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Redesigning Land Forces for *Wars Amongst the People*

DAVID BETZ

This essay starts from the premise of British General Sir Rupert Smith, who recently argued that the form of warfare that has become the new norm is 'war amongst the people'. This differs from armed conflicts of the past in the sense that:

> we tend now to conduct operations for 'softer', more malleable, complex, sub-strategic objectives. We do not intervene in order to take or hold territory... Instead we intervene in, or even decide to escalate to, a conflict in order to establish a condition in which the political objective can be achieved by other means and in other ways.[1]

The ongoing 'Long War' is fundamentally such a war because essentially its political objective is to establish a *condition* in which a people's 'state of mind' may be transformed.[2] Which raises the question of what sort of armed forces are required when the desired effect is not likely to be achieved by what Western armies have traditionally been designed to do: take, hold, or destroy this or that objective.

My thesis is simple. You cannot fight 'wars amongst the people' without actually being amongst them, which means being able to maintain sustained contact with the local population to restore security and enable the re-emergence of civil life in areas disrupted by combat operations. And there's the crux: the West in general does not have enough of the right forces, especially infantry, for the task. And the ones it does have are not always appropriately trained or equipped for what they are needed to do. The aim of this paper is to make some suggestions as to how that might be changed and contribute thereby to the ongoing discussion on post-modern counterinsurgency and military reform.

This paper consists of five parts. The first section seeks to delineate the problem at hand, in essence, the contemporary relationship of war-fighting and nation-building, which I argue is neither distinct nor linear. The second section briefly reviews and analyzes the debate over American military reform specifically. This is because although the emergence of 'war amongst the people' represents a paradigm shift that all armies must adapt to, as the apotheosis of the industrial-age war-fighting model it is in the American military where the need for change is strongest. Here I argue that while there is scope for optimism that the lessons drawn from Iraq will be ones which will prepare it to win the next time, there is no room for complacency. While Iraq and Vietnam are very different conflicts,[3] there is a chance that their respective aftermaths may conform to similar patterns of scapegoating, blame-avoiding, and wilful institutional refusal to recognize and act on the sources of defeat. The third section looks at what I propose should be the new 'normal force', exploring the balance of mobility,

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firepower, and force protection appropriate for a force predominantly focused on sustained nation-building and irregular warfare. My argument is that what is called for is an expanded light infantry with a heavy leavening of civil affairs and psychological operations specialists. In the fourth section I consider what I have termed the 'extraordinary' force, particularly its specializations in close combat and strategic reconnaissance. Fundamentally, it is the proposition of this section that the extraordinary force provides the strike function to the holding function of the normal force. The fifth and final section concludes with a reflection on the ongoing, albeit limited, validity of the once popular concept of military transformation or a Revolution in Military Affairs (RMA), and more generally on the growing literature on American military reform, with a view to locating the argument herein with the wider debate and considering some of the tradeoffs of other approaches.

The paper stresses tactical aspects of fighting 'wars amongst the people'. This is not meant to beg the question whether the current challenges of the 'Long War' are chiefly tactical rather than strategic. Indeed, there are plenty of both. There is, however, already much debate on the strategic question of the contemporary and future utility of force, not least the aforementioned work of Rupert Smith. Decision-makers ought to take to heart the wise old adage that 'strategy trumps tactics' and concentrate first on getting the former right, for no amount of tactical acumen can make up for strategic blundering.

That said, getting one's tactics right is important too because getting them wrong can compromise, delay, and multiply the cost of accomplishing one's strategic objectives or even turn victory into defeat. It is not only the armed forces that face the challenges of the transition from one era to another; it is the whole of society and government. Ultimately, the complete answer to the question of how to win 'wars amongst the people' lies in the coordination of the full inventory of national instruments of power. The 'full inventory', however, is a complex of moving parts vaster than can be addressed in this paper, which focuses instead on the fraction of national power provided by the military in the full awareness that this is a partial answer to a bigger question.

The Nature of the Problem

In October 2006, the Chief of the General Staff of the British Army, General Sir Richard Dannatt, said of the Iraq War,

> I think history will show that the planning for what happened after the initial successful war-fighting phase was poor, probably based more on optimism than sound planning. History will show that a vacuum was created and into the vacuum malign elements moved ... Let's face it, the military campaign we fought in 2003 effectively kicked the door in.[4]

A premise of this paper is that the problem Dannatt describes is not the result of a unique failure to plan, something that can be corrected next time around. Rather, it is a reflection of a systemic problem of trying to fight 'wars amongst the people' with armed forces designed to win the wars of a previous age.

Long ago Sun Tzu wrote, 'In battle there are only the normal and extraordinary forces, but their combinations are limitless; none can comprehend them all. For these forces are mutually reproductive; their interaction as endless as that of interlocked rings. Who can determine where one ends and the other begins?'[5] More recently but in a similar vein, Sir Michael Howard has written that 'In today's confrontations warfighting and peacekeeping cannot be separated. They melt into one another and the conduct of each determines the success of the other.'[6] Without doubt most commanders are familiar with and understand the need for coordination of forces which Sun Tzu enjoins, yet what he have seen in Iraq is an inability to find an effective combination of the 'normal' and the 'extraordinary', or in this argument, the war-fighting and the nation-building.[7] Commanders find an effective combination of these forces elusive not because they misapprehend the basic concepts but because the traditional orientation of the forces they have to work with is the opposite of what is now required for 'wars amongst the people'. They are trying to conduct nation-building with a force designed first and foremost for generating raw combat power in high-intensity conventional combat with the minimum of manpower. Thus they are ill-equipped and disposed to securing an area of operations after the fighting, which is a main reason the highly trained and splendidly equipped coalition forces in Iraq have proved unable to stabilize the country.

To have a hope of finding an effective combination of the normal and the extraordinary forces in 'wars amongst the people', commanders need to have the right forces to work with, most importantly, a large, light infantry-dominated ground force with the extensive skills in civil affairs necessary for prevailing in sustained irregular conflicts. The problem is that in the organization of most Western militaries there are plenty of forces for 'kick in the door' operations, to use Dannnatt's phrase, but translating operational success in combat into desired political outcomes consists of being able to put the house in order afterwards and for that, there are not nearly enough of the appropriate troops. This needs to be reversed.

The current orthodoxy says that what is needed is a one-size-fits-all medium force that is both strategically mobile and tactically robust. A main contention of this paper is that this is flawed. There is no happy medium in technical terms, as is becoming clear with the mounting technological challenges faced by the US Army's planned Future Combat Systems family of lightweight air-transportable armoured vehicles.[8] If we continue on this path the risk is of ending up with the worst of all worlds: an army that is not just too few in number for sustaining low-intensity campaigns, but too light for high-intensity combat. Equally, there is no happy medium psychologically. It has long been argued that it is easier for a war-fighter to 'gear down' to peacekeeping than it is for a peacekeeper to 'gear up' to war-fighting. Indeed, it is sometimes argued that it is useless to try to have the same people in the same uniforms perform both roles:

> We want our nation-builders to be open, approachable, and easy to communicate with. We want nation-builders who understand and care about the locals. We want nation-builders to dialogue first and rely on force only as a last resort. ... We want our soldiers to have none of these qualities. The US soldier should

> be the wrath of God, able to bring death and destruction anywhere at any time. Let the nation-builder be the good guy and the soldier the bad guy.[9]

And, by logical extension, what is required is a separate nation-building force. This is also wrong because it draws the distinctions too sharply. To be sure, there is a continuing requirement for soldiers who are highly, perhaps even solely, focused on that which Clausewitz likened in its inevitability in war to 'cash payment' in business: combat, battle, and bloodshed. But the contingencies where such a purely kinetic response is sufficient on its own are infrequent and rare. Moreover, if it is a simple matter of generating combat power, that can be done with a handful of troops on the ground. It is true that it is hard to develop troops who are one part diplomat and one part soldier, but not impossible. It means sacrificing some combat power. Nonetheless that is what is required in today's 'wars amongst the people', and from the main forces not the smaller Special Forces because nation-building is more manpower intensive and takes longer than mere war-fighting.

The counterinsurgency in Iraq stands as a testament to the folly of judging the likelihood of strategic success on the basis of the ability to generate raw combat power.[10] It has been a costly mistake with the likelihood low that the ongoing 'surge' will reverse the disastrous situation enough before the political stopwatch in Washington DC clicks down to zero. The challenge when that happens will be to limit the consequences of failure, particularly in Afghanistan, where the psychological momentum could easily shift from NATO forces to the Taliban emboldened and reinforced by the success of their allies in Iraq.

The American Debate Over the Lessons of Iraq

The era of 'wars amongst the people' of which the Iraq War is emblematic has been dislocating for the US Army particularly because no other has invested as much psychologically and materially in the notion of Operations Other Than War as being something other than proper soldiering. The American way of war is profoundly regular, large scale, and firepower-oriented.[11] And the technology-obsessed view of the essence of modern warfare being men and machines roaring around the countryside is deeply entrenched.

Arguably, the main lesson of the Iraq war is that only with sufficient 'boots on the ground' can force be employed with the level of discrimination and *discernment* required to separate insurgents from the general populace – firepower cannot fully replace manpower.[12] Which is a shame because the lesson is an old one that ought not to have needed relearning. Speaking in 1962, in the early days of the American involvement in Vietnam, Colonel John Paul Vann told *New York Times* reporter David Halberstam:

> This is a political war, and it calls for the utmost discrimination in killing. . . The best weapon for killing is a knife, but I'm afraid we can't do it that way. The next best is a rifle. The worst is an airplane, and after that the worst is artillery. You have to know who you are killing.[13]

Things have begun to change in ways that indicate an appreciation of this point. The American military is rediscovering the fact that the dichotomy between war-fighting and nation-building is a false one – the two are different sides of the same coin, particularly in counterinsurgency where as T.X. Hammes points out, 'You don't outfight the insurgent. You outgovern him.'[14] This is evident in the publication of Department of Defense Directive 3000.05 'Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations';[15] the move to a modular 'brigade-centric' armed forces (though it must be pointed out that the actual benefit of modularity as it is being implemented in the American army is mixed);[16] the 2005 *Quadrennial Defense Review* had a lot of useful things to say about the emerging irregularity of 21st century conflict while leaving much doubt about the seriousness with which this was to be matched by changes in funding, structure, and organization;[17] and most recently, the US Army and Marine Corps have jointly published a counterinsurgency field manual.[18] Moreover, senior leaders such as Army General David Petraeus and Marine General James Mattis who are generally thought to have best grasped the increasingly irregular nature of regular warfare have been appointed to prominent positions – head of the Combined Arms Center at Fort Leavenworth (the leading Army institution for doctrine and leadership development), and head of US Marine Corps Forces Central Command, respectively.[19]

These are positive signs, but one ought not to be complacent. While it would seem the elements of institutional learning discussed in John Nagl's *Learning to Eat Soup with a Knife* are present: 'the right culture, the knowledge itself and access to the knowledge';[20] the question is the extent of the willingness to apply this to changes in procedure, organization, and training, particularly as reform is all the more challenging while done in wartime.[21] On this account the prognosis is mixed. Firstly, whereas it is positive that leaders who appear to 'get' counterinsurgency have secured influential positions, on the other hand failing to grasp counterinsurgency does not seem to impede career advancement.[22] Second, within the Army the biggest structural and doctrinal debate still concerns how best to incorporate the Future Combat Systems family of manned and unmanned vehicles into combat formations.[23] Third, while the new counterinsurgency field manual is thorough, serious, and stands in sharp contrast to the political rhetoric concerning the 'War on Terror' of the last few years, it is not without failings, chief among them that it is pervaded by concepts drawn from Maoist-style People's Revolutionary Warfare, which is not the sort of insurgency now being faced.[24]

More fundamentally, it still remains to be seen whether or not the United States will draw from Iraq something like the lesson it drew from Vietnam: that its strategic and political culture and national military tradition simply ill suit it to irregular wars. Jeffrey Record has argued along these lines forcefully and convincingly, drawing the conclusion that it should therefore abstain from getting involved in them.[25] Still, one may agree with Record's estimation of American strategic culture while questioning the validity of the conclusion that rests on the false assumption that such wars can be avoided. 'If this analysis is correct,' says Record, 'the policy choice is obvious: avoidance of direct military involvement in foreign internal wars unless vital national security interests are at stake.'[26] But, as Herfried Munkler writes in his recent book

New Wars, 'War "smoulders on", "spreads out", "extends over" and so on . . . War as the subject of events will not stop at the frontiers of Europe and North America but will sooner or later move beyond them.'[27] In other words, fighting 'wars amongst the people' is not a sideshow or an optional extra that the Army may do or not do – this is the main event. In the words of Michael Howard, 'The military may protest that this is not the kind of war that they joined up to fight, and taxpayers that they see little return for their money. But as I said earlier, this is the only war we are likely to get: it is also the only kind of peace.'[28] The policy choice then is stark: achieve a cultural change, as mammoth a task as that may be, or grow accustomed to defeat.

The *Normal* Forces

The most vital cultural challenge in the era of 'wars amongst the people' is internalizing the fact that the old dichotomy of conventional or regular warfare as opposed to unconventional or irregular warfare is reversed. Also, between war-fighting and nation-building there is no 'lesser included contingency' – both are equally vital. The latter, however, is costlier in blood and treasure. It must, therefore, be the main focus of the bulk of the land forces: the new 'normal' forces.

'The best armour', claimed the British statesman and philosopher Sir Francis Bacon, 'is to keep out of gunshot.' Several centuries later, this is a fair approximation of the thinking behind 'effects-based warfare'. 'Never put a man where you can put a bullet', the unofficial motto of the Royal Canadian Mounted Police, quoted approvingly by Harlan Ullman and James Wade in *Shock and Awe: Achieving Rapid Dominance*, expresses the same sentiment.[29] This is sage advice. Up to a point. The problem is when, as is the case with most low-intensity conflicts, there is no substitute for actually being there, in 'three block war' situations where the boundary between necessary close contact with the non-combatant population and close combat with the combatants among them (who more often than not are indistinguishable up until the moment of attack) is indistinct.[30]

Mobility of the Boot

The optimal force for this situation is composed largely of expanded light infantry, not mechanized infantry in lighter, high-tech armoured vehicles, but old-school high-skill foot soldiers blended with civil affairs and psychological operations units and twinned with the 'long-range assassins' of precision fires. In his groundbreaking and still very current masterpiece on manoeuvre warfare, *Race to the Swift*, Richard Simpkin argued, in terms similar to some RMA enthusiasts more than a decade later, that one impact of dominant firepower would be the *dispersal* (not necessarily a reduction) of mass in the form of a 'net' of small detachments with the role of calling down fire and conducting localized quasi-guerrilla type actions. The density of this network would be extremely low as a result of which the 'elements of this net will be everywhere and will thus only need the mobility of the boot'.[31]

He argued that such a force would retain offensive power by virtue of the expanded lethality of its own weapons plus the non-organic firepower (i.e., aircraft

and missiles) available to it. At the same time, although it would still require some form of mechanical transport, the marching infantry component would be substantially free of modern logistics paraphernalia. Thus, being lighter and easier to keep supplied, it would have strategic mobility alongside the infantry's traditional ability to adapt to varying terrain types.[32] Indeed, once in theatre it need not sacrifice tactical mobility; on the contrary, being less dependent on good roads, ports, and airfields (which are few and fragile in the troubled spots of the world) it might move more easily.[33]

In fact, Simpkin's thoughts about the offensive potential of small, dispersed forces were well proven in Afghanistan in 2001–2002 and in Iraq in March–April 2003.[34] However, the point is not whether a few troops with the right support can destroy a regime. What is at issue is whether they can build up a stable new regime afterwards, which it would appear in Iraq since 2003 particularly, but increasingly also in Afghanistan,[35] they cannot. Fundamentally, the problem is that the virtue of the 'Afghan model' is that it reduces mass by replacing it with firepower whereas in 'wars amongst the people' mass (crucially, in the sense of numbers of troops) is not so much reduced as it is dispersed. The question is the practical limit of dispersal which, in turn, is a function of the lowest practical size and composition of the basic tactical unit.

The essentials of the dynamic are straightforward: lots of small, dispersed units are able to develop good relations with the local populace through sustained close contact, but they may lack the staff and mass (e.g., specialists in civil affairs of various kinds, psychological operations, analysts, linguists) to recognize and exploit opportunities; on the other hand, brigades and divisions have greater analysis and control capabilities but cannot develop street-level rapport. This has led some in the US Army to conclude on the basis of experience in Iraq that the appropriate basic tactical unit is the combined arms battalion.[36] One might argue that it should be smaller still on the logic that while a battalion-sized base may not be quite the same 'mortar magnet' as the base of a division it is still, having the size and populace of a small village, not the easiest thing to embed in a civilian neighbourhood. Ideally, the battalion would operate in dispersed company- and platoon-sized groups each with access to the command and support apparatus of the battalion. Either way, it would seem that the recent drive to empower the brigade as the primary unit of action is possibly still an order of magnitude short of the mark required for 'wars amongst the people'.

Operating in small units is of course a hallmark of Special Forces. However, suggesting that the new 'normal' forces should just be an enlarged version of what are now Special Forces is an 'if-wishes-were-fishes' fallacy. Special Forces are rare by definition and not created by the expedient of issuing new cap badges to regular troops. What is being suggested is (somewhat) more modest: regular forces must acquire *more* of the skills and capabilities that are now too often considered the preserve of the elite. (The British Army's Parachute Regiment is a good example of such 'nearly Special Forces' as are the United States Marines.) This sort of organizational change will require a profound change in mindset.

Shock and Awe plus Comfort and Reassure: Focus on Personnel

Starting in the 1970s, infantry fighting vehicles – small tanks with a compartment for a section of infantrymen – were widely introduced to provide anti-infantry protection for main battle tanks (which otherwise are very vulnerable at close quarters) and reconnaissance for armoured formations, and to protect convoys. This was appropriate to the main threat at the time posed by the Soviet Army on the plains of Central Europe. But the long-term impact on the infantry, however, was to make them 'something other than infantry' by reducing the size and number of infantry teams and making them dependent on their vehicles for everything from transport to covering fire.[37] Mechanized infantry became the norm, light infantry the exception; this order of things needs to be reversed now.

The paucity of light infantry is most acutely a US Army problem, less so for the US Marines, and the armies of some allies.[38] In part this is because being relatively more poorly equipped than the US Army other armies are more frequently called upon to 'make do with less' – a highly useful skill. The UK's general forces also retained much of the light infantry and the appropriate doctrine and training it acquired to police its global empire because they found them useful in policing Northern Ireland.[39] The Australian Army, because of its small size and tradition of unconventional warfare, has made an excellent start in adapting its forces to the new environment. Its new 'Complex Warfighting' concept sets the bar high for regular forces: 'every soldier, regardless of specialization, must be primarily an operator – with a warfighting focus and a high level of combat skill. Every soldier must be able to work and fight effectively, without relying on others to provide force protection'.[40] But this is a more sensible approach than trying to expand the ranks of the Special Forces, the rapid expansion of which can only be achieved by skimming off the best of the regular forces and reducing the standards of the elite – to the detriment of both.[41]

Field Marshal Slim famously claimed that 'Armies do not win wars by means of a few bodies of super-soldiers but by the average quality of their standard units.' This is an excellent point worth bearing in mind. However, he continued:

> The level of initiative, individual training, and weapons skill required in, say, a commando, is admirable; what is not admirable is that it should be confined to a few small units. Any well-trained infantry battalion should be able to do what a commando can do; in the Fourteenth Army they could and did.[42]

This is a mistake. The difference between commandos versus normal infantrymen is one of depth versus breadth; the former do a narrow range of tasks to a very high standard; the latter do a broad range of tasks, by necessity to a lesser standard. There is always going to be a difference between Special and Regular forces which is not about elitism, but a matter of differentiation as a means of covering the entire spectrum of action which involves tradeoffs. The problem today is that our regular forces tend to trade off the nation-building 'soft skills' crucial to fighting increasingly irregular wars for raw combat power, whereas our Special Forces generally trade off in precisely the reverse manner.

Moreover, both the United States and the United Kingdom are already experiencing intense personnel pressures as they struggle to meet the operational demands of deployments in Iraq and Afghanistan. The problem is most acutely felt in the land combat arms where 'stop-loss' and 'stop-move' orders to stem the decline in active duty personnel will only work in the short term.[43] The long-term problem is systemic. Personnel systems are antiquated and dysfunctional, running internally in the manner of an industrial bureaucracy where individuals are treated as cogs in a machine rather than members of close-knit teams; originality and risk-taking (which require tolerating mistakes) are penalized, thus diminishing innovation and daring overall.[44]

Traditionally, the infantry has had last call on the most qualified recruits, but increasingly in future, regular infantry will be required to perform tasks which were once the preserve of specialists including forward observation, providing medical aid, sapping, communications, and intelligence-gathering.[45] They will also, says the US Army, need some knowledge of 'governance, statesmanship and diplomacy' and an understanding of 'cultural context and how to work effectively across it'.[46] The archetypical 'Willie and Joe' image of the infantry is completely outdated, indeed, it probably always reflected a misapprehension about the importance of infantry; for the new archetype think 'Top Gun'. We should treat the loss through 'burnout' of every experienced infantry squad leader or 'ten-year corporal' with the same seriousness as we do the loss of military pilots to the civilian sector and take equivalent measures to prevent their permanent loss.[47]

The Soldier as a System: Skills Are More Durable Than Technology (And Weigh Less!)

There are a number of ways in which technology may confer advantage. There is no sense in being Luddite about it: there is a connection, albeit non-linear, between technology and battlefield capability. Survivability could be enhanced with better body armour; existing weapons could be made more reliable and easier to operate; situational awareness could be improved by improved sensors, night vision aids, and unmanned aerial vehicles (UAVs) tied together in a robust, high-bandwidth communications network; and, above all, efficiency gains could be made across the board if existing equipment could be made lighter.

However, one must bear in mind with respect to military technology certain caveats. First, it spreads quickly. The key technologies of the information age are civilian (i.e., mobile computing, communications, and the internet) and much off-the-shelf military hardware is as good as or better than that obtained through the procurement system of major militaries.[48] Second, superior technology may confer relatively little advantage in tactical scenarios such as urban fighting – the enemy understands and exploits this.[49] Third, technology can solve some problems while creating others. For example, the ability of senior commanders to see the battle evolve in real time increases their temptation to micro-manage.[50]

Most major militaries are beginning now to look seriously at the individual soldier in something like the way they have traditionally looked at vehicles and other weapons: as a system, that is to say not at the soldier's boots, rifle, radio or web gear individually, but all (including the soldier) as an integrated whole. Surprisingly,

this is *not* how it has always been done; infantry equipment has always been a rather ad hoc affair – the failure of one item to integrate with another with cascading effects on usability has been a wellspring of soldiers' complaints for generations.

The key parameter is weight. For more than a century, military studies in Germany, Britain, Russia, and the United States have shown over and over that the optimum load per soldier is not more than a third of his body weight.[51] Yet today's infantry regularly carry more than 100 pounds (Special Forces may transport loads which exceed their own body weight). Here is the traditional problem of infantry viewed as a 'system': the 'power-plant' is weak. Underneath the helmet and body armour, rifle, ammunition, radio, night vision goggles, and myriad other seemingly mission critical impedimenta, there is a human being who must carry it all. A Marine sergeant asked by the Marine War-fighting Lab for recommendations about equipment based on his experiences in Iraq illustrated this eloquently:

> First and foremost: reduce weight! Some way, some how, the gear needs to be made lighter; this is life and death . . . Ounces equal pounds, and pounds equal pain. This is not good when Marines need to move quickly in a combat situation, and the extreme weight reduces their fluidity.[52]

Reducing equipment weight is a main theme in virtually every 'future soldier' programme worldwide but, although there are undoubtedly improvements to be made, this problem will probably remain intractable for a number of reasons.[53] First, consider the weightiest 'must have' items: water, ammunition, other equipment, batteries, and food.[54] Not all of these can be reduced. And even if some kit gets lighter the overall quantity is also expanding. Gains in one area, say lighter rations, are offset by the need for other equipment, such as batteries, to power computers, lasers, radios, and powered weapons sights. Moreover, the natural soldierly instinct if the weight of something is halved, particularly food or ammunition, is to carry twice as much of it (you never know). And some currently heavy items are not likely to get *much* lighter in any case. Helmets come with heavy new optics and a heads-up-display. Ammunition will still be required in great quantity and in a diversity of types (i.e., in addition to normal lethal rifle ball and tracer, non-lethal munitions, rifle grenades, and special rounds ranging from buckshot and flechette for close combat to solid shot for breaching doorways).

The infantryman is likely to continue in a love-hate relationship with his personal body armour. Because engagements in urban terrain are more often than not initiated by the insurgent force, he will have to survive the first shot – something which relies a lot on good luck (maybe the enemy will miss), expert contact drills, and small unit teamwork, and, should those fail, the quality of his armour. Current armour is already pretty good, as has been demonstrated in Iraq: 'soldiers felt comfortable "trolling for contact" because they felt their body armour provided sufficient protection'.[55] According to the UK Defence Science and Technology Laboratory, body armour reduced the number of American personnel forces killed by wounds in action by at least 50 per cent (possibly up to 90 per cent) and deaths overall by 20 per cent (possibly up to 32 per cent).[56] But it is heavy, impedes movement, and offers limited protection to the extremities. Eventually, advances in materials science

such as 'shear thickening fluid' (or 'liquid armour') might make body armour lighter and more flexible;[57] in the meantime, however, state of the art ballistic protection based on combining Kevlar with rigid plates of various materials will remain heavy and/or relatively inflexible.[58]

Instead of reducing the weight of equipment perhaps the infantryman could be made physically stronger. Serious research is ongoing on powered and armoured exoskeletons that would significantly enhance the strength, mobility, and endurance of individual infantrymen, conceivably allowing them to carry a heavy weight of equipment and weaponry, run long distances, and jump to great heights. The prospect of such developments should not be discounted for sounding like science fiction.[59] Nonetheless, it would seem fair to conclude that this is generation-after-next territory, at least.

Before we get to the 'Mobile Infantry' of Robert Heinlein's *Starship Troopers* bounding across the battlefield in armoured battlesuits we need to go 'back to the future'. From time immemorial, infantrymen have made every effort to take the weight off their own backs and put it on whatever vehicle or beast could be made to carry it, traditionally the humble mule. Max Boot wrote of the Marine Corps' *Small Wars Manual* that it was an 'unparalleled exposition of the theory of small wars' even though much of it 'consists of now archaic tactical advice – the best way to load a mule, for instance, complete with helpful illustrations'. Perhaps it is not so archaic: Marine medical corpsmen deploying to Afghanistan have used mules to transport supplies and wounded in harsh terrain.[60] Notwithstanding these merits, training today's 'Nintendo-generation' soldiery to be mule-herds is more challenging than equipping them with unmanned ground vehicles, including robotic 'mules' for carrying equipment, as well as other tasks, including possibly fighting. Britain's vision of future infantry includes the use of such light platforms to take the strain out of moving individual personnel and their necessary logistics around the battlefield.[61] The appreciation expressed by airborne and Special Forces deployed to Iraq with the US Army's M-Gator – a small, non-robotic, all-terrain supply vehicle – also tends to suggest the value of a 'boot plus mule' approach to mobility. 'It would be very difficult', said one report, 'to get the units to return to the days before M-Gator. . .and I wouldn't want to be the one who tries to take it away.'[62]

In the context of small wars there are additional reasons for concentrating on dismounted light infantry. While getting around on vehicles provides a gain in armour, and speed under some conditions, it comes at a cost above and beyond the necessary logistical footprint and reduction in strategic mobility. Situational awareness is diminished when in a vehicle, making it less likely that attacks can be avoided or pre-empted. Admittedly, one can clear an ambush zone at greater speed in a vehicle, assuming the exit route is not closed by a sufficient volume of fire or an obstacle, but the point in small wars is that there is 'no obvious field of battle; there are only areas to be controlled, civilians to be protected, hidden foes to be subdued'.[63] Also, the ability to interact meaningfully with the non-combatant population is impaired the more heavily armoured the vehicle, thereby compromising the broader objective of winning hearts and minds.

The turret of an M1 tank, for example, is an excellent vantage point from which to engage in high-intensity combat in open terrain. It is not so good for patrolling streets and markets, making contact with the locals, winning their confidence, getting to know their concerns, and generating from them useful intelligence. While the theoretical top speed of mounted infantry is greater than dismounted infantry, the actual ability to cover ground quickly in non-combat conditions is rapidly degraded by the presence of civilian traffic as well as the suitability of the road network, which makes one's movements predictable and therefore more vulnerable to ambush – especially by mines and Improvised Explosive Devices (IEDs). Moreover, the damage-limiting quality of dispersal is lost to troops under armour meaning that when it fails the result is worse. These problems were captured in an article by Michael Yon, an independent reporter embedded with a US Stryker Brigade in Mosul, Iraq:

> During the first phase of this war, many of our troops were riding in unarmoured Humvees and other vehicles. Soon they were being torn to pieces. Once the vehicles were up-armoured, the enemy was unable to defeat much of that defence. For a time. But today – although armoured Humvees are great and can defeat many threats – the latest generations of IEDs can effortlessly swat them away, spreading their parts over city blocks. The enemy has destroyed our most powerful armoured tanks with underground bombs that leave craters in the roads large enough to make swimming pools…The attack last week that killed 15 people, including 14 Marines, catapulted this topic to the front pages. A massive explosion completely destroyed their 28-ton armoured personnel carrier. Traveling almost as fast as that news was speculation that our armour is insufficient. But the news that never flashed is that no amount of armour can completely protect us. Armour is extremely important, but given time, the enemy will defeat it.[64]

The point here is not that armour is necessarily bad (on the contrary, more on this below), nor that aids to mobility such as powered exoskeletons and robotic 'mules' are fundamentally war winners – they are not; rather it is that the mechanization of the broadest range of forces which made good sense in the age of industrial mass warfare does not make nearly as much sense in the era of 'wars amongst the people'. Accordingly, a great deal more research and investment is warranted in ways in which dismounted infantry can conduct their strategically vital tasks with the least possible sacrifice of mobility, protection, and firepower.

The Extraordinary Forces

Thus far we have been discussing the 'normal' forces, those designed mainly for nation-building tasks that requires patience, staying power, and the ability to apply force carefully and discriminately. Let us turn now to the war-fighting side of the coin. As noted above, there is no 'lesser included contingency' here – both nation-building and war-fighting are vital. Pure instances of the latter, however, are infrequent and rare, and therefore ought to constitute a special niche role, not the

preoccupation of the main force. The key difference between the Normal and the Extraordinary force is not in the way they are equipped, which may be significant but is of secondary importance; rather, the key is the purpose for which they are employed and the psychological and moral preparation that entails. Expressed in terms of manoeuvre warfare theory, the Normal force is the 'holding force': its role is sustaining pressure upon the enemy by controlling ground, shaping the complex terrain, and gathering long-term intelligence, and its most important capabilities are sustaining visible presence and enduring the frequent 'mini-battles' of the disaggregated battlespace. The Extraordinary force is the 'manoeuvre force', which may take many forms depending on the nature of the objective; its role is delivering rapid strikes rather than holding ground; and its most important capability is the ability to generate time-critical intelligence and apply discriminate force with a high degree of sensitivity to the political ramifications of tactical actions.[65]

Instances requiring a purely 'kinetic' ground force are atypical in 'wars amongst the people' – assuming a capable opponent (the safest assumption), occasions when they will present themselves as a 'nail' will be infrequent. But when they do one will be grateful of a 'hammer'. Key among such instances are strategic raiding and close assault. Raiding in order to disrupt or destroy elements of the enemy's system, capture prisoners, and secure information will be an increasingly important capability as the 'Long War' progresses. Raiding is, of course, a longstanding type of offensive operation – indeed, it is probably the oldest of all. What is different is that raids will be even more 'strategic'. As likely as not, raids will be conducted in countries with which there is no general state of conflict or war, which means that the use of force must be very carefully modulated and localized. The range at which raids will be conducted will be global. It may be possible in some instances to obtain the agreement of third parties to provide staging facilities nearby, otherwise raids must be conducted from afar, which requires major power-projection capability. And because the overriding aim of raiding will be the collection of information the raiding force must have enormous 'reach-back' capability, enabling its information gathering activities to feed and be guided by the much larger pool of information and analyses back home.[66] A main virtue of raids, whatever the scale, is that they are operations that include a pre-planned withdrawal and therefore are free from the difficulties of sustaining a long commitment.

The reluctance of the guerrilla to engage in pitched battles is the hallmark of irregular warfare. Occasionally, however, pitched battles do occur, whether as a result of the tactical brilliance of the counterinsurgent or a blunder of his opponent. Experience in Iraq and Afghanistan would suggest that Islamic insurgents are perhaps more likely to conduct fixed engagements, although the general pattern is still to avoid them.[67] Prevailing consistently in such battles requires a soldiery that is superbly trained and psychologically prepared to literally face the enemy in order to kill him because the coldness and intimacy of this act requires qualities that are quite rare. This is demanding specialist work. In fact, industrial and post-industrial Western societies may be not as good at creating such individuals as pre-industrial ones.[68] Which is why we must be assiduous when we have identified such soldiers that we train them to a peak in small, tightly bonded teams of the like-minded and employ

them judiciously. Scales suggests thinking of one's close combat units as a professional sports team: 'their numbers are so small and the consequences of loss are so great, it is important to take the time to develop every combat soldier individually – much like professional sports teams select and develop prime athletes'.[69]

It is also a matter of having the right equipment, specifically a small amount of heavy armour, which has turned out to be a vital ingredient in urban combat. However, if it is true that the tank has a new lease on life it is not likely to be the same sort as before. The modern tank is first and foremost a specialized killer of its own kind. But where it has proved most useful lately is in combat against static unarmoured opponents, particularly in urban terrain, where its main gun has been to a certain extent irrelevant.[70] Indeed, a crucial contribution of the heavy tank to operations in urban terrain is its role as a communications node because infantry making the most of covered approaches which abound in cities often lose the ability to communicate by radio as signals are blocked or reflected. The ability of a tank to sit in the open with its antennas up absorbing fire that would shred infantry or lighter vehicles while acting as a base station for the communications of infantry sheltering nearby is invaluable.[71] In short, there is still a need for armour, but the interwar British and French concept of the heavily armoured infantry tank designed to work in concert with the infantry at their pace, which proved disastrous in conventional mechanized warfare of like against like, makes a lot more sense in unconventional 'asymmetric' wars of like against unlike.[72]

Conclusion

Between the end of the Gulf War in 1991 and the attacks of 11 September, without doubt the most popular topic of debate in defence circles was the Revolution in Military Affairs. The basic claim of the RMA thesis is well-known: industrial societies, pre-eminently Western until recent times, fight industrial wars, such as the World Wars, in which the key determinant of victory is relative industrial might – the sort of wars in which, to use the words of Napoleon, 'fortune favours the side with the bigger battalions'; whereas 'information societies', which is what the West is becoming, fight wars in which victory or defeat hinges on the possession of 'information dominance'.[73] This would allow smaller, faster, and lighter militaries to conduct 'rapid decisive operations' because having superior mass is reckoned to be less important than having superior agility and operational tempo – both being a direct function of having superior knowledge than one's opponent.[74] Translation: small, light, agile forces can beat big, heavy, cumbersome ones cheaply.

The success in Iraq in March–April 2003 at first seemed to vindicate some of the claims of the RMA's proponents: Vice-President Cheney called it 'proof positive of the success of our efforts to transform our military to meet the challenges of the 21st century'.[75] This could be a classic illustration of the mistake of preparing to fight the last war. For the main thing proved was the West's supremacy in a type and manner and warfare, typified by the big wars of the 20th century, which no one except Saddam Hussein, foolishly and to his doom, now seriously contemplates matching it strength

for strength. Since the end of 'major combat operations', coalition forces have struggled with a different war, a 'war amongst the people' in which defeat is a decidedly plausible outcome.

It is no surprise that the leading figures behind the two main conceptual offshoots of the RMA, 'effects-based operations' and 'network-centric warfare', have been air force and naval officers. The US Navy has, over many years, sought the integration of all the sensors, command and control systems, and weapons in its fleets. The heightened 'battlespace awareness' and closer connection between sensors and weapons that this shared information grid confers creates great advantages in overall combat power as well as protection of the vital ships (e.g., aircraft carriers) at the core. In naval and air combat, which takes place in relatively uncluttered, relatively predictable environments, one can see the value of this tight connection between sensors and shooters and thereon to destroyed or neutralized enemy platforms. Doing this faster than your opponent, getting inside his 'decision cycle', is integral to mission success, not to mention survival.[76]

But the impact of the RMA on land warfare has been considerably less impressive. The 'fog of war' has not been lifted – battle remains the realm of chance and uncertainty. Friction, in the form of human error and mechanical failure, is no less palpable a factor than before. The 'operational art' of translating tactical successes into 'decisive' operational victories is no less challenging – in fact, the impact of the media probably makes this more difficult than ever.[77] And the perpetual problems of imposing political control throughout and beyond the 'war proper' into the aftermath, with a view to rendering warfare an effective instrument of policy, are still acute. The RMA has as a result gone rather out of fashion.

Nonetheless, the pendulum ought not to be allowed to swing too far because the RMA remains a viable, if limited, concept, particularly with respect to the ever closer integration of air power with ground elements and the improving granularity of air observation and interdiction. Until recently, air power has been relatively ineffective in small wars because guerrilla forces have miniscule logistical needs and the bulk of their supplies are derived from the local populace from whom they are indistinguishable from the air. This made them largely immune to air interdiction.[78] Moreover, contacts with concentrations of guerrillas meaningful enough to engage with air power are inherently unpredictable. One cannot easily plot fire support for a patrol which does not know where or when, if at all, it might engage the enemy – or rather more likely be engaged by him. Also identifying friend and foe from the air is a perennial difficulty made worse in small wars when engagements take place in close terrain and often with combatants intermixed with non-combatants. And, as precise as modern air-delivered munitions are, even the smallest ones have enormous explosive power that increases the chances of causing unintended casualties, which leaves the strategic objective – winning the 'hearts and minds' of the people – hostage to tactical exigencies.

This is starting to change. For one thing, the traditional distinction between types of support fire is breaking down. In the past it mattered greatly to commanders where the fire was coming from. Air power could be devastating and highly flexible – where

a fast-moving force might outrun its slow-moving artillery support, this is not a problem with fast jets. On the other hand, aircraft are limited by their fuel supply in their ability to loiter over the battlefield and are at the mercy of the weather – lack of fuel or bad weather meant no air support. Having one's own mortars and artillery at hand was more reliable. Increasingly, it matters less to commander whether fire is from artillery or mortars behind, close support aircraft above, strategic bombers with JDAMs 50 miles away: what matters is that the targets he designates are receiving the appropriate fire when he needs it.

For another, the problems of aircraft loitering time and the vagaries of weather are lesser now because of a number of developments:

- The advent of cheap, precision-guided munitions like the JDAM means that high-endurance heavy bombers like the venerable B-52 can effectively be employed in the close support role.
- New sensors make targeting in virtually all-weather conditions possible.
- The emergence of persistent UAVs of a range of types greatly extends the quantity and quality of aerial surveillance.
- Vast improvements in command and control systems have allowed all aircraft in theatre to be used more effectively.

As a result, instead of planning missions days or weeks in advance, aircraft patrolling Iraq, for instance, routinely launch with no specific targets in mind. They patrol their assigned areas scanning the ground with sensors, pass around and discuss imagery of potential targets, and coordinate with ground-based air controllers to attack insurgents when they fleetingly appear. Successfully attacking 'time-critical targets', which was hardly an option before, is fast becoming a real possibility; for instance, the strike on a two-story building by two F-16s firing 500-pound GBU-38 JDAM bombs that killed the terrorist leader Abu Musab al Zarqawi on 7 June 2006.[79] But the general trend was established in Afghanistan where Special Forces achieved amazing effects spotting for air power.

> The Afghans watched in wonder as the Special Forces soldiers set up their secret weapon, a dark gray box called a laser designator, and pointed its lens toward the Soviet-made tanks and artillery in the distance. The men on the ground called on the satellite communications to the pilots in the sky and to their intermediaries, who were sitting in Saudi Arabia thousands of miles to the south ... The resulting barrage of bombs and two days of fighting cleared the Taliban from Bagram.[80]

Some critics point to the problematic Operation Anaconda in Afghanistan's Shah-i-Kot valley in March 2002 to kill or capture Al Qaeda fighters holed up in deep defence to cast doubt on the model of close ground–air coordination. The operation provoked a clash between the army and the air force prompted by an interview with the ground commander, General Hagenbeck, in the pages of *Field Artillery Journal* in which he criticized the air support provided by the Air Force.[81] Closer analysis, however, suggests that the problems were more a result of mutual misunderstandings

between the services. Institutional miscommunication and cultural differences caused the services to fail to 'make the most of the potential synergy of air, space and land power that was available to them in principle'.[82] The problem for the future is not whether or not close ground-air coordination that the RMA makes possible 'works' in the sense of producing profound combat effects. It does, which is what underpins the overwhelming ability of Western armies to produce massive combat power with relatively few troops – a crucial advantage that is growing all the time.[83] The problem is that this is less than half the job. Much more is needed to turn battlefield success into tangible political outcomes.

As noted earlier, some have recommended creating a separate new nation-building service for 'extreme peacekeeping' or unconventional warfare. The best known such argument is that of Thomas Barnett, who has argued that the solution is a bifurcated military: 'one that specializes in high-tech, big violence war, and one that specializes in relatively low-tech security generation and routine crisis response'.[84] This is a problematic idea. For one thing, the diagnosis that underlies such calls – that armed forces are maladapted to their new operating environment – is correct, but the cure is as bad as the disease. First, as we have seen, for high-intensity 'big violence' warfare, at least on the ground, the optimal systems are as often as not low-tech 'legacy' systems which will be useful for years to come and which we have in abundance; whereas the essential problems in 'low-tech security generation', how to achieve conventional overmatch reliably in 'hybrid war' scenarios where the *average* infantryman must operate across a broad spectrum of conflict within a short period of time (if not simultaneously) and within a small area (if not contiguously), and how to generate police-like levels of situational awareness, starting with reliable means of identifying and tracking individuals, will require a good deal of high-tech to solve.[85] Second, security generation is far from routine or low violence. On the contrary, ferocious combats are routine, but dispersed, small in scale, and decisive only in the aggregate over time. For that matter, adversaries will not remain low-tech for long; instead, they will be capable of 'advanced irregular warfare' with modern, highly lethal weapons and encrypted command systems.[86] Most worryingly, however, a bifurcated military merely reinforces the erroneous notion that war-fighting and nation-building are distinct and different things. This will lead inevitably to strategic defeat because, to reiterate the point made at the beginning of this article, in reality 'the two blend into one another and the conduct of each determines the success of the other'.[87]

In any case, what should concern us most about the preparedness of armies for 'wars amongst the people' is not the technological sophistication of its equipment, where the edge for Western armies is already good, but the training, quality, and quantity of its personnel. In the end, having good tactical technique counts for more than having good technology.[88] Above all, we must concentrate on expanding and improving our light infantry. Referring to the failures of Western forces from the end of the First Indo-China War to the fall of Saigon in 1975 John English wrote, 'The one common theme that runs through these very different events is the fact that victory was achieved by the side that devoted the greatest share of its resources, and, in particular, its human resources, to its infantry.'[89] By that measure we have

a long way to go, for as Bing West has pointed out, the United States now has as many combat aircraft as it does infantry squads.[90] This is not a sound footing on which to meet the challenges of future wars.

Armies need more and better infantry first and foremost – not just more 'boots on the ground' but smarter boots. In Special Forces there has always been a distinction between the unconventional warriors who focused on the techniques of counterinsurgency, working closely with locals and generally placing great stock in communication skills and good political sense as opposed to fighting – though that must be a part of it; long-range reconnaissance specialists focused on observation and remaining undetected; and raiders, specialists in short, sharp, close-quarter battle – 'hard men' in the vernacular. The need for specialists in reconnaissance and raiding has not diminished at all; in fact, it is greater than ever.[91] But the fact is that irregular warfare is the new norm, not the exception, and therefore the appropriate skills for waging it are properly in the province of the regular forces.[92] In a thoughtful recent analysis of American military reform Mackubin Owen Thomas described the current Army force structure as a 'dumbbell with heavy forces on one end and light forces on the other. The former are lethal and capable once in the theatre of operations, but slow to deploy, while the latter are responsive but lack lethality'.[93] The US Army's answer to this dilemma is the creation of a medium-weight force. In this paper I have argued that this is a mistake.

There is nothing wrong with a dumbbell-shaped force if the balance of force types matches the balance of necessary mission types. The problem is that it does not at present, as is recognized in the *Quadrennial Defense Review 2006*, which highlights the imbalance between the growing irregular challenges and the current capability portfolio.[94] The bulk of the land force is focused on regular, inter-state war-fighting of like against like, a task which technology is making possible to do with relatively few ground troops working in conjunction with precision fires delivered by air and naval assets; but the main threat is posed by irregular opponents in 'wars amongst the people', the fighting of which calls for skills and mindsets that are still too often seen as a niche or separate capability. If the problem of meeting current and future threats could be solved merely by taking, holding or destroying this or that objective, then the current arrangement of forces could be continued. The problem, however, is winning 'wars amongst the people' and for that, the battlefield must be repopulated by soldiers whose training and mindset is inherently opposite to the 'never put a man where you can put a bullet' logic of the Revolution in Military Affairs and its derivative concepts. If land forces in future are going to have to fight a succession of big 'small wars', then the 'big army' is going to have to shoulder the burden of nation-building, recognize it as the core and substance of war-winning, and compose its forces accordingly.

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NOTES

1. General Sir Rupert Smith, *The Utility of Force: The Art of War in the Modern World* (London: Allen Lane, 2006), p. 270.
2. Professor Sir Michael Howard, 'A Long War?' *Survival*, Vol. 48, No. 4 (Winter 2006–2007), p. 12.
3. See Stephen Biddle, 'Seeing Baghdad, Thinking Saigon', *Foreign Affairs*, Vol. 85, No. 2 (March/April 2006).
4. Sarah Sands, 'Sir Richard Dannatt: A Very Honest General', *Daily Mail*, 12 October 2006, <http://www.dailymail.co.uk/pages/live/articles/news/news.html?in_article_id=410175&in_page_id=1770> (accessed 9 November 2006).
5. Sun Tzu, translated by Samuel B. Griffin, *The Art of War* (Oxford: Clarendon, 1963), p. 84. Readers of Sun Tzu may note that this passage is translated variously (this author makes no claim to the language ability to judge the meaning in the original). One translates the same passage as, 'In all fighting, the direct method may be used for joining battle, but indirect methods will be needed in order to secure victory.' Translation by Lionel Giles in T.R. Philips (ed.), *Roots of Strategy* (Mechanicsburg, PA: Stackpole Books, 1985), p. 31. Another translator has it, 'In battle, confrontation is done directly, victory is gained by surprise.' Thomas Cleary, in *Classics of Strategy and Counsel*, Vol. 1 (Boston, MA: Shambhala Publications, 2001), p. 99.
6. Howard, 'A Long War' (note 2), p. 13.
7. For example, a recent report in the *Washington Post* claimed there was a clash of approaches to the war in Iraq within the US military, with regular units focused on sweeping combat operations while Special Forces conducted the more fine-grained, patient work of building rapport with local leaders, security forces and the people. Ann Scott Tyson, 'In a Volatile Region of Iraq, US Military Takes Two Paths', *Washington Post*, 15 September 2006, <http://www.washingtonpost.com/wp-dyn/content/article/2006/09/14/AR2006091401900.html> (accessed 9 November 2006).
8. Federation of American Scientists' Military Analysis Network, 'Future Combat Systems (FCS), <http://www.fas.org/man/dod-101/sys/land/fcs.htm> (accessed 12 June 2006); also, Major Daniel L. Davis, 'Flawed Combat System', *Armed Forces Journal* (July 2005), <http://www.douglasmacgregor.com/perspective.htm> (accessed 12 June 2006).
9. George E. Anderson III, 'Winning the Nationbuilding War', *Military Review* (September–October 2004), p. 50.
10. The case for this is made forcefully by Thomas Ricks, *Fiasco: The American Military Adventure in Iraq* (London: Penguin, 2006), esp. chaps 8 & 9.
11. Jeffrey Record, 'The American Way of War: Cultural Barriers to Successful Counterinsurgency', Cato Institute Policy Analysis, No 577, 1 Sep. 2006, pp. 3–4. In a similar vein, an insightful and reasonable but hard-hitting critique, see Brigadier Nigel Aylwin-Foster, 'Changing the Army for Counterinsurgency Operations', *Military Review* (November–December 2005), pp. 2–15.
12. Lee K. Grubbs and Michael J. Forsyth, 'Is there a deep fight in a counterinsurgency?' *Military Review* (July–August 2005), pp. 28–31.
13. As recounted in William Prochnau's *Once upon a Distant War* (New York: Vintage Books, 1996), p. 162.
14. T.X. Hammes, 'The Way to Win a Guerrilla War', *Washington Post*, 26 November 2006, B2.
15. Department of Defense Directive 3000.05 'Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations', 28 November 2005.
16. The putative benefits of a modular army are normally considered to be increased deployability, lethality, and jointness. Another main benefit of a brigade-centric structure ought to be the enhancement of overall readiness. For an overview, see Andrew Feickert, *US Army's Modular Redesign: Issues for Congress*, Congressional Research Service, Library of Congress, 2005. The gist of the modularity argument was made by Douglas Macgregor, *Breaking the Phalanx: A New Design for Landpower in the 21st Century* (Westport, CT: Praeger, 1997) and continued by him in *Transformation Under Fire: Revolutionizing how America Fights* (London: Greenwood, 2003). A similar debate has taken place in Britain. See, for example, Gary Sheffield, Jamie Balfour, and John Hughes-Wilson, 'Restructuring the Infantry', *RUSI Journal*, Vol. 150, No. 1 (February 2005). The problems of modularity as implemented by the US army are discussed by Frank Hoffman in 'Complex Irregular Warfare: The Next Revolution in Military Affairs', *Orbis*, Vol. 50, No. 3 (Summer 2006), pp. 395–411. These include crucially the fact that more than 20,000 'trigger pullers' are to be sacrificed.
17. *Quadrennial Defense Review* (Washington DC: Department of Defense, February 2006). The QDR itself, as well as a selection of articles providing useful background and critiques of it, are available

on the Defense Strategy Review page of the Commonwealth Institute: <http://www.comw.org/qdr/06qdr.html> (accessed 10 January 2007).

18. *Field Manual 3-24*, 'Counterinsurgency' (Washington DC: Headquarters, Department of the Army, December 2006), <http://www.fas.org/irp/doddir/army/fm3-24.pdf>.
19. Petraeus was subsequently tapped in January 2007 to lead the American military effort in Iraq.
20. John A. Nagl, *Learning to Eat Soup with a Knife* (London: University of Chicago Press, 2005), p. 10.
21. See Frank Hoffman's monograph *Changing Tires on the Fly: The Marines and Post-Conflict Stability Ops* (Philadelphia, PA: Foreign Policy Research Institute, 2006) <http://www.fpri.org/books/Hoffman.ChangingTiresontheFly.pdf> (accessed 11 November 2006).
22. For instance, the career of General Raymond Odierno, whose leadership of the 4th Infantry Division in Iraq has been widely criticized (most prominently by Thomas Ricks), has also advanced. See, Thomas Ricks, 'It Looked Weird and Felt Wrong', *Washington Post*, 24 July 2006, A01. For a lengthier treatment, see Ricks' book, *Fiasco* (note 10).
23. See Carl Osgood, 'Counterrevolution in Military Affairs Ambushes the US Army', *Executive Intelligence Review* (17 November 2006), <http://www.larouchepub.com/other/2006/3346army_retooled.html> (accessed 24 December 2006)
24. For a critique of the manual see H. Thomas Hayden, 'Hayden Reviews the New Counterinsurgency Manual', *On Point* (17 November 2006), <http://uscavonpoint.com/blogs/reconstructing_iraq/archive/2006/11/17/595.aspx> (accessed 1 December 2006); on the nature of the challenge see David Kilcullen, 'Countering Global Insurgency', *Journal of Strategic Studies*, Vol. 28, No. 4 (August 2005), pp. 597–617; also Kilcullen, 'Counterinsurgency Redux', *Survival*, Vol. 48, No. 4 (Winter 2006–2007), pp. 111–30.
25. Record, p. 16.
26. Record, p. 16.
27. Herfried Munkler, *The New Wars* (Cambridge: Polity Press, 2005), pp. 31–4.
28. Howard, 'A Long War' (note 2), p. 14.
29. Harlan K. Ullman and James P. Wade, *Shock and Awe: Achieving Rapid Dominance* (Washington DC: National Defense University, 1996), chap. 2, 'Shock and Awe', <http://www.ndu.edu/inss/books/books%20-%201996/Shock%20and%20Awe%20-%20Dec%2096/> (accessed 12 June 2005).
30. On the 'three block war', see General Charles C. Krulak, 'The Strategic Corporal: Leadership in the Three Block War', *Marines Magazine* (January 1999), <http://www.au.af.mil/au/awc/awcgate/usmc/strategic_corporal.htm> (accessed 12 June 2006).
31. Richard Simpkin, *Race to the Swift* (London: Brasseys, 1985), p. 169.
32. The difficulty would be crossing open terrain, which has always been potentially suicidal for infantry. Tanks and infantry under armour are better able to do it, but even then with the utmost cautiousness. Indeed nowadays advances in sensors and the lethality of anti-tank missiles have made manoeuvring in open terrain is almost as foolhardy for armoured forces as for unarmoured ones.
33. During the Second World War, the British 14th Army fighting in Burma under Field Marshal Slim found that 'as we removed vehicles from units and formations which joined us on the European front, they found to their surprise that they could move farther and faster without them'. See, William Slim, *Defeat into Victory* (London: Cassell, 1956), pp. 187–91, 540 & 549.
34. The 'Afghan model' has been comprehensively critiqued with particular interest paid to the broadness of its applicability. See, Stephen Biddle, *Afghanistan and the Future of Warfare: Implications for Army and Defense Policy* (Carlisle, PA: Strategic Studies Institute, US Army War College, November 2002); also, Stephen Biddle, 'Allies, Airpower, and Modern Warfare: The Afghan Model in Afghanistan and Iraq', *International Security*, Vol. 30, No. 3 (Winter 2006), pp. 161–76. A central concern is that air power alone cannot achieve decisive result; while precision guided fire may kill many of the enemy it does not kill them all and those that remain with modern weapons can do great damage until engaged and destroyed by skilful ground manoeuvre. There is no escaping close combat, at least not totally.
35. Declan Walsh and Richard Norton-Taylor, 'UN chief: Nato cannot defeat Taliban by force', *Guardian*, 18 November 2006, <http://www.guardian.co.uk/afghanistan/story/0,,1951222,00.html>.
36. Douglas A. Ollivant and Eric D. Chewning, 'Producing Victory: Rethinking Conventional Forces in COIN Operations', *Military Review* (July–August 2006).
37. John A. English and Bruce I. Gudmundson, *On Infantry* (Revised edition) (Westport, CT: Praeger, 1994), p. 173.
38. To its great credit, a key attribute of the US Army historically is the ability to reinvent itself quickly once it has decided to do so, the transformation of the army in Second World War from the one which was defeated at Kasserine in early 1943 to the one which fought its way from Normandy to

the heart of Germany in 1944–1945 is a case in point, as is the Army's post-Vietnam rebuilding. See, Russell F. Weigley, *History of the United States Army* (Revised Edition) (Bloomington, IN: Indiana University Press, 1984).

39. Robert M. Cassidy, 'The British Army and Counterinsurgency: The Salience of Military Culture', *Military Review* (May–June 2005), pp. 53–9.
40. Complex Warfighting, Future Land Operational Concept, Australian Army, April 2004, <http://www.defence.gov.au/army/lwsc/Publications/complex_warfighting.pdf> (accessed 19 July 2007).
41. See the *Quadrennial Defense Review 2006* (note 17), pp. 43–5.
42. Slim, *Defeat into Victory* (note 33), p. 547.
43. The Army is relatively upbeat on recruitment and retention while acknowledging it has been 'challenging'. See, *US Army Posture Statement 2006*, <http://www.army.mil/aps/06/10_SustainQuality.html>, pp. 17–19 (accessed 12 November 2006). Analysts, however, are sounding warning about the long term-trends. See, *The Military Balance 2005–06* (London: International Institute for Strategic Studies, 2005); and, Michael O'Hanlon, 'The Need to Increase the Size of the Deployable Army', *Parameters*, Vol. XXXIV, No. 3 (Autumn 2004), pp. 4–17.
44. Thomas X. Hammes, *The Sling and the Stone* (St Paul, MN: Zenith Press, 2004), devotes a great deal of attention to personnel issues, especially in chapter 15; Donald Vandergriff, *The Path to Victory* (Novato, CA: Presidio Press, 2002), covers the issue in excoriating detail.
45. Major General Robert H. Scales, *Yellow Smoke* (Lanham, ND: Rowman and Littlefield, 2003), p. 85.
46. All from *US Army Posture Statement 2006* (note 43), p. 15.
47. The disparity between the pay of the most experienced special forces soldiers on the government payroll and those working for private military companies is at least double or more. See Deborah Avant, 'The Privatization of Security: Lessons from Iraq', *Orbis*, Vol. 50, No. 2 (Spring 2006), pp. 332–4. For more on measures to better manage infantry careers see the report of a recent US Marine Corps conference on Small Unit Excellence, 25–26 May 2005, <http://www.mcwl.usmc.mil/SV/Small%20Unit%20Excellence%20Conference%20Report_NS.pdf> (accessed 12 June 2005).
48. This is a main theme in Hammes, *The Sling and the Stone* (note 44), esp. chapter 13.
49. Doug and Linda Richardson, 'The Vertical Battlefield', *Armada International*, Vol. 29, No. 4 (August/September, 2005), pp. 1–28.
50. David J. Betz, 'The More You Know, the Less You Understand: The Problem with Information Warfare', *Journal of Strategic Studies*, Vol. 29, No. 3 (June 2006), pp. 505–33. For an overview see David Potts (ed.), *The Big Issue: Command and Combat in the Information Age* (London: Strategic and Combat Studies Institute, 2003).
51. 'The Infantryman's Combat Load', Marine Corps University Command and Staff College, 1985, <http://www.globalsecurity.org/military/library/report/1985/IDC.htm> (accessed 12 June 2006).
52. 'For the Record: Marine's-Eye View of Better Combat Gear', *DefenseWatch*, 21 July 2005, <http://www.military.com/NewContent/0,13190,Defensewatch_072105_View,00.html> (accessed 12 June 2006).
53. The US 'Land Warrior' system is meant to weigh no more than 80 pounds; the French FELIN (Integrated Soldier Equipment and Communications) system no more than 55 pounds. The UK's FIST (Future Integrated Soldier Technology) sees weight reduction as a priority. See, for example, the Federation of American Scientists Military Analysis Network, Land Warrior, <http://www.fas.org/man/dod-101/sys/land/land-warrior.htm> (accessed 12 June 2006). This article gives a good survey of European developments: Michael Fiszer, 'Europe's Future Infantry', *eDefense*, 25 March 2005, <http://web.archive.org/web2006042709520/www.edefenseonline.com?func=article&aref=03_25_2005_IF_01> (accessed 20 June 2005).
54. The implied order of precedence is my own.
55. *Operation Iraqi Freedom PEO Soldier Lessons Learned*, United States Army, 15 May 2003, p. 4.
56. Operations in Iraq – Lessons for the Future, UK Ministry of Defence, December 2003, p. 23, <http://www.globalsecurity.org/military/library/report/2003/iraq-ops_lessons_ukmod_dec03_index.htm> (accessed 20 June 2005); see also, Seth Stern, 'Body armor could be a hero of war in Iraq', *Christian Science Monitor*, 2 April 2003.
57. Tonya Johnson, 'Army Scientists, Engineers Develop Liquid Body Armor', Army News Service, 21 April 2004, <http://www.military.com/NewsContent/0,13319,usa3_042104.00.html> (accessed 20 June 2005).
58. See, Noah Shachtman, 'Army Reboots GI's Tired Fatigues', *Wired News*, 25 May 2004, <http://www.wired.com/news/technology/0,1282,63581,00.html> (accessed 20 June 2005).

59. See Noah Shachtman, 'Real-Life Exoskeletons Emerge', *DefenseTech.org*, 11 December 2004, <http://www.defensetech.org/archives/001273.html> (accessed 12 June 2006).
60. Ellen Maurer, 'Mules Help Navy, Marine Corps Meet Medical Missions in Afghanistan', *Navy Newstand*, 7 February 2004, <http://www.news.navy.mil/search/display.asp?story_id=14025> (accessed 12 June 2006).
61. Derek Barnes, 'A Vision of the Infantry Soldier in 2020', *RUSI Defence Systems* (Spring 2005), p. 79.
62. LTC Jim Smith, *Operation Iraqi Freedom PEO Soldier Lessons Learned*, United States Army, 15 May 2003, p. 7, http://www.globalsecurity.org/military/library/report/2003/oif_lessons_peo.doc (accessed 20 June 2005).
63. Max Boot, *The Savage Wars of Peace: Small Wars and the Rise of American Power* (New York: Basic Books, 2002).
64. Michael Yon, 'Jungle Law', *Michael Yon On-Line Magazine*, 10 August 2005, <http://www.globalsecurity.org/military/systems/ground/fcs.htm> (accessed 10 August 2005).
65. There is a certain amount of conceptual stretching of manoeuvre theory here in trying to apply 'manoeuvrist' ideas in counter-insurgent scenarios. However, a reading of Simpkin's *Race to the Swift*, particularly the last chapter on 'Small-force manoeuvre theory' would suggest a synthesis is warranted. One might argue that 'strike' is a more accurate description of the function of the 'extraordinary force' than manoeuvre.
66. 'Reach-back' is the process of using communications assets to identify and bring to bear resources not present at the site in order to support, assess, advise, and integrate the information being gathered.
67. British and Canadian forces in Afghanistan throughout the summer of 2006 were engaged in fierce fighting with resurgent Taliban forces. See 'Return of the Taliban', PBS *Frontline*, 2006, <http://www-c.pbs.org/wgbh/pages/frontline/taliban/> (accessed 10 January 2006); also 'Fighting the Taliban', Channel 4 *Dispatches*, 2006, <http://www.channel4.com/news/dispatches/fighting+the+taliban 158375> (accessed 10 January 2006).
68. See English & Gudmundson, *On Infantry* (note 37), p. 163; also Ralph Peters, The New Warrior Class', *Parameters*, Vol. XXIV (Summer 1994), pp. 16–26.
69. Scales, *Yellow Smoke* (note 45), p. 85.
70. During the invasion of Iraq, judging from the types of ammunition expended, what they were mostly doing was destroying bunkers and buildings with high-explosive rounds. In fact, the weapon of choice for the most part was the crew-served machinegun. See Anthony H. Cordesman, *The Iraq War* (Washington DC: The Center for Strategic and International Studies, 2003), pp. 356–7.
71. I am grateful to Dr David Kilculllen, Chief Strategist of the Office of the Coordinator for Counterterrorism, US State Department for pointing this out to me. This function as a radio repeater might, however, be even better and more cheaply achieved by long-endurance UAVs.
72. For more on interwar thinking on the use of armour, and on tanks in general, see John Stone, *The Tank Debate: Armour and the Anglo-American Military Tradition* (Amsterdam: Harwood, 2000), pp. 28–31.
73. See Alvin and Heidi Toffler, *War and Anti-War* (New York: Little Brown and Co., 1993). The term 'information society' is now closely linked with the advent of the world wide web but the origin of the concept predates the internet. See, Susan Crawford, 'The Origin and Development of a Concept: The Information Society', *Bulletin of the Medical Library Association*, Vol. 71, No. 4 (October 1983), pp. 380–5.
74. US Joint Forces Command, *A Concept for Rapid Decisive Operations*, RDO Whitepaper Version 2.0, J9 Joint Futures Lab, 2001, <http://www.globalsecurity.org/military/library/report/2001/RDO.doc> (accessed 12 June 2006).
75. Quoted in Greg Jaffe, 'Rumsfeld's vindication promises a change in tactics, deployment', *Wall Street Journal*, 10 April 2003, p. A1.
76. The 'decision cycle', also known as the 'OODA loop' or 'Boyd cycle' after the originator of the idea, USAF Colonel John Boyd, posits that decision-making occurs in a circle: Observe-Orient-Decide-Act. Being able to complete this loop more quickly than one's opponent confers a significant and cumulative advantage. One may out-manoeuvre an opponent temporally as well as, or instead of, positionally. For more on Boyd's ideas see the website *Defense and the National Interest: Boyd and Military Strategy*, <http://www.d-n-i.net/second_level/boyd_military.htm> (accessed 12 June 2006); also Robert Corum, *Boyd: The Fighter Pilot Who Changed the Art of War* (New York: Little, Brown and Co., 2002).
77. This is described most compellingly by Rupert Smith: 'We now come to the manner in which we fight and operate amongst the people in a wider sense: through the media . . . Whoever coined the phrase 'the theatre of operations' was very prescient. We are conducting operations now as though we are on stage, in an amphitheatre or Roman arena. There are two or more sets of players – both with a producer, the

commander, each of whom has his own idea of the script. On the ground, in the actual theatre, they are all on the stage and mixed up with people trying to get to their seats, the stage hands, the ticket collectors and the ice-cream vendors. At the same time they are being viewed by a partially and factional audience, comfortably seated, its attention focused on that part of the auditorium where it is noisiest, watching the events by peering down the drinking straws of their soft-drink packs – for that is the extent of the vision of a camera.' *The Utility of Force* (note 1), pp. 284–5.

78. To the extent it has had beneficial impact, it is principally in the support function: air transport and reconnaissance. See, James S. Corum and Wray R. Johnson, *Airpower in Small Wars* (Lawrence, KA: Kansas University Press, 2003), pp. 427–8. Air strikes have proven much more useful when used directly against guerrillas rather than their combat support functions. See, Robert A. Pape, *Bombing to Win* (Ithaca, NY: Cornell University Press, 1996), p. 79.
79. See David Axe, 'The Triumph of Surgical Strikes', *Military.com*, 9 June 2006, <http://www.military.com/NewsContent/0,13319,100459,00.html> (accessed 12 June 2006).
80. Linda Robinson, *Masters of Chaos* (New York: Public Affairs, 2004), p. 157.
81. Robert H. McElroy, 'Fire Support for Operation Anaconda', *Field Artillery Journal* (September–October 2002).
82. Benjamin Lambeth, *Airpower Against Terror* (Santa Monica, CA: Rand Corporation, National Defense Research Institute, 2005), p. xxii.
83. The US Air Force is working on a communications system for up to 200 users in the air or on the ground which is capable of securely transmitting 2.25 mbps over a range of up to 121 miles – essentially a high-speed internet for the tactical battlefield. Adam Baddeley, 'Time Critical Connections', *Military Information Technology*, Vol. 8, Issue 8 (19 October 2004), <http://www.military-information-technology.com/article.cfm?DocID=642> (accessed 12 June 2006)
84. Thomas P. Barnett, *The Pentagon's New Map* (New York: Berkley Books, 2004), p. 302. 'Extreme Peacekeeping' is a term coined by the columnist Joe Klein, see 'It's Time for Extreme Peacekeeping', *Time*, 16 November 2003, <http://www.time.com/time/columnist/printout/0,8816,543748,00.html> (accessed 10 January 2006).
85. On hybrid wars see Lieutenant General James M. Mattis and Lieutenant Colonel Frank Hoffman, 'Future Warfare: The Rise of Hybrid Wars', *Proceedings of the US Naval Institute* (November 2005), pp. 18–19. This is an extension of US Marine General Krulak's famous 'three block war' – the key innovation being the notion that the three blocks rather than occurring sequentially, as Krulak suggested, were simultaneous. See Krulak, 'The Strategic Corporal' (note 30). The Australian Army has also built upon the three-block concept in its new doctrine, Complex Warfighting. *Australian Army Future Land Operational Concept*, April 2004, <http://www.defence.gov.au/ARMY/HNA/docs%5CComplex%20Warfighting%20(CASAC%20Endorsed%20May%2004).doc> (accessed 12 June 2006). Also see Bing West, 'Streetwise', *Atlantic Monthly* (January/February 2007), for a discussion of police work and technology in counterinsurgency.
86. Hoffman, 'Complex Irregular Warfare' (note 16). The latest Israel–Lebanon war in summer of 2006 in which Israel faced off against Hezbollah forces employing good tactical technique, communications, and high-tech weapons and other systems, particularly anti-tank missiles and night-vision equipment, is a good example. See, Anthony H. Cordesman, 'Preliminary "Lessons" of the Israeli–Hezbollah War', Centre for Strategic and International Studies, 11 September 2006.
87. Howard, 'A Long War' (note 2).
88. H. John Poole, *Phantom Soldier* (Emerald Isle, NC: Posterity Press, 2001), p. 235.
89. English and Gudmundson, *On Infantry* (note 37), p. 155.
90. Bing West, 'The Road to Haditha', *The Atlantic Monthly*, Vol. 298, No. 3 (October 2006).
91. Mark Mazzetti, 'Pentagon Sees Move in Somalia as Blueprint', *New York Times*, 13 January 2007, <http://www.nytimes.com/2007/01/13/world/africa/13proxy.html?ref=world> (accessed 13 January 2007).
92. Here I would part company with Hy S. Rothstein's excellent analysis in *Afghanistan and the Troubled Future of Unconventional Warfare* (Annapolis, MD: Naval Institute Press, 2006), where he recommends the creation of a separate unconventional warfare service.
93. Mackubin Owen Thomas, 'A Balanced Force Structure To Achieve a Liberal World Order', *Orbis* (Spring 2006), p. 317.
94. See the 2006 *Quadrennial Defense Review* (note 17), p. 19.