and GIScience*, Volume 2. (Berlin: Springer, 2011) 187-205; this was, in part, the world re-imagined in Michael Ondaatje's *The English Patient*.

⁹³ Bagnold, 'Early days', 45.

⁹⁴ *AFS [American Field Service] Letters* XII, April 1943 (this letter was dated 24 December 1942); Clifford Saber, *Desert Rat Sketchbook* (New York: Sketchbook Press, 1959). Saber served in the Western Desert with the American Field Service.

sappers as to whether there was more fuck all on one side than there was bugger all on the other side.’⁹⁵

As the presence of those sappers testifies, there was an elaborate British military survey covering the Western Desert. Although the newly arrived Keith Douglas was airily told that ‘the squadron and troop leaders don’t use maps much’, and at least one young tank commander admitted that ‘none of us had more than the vaguest idea where we were from day to day and hour to hour’, that was in the heat of battle. Douglas was soon marking his cellophane map-cover with his chinagraph pencils and recording six-figure map references.⁹⁶ The Eighth Army also converted this seemingly blank canvas into its own semiotic landscape through three other, more directly physical interventions.

First, it translated the desert surface into the grammar of mechanised, militarised mobility. In fact the terrain was far from uniform, and it was all too easy for drivers to be led astray by the exhilarating sense of freedom that such seemingly wide open spaces and the absence of physical barriers conferred upon them. ‘The driver must be alert’, Andrew Geer warned, because the even layer of sand was ‘tricky’ and could ‘hypnotize’ the unwary, distracting attention from the sudden alternation of hard sand and shale, soft sand and bog that could spell disaster.⁹⁷ One observer described just such a frantic scene:

‘Dozens of Bren gun carriers were dashing backwards and forwards, throwing out tow ropes to the many vehicles which had got themselves bogged down in the soft sand. Other vehicles were being dragged out by manpower. Heaving, straining, sweating men lifting fifteen hundredweight trucks out of the deep holes their wheels had dug in the sand.’⁹⁸

⁹⁵ Jucker, *Memories*, n.p.

⁹⁶ Keith Douglas, *Alamein to Zem Zem* (London: Faber, 2008; first published in 1946) p. 18; Robert Crisp, in Sadler, *Desert Rats*, p. 00.

⁹⁷ Andrew Geer, *Mercy in Hell: an ambulance driver with the Eighth Army* (New York: McGraw Hill, 1943). See more generally Neal Dando, ‘The impact of terrain on British operations and doctrine in North Africa 1940-1943’ (PhD thesis, University of Plymouth, 2014).

⁹⁸ Robert Hopper (ed), *Stretcher Bearer: from the memoirs of George C. Hopper* (n.p., n.d.). Hopper was a stretcher bearer with the King’s Royal Rifle Corps.

Tracked vehicles were not immune, and the Eighth Army came to rely not only on reading the signs in the landscape but also on ‘goings maps’ whose colours showed the effect of terrain on military movement – ‘hard going’, ‘sticky going’, and the like.⁹⁹

Second, the Army imposed its own landmarks on the desert, and the same sapper charged with surveying the landscape described how he and his companions covered hundreds of square miles with a network of numbered beacons made out of empty 40 gallon oil drums mounted on top of a pile of stones anchored to a concrete base. The beacons were way-stations in a skein of braiding desert tracks, whose formation was explained by Dan Billany:

‘The passage of many vehicles over sand scores it and ridges it, till progress is a continual slithering and jarring in and out of other people’s tracks. In addition, the desert is stony country, hard on the springs of vehicles. Since the centre of the track soon wears down to stone, and becomes intolerable for driving, vehicles tend to be always making new tracks for themselves along the outer edges of the existing tracks. Hence the prodigious width of the main desert tracks. In appearance such a track is like a hundred sandy, deep-rutted cart-tracks laid side by side—all the ruts criss-crossing. It runs straight across the desert, linking the two horizons...’¹⁰⁰

The intersection of the tracks – there was usually nothing else there – was marked by a large signboard with a map reference. ‘The only thing I recall of our journey next day to the front line,’ Billany continued, ‘is a halt at an immense track-junction in the desert, and reading on a signboard the startling name KNIGHTSBRIDGE’ (MR 37984118).

⁹⁹ Dando, *Terrain*, passim. Similar maps had been improvised on the Western Front indicating the suitability (or otherwise) of the ground for tanks. Haig’s Chief of Intelligence intercepted one of them, which showed how limited the safe (‘white’) areas were, and returned it to its author with the curt instruction: ‘Pray do not send me any more of these ridiculous maps’: Lynn Macdonald, *They called it Passchendaele* (London: Michael Joseph, 1978; London: Penguin, 1993). In the Western Desert goings maps were invaluable, so much so that some historians credit the German defeat at Alam Halfa to the planting of a fake goings map by the British: see B.H. Liddell Hart, *A battle report: Alam Halfa* (Quantico VA: US Marine Corps, 1956) p. 15.

¹⁰⁰ Dan Billany, *The Trap* (London: Faber, 2012). First published in 1950, *The Trap* is formally a novel; it was written in a Prisoner of War camp after Billany’s capture in Italy in 1942, and draws closely on his own experience of the Western Desert.

Third, the Army was obliged to re-code this militarised landscape in response to the distinctive dialectic of vision the desert imposed on its operations. For in making the landscape legible to itself, a military formation risked making itself visible to the enemy. The details were not always clear, and the devil was often hidden in the details (or the dust). In the desert ‘all objects at a distance of one kilometre and more appear to move,’ Generalmajor Toppe explained, ‘and it is scarcely possible to decide whether a dark spot on the horizon is an approaching motor vehicle or a destroyed vehicle.’¹⁰¹ Worse, it was often difficult to tell friend from foe. ‘You weren’t always sure whether you were watching German tanks or ours,’ admitted one British trooper: ‘because of the heat haze, tanks were just black objects.’¹⁰² But military signatures were writ large on the landscape. While desert tracks were marked by makeshift beacons, ‘from the air any track in the desert “shone” out *like* a beacon’.¹⁰³ During the day movement of any vehicle was announced by a spiralling cloud of dust – what Toppe called ‘the betrayer’¹⁰⁴ – that could be seen many miles away, and when trucks or tanks stopped they cast long, sharp shadows. A small, raiding force might hope to escape hostile air reconnaissance, but larger formations could not: one British officer newly arrived in North Africa wryly observed the Eighth Army ‘merging into the landscape with all the shy unobtrusiveness of a red vest on a fat man.’¹⁰⁵ As it happened, he was no ordinary officer. Geoffrey Barkas was a camoufleur and, as he saw it, the standard adage – ‘conceal or be killed’ – still applied. But he was convinced that in the Western Desert it was necessary to combine the defensive art of concealment with the offensive art of deception: with the manufacture of military mirages. Barkas had served on the Western

¹⁰¹ Toppe, *Desert warfare*, p. 83.

¹⁰² Trooper David Brown, in Julian Thompson, *Forgotten voices: Desert victory* (London: Ebury Press in association with the Imperial War Museum, 2011) p. 138.

¹⁰³ Sergeant Ray Ellis, in Peter Hart, *The South Notts Hussars and the Western Desert 1940-42* (Barnsley: Pen and Sword, 1996) p. 127; emphasis added.

¹⁰⁴ Toppe, *Desert warfare*, p. 69.

¹⁰⁵ Geoffrey Barkas, *The camouflage story: from Aintree to Alamein* (London: Cassell, 1952) p. 55; I have taken ‘military signatures’ from p. 94.

Front and knew that the British had attempted this before – starting with the ‘planting’ of an artificial tree near Ypres that hid a forward observation post – but he also knew that it had never been undertaken on a grand scale.¹⁰⁶ Yet he and his companions achieved a string of remarkable successes (though understandably none of them involved trees), so much so that in effect – and it was the effect that mattered – the camoufleurs ‘redesigned the desert for modern warfare’.¹⁰⁷

There were other, more vernacular ways in which the desert was made legible, as Billany’s epiphany at Knightsbridge made clear:

‘Later I found that the Libyan desert had its Piccadilly, its Oxford Circus, its Leicester Square and its Hyde Park Corner [he might have added its Charing Cross too] – most of them lonely, cairn-marked cross-roads where no traffic ever roared except the occasional dusty desert truck. Their silence and their immense loneliness gave tragedy to the dear homely names they bore.... Imagine: –A single wooden signboard with crude lettering, PICCADILLY CIRCUS: and nothing else at all – round the grooved wheel-ruts, round the up-ended barrel or the dozen cairns of brown stones that mark the place, the lone and level sands stretch far away. You stand by your truck, in the shadow of the sign-board, and you are wrapped entirely in the everlasting silence of the sands. Piccadilly Circus. Not a movement anywhere under the blue bowl of the sky. The bare brown desert is still and empty, to the horizon.’¹⁰⁸

These familiar markers could not conceal the ‘deadness’ that Bagnold had described – in fact, as Billany suggests in those last sentences, they heightened the sense of desolation. There was no mourning for a despoiled nature here and precious few moments of relief

¹⁰⁶ In the Western Desert the scale progressively widened, from the scenario developed at Tobruk, which was already astonishingly elaborate and pulled off under extremely difficult siege conditions, to the multi-site staging around Alamein: see Rick Stroud, *The phantom army of Alamein* (London: Bloomsbury, 2012).

¹⁰⁷ Isla Forsyth, ‘Designs on the desert: camouflage, deception and the militarization of space’, *Cultural geographies* 21 (2014) 247-65: 249; see also her ‘Subversive patterning: the surficial qualities of camouflage’, *Environment and Planning A* 45 (2013) 1037-1052: 1045-50.

¹⁰⁸ Billany, *Trap*, p. 00. ‘Knightsbridge’ became rather more than a beacon; it was turned into a defensive box behind the Gazala minefield. Its name derived from Knightsbridge Barracks, the home depot of the Guards Brigade that first held the position. ‘Piccadilly Circus’ was further east on the escarpment above Maktilla and featured a version of Eros made from old petrol cans. On the Western Front there was an extensive domestication of the militarised landscape through the attribution of familiar names and nick-names too.

either. But there were some: the short-lived carpet of tiny flowers following a sudden shower that transformed the brown-grey of the desert ‘into undulating distances of blue-green’, whose ‘sweet scent’ would ‘come up to your nostrils, even in a tank turret moving along’ and ‘overcome all the odours of machines’, ‘delicate blossoms which scented the air and gave an illusion of tranquillity belied by the occasional rumble of guns’.¹⁰⁹

For the most part, such affordances were but temporary relief. The daytime heat sapped everyone’s energies – ‘It was just as though a tremendous weight was bearing down on the top of my head,’ recalled Harry Gaunt, ‘and one found it difficult to fight the ensuing drowsiness’¹¹⁰ – but it was above all the endless, shimmering emptiness of a landscape seemingly devoid of life that ground down so many soldiers. ‘Lifelessness’ is a leitmotif in military writing about the Western Desert, and it almost always turns into life-taking. Here is the opening stanza of the first of Hamish Henderson’s ‘Elegies for the Dead in Cyrenaica’ (Libya), entitled ‘End of a campaign’:

‘There are many dead in the brutish desert
 who lie uneasy
 among the scrub in this landscape of half-wit
 stunted ill-will. For the dead land is insatiate
 and necrophilous. The sand is blowing about still.’¹¹¹

¹⁰⁹ Douglas, *Alamein to Zem Zem*, p. 92; John Romeiser (ed), *Combat reporter: Don Whitehead's World War II diary and memoirs* (New York:Fordham University Press, 2006) p. 129.

¹¹⁰ Harry K. Gaunt, in Allan Allport, *Browned-off and Bloody-minded: the British soldier goes to war 1939-1945* (New Haven: Yale University Press, 2015) p.00. ‘All life in the desert, including the fighting, was conditioned band organized by the sun’s course across the sky,’ Allport explains:

‘By noon in the worst months of the year the earth was a furnace-void, the heat “a solid wall”, as Reginald Crimp put it; “the middle distance disintegrated into into incessant sizzling”... Yet at night the thermometer plunged and thin Khaki Drill shirts and shorts were hurriedly supplemented with woollen sweaters and corduroys as soldiers shivered on sentry duty and watched frost form on truck casings.’

¹¹¹ Hamish Henderson, *Elegies for the dead in Cyrenaica* (Edinburgh: John Lehmann, 1948); the first elegy was written in Tunisia in 1943. Henderson served as an intelligence officer in North Africa and Italy; see Timothy Neat, *Hamish Henderson: a biography. Volume 1: the making of the poet (1919-1953)* (Edinburgh: Polygon, 2006).

In another poem, the vengeful valediction ‘So long’, Henderson bids goodnight to ‘the sodding desert’ and ‘the African deadland’, and here too he registers the deadly embrace between the lifeless desert and the life-taking war. Now that military operations have come to an end, he writes, ‘Tonight it’s the sunset only that’s bleeding you.’ The land was seen by many who fought across it as fit only for war. Jocelyn Brooke’s ‘Landscape near Tobruk’, written in 1942, declared:

‘This land was made for War. As glass
Resists the bite of vitriol, so this hard
And calcined earth rejects
The battle’s hot, corrosive impact. Here
Is no nubile, girlish land, no green
And virginal countryside for War
To violate. This land is hard,
Inviolable, the battle’s aftermath
Presents no ravaged and emotive scene,
No landscape à la Goya. all
The rusted and angular detritus
Of war, seem scarcely to impinge
Upon the hard, resistant surface of
This lunar land’¹¹²

Again, the appeal to Europe: no ‘green and virginal countryside for War to violate’. Set against this angular, adamantine land, Brooke places the lively, fleshy bodies of soldiers:

‘. . . The soldiers camped
In the rock-strewn wadi merge
Like lizard or jerboa in the brown
And neutral ambient: stripped at gunsight,
Or splashing like glad beasts at sundown in
The brackish pool, their smooth
And lion-colored bodies seem
The indigenous fauna of an unexplored,
Unspoiled country: harmless, easy to trap,

¹¹² Jocelyn Brooke, ‘Landscape near Tobruk’ in John Manchip White, (ed), *Poems in Pamphlet V* (1952) p. 360; see also Mark Rawlinson, “‘Wild soldiers: Jocelyn Brooke and England’s [sic] militarized landscape’, in Rod Mengham and N.H. Reeve (eds) *The fiction of the 1940s: stories of survival* London: Palgrave, 2001) pp. 101-123. The following year J.L. Hodson’s script for Roy Boulting’s *Desert Victory*, produced by the Ministry of Information to celebrate the second Battle of Alamein, began: ‘The Western Desert is a place fit only for war’.

And tender-fleshed – a hunter’s prize.’¹¹³

In one important sense this land was *not* made for war, at least not modern war. Sand, dust and grit played havoc with the moving parts of mechanised warfare. ‘The fine dust used to clog up everything,’ one driver reported, including the intakes on his truck’s carburettors, while brakes, cylinders, pistons and even gun barrels were abraded much faster than in Europe.¹¹⁴ Those moving parts included human bodies, which were more than the lithe figures of Brooke’s homoerotic frieze – there are similar images in the literary imaginary of the Western Front, where they also work to establish what Fussell calls ‘the awful vulnerability of naked flesh’¹¹⁵ – and the desert exerted its invasive agency upon them too. ‘The desert war made its mark upon the body,’ Alan Allport argues: ‘The Eighth Army veteran could be spotted by the tell-tale characteristics of his skin: the henna-red complexion; the suppurating sores on arms and legs caused by persistent exposure to the desert wind; the thick adhesive sand-sweat paste that crumbled off him in dry flakes.’¹¹⁶ These were outward signs of an experience that was more than skin-deep. Travelling along those desert tracks in a truck or a tank was a wretchedly corporeal affair. It was ‘one continuous bounce, jounce and rattle’, one ambulance driver reported, while another described how ‘dust from churning wheels fogged the area with a dirty, grimy curtain’ so that you ‘emerged from these encounters under a fine yellow pall, teeth grinding on sand, and nostrils caked with the glue-like stuff.’¹¹⁷ The infantry had it no better: ‘one’s lips dried and cracked and one’s mouth felt

¹¹³ *Penguin New Writing* 21 (London: Penguin, 1944) p. 149.

¹¹⁴ Private Kev Robinson, in Thompson, *Forgotten voices*, p. 52; Toppe, *Desert warfare*, pp. 59-60. These problems extended to aircraft too. The installation of filters could only do so much, and in all cases the pervasiveness of dust required the use of more lubricants than in other theatres of war and placed a premium on spare parts, both of which reinforced the importance of maintaining supply lines.

¹¹⁵ Fussell, *Great War*, see especially pp.299-309 (‘Soldiers bathing’); Fussell assimilates these scenes to both the pastoral and the homoerotic. A more nuanced and non-reductive discussion of the latter can be found in Das, *Touch and intimacy*, pp. 109-172, who insists that the ‘new level of intensity and intimacy’ between men in the trenches must be understood primarily ‘in opposition to and as a triumph over death ... a celebration of life’ (p. 118).

¹¹⁶ Allport, *Browned-off*, p. 00.

¹¹⁷ *AFS Letters* XII, April 1943 (this letter was dated 24 December 1942); Geer, *Mercy*, p. 00. Both men were volunteers with the American Field Service.

like a gluepot.’¹¹⁸ The stickiness of the sand was a constant complaint all round. When a large formation was on the move, Keith Douglas explained, the sand was ‘pulverised into a substance almost liquid, sticky to the touch.’ It was suspended ‘like a mist for a foot or two above the desert’, and soldiers walking alongside the vehicles sank in it up to their knees. ‘Every man had a white mask of dust in which, if he wore no goggles, his eyes showed like a clown’s eyes.’¹¹⁹ There was little you could do to protect yourself. Some men did wear goggles, Douglas continued, many more the eye-shields from their gas-masks. But this only substituted one discomfort for another. ‘As it grew hotter, sweat irritated where the sharp-edged celluloid cut into our cheekbones. There was nothing anyone could do about it, just suffer.’¹²⁰ No part of the body was immune:

‘You might wear sand goggles, but your face was coated with sand, that caked itself into a beige mask, clinging to the sweat of your countenance, collecting in the corners of your eyes. Hands and arms, necks and knees, became coated with this same sand, which penetrated under your shirt, and caught in your throat, and made your eyes smart. Your hair became matted and bistre [dark brown]. Along your limbs the trickling sweat would cleave little rivulets through the sandy coating.’¹²¹

And there was virtually nothing you could do to get clean. Water was in short supply:

‘On a gallon a day for all purposes it became an art to wash, shave, clean your teeth, wash your feet, all in a mug of water, with the resultant glutinous fluid being strained and poured into the radiator of your truck. Some men planned to wash a third of their bodies each day, for the sand became matted on the hairy parts of the body, and they felt the imperative need for washing it away, even though a fresh lot of sand was picked up at once.’¹²²

¹¹⁸ Hopper, Stretcher bearer.

¹¹⁹ Douglas, *Alamein to Zem Zem*, pp. 11, 17.

¹²⁰ L.E. Tutt, in Jonathan Fennell, *Combat and morale in the North African campaign: the Eighth Army and the path to El Alamein* (Cambridge: Cambridge University Press, 2011) p. 127.

¹²¹ Antony Brett-James, *Ball of Fire: the Fifth Indian Division in the Second World War* (Aldershot: Gale & Polden, 1951) p. 00. Brett-James served with the Division in the Western Desert for three years; this passage is taken from his military history, but he provided a still more personal account in his *Report my signals* (London: Harrap, 1948).

¹²² Brett-James, *Balls of fire*, p. 00.

These were the best of times; the worst was when a storm sprang up. Then the wind was like ‘furnace breath’, according to Henderson, and ‘all the oxygen seemed to go out of the air’.¹²³ To Caleb Milne, ‘the whole plain seems to rise and fall with the incessant billows of sand blowing in’:

‘The dry waves come racing and leaping down over the land, here and there concentrating in whirling dervishes of spouting grit. At times a pale nimbus of sun glows murkily through the golden haze. It intensifies the heat and the sand wind-lashing.’¹²⁴

His colleague Clifford Saber described the approach of a storm (he also painted it) as a kaleidoscope of physical sensations:

‘[T]he sun became hidden by an orange red veil which deepened in intensity. In the south, the azure horizon fast turned into a dirty indigo. In a few minutes the horizons had condensed to a roaring nothing and a red choking wave of sand pounded over us. The fine dust seeped into everything, your food, your eyes, nose, and ears and between your teeth.’¹²⁵

Similarly, John Jarman has his drivers feel their way through a sand storm, in which ‘feel’ is exactly the verb as he registers the bodily sensations of sand – stinging, coating, whipping, pricking – against which the vehicle affords little or no protection:

‘Wrapped in the dust from sun and sky
Without a mark to guide them by
Men drove along unseeing in the cloud,
Peering to find a track, to find a way,
With eyes stung red, clown-faces coated grey.
Then with sore lips we cursed the sand,
Cursed this sullen gritty land
– Cursed and dragged on our blind and clogging way.

¹²³ Henderson, 10 August 1942, in Neat, Hamish Henderson, p. 00; Bob Sykes, in John Sadler, *Desert Rats: the Desert War 1940-43 in the words of those who fought it* (Stroud: Amberley Publishing, 2012) p. 00.

¹²⁴ Caleb Milne, *I dream of the day: Africa 1942-1943* (New York: Longman, 1945).

¹²⁵ Saber, Sketchbook.

‘We have felt the fevered Khamsin blow
 Which whips the desert into sting and spite
 Of dry-sand driving rain (the only rain
 The parched and dusty sand-lands know,
 The hot dry driven sand): the desert floor
 Whipped by the wind drives needles in the air
 Which pricked our eyelids blind...’¹²⁶

Those ‘unseeing’ and ‘blind’ drivers were not figments of Jarmain’s imagination. ‘Our range of vision in a heavy sandstorm would be reduced to below fifty yards,’ one Australian private said, ‘and so although you could hear enemy activity in front of you you couldn’t see anything.’¹²⁷

Many of the observations I have been quoting were made by ambulance drivers, which is another reminder of the vulnerability of soldiers’ bodies – even and sometimes especially armoured ones. Sand was not the only invasive agent; desert flies were a particularly serious problem because they were a potent vector for dysentery. Mark Harrison explains that this is why Allied troops ‘were encouraged to think of themselves as at war with Nature as well as the Axis powers’, but although dysentery dogged the Afrika Korps more than the Eighth Army, he concedes that ‘the campaign against the fly was less successful than that against the Germans and Italians.’¹²⁸ According to one soldier,

‘Flies produced more casualties than the Germans. It is impossible to describe, without suspicion of exaggeration, how thickly they used to

¹²⁶ John Jarmain, ‘Sand’, in Kenneth Baker (ed), *The Faber book of war poetry* (London: Faber, 1996) p. 248. Jarmain served in North Africa with the 61st Anti-Tank Regiment, Royal Artillery, 1942-3.

¹²⁷ Thompson, *Forgotten voices*, p. 52. In fact sand or dust remains ‘the single most challenging environmental condition a military force must contend with in deserts ... cutting visibility to less than a metre and stopping all movement’: D.A. Gilewitch, ‘Military operations in the hot desert environment’, in Russell Harman, Sophie Baker and Eric McDonald (eds) *Military geosciences in the 21st century* (Reviews in Engineering Geology 22) (Boulder CO: Geological Society of America, 2014) pp. 39-47: 42.

¹²⁸ Mark Harrison, *Medicine and victory: British military medicine in the Second World War* (Oxford: Oxford University Press, 2004) p. 87.

surround us. Most of us ate a meal with a handkerchief or piece of paper in one hand and our food in the other. While we tried to get the food to our mouths, free from flies, we waved the other hand about wildly; even so we ate many hundreds of flies. They settled on food like a cloud and no amount of waving about disturbed them. They could clean jam and butter from a slice of bread much quicker than we could eat it ... it can be realised how serious the menace of flies was considered when I say that, even in remote parts of the Desert, one came across notices saying "Kill that fly, or he will kill you".¹²⁹

That first sentence should not diminish the severity of the wounds sustained by Brooke's 'tender-fleshed'. Crews of armoured vehicles were particularly susceptible to burns because they wore so little inside the stifling carapace of the tank: more than a quarter of all Allied admissions to base hospitals were suffering from severe burns. Fortunately the desert was a relatively sterile environment so that the extensive evacuation chains on which both sides relied as their armies swept back and forth across the plateau did not present the same risk of infection that surgeons had had to contend with on the Western Front. This allowed them to 'return to the conservative methods of surgery developed during the South African War of 1899-1902' when dealing with otherwise extensive blast injuries from bombing, shelling or anti-personnel mines.¹³⁰

Minefields were – and remain – the most terrible agent of militarised nature in the Western Desert.¹³¹ Thousands of them had been used in the First World War but tens of millions were sown in the Second. The dramatic increase was a response to the new importance of armoured divisions. Mines were comparatively cheap to mass produce (they could also be 'lifted' from abandoned enemy minefields and re-used), and turned the terrain into a touch-sensitive weapon that could stop a tank in its tracks. Both sides sowed them in wide belts across the desert to constrain enemy freedom of manoeuvre. In February 1941 hundreds of thousands of mines were laid at Gazala to

¹²⁹ R.J. Crawford, *I was an Eighth Army soldier* (London: Gollancz, 1944) p. 34, in Sadler, *Desert Rats*, p. 00. Other advice was even more direct. One subaltern recalled the substance of an exhortation by his commanding officer as "'Dig Deep or Don't Shit" or "Flies are Fuckers"': Jack Swaab, *Field of fire: diary of a gunner officer* (Stroud: History Press, 2005) p. 00.

¹³⁰ Harrison, *Medicine and victory*, p. 110.

¹³¹ Mike Croll, *Landmines in war and peace: from their origin to the present day* (Pen and Sword, 2009); Lydia Monin and Andrew Gallimore, *The Devil's Gardens: a history of landmines* (Vintage, 2011).

form the largest minefields in military history, but sixteen months later these were dwarfed by the vast minefields at El Alamein. In July 1942 the Allies had dug defensive minefields from the coast to the Qatarra Depression; Rommel, with far fewer tanks at his command, had 500,000 mines sowed in his 'Devil's Garden' in two parallel north-south fields five miles deep. The Allied minefields enclosed infantry and anti-tank positions in a labyrinth whose baroque geometry prompted Billany to mimic Tennyson's Charge of the Light Brigade:

'...the Engineers soon made it more complicated by laying minefields to the East as well as to the West: so that before I had been there a week, a brand-new minefield encircled our company front, and when we talked about minefields, we had to distinguish carefully between the one in the front and the one in the rear. This process went on all along the line, till the front line brigades were all enclosed in minefields to the right of them, minefields to the left of them, minefields behind them and minefields in front of them. The desert became explosive: driving one's truck was a nervous effort.'¹³²

The tanks were leaguered behind the minefields and moved forward through gaps that had to be created by a painstaking process of mine detection. Until 1942 this involved probing the surface with a bayonet; it was a dangerous but also a desperately slow process in which soldiers were obviously required to tread with immense caution. They were at comparatively little risk from anti-tank mines, which usually required the weight of tank or a truck to set them off, but mixed in with them were anti-personnel mines:

'There are thousands of them, each triggered by little spikes that stick up above the sand, invisible in the dark. These mines are planted to booby-trap the anti-tanks; some have been laid with trip wires joining them up. Once triggered, a small cylindrical canister containing 350 shrapnel balls is thrown three to five feet in the air, at which height it explodes. The troops have nicknamed them "de-bollockers".'¹³³

Using a bayonet squads could clear perhaps a hundred mines in an hour. By the end of the year electrical mine detectors had doubled the speed of clearance, but compared

¹³² Billany, *Trap*, p. 00.

¹³³ Stroud, *Phantom Army*, p. 205.

with the tens of thousands of mines in a field this was still agonisingly slow. In fact, that was precisely the point: although mines accounted for 20-30 per cent of all tank losses, their primary role was to slow the enemy advance. This in turn explains why the object of 'mine-clearing' was not to clear the minefield but instead to create gaps or lanes, usually around sixteen feet wide, so that tanks could pass through.

Mines still litter the Western Desert, but so too do the other remains of war. Surveying the scene at Wadi Akarit in early April 1943, Jack Swaab reckoned it was 'just as one imagines a battlefield', 'shell holes everywhere, broken guns, boxes of captured ammo, smashed trucks, equipment, overcoats and here and there a dead man.'¹³⁴ You could have said the same of any battlefield in Europe too, but many of those serving in North Africa were unsettled by the 'odd collections of a desert which has permitted its pristine belly to take the refuse two armies discard.'¹³⁵ To them, the land was not so much fit for war as fouled by it. In the last stanza of 'Cairo Jag' Keith Douglas described a militarised nature that lay in the desert far to the west of the city through a cascade of images that captured the disturbing combination of an arid landscape and its strange new harvest:

'But by a day's travelling you reach a new world
 the vegetation is of iron
 dead tanks, gun barrels split like celery
 the metal brambles have no flowers or berries
 and there are all sorts of manure, you can imagine
 the dead themselves, their boots, clothes and possessions
 clinging to the ground, a man with no head
 has a packet of chocolate and a souvenir of Tripoli.'¹³⁶

¹³⁴ Swaab, *Field of fire*, p. 00.

¹³⁵ AFS Letters 11 (1942-1945).

¹³⁶ Keith Douglas, 'Cairo Jag', in *Keith Douglas: The complete poems* (London: Faber, 2011). The original introduction to Douglas's *Collected Poems* (1943) was written by his old Oxford tutor, Edmund Blunden, whose *Undertones of war* remains a classic of First World War literature. The flight of fancy Douglas describes here could be reversed: one Australian soldier, 'thinking he saw a land mine in front of him, bent down to examine it. It turned out to be a clump of spinifex grass...': Thompson, *Forgotten voices*, p. 58.

Gun barrels transmuted into celery, barbed wire into brambles: militarised nature was a cyborg nature, as war correspondent Alan Moorehead realised when he visited the battlefield of Sidi Berzogh at the end of November 1941.

‘Sometimes the dead were laid alongside the blackened hulks of their burnt-out tanks. The tanks themselves still smouldered and smelled evilly. Their interior fittings had been dragged out like the entrails of some wounded animal, for you would see the mess boxes, the toothbrushes and blankets of the crew scattered around, together with their little packets of biscuits, their water bottles, photographs of their families, hand grenades, webbing, tommy-guns, mirrors, brushes and all the mundane ordinary things that fill a soldier’s kitbag and are part of his life.

‘Empty petrol tins, the flimsy and khaki-coloured British and the stout black German ones, were scattered everywhere. Like great lizards, the broken tracks of tanks were sprawled across the sand with their teeth gaping upward... The ground itself was criss-crossed a thousand times with the deep crenelated ruts of tanks and these, with indifference, had smashed rifles, bullets, machine-guns, tins, boxes, papers and even human beings, into the mud... this wilderness, made doubly a desert by the past week’s fighting...’¹³⁷

Tanks as ‘wounded animals’ spilling their entrails, ‘great lizards’ with ‘gaping teeth’: here too the signs of life are the signs of death, the images of nature the imprints of military violence.

Similar imagery cloaked the Western Front – Blunden’s ‘wretched wire before the village line/Rattles like rusty brambles or dead bine’¹³⁸ – and Vietnam produced its own cyborg metaphoric too. But in Vietnam it was far from the ‘dead land’ described by Henderson and others; as I must now show, its tropical natures appeared all too alive – though just as deadly – to the American soldiers that fought their way through them.

¹³⁷ Alan Moorehead, *The desert war* (London: Aurum, 2009) pp. 245-6; this was originally published in three volumes in 1944.

¹³⁸ Blunden, *Undertones*, p. 202; the lines are from his poem ‘Trench raid near Hooge’: see note 41.

Vietnam 1962-1972

The US-led war in Vietnam is the most complex of the three theatres I consider here. Its contours are as indistinct as its chronology. American involvement started in the 1950s with the provision of military supplies and advisors to support the Saigon government's counterinsurgency operations in the South, intensified with the formation of US Military Assistance Command, Vietnam in 1962 and its use of tactical air power, and escalated with the arrival of US combat troops in 1965 to fight both the insurgency and the North Vietnamese Army. Four years later the US started to withdraw its ground forces, a process that reached its phased completion in 1972, but the air war continued; Saigon finally fell in 1975. Most of the fighting took place in South Vietnam – an inchoate and often formless 'war without fronts'¹³⁹ – but in addition to air strikes on North Vietnam American bombing raids were directed primarily against targets in the South and spilled over into Laos and Cambodia.¹⁴⁰

While I focus on the experience of US ground troops – infantry and Marines – during the central years of the war, it is important not to lose sight of the crucial role

¹³⁹ This is often treated as a purely technical-strategic description and attributed to Thomas C. Thayer, *War without Fronts: the American experience in Vietnam* (Boulder CO: Westview, 1985). Thayer's monograph emerged out of his work during the war for the Pentagon's Office of Systems Analysis: for a detailed discussion of his analytics, see Ben Connable, *Embracing the fog of war: assessment and metrics in counterinsurgency* (Santa Monica CA: RAND, 2012) pp. 99-106. But to those who fought in Vietnam the 'war without fronts' was no abstraction. Here, for example, is Philip Caputo, *A rumor of war* (New York: Henry Holt, 1977) p. 95:

'Without a front, flanks, or rear, we fought a formless war against a formless enemy who evaporated like the morning jungle mists, only to materialize in some unexpected place. It was a haphazard, episodic sort of combat...

'In the vacuum of that jungle, we could have gone in as many directions as there are points on a compass, and any one direction was as likely to lead us to the VC [Viet Cong], or away from them, as any other. The guerrillas were everywhere, which is another way of saying they were nowhere.'

¹⁴⁰ See Derek Gregory, 'Lines of descent', in Peter Adey, Mark Whitehead and Alison Williams (eds) *From above: war, violence and verticality* (London: Hurst; New York: Oxford University Press, 2014) pp. 41-70.

played by air power throughout the conflict.¹⁴¹ This involved more than the US Air Force bombing and providing close air support to ground troops from conventional strike aircraft; air mobility was central to American military planning, and US Army helicopters were in constant use to ferry troops, ordnance and supplies and to evacuate casualties ('dust-off').¹⁴² In a revealing passage American war correspondent Michael Herr wrote:

'Flying over jungle was almost pure pleasure, doing it on foot was nearly all pain... The ground was always in play, always being swept. Under the ground was his, above it was ours. We had the air.'¹⁴³

There are two issues here. First, air superiority did not signal the triumph of the new high industrial 'techno-war' endorsed by US Secretary of Defense and former President of the Ford Motor Company Robert McNamara: there was no sign of what Dan Clayton

¹⁴¹ My focus on American ground troops – infantry and Marines – is an attempt to impose some bounds to my narrative, but it suffers from two exclusions. First, the US veterans who have written memoirs of Vietnam have been overwhelmingly white, and where it is possible to recover the experiences of African-American or even Latino troops these rarely address the issues I consider here. See Wallace Terry, *Bloods: Black veterans of the Vietnam war – an oral history* (New York: Random House, 1984) and Bobby White (ed), *Post 8195: Black soldiers tell their Vietnam stories* (Silver Spring MD: Beckham, 2013). I return to this (and its implications) in the conclusion. Second, I say nothing about the experience of other militaries. I do not consider those that fought alongside the US: the South Vietnamese Army, for example, or the South Korean or Australian militaries. Neither do I address the ways in which the People's Army of [North] Vietnam and the fighters of the National Liberation Front for South Vietnam (referred to by the Americans as the 'Viet Cong') came to terms with the rainforest. The Americans assumed that their enemies were creatures of the jungle (in more ways than one), but many of them were recruited from towns and cities and had little or no experience of the rainforest and no idea of the privations that jungle warfare would impose on them. In their remarkable collaboration John Edmund Delezen and Nguyen Van Tuan describe a North Vietnamese battalion 'comprised of boys from towns and farms and most knew very little about the forest-enshrouded mountains': *Red Plateau* (John Delezen/Smashwords, 2005); see also Truon Nhu Tang, *A Vietcong memoir: an inside account of the Vietnam War* (New York: Vintage, 1985) pp. 156-175. The real difference, I suspect, was that the Vietnamese served far longer than the Americans – for whom a standard tour of duty was 12 months – so they had little choice but to become accustomed to the rainforest.

¹⁴² LTG John Tolson, *Airmobility 1961-1971* (Washington DC: Department of the Army, 1999). As this implies, the successful implementation of air mobility involved the negotiation of inter-service rivalries. It also depended on radio communications, for without them 'everything stayed put': Frederick Downs, *The killing zone: my life in the Vietnam war* (New York: Norton, 1978) p. 104. Even with relay stations and re-transmissions, the effectiveness of field radios depended on the terrain and the weather, but they were a powerful means of converting a hostile 'nature' into a compliant 'space'. See Derek Gregory, 'Life is a rock but the radio rolled me', at <http://geographicalimaginings.com/2014/10/06/life-is-a-rock-but-the-radio-rolled-me>, 6 October 2014.

¹⁴³ Michael Herr, *Dispatches* (New York: Knopf, 1977) p.10.

ridicules as ‘an omniscient American war machine ... bearing down on a transparent, knowable or compliant battlefield’.¹⁴⁴ American troops were routinely helicoptered in to remote hill and mountain tops, where they hacked defensive perimeters and hollowed out firebases, and from there heavy artillery would pound unseen targets in the rainforest below.¹⁴⁵ John Delezen describes the construction of one outpost:

‘Soon the lush green of the Truong Son encounters the impassable rows of razor wire that encompass the slash of red scar that is [Landing Zone] Stud. ‘Having been scraped clear of vegetation by the onslaught of bulldozers, the dramatic contrast that separates the ugly, barren outpost and surrounding rain forest is vivid; as thin streams of bright red dust drift through the ominous perimeter, from high above, the outpost resembles a bleeding wound.

‘Like hungry flies feeding on the open wound, helicopters swarm above the churning dust; most never land, instead they hover while red nylon cargo nets are hooked underneath their bellies. The nets are filled with rations, ammo, artillery rounds, water cans, body bags, razor wire, and sand bags.’¹⁴⁶

The image of a wound, sometimes a scar, sometimes a sore, runs throughout soldiers’ accounts. But so too does a vivid sense of these jagged clearings as merely temporary impositions of military reason – like ‘a red scab on the green hills’¹⁴⁷ – crystallised in the abstract geometries of ‘perimeter dispositions’ in the US Army’s Field Manuals.¹⁴⁸ ‘Looking at the green immensity below,’ Herr noted, ‘I could only conclude that those

¹⁴⁴ Daniel Clayton, ‘Militant tropicality: war, revolution and the reconfiguration of “the tropics”, ca. 1940 – ca.1975’, *Transactions of the Institute of British Geographers* 38 (2013) 180-92; on techno-war, see James Gibson, *The perfect war: technowar in Vietnam* (New York: Atlantic Monthly Press, 2000).

¹⁴⁵ Randy Foster, *Vietnam Firebases 1965-1973* (Oxford: Osprey, 2012). Downs, Killing zone, p. 100 described this as ‘the release of their impersonal death into a grid square.’

¹⁴⁶ John Edmund Delezen, *Eye of the tiger* (Jefferson NC: McFarland, 2003) p. 142.

¹⁴⁷ Jeff Kelly, *DMZ Diary: a combat Marine’s Vietnam memoir* (1991; Bradenton FL: Booklocker 2001) p. 00.

¹⁴⁸ US Army Field Manual 31-30 *Jungle Operations* (1965) Figures 9 and 10; see also FM 31-35 *Jungle Operations* (1969).

manuals had been written by men whose idea of a jungle was the Everglades National Park.’ Instead, he insisted, ‘it was one of the last of the dark regions on earth...’¹⁴⁹

Second, Herr’s characterisation would have been recognised by infantrymen but rarely by their senior officers. The Colonel ‘always flew around in his small observation chopper,’ complained one junior officer, ‘directing something from the air that didn’t need directing. He must have thought things looked the same at ground level as they did from a few hundred feet up.’¹⁵⁰ ‘They just didn’t get it,’ agreed another:

‘Flying hundreds of feet above us, the colonels and generals became impatient when it took us hours to traverse a couple of kilometers. The jungle is much less intimidating when you’re five hundred feet above it, and very few senior officers ever crawled on hands and knees through a bamboo thicket or cut their way through secondary jungle growth with a machete.’¹⁵¹

Exasperated when his captain radioed from a circling helicopter that he and his men were ‘entirely too slow’ in clawing their way up a jungle-covered mountain – ‘I want you to move faster’ – one infantry lieutenant exploded:

‘The son of a bitch is up there in his chopper, with the world at his feet, while we are down here sweating our balls off... Why doesn’t he come down here and join us?’¹⁵²

Sentiments like these – and there were many of them – were founded on more than the distinction between the air and the ground. These reactions were also provoked by the planar view of an optical war that continued to be projected from the pages of field manuals and planned on maps. This too was a ‘bird’s-eye view’, and in more ways than one. Another young officer imagined the ‘full-bird colonels’ in starched fatigues back at

¹⁴⁹ Herr, *Dispatches*, p. 00.

¹⁵⁰ Stephen L. Park, *Boots: an unvarnished memoir of Vietnam* (Boston and Los Angeles: Writers AMuse Me, 2012) p. 108.

¹⁵¹ Robert Tonsetic, *Warriors: an infantryman’s memoir of Vietnam* (New York: Random House, 2004) p. 103.

¹⁵² Larry Gwin, *Baptism: a Vietnam memoir* (New York: Random House, 1999) p. 211.

brigade headquarters 'looking at a flat map tacked to a piece of plywood, while those of us out in the bush were looking at a terrain of mountains and streams that was anything but flat, yet which needed to be traversed in order for us to reach our next objective.'¹⁵³ This cartographic imaginary translated tirelessly (not to say tiresomely) from headquarters to helicopter, and as on the Western Front and elsewhere it was entirely

¹⁵³ A.T. Lawrence, *Crucible Vietnam: memoir of an infantry lieutenant* (Jefferson NC: McFarland, 2009) p. 73. In the US military a 'full-bird colonel' is slang for a colonel, used to distinguish him/her from the more junior lieutenant-colonel (a 'light-bird colonel'); the term derives from their eagle insignia.

divorced from the corpographies inculcated by the soldiers whose bodies had to move through what they came to construe as a desperately hostile nature.¹⁵⁴

Their apprehension was profoundly corporeal: this was war made flesh. Then as now the scale of support involved in combat operations meant that many soldiers never

¹⁵⁴ The most sustained evocation of the separations between cartography and corpography in Vietnam that I know is to be found in Karl Marlantes, *Matterhorn: a novel of the Vietnam war* (New York: Grove/Atlantic, 2010). It is impossible for me to convey the richness of Marlantes' account here, but two passages suggest its power and its relevance to my discussion:

'Fitch came up [on the radio]. "Sir, I'm looking on my map here and Checkpoint Echo is across the other side of some very steep stuff. Look, in this terrain I just don't think we can make it that soon. Over." "Wait one." Simpson darted over to the map, putting one finger on Bravo's position, neatly indicated by a pin with a large letter B on it. He then put his finger on the coordinates of Checkpoint Echo. His two fingers were approximately eight inches apart. Fitch was obviously shirking. Simpson picked up the handset. "What are you trying to pull on me, Bravo Six? You be at Echo by noon or you'll spend your first month in Okinawa getting my foot out of your ass. You copy?"...' (p. 205)

'At Vandegrift Combat Base the battalion staff was huddled around several large maps. "What do you think, Lieutenant Hawke?" Simpson asked. "You've operated all around there." "Like I said yesterday, sir, it's triple canopy all the way up the ridge and it's lucky to make three clicks a day, and then they'll be totally disregarding security." Captain Bainford spoke up. "The AO [air observer] says the closest place, before the cloud cover socks things in, is Hill 631." He pointed to a gently sloping hill in the broad valley south of Matterhorn. "That's only nine clicks from Matterhorn. I can't believe it would take three days." Hawke exploded. "You can't believe it because you've never fucking been there"' (p. 404).

Marlantes served as a lieutenant in Vietnam from 1968, and his other, non-fiction account contains several passages that speak to the same issue and incident: see *What it is like to go to war* (New York: Atlantic Monthly Press, 2011):

'To someone in Da Nang or Saigon, with large-scale maps, one fingerwidth covers a lot of ground, and our company was only a few fingerwidths from the objective, practically next door. For us in the jungle with smaller-scale maps we were sixteen fingerwidths, as the crow flies. And we weren't crows. In one day, humping from dawn to dark, we made about two and a half fingerwidths. It is impossible to convey to a staff officer who has never had to watch his hands blister away from having to hack his way through thick jungle with a machete just how slowly you move' (p. 148).

This prompted one Marine lieutenant to extoll the virtues of the classical idea 'of measuring distance by the parasang' which he said 'varied its measurement according to the difficulty of the terrain':

'Surely it was far more difficult to move through swamps and streams or up and down jungle terrain than it was to walk the same distance over open ground – something that strictly staff officers seldom seem to appreciate.'

James Kirschke, *Not going home alone: a Marine's story* (New York: Random House, 2001) p. 75.

left their bases – in Vietnam the ratio of support to combat troops was roughly 10 to 1¹⁵⁵ – but those that did had to carry their world on their backs. On a long patrol they might be resupplied by helicopter, but that could never be guaranteed. In addition to a rifle – which the infantryman ‘pampers more than his own body’¹⁵⁶ – most men carried at least 60 pounds and many 80 pounds. The load included multiple quart canteens of water (at least two and sometimes as many as eight: ‘There is never, ever enough water’) and canned C-rations; clips of ammunition, flares, smoke and fragmentation grenades, and a claymore mine; bandages, water-purification tablets and insect repellent; an entrenching tool and machete or knife; and a poncho and liner or half-shelter which doubled as a stretcher or a shroud if they were hit. On top of this, radio operators carried a PRC-25 field radio, which weighed 23 pounds with its battery pack, together with spare batteries (one would only last a day of routine listening and transmission), while mortar crews lugged a firing tube and base plate weighing around 40 pounds and their bearers carried four mortar rounds (which added 32 pounds of dead weight to their load).¹⁵⁷ This all mattered because, as one newly arrived lieutenant soon realised, ‘the jungle would exact a toll for every ounce I carried.’¹⁵⁸ ‘We dumped everything we didn’t absolutely need,’ one Marine explained, but still the rucksack frame and webbing rubbed and cut so ‘our waists and shoulders were covered with “saddle sores” that were kept raw by sweat and dirt and cartridge belts and packs.’ Everyone, he said ‘was in a constant world of hurt.’¹⁵⁹ It was just as tough on the legs. Tim O’Brien translates the equipment list – ‘the things they carried’ – into its impact on the lower body:

¹⁵⁵ This is the figure cited by most historians, but much depends on how ‘combat’ is defined and the US Army prefers a much lower ratio: see John J. McGrath, *The other end of the spear: the tooth-to-tail ratio (T3R) in modern military operations* (Fort Leavenworth, KA: Combat Studies Institute Press, 2007) pp. 28-32.

¹⁵⁶ Franklin Cox, *Lullabies for lieutenants: memoir of a Marine Forward Observer in Vietnam 1965-1966* (Jefferson NC: McFarland, 2010) p. 11.

¹⁵⁷ John Nesser, *Ghosts of Thua Thien: an American soldier’s memoir of Vietnam* (Jefferson NC: McFarland, 2008) p. 34; Christopher Ronnau, *Blood trails: the combat diary of a foot soldier in Vietnam* (New York: Presidio Press, 2006) p. 232.

¹⁵⁸ Downs, *Killing zone*, p. 31.

¹⁵⁹ Rodger Jacobs, *Stained with the mud of Khe Sanh: a Marine’s letters from Vietnam 1966-1967* (Jefferson NC: McFarland, 2013) pp. 72, 161.

‘We walked along. Forward with the left leg, plant the foot, lock the knee, arch the ankle. Push the leg into the paddy, stiffen the spine. Let the war rest there atop the left leg: the rucksack, the radio, the hand grenades, the magazines of golden ammo, the rifle, the steel helmet, the jingling dog-tags, the body’s own fat and water and meat, the whole contingent of warring artefacts and flesh. Let it all perch there, rocking on top of the left leg, fastened and tied and anchored by latches and zippers and snaps and nylon cord. Packhorse for the soul.’¹⁶⁰

O’Brien was describing a patrol moving through rice paddies, and these imposed their own burdens on soldiers. Out in the open they were vulnerable to attack or sniper fire, and they avoided the dikes which were often mined or booby-trapped.

‘Instead, we struggled through the sucking mud of the paddies. The banks of the streams were especially treacherous. Each step through the soft muck was torture, and every few steps a man would sink in mud up to his crotch. The gnarled roots of the mangroves could twist an ankle or a knee in a second. The putrid stench of rotting vegetation permeated the stifling humid air, and canteens were emptied quickly.’¹⁶¹

‘The water in these pestilential miasmas was stagnant, muddy and fetid,’ explained one lieutenant, ‘with all kinds of flotsam, including mosquito larvae and water buffalo faeces applied as fertiliser’. Beneath the murky water lurked the menace of *punji* stakes made of split bamboo that could pierce a boot and put a soldier out of action; worse, the wound could become infected from the dung-laden water, and air evacuation was often imperative.¹⁶² Then there were the leeches: ‘When we reached the other side of the rice paddies,’ the lieutenant continued, ‘my men dropped their pants and burned the already

¹⁶⁰ Tim O’Brien, *If I die in a combat zone* (New York: Broadway Books, 1975) p. 26; *The things they carried* is the title of O’Brien’s short story collection (New York: Houghton Mifflin, 1990).

¹⁶¹ Tonsetic, *Warriors*, p. 173.

¹⁶² Lawrence, *Crucible Vietnam*, p. 87. The speed and efficiency of evacuation by helicopter ensured that infection posed much less of a risk in Vietnam than it did on the Western Front, but it still claimed soldiers’ lives.

engorged leeches off their ankles and penises with lit cigarettes; even the non-smokers carried cigarettes for this purpose.’¹⁶³

In the Central Highlands soldiers had to fight their way through triple-canopied jungle and up thickly forested mountain sides. They too learned to avoid the beaten track. They rarely used trails, which were notorious for mines and booby-traps that, as Philip Caputo explained, turned ‘an infantryman’s world upside down’:

‘The foot soldier has a special feeling for the ground. He walks on it, fights on it, sleeps and eats on it; the ground shelters him under fire; he digs his home in it. But mines and booby traps transform that friendly, familiar earth into a thing of menace, a thing to be feared as much as machine guns or mortar shells. The infantryman knows that any moment the ground he is walking on can erupt and kill him; kill him if he’s lucky. If he’s unlucky, he will be turned into a blind, deaf, emasculated, legless shell.’¹⁶⁴

He might have been talking about the cyborg natures of the Western Front or the Western Desert, but in Vietnam’s guerrilla war there were few fixed minefields beyond the Demilitarized Zone. Base perimeters were systematically mined by the US and its allies, and the North Vietnamese often mined clearings that could be used as helicopter landing zones. But it was the transience of mining by the North Vietnamese Army and the National Liberation Front – its improvisational, opportunistic nature – that was so threatening. ‘The NVA were so good at moving mines around that they would put the minefield out at dusk along a patrol route and take it in before dawn’ so that ‘you could

¹⁶³ Lawrence, *Crucible Vietnam*, p. 88. He also described an even more alarming scenario: ‘The filthy putrid water was soaking our butts and warming our balls, tempting most men to piss in the water while they were wading across, even though our battalion S-3 [operations officer] had warned us about pissing in the paddies, inferring that something malevolent might sense our warm urine and swim right up our penises...’

¹⁶⁴ Caputo, *Rumor of war*, p. 288.

clear one area and there would be mines there the next night.’¹⁶⁵ Booby-traps could be anywhere: ‘They hang from trees. They nestle in shrubbery. They lie under the sand.’¹⁶⁶ Denied the trails, soldiers had to hack a path with their machetes or Ka-Bars or more often, to muffle the sound of their painfully slow progress, they threaded their way between the trees and the choking vines:

‘Up ridges, down ridges, over ridges, wading through rocky streams, hacking at jungle growth, breathing in and hopefully breathing out some of the constant bugs that continuously swarmed around our heads, watching our

¹⁶⁵ Jacobs, *Stained with the mud*, p. 149. According to *Viet Cong booby traps, mines and mine warfare techniques* (US Department of the Army, Training Circular 5-31, May 1967):

‘Unlike U. S. doctrine, [the Viet Cong] do not employ mines in any standard pattern, and "minefields" are, for all practical purposes, nonexistent. The explanation for this is quite simple; the very nature of the terrain in Vietnam and Viet Cong tactics do not lend themselves to extensive minefields and standard patterns. Therefore, the Viet Cong have adapted the use of mines to the terrain and support of their particular tactical operations. For all intents and purposes, the Viet Cong do have a specific mine doctrine, which in U.S. terms, is nuisance mining in its extreme application’ (p. 54).

US soldiers also improvised booby-traps when they were out on patrol as a perimeter for their night defensive positions, involving trip flares, claymore mines and grenade booby traps. ‘I always liked to set booby traps’: Jacobs, *Stained with the mud*, p. 76.

¹⁶⁶ O’Brien, *If I die*, p. 123. The gravity of the threat was explained by Jack Estes, *A field of innocence* (New York: Breitenbush, 1987) p. 53:

"Booby Trap, huh? That's what we call brassieres back home, big booby traps," laughed P.J., trying to make a joke.

"You won't think this is funny when your balls get blown off!" Ski said, irritated with P.J.'s remark. His young face and moustache seemed to tighten as he stood up and blasted P.J. "This ain't no cartoon, penis brain. The traps are terrible bad." "Real quick now, both you guys listen up," he continued sternly, looking down on us like children. "This ain't boot camp. You fuck up here, you're dead, or worse, you kill somebody." "One, you got toe-poppers made outa C-rat cans," he said, counting on his fingers. "They'll blow off your foot," and he kicked P.J.'s foot. "Then you got Bouncing Bettys. They'll pop up after you step on 'em and blow your dick off. And trip wires that can cut you in half." I glanced at P.J. whose face had grown sullen. "But they ain't nothin' next to daisy chains. Now, daisy chains are a row of explosions meant for a platoon or company. Are you listening?" We nodded. "Now some gook hides in the bush, waitin' for us. When we waltz by, he blows off artillery shells buried next to the road and then you're trapped. If you run one direction, he blows another one. It's crazy, man. So keep your head outta your ass and open your eyes or you could both be dead by lunch."

Many, perhaps most of these improvised devices were made from abandoned or stolen US supplies.

skin as it quickly deteriorated from the numerous bites, scrapes, cuts, tears, thorns, and other abuses of the environment that attempted to beat our bodies into submission. The clothes and boots forming the inanimate part of our body protection were quickly drenched with sweat, dirt, mashed bugs, and the mixed blood and juices from both the bugs' bodies and our own.' ¹⁶⁷

In the Highlands they encountered other cyborg natures. Devastating Arc Light strikes by B-52 bombers produced a surreal, cratered moonscape whose blasted terrain was even more difficult to negotiate than pristine rainforest:

'The jungle had been torn to smithereens by the big bombs. Trees had been ripped from the ground forming an abatis of twisted, interattached splintered branches, vines, and roots that was more impenetrable than the worst the natural jungle had to offer.' ¹⁶⁸

The craters would be 'littered with huge pieces of bomb shrapnel' and unexploded bombs that had not burrowed into the soft earth: their 'green shapes that protrude menacingly from the red dirt add yet another facet of terror for us to deal with.' ¹⁶⁹ It was impossible to avoid the deep craters: 'They are too congested; the muddy holes sap our strength as we slide down into their depths, wade through the stagnant green rainwater and then climb fifteen feet up to the slope to the opposite rim.' ¹⁷⁰ If the bombs had found their target then the patrols faced more than a physical barrier, because the bomb field would also contain decomposed corpses, animal and human, and body parts. 'The bombs had left the dirt and woods and people so thoroughly homogenized,' wrote one lieutenant, 'that the only recognizable human fragments were

¹⁶⁷ Downs, *Killing zone*, p. 110. A Ka-Bar was the Marines' combat knife.

¹⁶⁸ Downs, *Killing zone*, p. 114; an abatis is a field fortification made of tree branches.

¹⁶⁹ Delezen, *Eye of the tiger*, p. 130. Others had to endure a more immediate terror, and reports of B-52 strikes from those on the ground were unanimous about their blistering, bowel-watering power. Truong Nhu Tang, *Memoir*, p. 167 described it as 'an experience of undiluted psychological terror' but the physical and physiological effects were equally devastating:

'From a kilometer away the sonic roar of the B-52 explosions tore eardrums... From a kilometer the shock waves knocked their victims senseless. Any hit within half a kilometer would collapse the walls of an unreinforced bunker, burying alive the people cowering inside.'

¹⁷⁰ Delezen, *Eye of the tiger*, p. 130.

the vertebrae.’ Even then, ‘thousands of vertebrae lay bleaching in the sun and rain, mixed with the dirt so uniformly that it seemed more like a geological phenomenon than anything that had once been human.’¹⁷¹ Yet in the immediate aftermath of a strike there was no mistaking its bio-physical impact:

‘[T]he heavy smell of death is around us and is growing stronger as we move. Soon I discover that the source of the overpowering stench is a shallow bomb crater positioned along our path; the crater was probably gouged into the earth by a five hundred pound bomb. There is a naked leg sticking out of the dark hole; on the foot is a rubber sandal made from a discarded truck tire. It looks as though the crater is moving ... the movement is rats. In the dusk it looks like a blackish gray carpet covering the mangled, bloated bodies that the grunts have thrown into the hole. The bottom of the hole is full of large maggots that create the illusion that the crater is shimmering. I determine that there are at least twelve enemy bodies that lay intertwined in the crater. The huge rats are snapping at each other as they feed on the dead soldiers; this has to be the entrance to hell itself. The smell is overwhelming; it is so strong that I can taste it.’¹⁷²

B-52s and long-range artillery were not the only means of ravaging the land. It was also impregnated with the residues of napalm and other chemical toxins, and long after an air strike these could still irritate your eyes, make you gag and burn your skin. This produced another version of the slimescape. One soldier describes moving through an area that was ‘black and withered’ from herbicides:

‘It was slimy, like a million snails had oozed across every leaf of every bush and turned them black and shriveled in their wake and the slime was getting all over me... I could feel the sting of the slime as I gingerly walked through the bush, I remember thinking: “This must be Agent Orange”...’¹⁷³

Napalm turned any vertical movement into a dangerous glissade:

¹⁷¹ Nathaniel Tripp, *Father, soldier, son: memoir of a platoon leader in Vietnam* (South Royalton VT: Steerforth, [1996] 2010) p. 65.

¹⁷² Delezen, *Eye of the tiger*, p. 19-20. The bodies were not necessarily the victims of an air strike; if there were no time for a proper burial, the PAVN would often bury their dead in the craters: Delezen and Nguyen, *Red plateau*, loc. 734.

¹⁷³ Robert Thompson, *Everything happened in Vietnam: the Year of the Rat* (Apple Valley MN: Blue Moon Publishing, 2009) p. 133.

‘[T]he mountain that we are now climbing has been attacked by countless sorties of Phantom jets delivering "snake and nape." The splintered, tortured tree trunks are black and charred from the napalm and the oily gel that did not ignite has mixed with the red mud, turning it into a texture similar to axle grease. My pack and ammo belt are waterlogged and have picked up extra weight from the greasy mud.

‘The mud has clogged the lug soles of our jungle boots and it is difficult not to slip; we know that if we lose our footing we will end up at the bottom of the mountain. I use my weapon to climb, digging the stock into the mud as a brace while I grab the next bomb-blasted tree trunk. The oily napalm has lubricated the entire mountain, it has soaked into the burned trees; we have to grasp each splintered trunk in a hug. The black M-16 no longer resembles a rifle; it is encased within a shapeless red blob of sticky mud. After a while, I have to use my Ka-Bar to climb with. I stab the earth ahead and then pull myself up; the deep, soft mud soon renders this effort useless.’¹⁷⁴

Even the weather seemed out to get them. The tropical heat and humidity were so enervating that they appeared to possess their own monstrous agency. ‘There were moments when I could not think of it as heat,’ Caputo confessed, ‘rather it seemed to be a thing malevolent and alive.’¹⁷⁵ Dehydration and heatstroke were constant concerns, and the monsoon only compounded their misery. ‘It rained like it had been waiting ten thousand years to rain,’ one lieutenant said when the monsoon broke, and John Ketwig described rain drops ‘as large as marbles and driven with enough force to sting when they hit you.’¹⁷⁶ The ground was turned into a sea of mud, and even the ‘rear-echelon motherfuckers’ on the permanent bases had to contend with their bunkers and foxholes filling with water, and roads becoming ‘ribbons of churned slop’.¹⁷⁷ Ketwig again:

‘There were areas of shallow mud and areas of deep mud, but there were no areas without mud. Most of our world was under water, and you had to know

¹⁷⁴ Delezen, *Eye of the tiger*, p. 113. ‘Snake and nape’ was delivered by fighter-bombers providing close air support through a mix of 250 lb Snakeye bombs and 500 lb napalm canisters.

¹⁷⁵ Caputo, *Rumor of war*, p. 185.

¹⁷⁶ Tripp, *Father, soldier, son*, p. 32; John Ketwig. ... *and a hard rain fell: a GI's true story of the war in Vietnam* (Napierville IL: Sourcebooks, 2002) p. 45.

¹⁷⁷ Kelly, *DMZ Diary*, p. 00.

where to step. The huge trucks we worked with would often sink up to the frame. The driver would try four-wheel-drive, spin the clefted duals at the rear, and dig himself in deeper. The rule was, the driver who “lost” a truck had to swim down and attach the tow chains. Swim is an accurate term for the depth of the mud, but hardly describes the frenzied mucking about in zero-visibility goo.’¹⁷⁸

One Marine newly arrived at a base near the DMZ in the middle of the monsoon was advised that the best way to navigate the ‘boot sucking slurry’ was to ‘walk in the tank tracks’: ‘The mud is only an inch deep there ... Plus if we take incoming [fire], you can lay down in the track and you’re five inches lower.’¹⁷⁹ Vietnam was often more than a metaphorical quagmire.

The irony was that the towering storm clouds limited air reconnaissance and so made ground patrols all the more important.¹⁸⁰ They also constrained the logistical and medical support that could be provided to them:

‘There were many days when aircraft could not fly in such all-consuming cloudy conditions. Hence we were not always assured that we would be re-supplied, or that we could get choppers in to take out our wounded or dead, and on one occasion we were compelled to sleep with our dead, and then

¹⁷⁸ Ketwig, *A hard rain*, p. 45.

¹⁷⁹ Kelly, *DMZ Diary*, p. 00. As this implies, the US Army did use tanks in Vietnam but their role was limited, especially in the Central Highlands and the Mekong Delta: see the discussion and the ‘goings maps’ in Don Starry, *Mounted combat in Vietnam* (Washington DC: Department of the Army, 2002) pp. 9-13

¹⁸⁰ Delezen, *Eye of the tiger*, p. 85:

‘The rain is also the ally of our enemy. He will use the clouds to conceal the infiltration of his regiments through the mountains from Laos and from the north through the DMZ. The Third Marine Division will depend on its recon teams much more now and we will fill the void left by observation aircraft that are now grounded due to the weather.’

Conversely, between 1967 and 1972 the United States’ ‘Operation Popeye’ tried to ‘turn’ the monsoon – in effect, to weaponize the weather – by seeding clouds over the Ho Chi Minh Trail to extend the rainy season and render the supply network impassable for longer periods. Results were inconclusive, but the experiments were more successful than the short-lived Operation Commando Lava that attempted to destabilise soils by dropping emulsifiers to ‘make mud, not war’. See James Rodger Fleming, ‘The pathological history of weather and climate modification’, *Historical studies in the physical and biological sciences* 37 (1) (2006) 3-25; Derek Gregory, ‘Popeye the weatherman’, at <http://www.geographicalimagination.com>, 12 November 2012.

awake in the morning and carry our dead along with us, while waiting for an opportunity to clear an LZ (landing zone) so that choppers could come in and lift our comrades out of the jungle for their final journey home.’¹⁸¹

For those out beyond the wire the monsoon wreaked havoc. Jack Estes describes one tropical storm ‘ripping, ravaging and slapping through the jungle’ and ‘howling like a monstrous beast.’¹⁸² Soldiers were drenched to the skin, their uniforms chafed, their packs became heavier as they absorbed the water, and thick, cloying mud clung to their boots and weighed down their every step. ‘The mud was ground into my letters’, wrote one Marine in a passage that could have been written on the Western Front.

‘The mud was ground into everything. The mud was in our ears and mouths. Our c-rats [C-rations] tasted like the mud we lived in... We were brown men. Even the black men were brown men.’¹⁸³

It was all desperately invasive, and Lawrence said he felt ‘persistently violated by the soaking wetness’.¹⁸⁴ There was no let-up when darkness fell and they dug in for the night. ‘Sleep was measured in minutes at a time on the rainy nights’ and ‘muscles were constantly drawn tight against the cold.’¹⁸⁵ One Marine admitted that one night it was so miserable that ‘after a while we were hugging like young lovers’ just to stay warm.¹⁸⁶ But usually the combination of cold and wet was utterly debilitating.

‘The rain comes in sheets all through the night and when I am relieved I remain standing with the Marine that has relieved me. Soon we realize that nearly the entire team is standing to escape the flooded ground. As the rain intensifies, I surrender to the cold deluge; wrapping myself into the wet, muddy plastic, I try to sleep. Before daylight, I wake shivering and half submerged in a deep puddle of cold rainwater, the edges of my poncho

¹⁸¹ Delezen, *Eye of the tiger*, p. 00.

¹⁸² Estes, *Field of innocence*, p. 79.

¹⁸³ Jacobs, *Stained with the mud*, p. 100.

¹⁸⁴ Lawrence, *Crucible Vietnam*, p. 69.

¹⁸⁵ Park, *Boots*, p. 169.

¹⁸⁶ Kelly, *DMZ Diary*, p. 00.

floating beside me. I pray that I am dreaming. Leeches cover my legs, their bodies filled to the point of bursting, gorged with type “O” Positive. The crotch of my jungle trousers is caked with blood; a leech has fed on my groin. My wrinkled fingers struggle with the bottle of insect repellent and as I squirt it on their membrane-like skin, I vent my rage on them with frantic curses that are filled with disgust. As I watch them fall off in agony, I scratch at the wounds to maintain the flow of rich, clean blood that will hopefully prevent infection; the repellent burns deep into each wound.’¹⁸⁷

Aching muscles, pus-filled skin sores and scabs (‘jungle rot’) and even leeches were the least of their worries. The infantry still marched on its feet as well as its stomach – for the grunts at least, ‘the war was fought with the feet and legs’¹⁸⁸ – and constant immersion invited the return of an old adversary. When Delezen hauled off one of his soaking boots he was taken aback:

‘[T]he foot is a wrinkled mass of putrid milk-white flesh and is badly cracked and bleeding. With the ragged boot in one hand and my weapon in the other, I crawl through the matted bamboo to the Corpsman [Marine medical specialist]; after a quick glance he tells me that there is nothing that he can do, his feet are in the same condition. It is immersion foot; trench foot was what our grandfathers called it in France. One by one each of my teammates removes one boot at a time and stares in repulsion at the condition of their feet... I try to dry the foot but I have nothing that is not waterlogged. Finally, in desperation, I place the wet socks under the shoulder holster; perhaps my body heat will dry them. There is nothing more that I can do so I pull the

¹⁸⁷ Delezen, *Eye of the tiger*, p. 00.

¹⁸⁸ Tim O’Brien, *Going after Cacciato* (New York: Random House, 1978) p. 252. This does not mean that the stomach was unimportant; one Marine lieutenant provides one of the most graphic examples when he describes suffering from diarrhea while on patrol:

‘Tuesday morning I lost complete control of my bowels. When I walked, effluent drained from my body cavity and ran down my legs into my boots. When we stopped, the drainage stopped and it dried. When we moved again, the mess on my legs pulled painfully loose and the drainage began again. I no longer fell out of line; I simply slopped along.’

William Hardwick, *Down South: one tour in Vietnam* (New York: Random House, 2004) p. 138. In his case this was the result of drinking apple juice, but diarrhea was a sufficiently common side-effect of the daily anti-malaria pills that many soldiers were reluctant to take them: Nesser, *Ghosts*, p. 54.

muddy jungle boot back on, lace it up, and try to forget about my ravaged feet.’¹⁸⁹

Then there was malaria, which peaked during the monsoon season and plagued troops in the Central Highlands; two of the first infantry battalions to be deployed there were ‘rendered ineffective’ by the disease.¹⁹⁰ Soldiers and Marines were issued with two types of pills to prevent malaria, but many of them were reluctant to take the orange ones (for the more common, less deadly variant) because the side-effects included diarrhea. Most were sceptical about insect repellent. ‘Putting it on sweaty skin burned like fire’, and some swore that it positively attracted the creatures: ‘It was like trying to drive flies away with chocolate syrup.’ The stuff was washed off by the rain anyway, and the only consolation was that ‘while it was falling [it] drove most of the mosquitoes away from the human chow line.’¹⁹¹ But they soon returned to the attack. The bites were numerous and painful, and if they were scratched – they almost always were – they easily became infected. ‘The jungle was a constant challenge to your immune system,’ Ronnau wrote, and ‘if the V[iet] C[ong] didn’t get you, the germs would.’¹⁹² Untreated, the disease could be dangerous and even fatal. ‘Men suffering a malaria attack become delirious on their feet,’ reported one lieutenant, ‘and unless someone watches them, they can wander off into the jungle unattended, collapse, and die.’¹⁹³ Malaria took a heavy toll. Between 1965 and 1969 disease accounted for more than two

¹⁸⁹ Delezen, *Eye of the tiger*, p. 00. This was a serious problem for both sides during the war, but the official US Army medical history airily reports that ‘the keynote was prevention’ and that treatment involved ‘the use of a drying-out period’ and the application of topical creams or antibiotics. It is not difficult to imagine the response of soldiers to those first two remarks. See Spurgeon Neel, *Medical support of the US Army in Vietnam 1965-1970* (Washington DC: Department of the Army, [1973] 1991).

¹⁹⁰ Neel, *Medical support of the US Army in Vietnam*, p. 38. Secondary loci of malaria were the Delta and the coastal plains. Aerial spraying of insecticides was carried out by aircraft from Operation Ranch Hand but was limited to permanent bases and adjacent urban areas: Paul Cecil and Alvin Young, ‘Operation Flyswatter: a war within a war’, *Environmental Science and Pollution Research* 15 (1) (2007) 3-7.

¹⁹¹ Nesser, *Ghosts*, p. 54; Ronnau, *Blood trails*, p. 248.

¹⁹² Ronnau, *Blood trails*, p. 71.

¹⁹³ Gwin, *Baptism*, p. 194. Foreign troops were not the only ones vulnerable to the disease. ‘In the jungle the prime enemy was not the Americans,’ Truong Bhu Tang, *Memoir*, p. 160 noted, ‘but malaria. Very few escaped, and its recurrent attacks ravaged the guerrillas, who called it their jungle tax.’

out of every three admissions to US military hospitals, and most of those were suffering from malaria. ¹⁹⁴

These physical sensations of exhaustion and pain were registered in a sensorium in which the usual hierarchy of senses was scrambled. As on the Western Front and in the Western Desert, sight was compromised in the rainforest. Visibility was limited by the dense vegetation and the filtered light. With a patrol strung out in single file five metres apart, it was all too easy to lose sight of the man in front – O'Brien said they each followed him 'like a blind man after his dog' ¹⁹⁵ – and at night 'it was like walking inside a black velvet bag.' ¹⁹⁶ Everyone's eyes ached 'from the constant strain of searching through the layers of jungle.' ¹⁹⁷ In the middle of this 'war of plant life', wrote Caputo, 'it was difficult to see much of anything through the vines and trees, tangled together in a silent, savage struggle for light and air'. And yet, for that very reason, they had an almost palpable 'sense of being surrounded by something we could not see.' ¹⁹⁸ This was as much vertical as it was horizontal: the grunts' unease was heightened by the ability of the North Vietnamese Army and the Viet Cong to disappear into the earth itself, into networks of tunnels which in some cases dated back to the wars against the Japanese and the French but which had since been extended and elaborated, and which deepened the American conviction that the Vietnamese were not only at home in the jungle but at one with its trickster nature. They would disappear 'like will o' the wisps,' wrote Franklin Cox, 'like ghosts into a different dimension, slipping into the friendly concealment of the green, lush, wet Asian environment, as elusive to hold as mercury in

¹⁹⁴ Combat injuries were responsible for 1 in 6 hospital admissions: Neel, *Medical support*, p. 32.

¹⁹⁵ O'Brien, *If I die*, p.87.

¹⁹⁶ Jacobs, *Stained with the mud*, p. 125.

¹⁹⁷ Delezen, *Eye of the tiger*, p. 76. In most encounters sight of the enemy was fleeting: '... in this bush war there is seldom a visible target for either of the combatants. The fighting is about fire superiority, sending a greater volume of fire into the enemy than he is able to return. We fire blindly into the thick vegetation toward the blasts and flashes that come from hidden rifles, never to know if our rounds have found their mark and never to know if we have killed' (p. 135). The same was true for distant air and artillery strikes too.

¹⁹⁸

the fingers of a five-year-old child.’ Like most Americans Cox believed that quicksilver ability to disappear and reappear was innate to the Vietnamese. ‘You had to live there to know how to employ the tunnel systems,’ he explained: ‘It was his [the Viet Cong’s] home and he knew every foot of each rice paddy, every spider-hole position he could climb into and cover with natural camouflage and shoot from after Marines walked past ... and every entrance into the elaborate tunnel honeycomb beneath his hamlets.’¹⁹⁹ Fighting a phantom enemy, not knowing where to look: ‘It was the inability to see that vexed us most,’ Caputo continued. ‘In that lies the jungle’s power to cause fear: it blinds.’ Not surprisingly, he concluded that ‘in Vietnam the best soldiers were unimaginative men.’²⁰⁰ Once again, O’Brien spells out the consequences: ‘What we could not see, we imagined.’²⁰¹

As sight lost its primacy the other senses were heightened, particularly hearing. Noise was literally a dead giveaway – ‘sound was death in the jungle’²⁰² – and the jingle of equipment had to be minimised. Before setting out, Delezen explained, ‘each of us, donning our heavy equipment, jumps up and down listening attentively for the slightest sound; there can be no exception. What may be considered an insignificant rattle will become amplified in the silent bush.’²⁰³ Sounds also seemed to travel farther at night.

¹⁹⁹ Cox, *Lullabies*, pp. 31, 112. O’Brien makes the identity between the Vietnamese and the land explicit in the surreal tunnel sequence in *Going after Cacciato*, where Li Van Hgoc tells the Americans: ‘The soldier is but the representative of the land ... The land is your true enemy’ (p. 86).

²⁰⁰ Caputo, *Rumor of war*, p. 85. The Field Manuals said as much, and FM 31-30 explicitly cautioned against falling prey to ‘prevalent misconceptions’:

‘The soldier who is not familiar with the jungle will suffer from conditioned fears and apprehensions when faced with the prospect of living and fighting in a jungle environment... Before such individuals even set foot in the jungle they are appalled at the prospect of doing so. Certainly the foreboding appearance of the jungle, the oppressive humidity and heat, the unfamiliar noises, and the abject feeling of loneliness that one feels when entering the jungle intensify the already existing fear of the unknown. It cannot be denied that the jungle presents some most unpleasant aspects. But the individual must, through systematic and thorough training and acclimation, learn to know the jungle for what it actually is and not for what it is supposed to be or what it might be’ (p. 4).

²⁰¹ O’Brien, *If I die*, p. 28.

²⁰² Downs, *Killing zone*, p. 115.

²⁰³ Delezen, *Eye of the tiger*, p. 191.

‘Shortly after sunset the jungle became as black as tar, and our sense of hearing came to predominate over our sense of sight.’²⁰⁴ Other noises filled the canopy – ‘the croaking of tree frogs, the clicking of gecko lizards like sticks of bamboo banging together, the drone of myriad insects, and the occasional screech of a monkey’²⁰⁵ – and these played cruel tricks with the imagination. In isolation they could sound a false alarm, and it was common for rookies to wake their companions because they had heard something, only to be reassured ‘there was nothing out there.’²⁰⁶ But together, as a sort of green noise, they could ‘lull you into somnambulance ... [and] numb your sense of hearing and smell and sight until you start seeing things in the night.’²⁰⁷

All of these burdens, physiological and psychological, convinced many soldiers that their greatest danger was from Nature itself. What exercised them most about the jungle was not the prospect of an encounter with a wild animal; their accounts mention bamboo vipers, whose bite was horribly painful but not deadly, and even the occasional tiger, but they repeatedly tell themselves that ‘all the bombing and artillery have driven the wildlife up into Cambodia.’²⁰⁸ Neither was it the thought of being ambushed: ‘Contact with the enemy was very sporadic’, John Nesser explained, and instead ‘it was the day-to-day miseries in the bush that got to us.’²⁰⁹ It would be wrong to minimise the dangers of being killed or wounded, which surely preyed on soldiers’ minds. But what they clearly came to loathe with a passion was their intimate, intensely corporeal violation by the jungle itself. ‘There it is you motherfuckers,’ crows Corporal Jancowitz

²⁰⁴ Lawrence, *Crucible*, p. 69.

²⁰⁵ Gwin, *Baptism*, p. 122.

²⁰⁶ Nesser, *Ghosts*, p. 44. For the fortunate – or perhaps just the unimaginative – eventually those sounds could be parsed: ‘During my first few nights in the jungle, much of my thinking revolved around fear. Each falling leaf or passing insect sounded just like a platoon of Viet Cong headed for my position specifically to cut off my testicles. After a few nights, the leaves and insects began to sound like leaves and insects’: Ronnau, *Blood trails*, p. 70.

²⁰⁷ Gwin, *Baptism*, p. 182.

²⁰⁸ Jerry Krizan and Robert Dumont, *Bac Si: A Green Beret Medic's War in Vietnam* (Philadelphia PA: Casemate, 2014) p. 37.

²⁰⁹ Nesser, *Ghosts*, p. 117.

in Karl Marlantes' *Matterhorn*: 'Another inch of the green dildo.'²¹⁰ The image is part of a long tradition of 'porno-tropicality' that is hardly peculiar to the US military, but during the Vietnam war it has a particular resonance for what it implies about violence, masculinity and the 'un-manning' of American soldiers.²¹¹

Its power turns on the militarisation of nature in an altogether different register: one in which the jungle becomes terrifyingly alive, and its militant agency is made to account for the degradation of soldiers caught in its poisonous embrace and to justify its own destruction. There is a scene in Stephen Wright's *Meditations in Green* in which a photo-interpreter on a large US airbase is advised to sit on top of a bunker and stare at the jungle.

"You have to concentrate because if you blink or look away for even a moment you might miss it, they aren't dumb despite what you may think, they're clever enough to take only an inch or two at a time. The movement is slow but inexorable, irresistible, maybe finally unstoppable. A serious matter."

"What movement, what are you are you talking about?"

"The trees, of course, the fucking shrubs. And one day we'll look up and there they'll be, branches reaching in, jamming our M-60s, curling around our waists."

"Like Birnam Wood, huh?"

"Actually, I was thinking more of triffids."²¹²

²¹⁰ Marlantes, *Matterhorn*, p. 125; the image speaks to the experience of jungle warfare at large – Sergeant Bass's radio-operator Private Skosh had already said exactly the same (p. 72), and so had Lieutenant Fitch when he had to explain that 'maps are in short supply' (p. 36) – but here Jancowitz refers directly to 'going out in the jungle just to look around'. 'Green' is a leitmotif in descriptions of the 'bush', and variants of this phrase were common among US Marines, for whom the war was 'the green suck', the Corps was 'the green motherfucker' and 'getting the green weenie' was being shafted by the brass: Cox, *Lullabies*, p. 175; Kelly, *DMZ Diary*, p. 00.

²¹¹ For a genealogy of 'porno-tropicality', see Anne McClintock, 'The lay of the land', in her *Imperial leather: race, gender and sexuality in the colonial contest* (New York: Routledge, 1995) pp. 22-74. See also note 165.

²¹² Stephen Wright, *Meditations in Green* (New York: Bantam Books, 1984) p. 123.

The scene is fiction but not entirely fanciful – one platoon leader spoke of ‘the magic hour when men begin to look like bushes, and bushes begin to move’²¹³ – and many came to see the jungle as capricious and even wilfully obstructive. Caputo complained that ‘cord-like “wait-a-minute” vines coiled around our arms, rifles and canteen tops with a tenacity that seemed almost human.’²¹⁴ A radio operator humped the set on his chest rather than his back because otherwise ‘the vines constantly change the frequency by spinning the knobs of the radio top.’²¹⁵ ‘Perhaps it is the bush that is the enemy’, wondered Delezen:

‘[T]he jungle is a “cat’s cradle” of twisted vines that seem alive, as if reaching for me. Sometimes, even when not moving, I find myself held in their grasp, it as if they silently attack when I am not looking, as though they are thinking organisms. When moving, the only way to pass through the vines is to become a vine; it is impossible to push through the jungle, forcing, fighting, and struggling. The bush must be negotiated with and each vine must be silently dealt with as an individual. Stealth and quiet is all that prevents our destruction from the ever-present enemy. We have learned that we must become a part of the bush, always searching for the passage that lies hidden through the entanglement...’²¹⁶

²¹³ Tripp, *Father, soldier, son*, p. 139. Tripp describes soldiers reporting ‘people moving just outside the wire’; he checked through his night-vision starscope and told the guards ‘it looked more like stumps to me.’ But the men ‘insisted that the stumps hadn’t been there a little while ago’, so he authorised a mortar strike. When the smoke cleared an illumination round was fired: ‘It was stumps.’

²¹⁴ Caputo, *Rumor of war*, p. 147.

²¹⁵ Jacobs, *Stained with the mud*, p. 127.

²¹⁶ Delezen, *Eye of the tiger*, p. 37. The need to ‘become part of the bush’ was not an exceptional epiphany; here is Tripp, *Father, soldier, son*, p.147:

‘You have to become part of the jungle. Part of the secret is how you move, but if your head is in the right place your body will follow, and you move as though doing Tai Chi, as though you are mist in the jungle.’

This was repeatedly invoked as a sensuous rather than a cognitive process. In *The Thirteenth Valley* ‘Whiteboy’ exults in being ‘in physical touch with a physical universe that required no verbal explanation’ – ‘primally touching reality at a level the intellectualizing Brooks or Silvers could not feel for they cloaked reality in words as if the words were the reality and the real did not exist, could not exist, without description’ – so that, during his ten months in Vietnam, ‘he had learned to listen and to smell and to feel the jungle’: and, in consequence, had survived. John Del Vecchio, *The Thirteenth Valley* (New York: Bantam, 1982) pp. 173-4. This was, of course, precisely what the Americans assumed their Vietnamese enemies could do instinctively (cf. note 139).

In this passage the young Marine moves from being attacked by the vines – ‘held in their grasp’ – to becoming one, ‘a part of the bush’, and the precarious relation between the two had to be constantly renegotiated if the men were to survive. ‘At times I am certain that it is possible for our team to be consumed by the enveloping walls of foliage,’ Delezen continues, ‘without a trace we could easily disappear forever, absorbed into the tangled mass.’²¹⁷ This was more than the spectral fear of getting lost, though that was ever present; more too than losing your grip in what O’Brien called ‘a botanist’s madhouse’.²¹⁸ For many soldiers it was also an existential threat that emanated from a diabolical Nature. ‘The Puritan belief that Satan dwelt in Nature could have been born here,’ Herr wrote in an extraordinary passage:

‘Even on the coldest, freshest mountaintops you could smell jungle and that tension between rot and genesis that all jungles give off. It is ghost-story country... Oh, that terrain! The bloody, maddening uncanniness of it!’²¹⁹

Downs too was taken aback by the pervasive sensation of rot. ‘Covering everything was the smell of slimy, rotting vegetation’, he recalled. ‘Our clothes and our bodies were beginning the rotting process of the jungle.’ He recognised this as a physical danger – ‘every scratch was a breeding spot for bacteria which could result in the rapid growth of jungle rot’ – and one that involved constant physical degradation: as one Marine officer put it, ‘it is a different way to live, and it is not a state of grace.’²²⁰ Downs also saw this as a profoundly moral danger. ‘Every day we spent in the jungle eroded a little more of our humanity away.’²²¹ For him and for countless others the rot set in as the deeply sedimented Enlightenment distinctions between nature and culture dissolved in the

²¹⁷ Delezen, *Eye of the tiger*, p. 37. Similarly: ‘The team is strung out down the mountain; I can hear the gasps for breath coming from them. They no longer look like Marines; the axle-grease mud has absorbed them into the mountain, only by the human-like shapes are they recognized from the rest of the red, oily sea’ (p. 113).

²¹⁸ O’Brien, *Cacciato*, p. 30.

²¹⁹ Herr, *Dispatches*, p. 94.

²²⁰ Hardwick, *Down South*, p. 137.

²²¹ Downs, *Killing Zone*, p. 149.

jungle. ‘Everything rotted and corroded quickly over there,’ Caputo agreed, ‘bodies, boot leather, canvas, morals’:

‘Scorched by the sun, wracked by the wind and rain of the monsoon, fighting in alien swamps and jungles, our humanity rubbed off of us as the protective bluing rubbed off the barrels of our rifles.’²²²

To him, it was ‘an ethical as well as a geographical wilderness. Out there, lacking restraints, sanctioned to kill, confronted by a hostile country and a relentless enemy, we sank into a brutish state.’²²³

Admissions like these reappear throughout the letters, diaries and memoirs that I have read, sometimes explicitly and sometimes implicitly (the cleansing shower when a patrol returns from the field can sometimes be more than a matter of physical hygiene). They invite questions about how far the imprecations of nature – its assault not only on the human body but also on the humanity of the soldier – functioned for some of them as a more or less unconscious alibi for atrocity, so that those who committed acts of indiscriminate or unnecessary violence believed they had somehow been reduced to a ‘state of nature’ *by* nature. Its plausibility must have been heightened by the common dehumanisation of the Vietnamese (‘gooks’) and the reduction of the enemy and the civilian population to creatures *of* nature. Bernd Greiner says as much in his detailed analysis of atrocities in the far north and south of Vietnam: ‘Nature, the elements, literally everything took on the form of the enemy.’²²⁴

²²² Caputo, *Rumor of war*, p. 229.

²²³ Caputo, *Rumor of war*, p. xx.

²²⁴ Bernd Greiner, *War without fronts: the USA in Vietnam* (London: Bodley Head, 2009) p. 132; see also Nick Turse, *Kill anything that moves: the real American war in Vietnam* (New York: Metropolitan Books, 2013). My suggestion will be familiar to readers of Michael Taussig and his analysis of a different tropical nature – an ‘un-natural nature’ *because* a non-temperate nature – in which the agents of the Peruvian Amazon Company inflicted extraordinarily bestial violence upon the indigenous Putamayo: *Shamanism, colonialism and the wild man: a study in terror and healing* (Chicago: University of Chicago Press, 1991).

Taussig show this to be a thoroughly imperialist catechism: primeval nature fouling our civilised, ‘second nature’, seducing and destroying our very humanity, when in so many ways it was our own ‘second nature’ – and in Vietnam its technowar – that was laying waste to the rainforest.

The same imaginary also licensed a war *on* nature. The B-52 strikes, the napalm and the artillery bombardments all shattered the landscape (and the lives of many of those within it) but, as Wright's Griffin is told in *Meditations in Green*, 'it's not as if [the] bushes were innocent.'²²⁵ Griffin's job was to assess the effects of the spraying of Agent Orange on the rainforest, the mangroves and the paddy fields by examining time series of air photographs:

'It was all special effects out there. Crops aged overnight, roots shrivelled, stalks collapsed where they stood into the common unmarked grave of poisoned earth. *Trees turned in their uniforms, their weapons, and were mustered out, skeletal limbs too weak to assume the position of attention...* Griffin sat on his stool and watched the land die around him.'²²⁶

Wright was not alone in imaginatively enlisting the trees in the enemy's battalions. This was the logic behind Operation Hades – a differently diabolical militarisation of nature – that was soon re-named Operation Ranch Hand. Its objective was to spray the forests with herbicides and deny their cover to the North Vietnamese Army and the Viet Cong. In so far as the intention was, as David Zierler reports, to create 'a no man's land across which the guerrillas cannot move' then at least some American officials were perturbed at the spectre of the Western Front being let loose once again: 'Defoliation is just too reminiscent of gas warfare.'²²⁷ Their objections were dismissed, however, and the US Air Force expressed considerable satisfaction at the results: 'herbicide operations in the Republic of Vietnam have proved to be very useful as a tactical weapon.'²²⁸ Those on the ground had a different view. 'We didn't know anything about Agent Orange beyond the fact that it was a failure,' declared Nathaniel Tripp. The brute fact was that

²²⁵ Wright, *Meditations*, p. 123.

²²⁶ Wright, *Meditations*, p. 277 (my emphasis).

²²⁷ David Zierler, *The invention of ecocide* (Athens GA: University of Georgia Press, 2010) p. 68.

²²⁸ Charles Collins, 'Herbicide operations in Southeast Asia, July 1961 – June 1967', Directorate, Tactical Operations (CHECO Division), HQ Pacific Air Force; the most thorough analysis of the geography of Operation Ranch Hand is Jeanne Stellman, Steven Stellman, Richard Christian, Tracey Weber and Carrie Tomasello, 'The extent and patterns of usage of Agent Orange and other herbicides in Vietnam', *Nature* 422 (2003) 681-7. The long-term effects of these operations are not in dispute, but their short-term, expedient effectiveness can also be criticised: see below.

removing the forest cover made movement more difficult for American troops too. Agent Orange turned the surviving vegetation into a slimescape and, worse, allowed the bamboo, the buffalo grass and the hated vines to multiply:

‘During the year or two that had elapsed since [Agent Orange] had been sprayed on the woods, the “wait-a-minute” vines seemed to have developed a liking for the stuff and taken over like a kudzu horror movie. The long, prickly vines hung in festoons from the stark skeletons of poisoned trees and covered the ground with a shoulder-high thicket. Sometimes it would take an hour to move forward a kilometer, hacking through the vines while the sun beat down unmercifully. Extra water was frequently dropped by helicopter between stream crossings, but men kept collapsing from heat exhaustion nonetheless, and we all had to stop and wait again while they were medevaced out.’²²⁹

And clearing the rainforest exposed American patrols to more than the sun’s harsh rays. Later Tripp and his platoon were part of a division tasked with securing a route used to supply a detachment of forty Rome Plows – giant armoured bulldozers – that were busy ‘flattening mile after mile of woods’. ‘It was something to see from the air,’ he recalled, ‘like battalions of tornadoes had just passed through leaving nothing but a shattered tangle of mud and tree trunks and root masses.’ But again, the ground provided a different perspective:

‘Digging in was all but impossible, but we did the best we could in the pouring rain. The ground was covered everywhere with a mat of logs and branches, all interwoven and compacted, three to five feet thick and mixed with gummy gray clay. Surely, America had triumphed over the woods at last, and created a place that was impossible for anyone to hide in. Now, we were trying to hide in it, while the Viet Cong watched from the dark woods just meters away on both sides of the swath.’²³⁰

²²⁹ Tripp, *Father, soldier, son*, p. 65.

²³⁰ Tripp, *Father, soldier, son*, p. 102. For a critique of the military effectiveness of defoliation, see Neil Oatsvall, ‘Trees versus lives: reckoning military success and the ecological effects of chemical defoliation during the Vietnam war’, *Environment and History* 19 (2013) 427-58.

And yet, even in this ‘landscape of hopelessness’, as Tripp called it, there were precious moments of relief and even of redemption. Jacobs knew that ‘war destroys everything it touches’, but sometimes he found himself marvelling at ‘the natural beauty that surrounded us.’²³¹ Just when Delezen was in despair – ‘There is no beauty here, only destruction’ – he found a wild flower near an abandoned, half-filled fighting hole. ‘Like a rare jewel, it seems misplaced; there is no place for beauty here.’ But then:

‘I remove the sweat soaked leather bush glove from my hand and drop to one knee to touch the delicate petals. My hand is caked with slippery mud, a mixture of red dust from Route 9 and sweat; the hand seems filthy and crude against the soft purple and white flower. I decide not to touch it; I do not want to spoil this last bit of beauty and purity that has somehow escaped the Devil's grasp.

‘I look toward the team that continues to move on without me; I am reluctant to leave the petite blossom unprotected. Quickly, I gather a small pile of rusty ration cans and place them around the frail green stem. Perhaps the cans will offer protection; the team is looking back at me, I have to rejoin them. I want to take the flower with me but it will only wither and die in the heat. I have done all that I can to protect it from the madness. For a brief moment, I have escaped the hell of war and entered a peaceful sanctuary where care and compassion still exist.... As I move away from the little pile of rusty cans, occasionally I look back; with each glance the soft colors of the flower fade until they blend into the dry-green of the tortured vegetation.’²³²

It's an affecting passage in which Delezen joins his forebears on the Western Front in affirming the stubborn persistence of a pastoral nature, even in a tropical rainforest. But the most elegiac moment I know comes towards the end of *Matterhorn*, where Marlantes' young lieutenant thinks of the jungle ‘already regrowing around him to cover the scars they had created’:

‘Mellas felt a slight breeze from the mountains rustling across the grass valley below him to the north. He was acutely aware of the natural world. He imagined the jungle, pulsing with life, quickly enveloping Matterhorn, Eiger, and all the other shorn hilltops, covering everything. All around him the

²³¹ Jacobs, *Stained with the mud*, p. 58.

²³² Delezen, *Eye of the tiger*, p. 00.

mountains and the jungle whispered and moved, as if they were aware of his presence but indifferent to it.’²³³

In speaking so directly to the recuperative, regenerative capacity of even a militarised nature, I suspect Marlantes is also expressing a desperate hope that those who have brutalised so many of its life-forms might find redemption too.

Boots on the ground

Drawing conclusions from three very different case studies is a risky business: even more so when the primary materials are letters, diaries, poems, autobiographies and novels, some of them written long after the events they purport to describe. None affords a transparent window into war, and many are hybrid texts that have a complicated relationship to the events and experiences detailed in their pages. One example will show what I mean. Edmund Blunden arrived in France in March 1916 and published his first poems about the Western Front later that year. Hew Strachan reads these as ‘the means by which he thought through his own reaction to the war as he lived it.’ But Strachan adds that Blunden also wrote letters home and kept two diaries: one personal and the other, on two occasions in 1917, the daily War Diary that Field Service Regulations required each unit to maintain as its official record. These were surely also ways to for him to think through – to find the terms for – what had happened. In 1918, Blunden attempted his first retrospective prose account of his wartime experiences in *De Bello Germanico: a fragment of trench history*, but it was not until 1924 that he completed the first version of his celebrated memoir *Undertones of War*. He wrote it with only a couple of trench maps to jog his memory. ‘I must go over the ground again,’ he confessed in the Preface, but ‘I know that memory has her little ways and by now she has concealed precisely that look, that word, that coincidence of nature without and nature within which I long to remember.’ A second edition followed soon after its publication in 1928. Although ‘I am now in reach of authorities and papers which could perhaps direct me towards blue-book precision’, Blunden decided not to undertake any

²³³ Marlantes, *Matterhorn*, p. 565.

'heavy reconstruction'. Then in September 1930 a third edition appeared with 'slight corrections and additional observations.'²³⁴ So when we read *Undertones* – which included a selection of Blunden's war poems – what exactly are we reading? And how many other pre-texts are secreted within its pages? The other writings I have used have their own textual histories, of course, and they all require a closer reading than I can provide in an essay of this kind. But Blunden was not alone in having such a densely foliated relation to what he encountered, and it is scarcely surprising that he needed so many different attempts – and tried so many different forms – to work through his experiences.

Indeed, the formal differences between my sources are no less important than their genealogies: different genres impose their own conventions and inculcate their own expectations in their audiences. What you write to your mother is rarely what you want to share with your comrades-in-arms. More than this, I have often been drawn to authors whose work troubles the lazy distinction between 'fact' and 'fiction', like Tim O'Brien or Karl Marlantes who composed both autobiographies and novels where their imaginative geographies of Vietnam flicker into view in the spaces in between the different forms. All of these texts are *fabrications* in the crucial sense of 'something made' (which, as Clifford Geertz reminded us an age ago, was the original meaning of *factio*).²³⁵ As a matter of – I was going to write 'fact' but I also mean 'fiction' – I suspect that the distinction between fact and fiction was one of the first casualties of these wars. As the experience of fighting in the trenches, the desert or the jungle became ever more *surreal* so for many young men the act of writing became a way of narrating – of forming, of giving form to – both a world *and a self*.

There is a consistency of response that runs through accounts from all three theatres. Raymond Williams would have called this a structure of feeling, but I want to

²³⁴ Blunden, *Undertones*, pp. viii, xli, xliii-xliv. *De Bello Germanico* was privately published in 1930 but a modern edition is included in Edmund Blunden, *Fall in, ghosts: selected war prose* (ed. Robyn Marsack) (Manchester: Carcanet Press, 2014).

²³⁵ Clifford Geertz, 'Thick description: toward an interpretive theory of cultures', in his *The interpretation of culture: selected essays* (New York: Basic Books, 1973) pp. 3-30: 15.

give the term a more visceral, sensuous inflection than Williams. That common ground emerges, I think, because these writings are more than constructions and construals of individual experiences by a thinking subject: they are the product of an *intersubjective* and *trans-formative* process that was rooted in human bodies as bio-physical forms becoming intimately entangled with other bodies and other bio-physical forms – what Blunden called less clumsily a ‘coincidence of nature without and nature within’.

In the accounts I have considered – and for the reasons I have noted ²³⁶ – those bodies have almost always been white. These are overwhelmingly white boys’ stories of the natures of war, and this too explains the consistency of their response. This is a significant limitation, of course, but it also discloses a common and essentially colonial anxiety that haunted many young white men when they were made to encounter ‘other’ natures that were being remade – made doubly strange and even ‘un-natural’ – through the military violence of which they were the vectors. Their apprehensions of nature, in both sense of ‘apprehension’, were indelibly racialized.

In all three theatres their senior officers assumed they were fighting in geometric spaces over which and through which modern firepower would prevail: the calibrations of clockwork war on the Western Front, the pure space of mechanised warfare in the Western Desert, and the smooth space of ‘techno-war’ in Vietnam. Yet in each case their expectations were confounded, and the significance of this was more than tactical or even strategic: it was, in some substantial sense, existential. Since the Enlightenment it had been axiomatic that European culture had dominated European nature: that science had forced it to give up its secrets and engineering its energies. On the Western Front the European rural landscape would have been familiar to most European troops, visible conformation of the Enlightenment domestication of temperate nature, and yet the war soon alienated them from the decidedly *intemperate* nature it created in its own image. This is why so many of them sought refuge in the defiant vestiges of a pastoral world – in Blunden’s ‘deep red poppies, blue and white cornflowers and darnel [that]

²³⁶ See notes 14 and 140.

thronged the way to destruction' before 'the ground became torn and vile'²³⁷ – and in the fields and streams of an undefiled earth that lay far to the rear. British troops in North Africa and American troops in Vietnam were more obvious bearers of colonial baggage as they followed in the footsteps of white explorers and adventurers. The colonial imaginaries of desert and jungle, of tropicality in all its deceitful and deadly guises, ensured that these were apprehended as extreme environments in advance. But the sense of dread was reinforced *en arrière* too: in a replay of the Western Front in radically different registers, the threat was redoubled through the militarisation of nature that was supposed to establish dominion over deserts and jungles but which instead introduced new toxicities and new vulnerabilities. Hence the nagging anxiety: could a nominally white Euro-American nature prevail over these insurgent natures?

The question was about more than military victory; it was also about corporeal sovereignty. In his seminal account of the production of space Henri Lefebvre argued that the triumph of abstract space involved a relentless privileging of visualization, an aggressive inscription of 'phallic brutality', and a repression, even a 'crushing' of the human body. For Lefebvre, significantly, this 'space of calculations' first emerged in the years surrounding the First World War, and although he did not address it in any detail modern war clearly exemplified these transformations: an intensifying reliance on an optical-cartographic imaginary, an excessive capacity for spectacular, masculinized violence, and an exorbitant violation of the human body.²³⁸ But if we take Neil Smith's injunctions about the (co-)production of nature seriously, the dialectic of modern war reveals a second narrative in which what Lefebvre called 'the practico-sensory realm' comes to the fore. For, as I have tried to show, in order to survive ground troops had to invest in modes of apprehension – corpographies – that extended far beyond the visual; they remained not only vectors of military violence but also among its victims; and their bodies have to be comprehended as intensely bio-physical and affective organisms.

²³⁷ Blunden, *Undertones*, p. 30.

²³⁸ Henri Lefebvre, *The production of space* (Oxford: Blackwell, 1991); for an elaboration of these claims, see Derek Gregory, *Geographical imaginations* (Oxford: Blackwell, 1994) pp. 382-95.

If the modern trajectories of the production of space and the production of nature coincide in the figure of the body – Walter Benjamin’s ‘tiny, fragile human body’ locked since the First World War (so he said) ‘in a field of force of destructive torrents and explosions’²³⁹ – then in these three theatres of war their coincidence abruptly reconfigured the sensorium. The Enlightenment boundaries between ‘culture’ and ‘nature’ were persistently breached, and when Remarque wrote that on the Western Front ‘our hands are earth, our bodies clay and our eyes pools of rain’ he foreshadowed similarly transgressive experiences in North Africa and Vietnam.²⁴⁰ These boundaries were ruptured from both sides, by the intrusive presence and explosive violence of militaries that turned Blunden’s verdant valley into ‘Nature’s slimy wound with spikes of blackened bone’, and by the obdurate and resistant forces of an inhuman nature – the deadly ‘liveliness’ of rain and sun, of mud and sand, of microbes and mosquitoes, of mangroves and vines – to produce a commingled, entangled and terrifyingly militarised nature.²⁴¹ This explains why the soldiers’ senses were thrown out of place, why they registered the *taste* of mud, the *smell* of flesh, the *touch* of sound. The palpable sense of disorientation is captured to perfection in this passage from an RAMC stretcher-bearer on the Western Front:

‘When sound is translated into a blow on the nape of the neck, and light into a flash so bright that it actually scorches the skin, when feeling is lost in one disintegrating jar of every nerve and fibre ... the mind, at such moments, is like a compass when the needle has been jolted from its pivot.’²⁴²

²³⁹ Walter Benjamin, ‘The storyteller’, in *Illuminations* (London: Fontana, 1992) p. 84; the essay was first published in 1936. The most perfect rendering of this conjunction between the production of space and the production of nature that I know is Christopher Nevinson’s painting, *The underground war/La guerre de trous (1915)* in which troops are shown in a trench caged by overhead geometries of barbed wire and wooden beams and surrounded by towering sides of blackened mud.

²⁴⁰ Remarque, *All quiet*, p. 209. Cf. Weir, ‘Degrees’, p. 42: ‘New weapons technologies ... redefined flesh and earth.’

²⁴¹ Blunden, *Undertones*, p. 107. Cf. Nigel Clark, *Inhuman Nature: sociable life on a dynamic planet* (London: Sage, 2013). I suspect this is not a conception of nature that Neil Smith would have endorsed, but the emphasis on ‘co-production’ is neither a reductionism nor a determinism and it makes no *a priori* claim to adjudicate between these different powers. The ‘natures of war’ are contingent and conjunctural.

²⁴² ‘A corporal’ [John H.C. Crofts], *Field Ambulance sketches* (London: John Lane, 1919) p.21.

The Enlightenment had disciplined the senses, and established what it was permissible to see, to hear, to touch, to taste or to smell and what it was possible to know from their apprehensions, but these divisions were unbuttoned and their epistemologies undone by the intensities of the battlefield. It is for this reason, too, that some of the survivors began to doubt their humanity.

Consistency does not preclude difference, however, and the co-production of these militarised natures reveals repetitions from one theatre of war to another but also reversals, echoes but also silences, parallels but also departures. And yet the structures of feeling that I have been (un)earthing have not been left behind by the techno-cultural advances of later modern war, buried in the mud of the Western Front, baked in the sands of the Western Desert, or burned in the napalm-soaked forests of Vietnam. Through the circulation of military imagery and its ghosting in video games, it is too easy to think of contemporary warfare as optical war hypostatised: a war fought on screens and through digital images, in which full motion video feeds from Predators and Reapers allow for an unprecedented degree of remoteness from the killing fields. It becomes tempting to think of the wars waged by advanced militaries as the ultimate oxymoron, at once 'surgical' and body-less.²⁴³ These are conflicts whose complex geometries have required new investments in digital cartography and satellite imagery, and major advances in political technologies of vision and the development of a host of other sensors have dramatically increased the quantity (if not always the quality) of geo-spatial intelligence on which the administration of later modern military violence relies. All of this has transformed but not replaced the optical-cartographic imaginary.

Yet for all their liquid violence today's wars are still shaped and even confounded by the multiple, material environments through which they are fought and which they, in their turn, re-shape. In Sebastian Junger's despatch from Afghanistan, he reports that for the United States 'the war diverged from the textbooks because it was fought in

²⁴³ Cf. Christopher Coker, *The future of war: the re-enchantment of war in the twenty-first century* (Oxford: Wiley-Blackwell, 2004); James Der Derian, *Virtuous war: mapping the military-industrial-media-entertainment complex* (New York: Routledge, 2009).

such axle-breaking, helicopter-crashing, spirit-killing, mind-bending terrain that few military plans survive intact for even an hour.’²⁴⁴ If that sounds familiar, then so too will the admonition of one *Bundeswehr* officer to Marion Naeser-Lather: ‘To understand Afghanistan,’ he declared, ‘you have to see, hear, smell and taste it.’²⁴⁵ And Kenneth MacLeish’s cautionary observations about soldiers’ bodies carry the past into the present and the future:

‘The body’s unruly matter is war’s most necessary and most necessarily expendable raw material. While many analyses of US war violence have emphasized the technologically facilitated withdrawal of American bodies from combat zones in favour of air strikes, smart bombs, remotely piloted drones, and privately contracted fighting forces, the wars in Iraq and Afghanistan could not carry on without the physical presence of tens of thousands of such bodies...’²⁴⁶

I make these points not to minimise the continued – and often heightened – suffering of civilians in today’s wars, which has been one of my principal concerns for the last ten years or more, but to disrupt the lazy politics in which the left supposedly cares about ‘their’ civilians while the right cares about ‘our’ soldiers. For war diminishes, degrades and damages everybody. While I have been writing this essay, I have heard endless declarations about ‘boots on the ground’ (or the lack of them) in Iraq, Syria and elsewhere. If I have shown nothing else, I hope it is that we must attend to both the bodies that fill those boots and the ground through which they struggle.

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²⁴⁴ Sebastian Junger, *War* (New York: Hachette, 2011) p. 47. This is made even clearer in the film Junger co-directed with Tim Hetherington, *Restrepo* (2010).

²⁴⁵ Marion Naeser-Lather, “Smelling fire”: sensory experiences of German soldiers in Afghanistan’, Paper presented to the conference on ‘Sensing war’, London, June 2014.

²⁴⁶ Kenneth MacLeish, *Making war at Fort Hood: life and uncertainty in a military community* (Princeton: Princeton University Press, 2013) p. 11.

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