RESEARCH PRPOSAL
Medical-military machines and casualties of war 1914-2014

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Objectives

The program examines the changing spaces produced by advanced military and civilian agencies for the care of casualties in war zones. It focuses on those wounded by military violence in four theatres: the Western Front (1914-1918), the Western Desert of North Africa (1942-43), South Vietnam (1963-1975) and Afghanistan (2001-14). The primary objective is to analyse the developing trajectory of modern war and to explore changes in the efficacy and ethics embedded in medical care for the wounded.

Analysis is directed towards the changing networks and resources mobilised in four pathways of casualty care, evacuation and treatment:

	Combatants	Civilians
Military-medical provision	**A**	**B**
Civil-humanitarian provision	**C**	**D**

The polar cases, **A** and **D**, in which medical-military agencies and civil-humanitarian agencies look after their own, have been complicated by the production of other, overlapping and sometimes countervailing spaces of casualty care, **B a**nd **C**, in which each also acknowledges a (varying) responsibility to its other. These interactions are part of an emerging logic of 'military humanism' that has also militarized modern humanitarian reason, and a secondary objective of the program is to evaluate the practical and political implications of these developments.

Context

Protagonists of contemporary war claim that its conduct is unprecedentedly accurate and proportionate, legal and ethical, and that this has raised the bar for 'just' war (cf. Der Derian, 2001). At the limit, what Coker (2004) calls 'the re-enchantment of war' in the twenty-first century incorporates regulated military violence into the formation of a supposedly 'humanitarian present' (Weizmann, 2012; Zehfuss, 2012). It does so, crucially, by limiting casualties – civilian and combatant – through new modes of intelligence, surveillance and reconnaissance new weapons systems, and new modes of accountability. I explored these issues in my previous research on counterinsurgency in Afghanistan and Iraq ('War cultures') and on changing geographies of bombing from the air ('Killing space').

This program explores the other side of these changes: the provision of medical care for those wounded by military violence. [1] Medical geography has had remarkably little to say about them; its focus on the diffusion of disease and the spatial design of health care systems has produced a major study of military conflict as a vector of infectious disease (Smallman-Raynor and Cliff, 2004) – though some medical historians object that its analytical reach exceeds its historical grasp (Cooter, 2005; see also 2003) – yet those who are injured on the field of battle are left out of account. It is perfectly true that, as Loyd (2009: 866) insists, 'war kills and maims not with bullets and bombs alone' but her commendable desire to further a critical geography of violence is limited by its repetition of the emphases of mainstream medical geography. She is also right to underscore the medicalization of contemporary warfare – she might have added the militarization of medicine (Harrison, 1996) – but metaphors of 'surgical strikes', of insurgency as a 'contagion', a 'communicable disease' or a 'cancer', reveal a militarized biopolitics that is also profoundly material in its conduct and consequences (Bell, 2012a, b).

Even those have addressed the casualties from these conflicts have fastened overwhelmingly on those killed rather than wounded, and on civilians rather than combatants; this is equally true of studies in population geography (Tyner, 2009) and of those wider studies whose sense of 'collateral damage' is overwhelmed by body counts (Tirman, 2011; Crawford, 2013). These are important issues – even if the distinction between combatant and civilian is one of the most contentious in contemporary asymmetric warfare – and they raise vital questions about the political and cultural geographies embedded in the calculus of what counts as a 'grievable life' (Butler, 2006). But they can also institutionalize a politics in which the right cares about 'our' combatants while the left cares about 'their' civilians, and this is no less problematic.

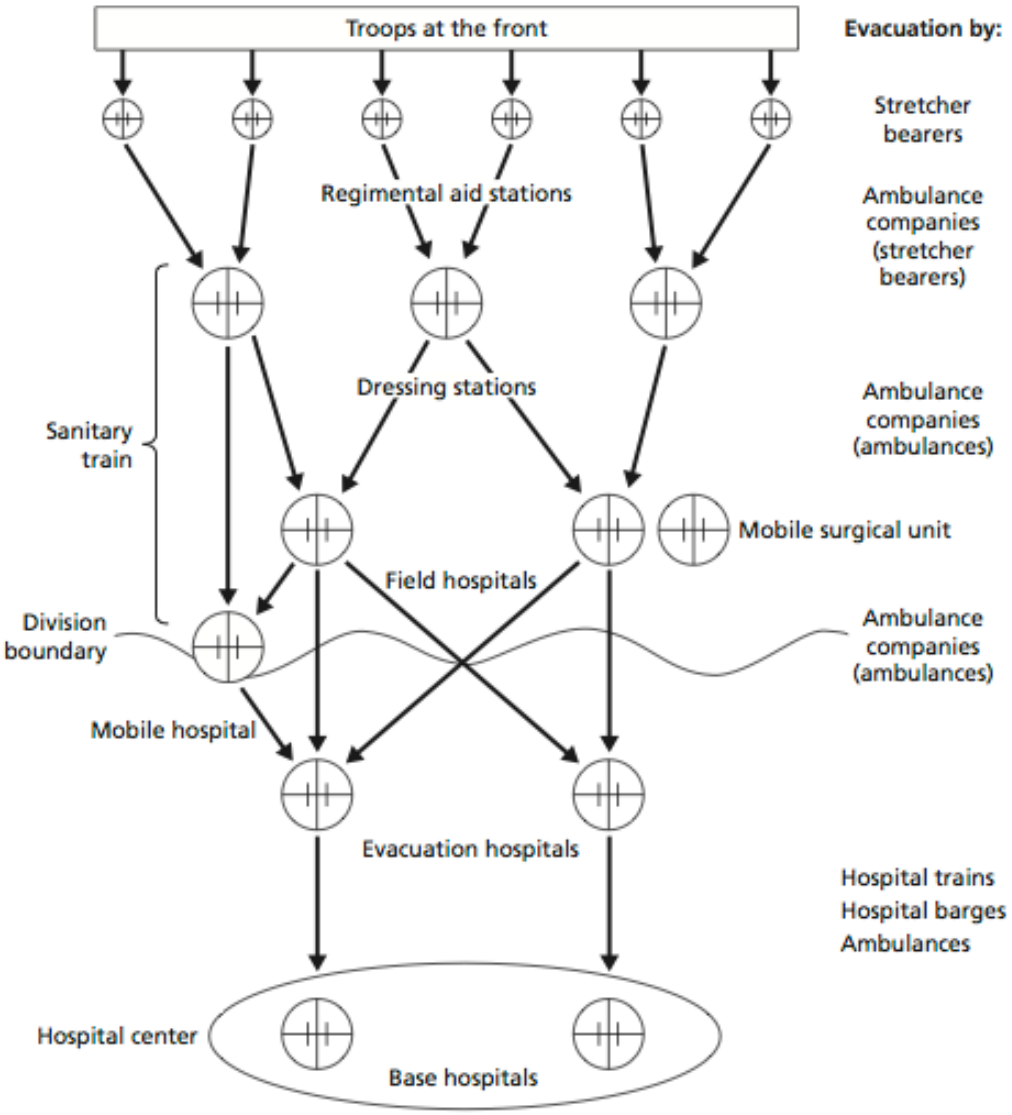
The program extends these discussions and invests them with an historical depth and a geographical sensibility that is essential to establish what is (and is not) novel about later modern war. It begins with a simple set of cases: the development of a 'military-medical machine' for the treatment of troops injured in combat. I adapt the term from Harrison (2010: 16) who – while he acknowledges the significance of the templates provided by the Crimea War and the Boer War – argues that the conjunction of mechanised war and military medicine on the Western Front in 1914-18 produced a distinctly new and decisively modern 'machinic' apparatus for casualty care. At its core was the provision of immediate medical treatment as close to the fighting as possible and the construction of an evacuation chain through which more seriously injured patients could be transferred to higher-order medical facilities in the rear (Gabriel, 2013). The logic can be traced back to the American Civil War and was largely instrumental: the objective was to treat

[1] The program is limited to physical injury; PTSD (once diagnosed as 'shell shock' and combat fatigue') is sufficiently important to merit separate study but, unlike bodily trauma, these pathways have already received considerable scholarly attention (e.g.. Tanielian and Jaycox (2008)).

[2] Major Jonathan Letterman, Medical Director of the Army of the Potomac, introduced a

those who could be returned to combat as speedily as possible. [2]'On the battlefield, military medical care is an adjunct of war,' Gross (2008: 4) reminds us, and its doctrine of 'salvage' means 'conserving manpower and maintaining military capabilities by providing medical care so the greatest number of wounded can return to duty.'

The American Expeditionary Force: Evacuation System from the Front to the Base Hospitals



SOURCE: Jaffin, 1990, p. 81.

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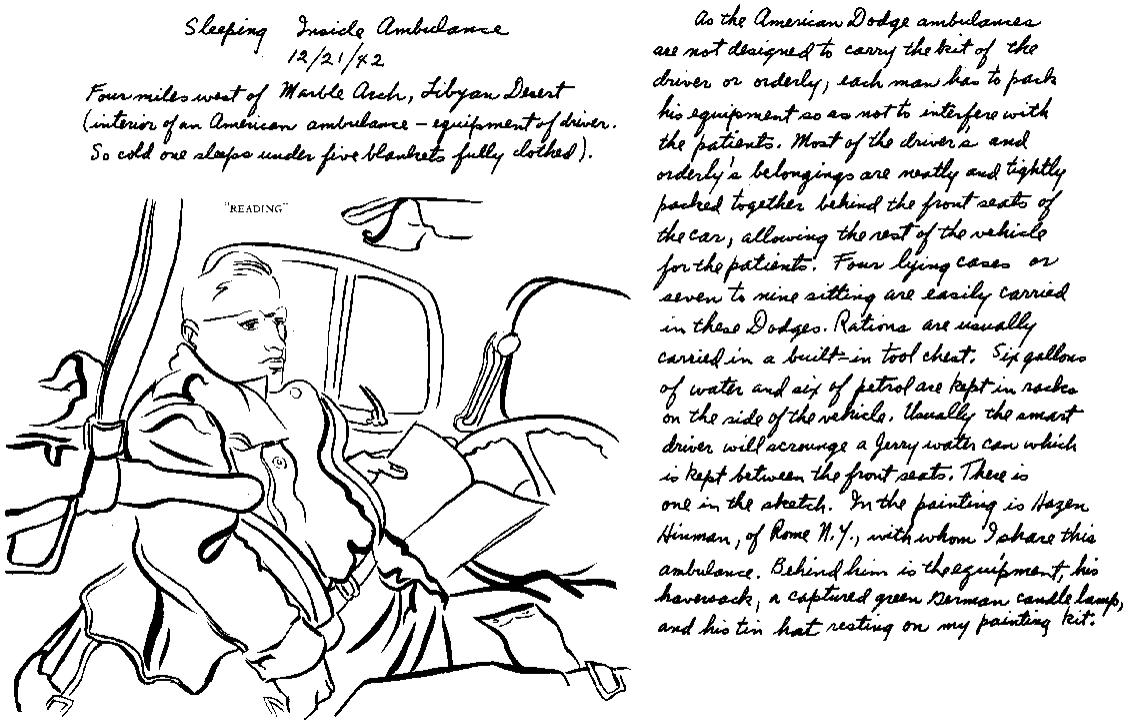
[2] Major Jonathan Letterman, Medical Director of the Army of the Potomac, introduced a new system of casualty care whose basic principles were to reduce the time between wounding and definitive (life-saving) surgery and to evacuate a casualty no further to the rear than his wounds demanded: Dorland and Nanney (1982) 15.

On the Western Front the Allies adopted a common model (Rostker, 2013). Injured British troops either made their own way or were carried to Regimental Aid Stations for rudimentary first aid; many were then stretchered to Advanced Dressing Stations, where the more serious cases were transferred by horse- or motor-ambulance to a Casualty Clearing Station (CCS) six to ten miles from the front staffed by surgeons, other specialists and nurses. Those likely to recover in a few days were retained, but the rest were evacuated by hospital train to a Base Hospital near the coast (Rouen was a major centre) and then across the Channel by hospital ship to Britain (Bricknell, 2002a; Collins, 1918; Jaffin, 1991; Western, 2011). Speed of movement in the early stages was vital to minimize the risk of infection from sepsis, tetanus or gas gangrene – though the risk of attack and the devastated terrain often made that difficult – but the journey from the CCS was often agonizingly slow (days rather than hours) because priority was given to troop, ammunition and supply trains moving in the opposite direction. The machinic nature of the system was captured by one orderly who saw 'the worst sight of all': 'an ordinary train … unloading reinforcements, while at the other end it was filling up with wounded men' (Mayhew, 2013: 109).

The linear geometry of the war-zone and the stabilization of the front facilitated the operation of the military-medical machine, but the CCS were frequently moved, especially in the closing stages of the war when it became increasingly difficult to organize the evacuation chain 'in a fluid situation in which lines of communication were stretched or heavily disrupted' (Harrison 2010: 83). This was aggravated in the Second

World War when the medical-military machine had to adapt to fully mechanized warfare. The crucial advances were made in the Western Desert, where the need for water, electricity and other supplies dictated that the CCS could be no closer than 50 miles to the firing line, and the main Allied hospitals were far away in Alexandria and Cairo (Harrison, 2008: 108-9). New mobile Field Surgical Units and Blood Transfusion Units were pushed forward so that casualties could receive primary surgical treatment within eight hours (Watts, 1955: 28; Bricknell, 2002b: 316-7). Motorized ambulances became essential links in the evacuation chain (Geer, 1943; Saber, 1959; Thomas, 1943), and with the entry of the US into the war fixed-wing transport aircraft were used to evacuate casualties east to Egypt and west to Algiers (Wiltse, 1965: 73).

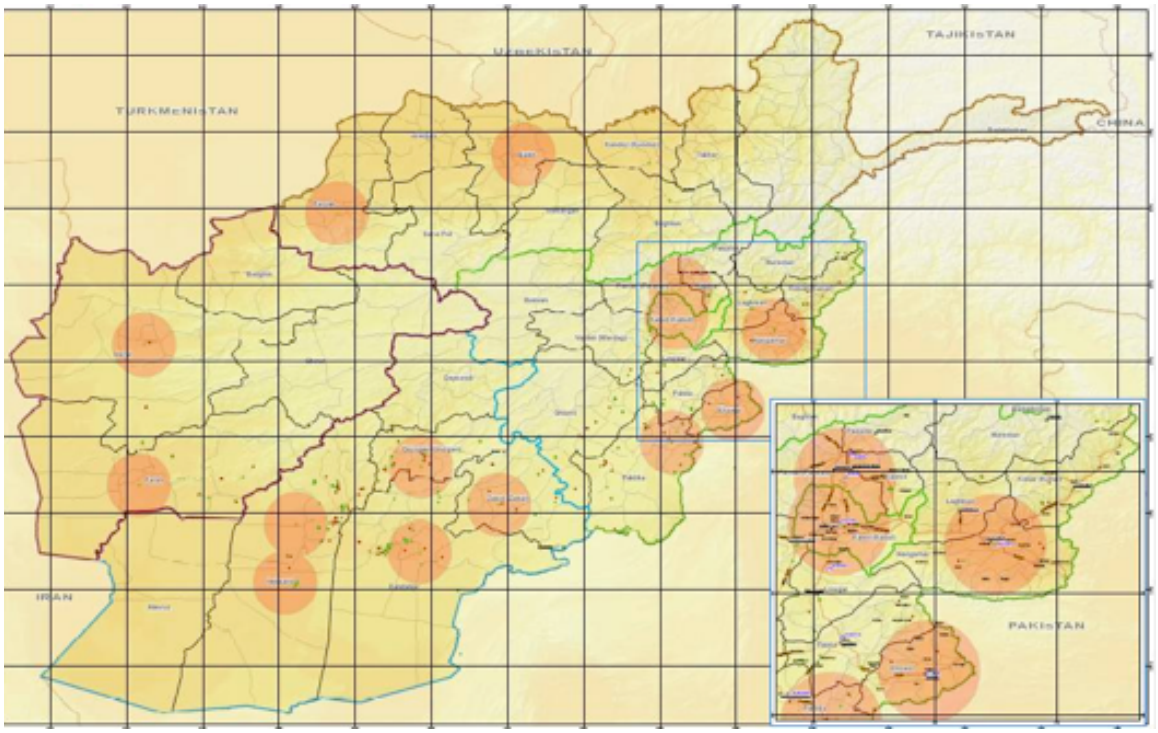


Later conflicts saw these linear geometries buckle and eventually rupture. Vietnam was 'a war without fronts', and demanded a new geography of casualty care. Mobile Army Surgical Hospitals (MASH) had been used in Korea, and more advanced MUST [Medical Unit, Self-contained, Transportable] units were deployed to Vietnam. But permanent major hospitals were established within military bases, and while some were moved (especially in 1968-9) in response to changing military operations most of them were 'fixed installations with area support missions' (Neel, 1991: 59; Hardaway and Bredenberg, 1989). Korea also saw the first systematic use of helicopters for medical evacuation, but their capability and contribution were limited (Futrell, 1960; Howard, 2003). In Vietnam UH-1 'Huey' helicopters were used for almost all medical evacuations; at the peak of ground operations there were 116 air ambulance detachments in theatre. Flying with a medical corpsman on board each 'dust-off' could lift between two and six stretcher patients, and in 1969 they logged a total 206,000 patient movements (Cook, 1988; Pletcher, 1968). The average time between wounding and definitive surgical treatment dropped to just 35 minutes, and the traditional evacuation chain was

short-circuited as a centralised medical regulating network directed the pilot in flight to the most suitable major hospital (Dorland and Nanney, 1982: 122). Serious cases were then flown to Japan or the United States for extended treatment.

This system remains the basic model for multi-national combat care in Afghanistan. Care is embedded at the 'point of wounding' where (ideally) a Combat Medical Technician

provides advanced first aid. For forward medical evacuation the US Army uses quick-response Blackhawk helicopters with a paramedic on board (above), while the British Army uses slower but larger Chinook helicopters that carry a surgical trauma team [Medical Emergency Response Team or MERT] which 'can keep a casualty alive that [would] die in a Blackhawk' (Lilywhite, 2009: 23; Hodgetts, 2011; Bricknell and Johnson, 2011). Both systems involve intricate time-space planning and scheduling, but the 'tactical geometry' – as in Vietnam – has transformed the extended, linear evacuation chain into complex area-based configurations 'with multiple nodes of contested space' (Bricknell and Johnson, 2011). The map shows (approximately) the configuration of Medevac coverage in Afghanistan, allowing one hour from time of wounding to hospital treatment (Hartenstein, 2012); the increase in elapsed time from Vietnam has sparked criticism and controversy.



There are mobile, level 2 Forward Surgical teams available, but seriously injured patients are transferred directly to a level 3 Field Hospital (UK) or a Combat Support Hospital (US) to be treated by a designated trauma team. Serious cases are then flown to level 4 hospitals in the UK or in Germany/the US.

This is a bare-bones summary that takes no account of changes in the nature of war wounds or advances in military medicine. But there is another limitation. I will use official records to reconstruct these changing networks in depth and detail, but if left in this form they would remain remarkably lifeless. The medical-military machine is a geographically distributed *assemblag*e that consists not only of a techno-physical infrastructure but also of a discursive apparatus (Caruso, 2008) and, crucially, a set of

actors (Anderson and others, 2012). Following Mayhew's (2013) example for the Western Front, I will use diaries, letters, memoirs and other personal accounts (including interviews for recent conflicts) to bring into view the multiple *people* involved in these precarious, fleshy, and profoundly intimate journeys. This will also allow the incorporation of 'somatic geographies' and the bodily apprehension of combat and injury (Das, 2006; Gregory, forthcoming; McLeish, 2013; Scarry, 1987) and so turn these otherwise skeletal geometries into fully human *geographies*.

It is necessary to map the successive versions of this 'simple' model of treatment and evacuation onto a still more complicated set of spaces. Foucault (1980: 150-1) suggested that 'doctors were, along with the military, the first managers of collective space.' The military was 'chiefly concerned to think the space of "campaigns" (and thus of passages) and that of fortresses', he wrote, whereas the medical profession was primarily concerned to think the space 'of habitations and towns'. But what happens when military and civilian medicine are called upon to imagine and manage the *same* space?

To answer this, I follow two tracks that are usually kept analytically separate – civilian and combatant casualties – and examine their intersections. There is an important sense in which modern war has always been 'war amongst the people': it is not a late twentieth-century invention (cf. Smith, 2005). Images of 'No Man's Land' in France and Belgium distract attention from the wounding effects of military violence (including shelling and gas attacks) on civilian populations who continued to live and work in the areas immediately behind the front lines, and there is anecdotal but largely unexamined evidence of military doctors routinely treating civilian patients. This was much less common in the Western Desert for obvious reasons, outside main ports like Tobruk, but the wars in Vietnam and Afghanistan prompted considerable concern over 'collateral damage'. Yet here too little systematic attention has been paid to the degree to which militaries have assumed responsibility for civilians injured in war zones. There is one detailed study of military-civilian medicine in Vietnam (Wilensky, 2006), but it focuses on medical civic action programs (MEDCAPS) and says little about the Civilian War Casualty Program that is my main concern. As local hospitals became overwhelmed by the rising tide of civilian casualties in 1967, the US military made available 400 beds and later three Army hospitals to provide another 1,000; by 1968 civilian patients could be treated in any military hospital 'if space were available' (Neel 1991: 166-8). The contribution of the system was minor when weighed against the industrial scale of killing that occurred (Turse, 2013), but there has been no rigorous evaluation of it.

There is no equivalent study for Afghanistan either. NATO acknowledges a strategic interest in ensuring 'an effective hospital service for the civilian casualties of war' (Lillywhite, 2009: 25) but insists that its military medical services 'are not ideally configured for the provision of direct healthcare to the affected population'. At best, as in Vietnam, they provide episodic care through MEDCAPS that are moments in counterinsurgency operations not structural interventions (Gordon, 2011). In 2009 ISAF's Tactical Directive to minimize civilian casualties proposed 'clinically driven' Medical Rules of Eligibility for their emergency treatment, and in 2010 NATO issued new operational guidance which underscored the 'paramount' importance of caring for

coalition military casualties and 'necessarily restricted' Afghan casualties – civilian and combatant – to 'essential emergency treatment only' (NATO, 2010). Afghans wounded in air strikes, small-arms fire or IEDs were to be transferred to Afghan hospitals in short order. There are cultural reasons for this, but local medical provision is much less capable, and NGOs like the Red Cross and Médecins sans Frontières were explicitly expected to fill the gap between the two systems.

In fact the military has rarely been the only agency making medical interventions in modern war zones; voluntary agencies have long been involved in the treatment of military and civilian casualties. I will explore the work of the Quaker-inspired Friends Ambulance Unit and the American (Ambulance) Field Service on the Western Front and in the Western Desert (Davies, 1947; Seymour, 1920; Smith, 1998). They disavowed the 'inverted cosmopolitanism' of the national Red Cross societies (Hutchinson, 1997; cf. Irwin, 2003) and for this reason provide an illuminating comparison with the work of two contemporary NGOs in Afghanistan, the Center for Civilians in Conflict and Médecins sans Frontières. My aim is not to provide a comprehensive survey (Barnett, 2011; Paulmann, 2013; Redfield, 2005; 2013) but to address the practical and ethical issues to be negotiated if civilian agencies are to avoid 'the co-option of humanitarian action' by advanced militaries (Bortoletti, 2010: 272). This will allow an interrogation of what Fassin (2007; 2011) calls 'humanitarian reason' and elucidate its entanglement in a militarized system of governmentality. Human geographers have started to address this question, but their interest is at present largely philosophical and theoretical (Reid-Henry, 2013; forthcoming) and here, as in the program more generally, I am equally interested in the material geographies that emerge through these uneven and unequal systems of casualty care.

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