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OPERATIONAL ART AND THE OPERATIONAL LEVEL OF WAR

DESERT STORM: MANEUVER WARFARE OR CAMPAIGN OF ATTRITION?

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ABSTRACT

At the time of the Gulf War, the U.S. Army was in a state of transition to a doctrine of maneuver warfare. The new doctrine came into competition with the Army's culture, training, and logistical realities imposed by the existing equipment and organisation. The thesis of this paper is that the American-led Coalition achieved success during Operation Desert Storm through a combination of good campaign planning, technological and logistical superiority, and tactical skill, rather than through the application of maneuver warfare. The paper first considers the development of operational art and maneuver warfare, then discusses American operational art contained in the 1986 U.S. Army doctrine. After an examination of the Gulf War, the paper concludes that some portions of Operation Desert Storm did follow the principles of maneuver warfare while other portions of the campaign, preoccupied with the destruction of the Iraqi Army, were based on principles of attrition rather than maneuver warfare.

The past two decades have seen a great deal of western military interest in the field of operational art. Dusty Russian essays on the theories of successive operations and deep operations have been translated into English, and from this knowledge and an examination of Soviet doctrine a western style of operational art has been built with the American Army leading the way. This American style of operational art received its first field test during Operation Desert Storm, which was widely hailed as a great success of maneuver warfare. But was Operation Desert Storm truly maneuver warfare, or was it another example of attrition warfare, focussed on the systematic destruction of the Iraqi Army?

It is vital at this stage to have a clear statement of the concepts we are about to consider. For the purposes of this paper, **operational art** is defined as the "employment of military forces to attain strategic goals ... through the design, organisation, and conduct of campaigns".[1]

Robert Leonhard argues that **maneuver warfare** emphasises the movement of forces "to gain an advantage over the enemy in some way- positionally or psychologically"[2], and that "the highest and purest application of maneuver theory is to pre-empt the enemy, that is, to disarm or neutralise him before the fight".[3] Martin Van Creveld adds that maneuver warfare is directed at the enemy's weaknesses.[4]

With respect to attrition, Leonhard has stated that **attrition warfare** is an attempt "to defeat an enemy through the destruction of the enemy's mass"[5], while Van Creveld points out that "attrition warfare takes aim at the enemy's strengths".[6] The clearest distinction between maneuver and attrition can found by considering the missions and objectives of a campaign.

Based on the above definitions, what the world saw during Desert Storm was not maneuver warfare. While trying to inculcate a maneuver warfare mentality in the American Army officer corps, the new doctrine had come into competition with the culture, training of commanders, and the logistical realities imposed by the existing equipment and organisation. The Americans ended up combining aspects of attrition and maneuver warfare during Desert Storm instead of applying maneuver warfare doctrine. In particular, the Allied Desert Storm ground advance was methodical and carefully controlled, and demonstrated few characteristics of maneuver warfare.

The aim of this paper is to demonstrate that the recent Coalition success during Operation Desert Storm was the achieved through a combination of good campaign planning, technological and logistical superiority, and tactical skill, rather than through the application of maneuver warfare. This thesis is proposed to demonstrate that Desert Storm was not the apotheosis of maneuver warfare despite claims to that effect, and to point out that the campaign plan for the Gulf War combined aspects of both maneuver and attrition warfare.

The paper will first summarise the development of operational art and maneuver warfare, as espoused by Soviet doctrine developed during the 1920s and 1930s, to derive its key principles and tenets. Next will follow a discussion of American operational art contained in the 1986 U.S. Army doctrine (the doctrine which was in effect at the time of the Gulf War), and an examination of Operation Desert Storm to demonstrate that maneuver warfare doctrine

was not followed during the ground campaign. Finally, this paper will present a consideration of possible reasons why maneuver warfare was not used.

THE GENESIS OF SOVIET OPERATIONAL ART

To begin with, this paper will examine the origin of the concepts of Deep Operations and Maneuver Warfare in the Red Army. In the aftermath of the tremendous upheaval in Russia experienced following the 1917 Revolution and the bitter struggles of the Russian Civil War, the Red Army underwent a profound reassessment of its organisation and its methods of operating. Led by the victorious revolutionary commanders of the Russian Civil War, they experienced a renaissance of military thought and writing, centralised at the Red Army's Military Academy.[7]T

The first important contribution made by this group of military theorists was the recognition of the operational level of war. This was one of the first considerations that there might be a middle ground between the actual conduct of battles (tactics) and the high level thinking that determined what the national goals to be accomplished from a conflict would be (strategy). The idea of an intermediate level of war was introduced into the Russian discussion by A.A. Svechin, who first used the term operational art "in a series of lectures on strategy in 1923-1924 at the Military Academy of the RKKA"[8] (the Red Army military academy).

The Russians developed a number of different operational art concepts in the 1920s and 1930s. The theory of successive operations was based on the concept of "a series of

consecutive operations, combined by constant pursuit."[9] Thus a number of discrete actions, none of which individually were decisive, could have a cumulative effect that would lead to the final defeat of the enemy. This was understood to be a difficult art, where each action had to be finely calculated to understand its overall effect, and where in many cases subsequent actions were based on the success of initial operations.

As emerging technologies of warfare began to make their potential known, many Soviet military leaders, led by M.N. Tukhachevsky began to consider that it would not be necessary to conduct several discrete actions, and postulated that one bold and decisive attack could annihilate the enemy force. The theory of successive operations, as more study was devoted to it, was further developed into the idea of deep operations.[10]

This concept of seeking in one battle the annihilation of the enemy forces rapidly led to a vigorous debate, which was publicised in essays and during lectures at the newly formed military academies. This professional debate centred on the overall approach to be taken by the attacking Soviet armies, whether victory should be sought through the gradual attrition of the foe during a protracted campaign, or during a sharp, annihilating series of battles.[11] The debate raged for several years, causing a split in the officers of the Red Army, but more importantly fuelling a renaissance of military thought.

One of the consistent themes of the new proposed concepts of operational art was the penetration of the enemy lines so that an independent maneuver force could be inserted into the enemy's operational depth.[12] This Russian concept was undoubtedly based on their

military experience, such as during the 1877 Balkan campaign against Turkey, when a cavalry raiding division operated independently for more than a month in the Turkish rear area. The end result of this innovation was that the Turkish operational and strategic plan collapsed, arguably as a result of the operational shock imposed by this independent maneuver formation.[13] Even more recent, the Soviet military leaders of the 1920s would have remembered the successes experienced by the Red Cavalry ("Konarmiya") during the Russian Civil War, when cavalry and tactical air reconnaissance worked in cooperation to create maximum disruption of the enemy.[14]

In the light of these experiences, it is no surprise that the Red Army embraced the concept of penetration of the enemy's defences in order to insert an independent maneuver force that would strike deep into the enemy rear area. The aim of this maneuver force was to disrupt the enemy's command and control systems and demoralise the enemy force.

The Red Army was organised and trained to enable these concepts. The grouping of forces into combined arms units and formations, the assignment of these formations to echelons, and the acquisition of airborne elements provided the framework on which the deep operations concept could work. The 1st Echelon was intended to provide penetration of the entire tactical depth of the enemy defence. Following this, the 2nd Echelon would be inserted into the enemy rear area where it could engage enemy reserves, hinder the enemy's ability to use mobile formations to support the tactical defence, and prevent the enemy's withdrawal of his main defensive forces. The airborne elements were to be inserted into the enemy operational

rear area, then they would advance vigorously toward the enemy front line to reduce the enemy depth and reinforce the Soviet main effort.[15]

Soviet tactics were designed to support this concept as well. The standard Soviet advance involved the initial elements finding and defining the enemy, then (as more forces arrived) holding the enemy and acting as a firebase for the subsequent attack from the line of march. Follow-on elements that still had freedom of movement would maneuver to act as the striking element, and the essence of this whole process was speed.[16]

Essential to the Soviet concept of operational maneuver were deception and surprise, the selection of the enemy centre of gravity, the conduct of a penetrating attack that divides the enemy, the simultaneity of attack throughout the enemy depth (which disrupts the enemy's interaction), the pace of the offensive, the maintenance of momentum, and the insertion of a maneuver force into the enemy's operational depth (which disrupts the enemy's balance of forces and makes his plan invalid and unattainable). Throughout this process, the main task of the operational commander was to orchestrate the coordination of the attack throughout the enemy depth.

MANEUVER WARFARE AS AMERICAN DOCTRINE

Next this paper will consider the events that led to the changes in the American doctrine. Before the doctrinal renaissance of the 1980s, the U.S. Army did not recognise an intermediate level between the strategic and tactical levels of war. The implication that may

be derived from the lack of an operational level of war in the 1976 version of FM 100-5 Operations, the capstone U.S. Army field manual, is that western armies considered that tactical brilliance would be sufficient to achieve strategic goals, that if you were able to achieve enough tactical victories the strategic goal would be achieved.

The problems with this viewpoint were highlighted during the Vietnam War. The American forces were not defeated in battle, yet in the end they lost the war. The American Army could never link their tactical victories to achieve strategic results, arguably due to a lack of understanding of operational art and campaign planning. A case could be made that the North Vietnamese, who would have studied Russian doctrine, understood the concepts of operational art and campaign planning. General Schwarzkopf offers the opinion that the North Vietnamese perceived the American critical vulnerability to be the support of the American public for the war effort, and therefore they successfully fought the public opinion war in the homes of Americans.[17] American sentiments were strongly against the war in Vietnam, and the American government withdrew its forces with its strategic aims unmet.

In the aftermath of the Vietnam War, the deficiencies of a doctrine that focussed only on strategy and tactics were recognised, and it was decided to study the Soviet operational art to determine what might be effectively introduced into the American way of making war. Starting in the early 1980s, the American Army conducted a systematic review and rewriting of its doctrine to include many of the Soviet concepts. In 1982 American doctrine was published as AirLand Battle (FM 100-5), a concept of battle intended to combat an echeloned Soviet attack in Western Europe.

AirLand Battle was reviewed, repackaged, and republished in 1986. This version, which was in effect when Desert Storm was fought, will be the focus of this examination of American doctrine. FM 100-5 emphasised the significance of the operational level of war and focussed on the importance of combined arms operations.[18] It reasserted that the essential elements of the new doctrine were maneuver, firepower, protection, initiative, agility (the ability of friendly forces to act faster than the enemy), depth and synchronisation.[19]

The new American doctrine was very closely patterned after the Soviet model. Both doctrines espoused concentration at a critical point and maneuver in preference to frontal assaults, however the American doctrine did not count on the achievement of penetration into the enemy operational rear area and was not centred around the induction of operational shock. The American doctrine did pay passing attention to the concepts of penetration and operational shock, noting that "large gains are achieved by destroying the coherence of the defence, fragmenting and isolating enemy units in the zone of the attack, and driving deep to secure operationally decisive objectives"[20] and that these forms of attack usually produce "more enemy prisoners than casualties, reflecting the corrosive impact of offensive shock on the enemy's will to resist".[21]

To gain a sense of the American Army doctrine from FM 100-5, it is helpful to summarise the essential forms and characteristics contained therein. The essential characteristics of offensive operations were presented as surprise, concentration, speed, flexibility, and audacity.[22] Five forms of maneuver were examined: the envelopment, the turning movement,

infiltration, penetration, and the frontal attack.[23] This paper will return to these forms and characteristics later to determine if the American forces utilised maneuver warfare during Desert Storm.

A vital aspect of the consideration of maneuver warfare is the concept of the centre of gravity. Leonhard suggests that the "enemy's centre of gravity... is his critical vulnerability."[24] Unlike the Clausewitzian idea equating the centre of gravity with the densest concentration of a force's mass[25], maneuver warfare "prefers pitting strength against weakness."[26]

The U.S. Army doctrinal declaration that the centre of gravity is an army's "sources of strength or balance"[27] and may be "the mass of the enemy force"[28] reveals an attritionist mindset. This suggests that the U.S. Army doctrine contained in FM 100-5 was not actually maneuver warfare, but was still in a state of transition at the time of the Gulf War.

DESERT STORM -- MANEUVER WARFARE?

In order to answer the question of whether the Americans used maneuver warfare during Operation Desert Storm, it is first necessary to understand the strategic picture. The Commander in Chief of the Coalition, General Schwarzkopf, had been given four strategic objectives: to get Iraqi forces out of Kuwait, to restore Kuwait's legitimate government, to achieve security and stability in the region, and to protect the lives of American citizens.[29] These four objectives were obviously kept firmly in mind by the Commander in Chief, and their achievement was the signal that Desert Storm had been successful.[30] The ending of the

ground campaign as soon as the strategic objectives had been attained was a concrete indication that the concepts of operational art and campaign planning contained in the American doctrine had been clearly understood and were employed in the Gulf War. However, there are other indicators that demonstrate that the Gulf War campaign plan was not maneuver warfare.

The operational plan for Desert Storm, which combined a variety of the forms of maneuver, was basically an envelopment of the Iraqi defences in Kuwait. First a very effective air campaign was waged, aimed at the attrition of the Iraqi forces and the disruption of their command and control framework. Next, a large portion of the Coalition ground forces was deployed into the desert, ready to strike into Iraq. When the ground offensive started, a supporting frontal attack on Kuwait was conducted by the USMC and the Coalition's Arab forces, while the bulk of the Coalition offensive forces would come through the desert to encircle the Iraqis in Kuwait. On the left flank, the French Division would conduct a turning movement and subsequent establishment of defensive positions to prevent Iraqi reinforcement. The US Air Assault forces would conduct a vertical envelopment as they move to the Euphrates to cut the Iraqis line of retreat. The US VII Corps would conduct a massive penetration aimed at the destruction of the Iraqi Republican Guard Divisions.[31]

Therefore there were three separate offensives simultaneously conducted, linked only by the sharing of assets and direction at the operational level. The assault on Kuwait by the USMC and the Arab Forces was a deliberate frontal assault that had the affect of fixing the Iraqi forces in Kuwait. XVIII Corps' actions on the left flank were designed to cut off the Iraqi

retreat and prevent reinforcement. The VII Corps penetration was always aimed at the Republican Guard, the Iraqis' operational reserves, and once again when the actual fighting started the tactical engagements were frontal attacks.[32] Stephen Biddle has suggested the most likely explanation for the one-sided victory that the American forces enjoyed during these engagements. His contention is that the American success was the result of a combination of the technological superiority of the American equipment and their forces' better tactical skill, and that the synergistic combination of these two factors proved decisive.[33]

The Coalition plan for Desert Storm receives full marks for the use of surprise and deception to further the operational plan. Included in the campaign plan was the decision to blind the Iraqis, then deploy the majority of the Coalition's ground forces out into the desert. This deployment, when combined with the threat of an amphibious landing by the USMC directly into Kuwait, completely surprised the Iraqi forces were as to the direction and scope of the offensive.

With respect to concentration, again the operational level plan was completely in accordance with the American doctrine. Supporting attacks were to be made by the USMC and Arab forces into Kuwait itself, and the far left flank was guarded by the French forces, but by far the heaviest weight of the attacking force was concentrated to attack into southern Iraq, penetrating the Iraqi defences and driving for the Republican Guard Divisions.[34]

The amount of top-down control exercised during the ground offensive provides the first instance where a departure from maneuver warfare was noted. Van Creveld notes that the methodical American advance did not seem concerned with the tempo of the operation, and that the units were deployed in such a way that they had no room to maneuver in any case. "At a critical juncture, VII Corps was apparently more interested in synchronising the moves of its own components than in vigorously exploiting battlefield success by sending spearheads forward."[35] Richard Swain has described the advance of VII Corps as "the relentless movement of the drill bit through the coal face."[36]

To a certain extent the deliberate nature of the advance can be explained by the Americans' equipment. They had long realised that the M1 tank had a heavy support bill, especially with respect to fuel, and the need to provide the proper logistic support undoubtedly contributed to the plodding nature of the advance. The equipment had been designed and procured to fight in Western Europe. Therefore, although the mindset of the commander could be amended to fight a maneuver campaign in the desert, the equipment had been acquired based on the specific requirements and limitations of the compact European theatre of operations, not the desert expanses in which it was now deployed. What was observed could be called the tyranny of the fuel tanker, where commanders had to regulate their rate of advance to ensure that they were able to fuel their thirsty M1 tanks. This factor had been considered during the drafting of the American doctrine, as FM 100-5 stipulated that "in larger areas and where the defence is organised in depth, offensive campaigns will halt periodically for logistical reasons".[37]

A second area where it appears that the actions in Desert Storm were a departure from maneuver warfare was in the lack of flexibility allowed for tactical commanders. Maneuver was not free and there was little room for initiative by lower level commanders, causing one of those lower level commanders to note that while U.S. doctrine has become one of the most strident champions of directive control, during the Gulf War he "saw no freedom for small unit commanders to make any decisions regarding battlefield maneuver."[38] This was not necessarily out of step with the approved U.S. Army doctrine at that time. Under the heading of flexibility, this doctrine emphasised detailed initial planning, and subordinate commanders understanding "the higher commander's aims so well that they can properly exploit battlefield opportunities even when communications fail."[39] This doctrine did not suggest that subordinate commanders routinely act on their initiative, although it did "require aggressive action by leaders at every level without waiting for *detailed* orders"[40] (emphasis added).

A third departure from the concepts of maneuver warfare was in the area of audacity. Schwarzkopf notes General Franks' (the US VII Corps Commander) concern bypassed Iraqi units attacking his flanks. "He wanted them destroyed before his forces turned to the Republican Guard, and therefore was about to order an attack toward the *south*."[41] Although there is disagreement between Generals Schwarzkopf and Franks about the degree of concern, there is no doubt that the American commanders were very concerned about security, as their doctrine specified that protection is one of the dynamics of combat power.[42]

Therefore there are concrete areas where the campaign plan differed from maneuver warfare. This paper contends that the campaign plan was based on the concept of attrition rather than

maneuver. In addition to the definitions presented in this paper's introduction, J. F. Antal has provided a clear cut distinction between the attrition and maneuver styles of warfare, stating that the maneuver style emphasises movement and attacks weakness, whereas the attrition style emphasises firepower and attacks strength. "The attrition style of warfare focuses on the destruction of the enemy's forces."[43] Daniel Bolger adds that "maneuverists aim to shatter the enemy's army, not simply cut him to death through slow attrition."[44] Van Creveld notes another force deployment indicator that may help determine if a plan was maneuver or attrition based. He contends that one characteristic of a plan based on attrition warfare is that it tends to engage most of its assets at the start and keeps back few forces in reserve. A plan based on maneuver warfare tends to lightly hold the front line, in effect to screen it, and holds back heavy forces to operate once the critical point has been identified.[45]

Although all of the above indicators suggest that Desert Storm was a campaign based on attrition, the clearest indication comes from the campaign plan's assignment of objectives and tasks. An objective selected with maneuver warfare in mind would concentrate on taking advantage of the enemy weakness in some area, or in displacing his forces so that they would be made irrelevant. Yet the Coalition determined that the VII Corps objective would be the destruction of the Republican Guard Divisions, the Iraqis' strongest formations. By the definitions of attrition and maneuver warfare set out earlier in this paper, this attack on the Iraqi strength is in line with the tenets of attrition warfare. Yet this decision seems to be in accord with the American doctrine of that time, which provided that "Offensive campaigns are oriented on a decisive theatre objective whenever possible. The enemy's centre of gravity may rest on a particular feature necessary to defence of a theatre, a certain force which is key

to the defence, or a combination of such forces and features."[46] This seems to indicate that the American doctrine in force during the Gulf War was not actually based on maneuver warfare.

Yet a few pages later the same doctrinal manual prescribes that "offensive campaigns should seek to retain the initiative, to strike enemy weaknesses, to attack the enemy in great depth, and to create fluid conditions which prevent the enemy from organising a coherent defence."[47] This seeming contradiction in the American doctrine left the door open for Desert Storm to be a campaign of attrition. General Schwarzkopf set the VII Corps objective to be the destruction of the Republican Guards divisions, the enemy strength, and not their weakness. This was in hindsight an attritionist viewpoint, designed to destroy more of the Iraqi forces before they could cause casualties to the Coalition forces, rather than maneuver warfare.

The first Coalition objective, the liberation of Kuwait, was well on the way to being achieved before the Republican Guard Divisions had been engaged by the Coalition land forces. However, Schwarzkopf had assessed that to achieve his third assigned strategic objective, to achieve security and stability in the region, he had to break the back of the Iraqi army, and this led him to focus on the destruction of the Republican Guard.[48] Arguably, General Schwarzkopf was forced to develop an attritionist plan by the strategic objectives he had received. Towards the end of the ground portion of the campaign, General Schwarzkopf was worried that the war would end before the Coalition forces engaged the Republican Guard. "I was confident they could destroy the Republican Guard -- if only they could get there before

the war ended."[49] This fixation on the destruction of the Republican Guard Divisions, as opposed to their neutralisation, demonstrates an attritionist attitude.

There was little finesse in during the conduct of Desert Storm. During the VII Corps advance, each time the American forces came into contact with the Iraqis, they did not attempt to maneuver to a position of maximum advantage before committing to the fight. "Divisions moved forward with two or three heavy brigades on line and simply overwhelmed the hapless Iraqis by superiority of combat power..."[50]

Success was due to the Coalition's overwhelming superiority in technology and logistics. One of the preconditions for the ground portion of the campaign was that air power was to have reduced the effectiveness of the Iraqis by fifty percent.[51] The American forces depended on air supremacy, superior firepower, and superior technology to reduce the effectiveness of the enemy troops during a clearly attritionist air campaign, then depended on the brute force of superior firepower and superior technology and skill to win the day during the ground campaign. The results of the conflict were strikingly asymmetrical, with only 150 Allied deaths compared to well over 100,000 Iraqi casualties, with another 100,000 Iraqi soldiers taken prisoner.[52]

Perhaps the fairest interpretation of Desert Storm is that maneuver warfare was practised during the operational planning and initial deployments. There was a deliberate initial movement of formations to achieve surprise and a favourable force ratio before the ground offensive began, a deception plan was included, and there was a deliberate attempt during the

air portion of the campaign to paralyse the enemy's command and control systems. At the operational level, the plan was in accordance with the concepts of maneuver warfare, with the most important maneuver occurring as the VII and XVIII Corps deployed into the desert before H Hour.

However, the Iraqi centre of gravity that was selected was the enemy strength, and this decision reveals the attritionist underpinnings of the plan. The plan was executed in such a way that Desert Storm is more an example of how attrition can be made to work rather than an example of maneuver warfare. The ground advance was business as usual, with painstakingly detailed coordination of fire support, movement, and logistics.[53] At the lower level the methods used were pedestrian and plodding, carefully controlled and orchestrated with little room for innovation or initiative from more junior commanders.

WHY WASN'T MANEUVER WARFARE USED?

So what were the considerations that led commanders to not implement a doctrine of maneuver warfare? It appears that the answer is part cultural, part technological, and part organisational.

It has been argued that doctrine is not dogma, and that current doctrine will never be right for the next war about to be fought. This line of thought argues that it is vitally important to have a well-practised process by which you develop doctrine[54], as one of your first tasks in any war will be to update and correct your current doctrine. Having said that, it is clear that doctrine

will have at least an indirect effect on how an armed force fights, as the "predominance of one operational style over the other has important implications on an army's doctrine, organisation, and command and control philosophy."[55] The Red Army designed their organisation (combined arms units, grouped into echelons), equipment, and tactics (the attack from the line of march) to support their doctrinal concepts.

Some writers feel that doctrine actually has a weak and indirect effect on how armies fight, and that culture may be a more important factor effecting how armies fight than their doctrine. Paul Johnston argues that "ultimately, an army's behaviour in battle will almost certainly be more a reflection of its character or culture than of the contents of its doctrine manuals."[56] Richard Gabriel and Paul Savage comment on the potential outcome of an "up-or-out" career selection system, suggesting that the result of such a policy would be a "zero defect" mentality which would foster a risk averse military.[57] In a more recent article for *Army* magazine, John Marlin has commented on a culture that fears failure, noting the "'zero defects' mentality..., a mindset fearing horrible consequences for any failure..."[58] A mindset such as this would explain the rigid control of the ground advance, where risk averse commanders very closely controlled their subordinates' activities, for fear of failure.

Another explanation could be that the change of doctrine had been too recent and too large a cultural change to have been assimilated by the Americans during Desert Storm. The U.S. Army Doctrine was based on the Soviet operational art model and was in a state of transition to maneuver warfare. This required a major practical and philosophical departure from the classical American forms of making war. Based on experience dating from the Civil War and

ranging through two World Wars, the American way of war involved overwhelming superiority in firepower, manpower and logistical strength.[59]

This argument would hold that a dramatic change is required before a doctrinal change can take effect. Otherwise, commanders who have "grown up" with one set of doctrine will unconsciously revert back to that way of thinking in times of stress. Someone taking the opposing viewpoint might argue that if this was true, then doctrinal change would be almost impossible, except perhaps in times of extreme upheaval (for example, war or revolution). The history of the 20th Century seems to support this thought. The three major periods of doctrinal change viewed during this period were the two World Wars and the period between the wars (when Germany was engaging in covert preparations for the Second World War, and when Russia was developing a revolutionary doctrine for the Red Army).

Whatever the case, doctrinal change is unlikely to be instituted in a short period of time. Many changes will be required to fully implement new doctrine, ranging from the procurement of new types of equipment to changes in official documents, recruitment, personnel selection, methods of training, and promotion policies.

Therefore, large shifts in doctrine cause major changes in many facets of an armed force. Some authors contend that the move from attrition warfare to maneuver warfare is more difficult than any other doctrinal change we have seen. William Lind argues that maneuver war is characterised by "uncertainty, rapid and unexpected changes, and friction."[60] This uncertainty leads to a fundamental problem with AirLand Battle's concept of synchronisation,

because “Something that is dominated by surprise, rapid change, and friction cannot be synchronised; it is not a railway timetable. War demands ‘thriving on chaos’.”[61] Therefore, as Lind has suggested, the change to maneuver warfare is in effect a cultural change, which involves changes to a large number of fundamental factors.[62]

This cultural shift proved very difficult for the American forces in particular, as Leonhard points out, because the U.S. Army’s preferred method of fighting “simply does not match classic examples of maneuver warfare from the past.”[63] As John Antal states, the history of the U.S. Army over the past two centuries shows that, with a very few exceptions, “the American army has emphasised attrition warfare in most of its wars. Both world wars were won by the overwhelming superiority of Allied firepower, numbers, and technology.”[64]

Antal argues that the American way of making war, if viewed as a composite of the campaigns of the past century, would be very similar to the victorious formula used for Desert Storm: “mass, fires, an overwhelming logistics effort, and a centralised and relatively methodical approach to battle.”[65] Following the old American folk saying, “if it ain’t broke, don’t fix it!”, the American performance during Desert Storm suggests that they have taken what they consider the best of operational art, the campaign planning aspect, and have melded it together with their American way of making war. As Antal concludes, “at least empirically, there is much to suggest that the physical destruction of the enemy by massed fire systems remains central to (the American) view of war.”[66]

Van Creveld has suggested that "Americans tend to find maneuver warfare counter-intuitive."[67] Since the Civil War the American way to make war has been to mass overwhelming strength and depend on the attrition of the enemy (there have been some American generals who were notable exceptions). As a result, even the 1986 rewrite of FM 100-5, which was based on the theories of maneuver warfare, was actually "a halfway house between maneuver and attrition."[68] The American evolution in doctrinal thought was not yet complete, as evidenced by their Clausewitzian view of the centre of gravity. As long as FM 100-5 would lead the U.S. Army to designate the Iraqi centre of gravity as the Republican Guard, the Desert Storm campaign plan would be ultimately attritionist in nature.

Another line of reasoning contends that the Americans didn't use maneuver warfare in Desert Storm because it was a big change from the methods they were used to, and they found that they didn't need to change to win. Van Creveld suggests that the attack through the desert worked because of overwhelmingly superior technology and firepower, and the outstandingly successful air campaign.[69] Coalition air attacks were major contributors to the success of Desert Storm, as the Coalition Air Forces had waged a successful war of attrition against the Iraqis, and Coalition air power rapidly punished any Iraqi attempt to maneuver. It is also apparent that, due to a combination of poor weather and thermal imagery technology, the American forces were able to see and engage the Iraqis before the Iraqis knew the American were there. "For the most part, superior U.S. weapon optics allowed VII Corps' systems to see the enemy while remaining concealed from them."[70]

CONCLUSION

This paper contends that the ground portion of Operation Desert Storm was not a good example of maneuver warfare. Although some portions of the campaign plan did follow the basic principles of maneuver warfare, the air campaign's focus on the destruction of a percentage of Iraqi formations and the ground offensive's preoccupation with the destruction of the Iraqi Republican Guard Divisions are based on attrition rather than maneuver tendencies. The operational level plan did make good use of deception to achieve surprise, skilfully concentrated the available forces to achieve the most favourable force ratio, kept the strategic objectives firmly in mind, and was clearly a very strong example of operational art and campaign planning.

It is suggested that the doctrinal changes required to move to maneuver warfare ran afoul of cultural realities, and therefore were not implemented. The cultural change required by the new doctrine was simply too great for the American forces to make in the short time between the introduction of maneuver warfare and the time when it was used in combat. The requirements of maneuver warfare were in opposition with the American method of making war, characterised by technological innovation and massive superiority in firepower and logistical support. Possibly the change required to transition from an Army that uses a fairly unforgiving policy of selection to a force willing to embrace the risks inherent in maneuver warfare may just be too great.

It could also be that the American forces did not use maneuver warfare because it was not required. The combination of a large skill differential between the Americans and the Iraqis, coupled with technological superiority that let the Americans engage the Iraqis from well outside the maximum Iraqi range, led to a very one-sided combat. The American forces simply took advantage of their superiority in firepower and overwhelmed the Iraqi defenders with little risk to themselves.

During the advance, commanders maintained careful control over their subordinates, moved to mass the available fires on the enemy when the occasion presented itself, and won an unprecedented one-sided victory during Desert Storm.

Whatever the case, it is obvious that the American military had learned much from the doctrinal shift to embracing operational art. Desert Storm remains as a sterling example of thorough and skilled campaign planning, with clear objectives and direction. The fact that the conduct of the ground advance and the actual combat during the war were based on the familiar concept of defeating the enemy through attrition, taking maximum advantage of superior firepower, skill, and technology, should not surprise anyone. This has been the American way of making war for the past hundred years, and it is very unlikely that it will be easily changed overnight. All of this in no way detracts from the reality of Desert Storm, that it was a well-planned and conducted campaign, and in every way a stunning Coalition victory.

NOTES

[1] United States Department of the Army, *FM 100-5 Operations* (Baltimore, MD: U.S. Government Printing Office, 1986) 10.

[2] Robert R. Leonhard, *The Art of Maneuver Warfare* (Novato, CA: Presidio, 1991) 18.

[3] Ibid 19.

[4] Martin Van Creveld, Steven L. Canby, and Kenneth S. Brower, *Air Power and Maneuver Warfare* (Maxwell Air Force Base, Alabama: Air University Press, 1994) 9.

[5] Robert R. Leonhard, *The Art of Maneuver Warfare* (Novato, CA: Presidio, 1991) 19.

[6] Martin Van Creveld, Steven L. Canby, and Kenneth S. Brower, *Air Power and Maneuver Warfare* (Maxwell Air Force Base, Alabama: Air University Press, 1994) 9.

[7] Jacob W. Kipp, *Mass, Mobility and the Red Army's Road to Operational Art, 1918-1936*, (Fort Leavenworth, KS: Soviet Army Studies Office, 1988) 17. Also, Vasilii Efimovich Savkin, *The Basic Principles of Operational Art and Tactics: (A Soviet View). [Osnovnye printsipy operativnogo iskusstva i taktk]* (Washington, DC: US G. P. O., 1974) 40.

[8] Jacob W. Kipp, *"*Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932*"*, *The Operational Art: Developments in the Theories of War*, editors B.J.C. McKercher and Michael A. Hennessy (Wesport, CT: Praeger Publishers, 1996) 61.

[9] Vasilii Efimovich Savkin, *The Basic Principles of Operational Art and Tactics: (A Soviet View). [Osnovnye printsipy operativnogo iskusstva i taktk]* (Washington, DC: US G. P. O., 1974) 42.

[10] Ibid.

[11] Harold S. Orenstein, *The Evolution of Soviet Operational Art, 1927-1991: the Documentary Basis* (London: Frank Cass, 1995) 2. Also, M. Zakharov, "Problems of Strategy and Operational Art in Soviet Military Works (1917-1940)", *Selected Readings in the History of Soviet Operational Art*, translated by Harold S. Orenstein (Fort Leavenworth, KS: U.S. Army Combined Arms Centre, 1990) 63.

[12] M. Zakharov, "Problems of Strategy and Operational Art in Soviet Military Works (1917-1940)", *Selected Readings in the History of Soviet Operational Art*, translated by Harold S. Orenstein (Fort Leavenworth, KS: U.S. Army Combined Arms Centre, 1990) 87.

[13] Shimon Naveh, *In Pursuit of Operational Excellence: the Evolution of Operational Theory* (London: Frank Cass, 1997) 51.

[14] Jacob W. Kipp, *"*Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932*"*, *The Operational Art: Developments in the Theories of War*, editors B.J.C. McKercher and Michael A. Hennessy (Wesport, CT: Praeger Publishers, 1996) 56.

[15] G. Isserson, "The Development of the Theory of Soviet Operational Art in the 1930s", *Selected Readings in the History of Soviet Operational Art*, translated by Harold S. Orenstein (Fort Leavenworth, KS: U.S. Army Combined Arms Centre, 1990) 34.

[16] I. Mariyevsky, "Formation and Development of the Theory of Operational Art (1918-1938)", *Selected Readings in the History of Soviet Operational Art*, translated by Harold S. Orenstein (Fort Leavenworth, KS: U.S. Army Combined Arms Centre, 1990) 16.

[17] H. Norman Schwarzkopf and Peter Petre, *It Doesn't Take a Hero* (New York, NY: Bantam, 1992) 181.

[18] United States Department of the Army, *FM 100-5 Operations* (Baltimore, MD: U.S. Government Printing Office, 1986) i.

[19] Ibid 11-18.

[20] Ibid 94.

[21] Ibid.

[22] Ibid 95.

[23] Ibid 101.

[24] Robert R. Leonhard, *The Art of Maneuver Warfare* (Novato, CA: Presidio, 1991) 20.

[25] Clausewitz, *On War,* (Princeton, NJ: Princeton University Press, 1976) 25.

[26] Robert R. Leonhard, *The Art of Maneuver Warfare* (Novato, CA: Presidio, 1991) 21.

[27] United States Department of the Army, *FM 100-5 Operations* (Baltimore, MD: U.S. Government Printing Office, 1986) 179.

[28] Ibid.

[29] James McDonough, "The Operational Art: Quo Vadis", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 108.

[30] H. Norman Schwarzkopf and Peter Petre, *It Doesn't Take a Hero* (New York, NY: Bantam, 1992) 468-469.

[31] Richard M. Swain, "*Lucky War"*: *Third Army in Desert Storm*, (Fort Leavenworth, KS: US Army CGSC Press, 1997) 207-209.

[32] Ibid 244-246.

[33] Stephen Biddle, "Victory misunderstood: What the Gulf War Tells Us About the Future of Conflict", *International Security* 21 no. 2 (Fall 1996) 140.

[34] H. Norman Schwarzkopf and Peter Petre, *It Doesn't Take a Hero* (New York, NY: Bantam, 1992) 382-383.

[35] Ibid.

[36] Richard M. Swain, "*Lucky War"*: *Third Army in Desert Storm*, (Fort Leavenworth, KS: US Army CGSC Press, 1997) 225.

[37] United States Department of the Army, *FM 100-5 Operations* (Baltimore, MD: U.S. Government Printing Office, 1986) 111.

[38] Robert R. Leonhard, "Maneuver Theory and the United States Army", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 47.

[39] United States Department of the Army, *FM 100-5 Operations* (Baltimore, MD: U.S. Government Printing Office, 1986) 97.

[40] Ibid 99.

[41] H. Norman Schwarzkopf and Peter Petre, *It Doesn't Take a Hero* (New York, NY: Bantam, 1992) 463.

[42] United States Department of the Army, *FM 100-5 Operations* (Baltimore, MD: U.S. Government Printing Office, 1986) 13.

[43] John F. Antal, "Thoughts About Maneuver Warfare", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 61.

[44] Daniel P. Bolger, "Maneuver Warfare Reconsidered" *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 21.

[45] Martin Van Creveld, Steven L. Canby, and Kenneth S. Brower, *Air Power and Maneuver Warfare* (Maxwell Air Force Base, Alabama: Air University Press, 1994) 8-9.

[46] United States Department of the Army, *FM 100-5 Operations* (Baltimore, MD: U.S. Government Printing Office, 1986) 100.

[47] Ibid 110.

[48] H. Norman Schwarzkopf and Peter Petre, *It Doesn't Take a Hero* (New York, NY: Bantam, 1992) 320.

[49] Ibid 463.

[50] Richard M. Swain, "*Lucky War"*: *Third Army in Desert Storm*, (Fort Leavenworth, KS: US Army CGSC Press, 1997) 244.

[51] H. Norman Schwarzkopf and Peter Petre, *It Doesn't Take a Hero* (New York, NY: Bantam, 1992) 319.

[52] Robert R. Leonhard, *The Art of Maneuver Warfare* (Novato, CA: Presidio, 1991) 267.

[53] John F. Antal, "Thoughts About Maneuver Warfare", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 85.

[54] I.B. Holley Jr., "Fifty Questions for Doctrine Writers: Means Are as Important as Ends", *Airpower Journal* (Fall 97) 1. <www.airpower.maxwell.af.mil...nicles/apj97/fal97/holley.html>

[55] John F. Antal, "Thoughts About Maneuver Warfare", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 61

[56] Paul Johnston, "Doctrine Is Not Enough: The Effect of Doctrine on the Behavior of Armies", *Parameters* 30, no. 3 (Autumn 2000) 37.

[57] Richard Gabriel and Paul Savage, *Crisis in Command: Mismanagement in the Army* (New York, NY: Hill and Wang, 1978) 86-88.

[58] John Marlin, "Cynicism and Careerism; Threats to Army Ethics", *Army* 47 Issue 5 (Arlington, May 1997) 8.

[59] Paul Johnston, "The Myth of Maneuver Warfare: Attrition in Military History", *The Changing Face of War*, Editor Allan D. English (Royal Military College of Canada, ON: McGill-Queen's University Press, 1998) 24-25.

[60] William S. Lind, "The Theory and Practice of Maneuver Warfare", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 8.

[61] Ibid.

[62] Ibid.

[63] Robert R. Leonhard, "Maneuver Theory and the United States Army", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 42.

[64] John F. Antal, "Thoughts About Maneuver Warfare", *Maneuver Warfare: An Anthology*, Editor Richard D. Hooker Jr. (Novato, CA: Presidio, 1993) 62.

[65] Ibid 77.

[66] Ibid.

[67] Martin Van Creveld, Steven L. Canby, and Kenneth S. Brower, *Air Power and Maneuver Warfare* (Maxwell Air Force Base, Alabama: Air University Press, 1994) 8.

[68] Ibid.

[69] Ibid 220.

[70] Richard M. Swain, "*Lucky War"*: *Third Army in Desert Storm*, (Fort Leavenworth, KS: US Army CGSC Press, 1997) 260.

BIBLIOGRAPHY

Books

Antal, John F., "Thoughts About Maneuver Warfare." *Maneuver Warfare: An Anthology*. Richard D. Hooker Jr. Editor. Novato, CA: Presidio, 1993.

Bolger, Daniel P. "Maneuver Warfare Reconsidered." *Maneuver Warfare: An Anthology*. Richard D. Hooker Jr. Editor. Novato, CA: Presidio, 1993.

Clausewitz, Carl von. *On War*. Translators and editors Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1976.

Gabriel, Richard A. and Paul L. Savage. *Crisis in Command: Mismanagement in the Army*. New York, NY: Hill and Wang, 1978.

Glantz, David M. *The Great Patriotic War and the Maturation of Soviet Operational Art: 1941-1945*. Fort Leavenworth, KS: Soviet Army Studies Office, 1987.

----------. *Deep Attack : the Soviet Conduct of Operational Maneuver*. Fort Leavenworth, KS: Soviet Army Studies Office, 1987.

Hooker, Richard D. Jr. "Ten Myths About Maneuver Warfare." *Maneuver Warfare: An Anthology*. Richard D. Hooker Jr. Editor. Novato, CA: Presidio, 1993.

Isserson, G. "The Development of the Theory of Soviet Operational Art in the 1930s". *Selected Readings in the History of Soviet Operational Art*. Translated by Harold S. Orenstein. Fort Leavenworth, KS: U.S. Army Combined Arms Centre, 1990.

Johnston, Paul. "The Myth of Maneuver Warfare: Attrition in Military History". *The Changing Face of War*. Editor Allan D. English. Royal Military College of Canada, ON: McGill-Queen's University Press, 1998.

Kipp, Jacob W. *Mass, Mobility and the Red Army's Road to Operational Art, 1918-1936*. Fort Leavenworth, KS: Soviet Army Studies Office, 1988.

----------. *The Soviet Far Eastern Build-up and the Manchurian Campaign, February - August 1945 : Lessons and Implications*. Fort Leavenworth, KS : Soviet Army Studies Office, 1988.

----------. *"*Two Views of Warsaw: The Russian Civil War and Soviet Operational Art, 1920-1932*". The Operational Art: Developments in the Theories of War.* B.J.C. McKercher and Michael A. Hennessy editors. Wesport, CT: Praeger Publishers, 1996: 51-85.

Leonhard, Robert R. *The Art of Maneuver Warfare*. Novato, CA: Presidio, 1991.

----------. "Maneuver Theory and the United States Army." *Maneuver Warfare: An Anthology*. Richard D. Hooker Jr. Editor. Novato, CA: Presidio, 1993.

Lind, William S. "The Theory and Practice of Maneuver Warfare." *Maneuver Warfare: An Anthology*. Richard D. Hooker Jr. Editor. Novato, CA: Presidio, 1993.

Mariyevsky, I. "Formation and Development of the Theory of Operational Art (1918-1938)". *Selected Readings in the History of Soviet Operational Art*. Translated by Harold S. Orenstein. Fort Leavenworth, KS: U.S. Army Combined Arms Centre, 1990.

McDonough, James. "The Operational Art: Quo Vadis?" *Maneuver Warfare: An Anthology*. Richard D. Hooker Jr. Editor. Novato, CA: Presidio, 1993.

Meese, Michael J. "Institutionalising Maneuver Warfare: The Process of Organisational Change." *Maneuver Warfare: An Anthology*. Richard D. Hooker Jr. Editor. Novato, CA: Presidio, 1993.

Naveh, Shimon. *In Pursuit of Operational Excellence: the Evolution of Operational Theory*. London: Frank Cass, 1997.

Orenstein, Harold S. *Selected Readings in the History of Soviet Operational Art.* Fort Leavenworth, KS: Soviet Army Studies Office, 1990.

----------. *The Evolution of Soviet Operational Art, 1927-1991: the Documentary Basis*. London: Frank Cass, 1995.

Rice, Condoleeza. "The Making of Soviet Strategy*." Makers of Modern Strategy from Machiavelli to the Nuclear Age.* Princeton: Princeton University Press, 1986.

Savkin, Vasilii Efimovich. *The basic principles of operational art and tactics: (A Soviet View).[Osnovnye printsipy operativnogo iskusstva i taktk]*. Translated and published by U.S. Air Force. Washington, DC: US G. P. O., [1974].

Schwarzkopf, H, Norman, Petre, Peter. *It Doesn't Take a Hero*. New York, NY: Bantam, 1992.

Summers, Harry G. Jr. *A Critical Analysis of the Gulf War*. New York, NY: Dell, 1992.

Swain, Richard M. "*Lucky War"*: *Third Army in Desert Storm.* Fort Leavenworth, KS: US Army CGSC Press, 1997.

Van Creveld, Martin. *Supplying War: Logistics From Wallenstein to Patton*. New York, NY: Cambridge University Press, 1977.

----------. *Technology and War: From 2000 B.C. to the Present*. New York, NY: Macmillian, 1989.

----------. *The Transformation of War*. New York, NY: Free Press, 1991.

Van Creveld, Martin, Canby, Steven L., and Brower, Kenneth S. *Air Power and Maneuver Warfare.* Maxwell Air Force Base, Alabama: Air University Press, 1994.

Zakharov, M. "Problems of Strategy and Operational Art in Soviet Military Works (1917-1940)". *Selected Readings in the History of Soviet Operational Art*. Translated by Harold S. Orenstein. Fort Leavenworth, KS: U.S. Army Combined Arms Centre, 1990.

Periodicals

Biddle, Stephen. "Victory misunderstood: What the Gulf War Tells Us About the Future of Conflict." *International Security*. 21 no. 2 (Fall 1996): 139-79.

--------. "The Gulf War Debate Redux: Why Skill and Technology Are the Right Answer." *International Security*. 22, no. 2 (Fall 1997): 163-174.

Gilster, Herman L. "Desert Storm: War, Time, and Substitution Revisited." *Airpower Journal*. 10 (Spring 1996): 82-93

Johnston, Paul. "Doctrine Is Not Enough: The Effect of Doctrine on the Behavior of Armies." *Parameters.* 30, no. 3 (Autumn 2000): 30-39.

Keaney, Thomas A. "The linkage of air and ground power in the future of conflict." *International Security*. 22, no. 2 (Fall 1997): 147-150.

Mahnken, Thomas G., Watts, Barry D. "What the Gulf War Can (and Cannot) Tell Us About the Future of Warfare." *International Security*. 22 no. 2 (Fall 1997): 151-162.

Marlin, John. "Cynicism and Careerism; Threats to Army Ethics". *Army*. 47 Issue 5 (Arlington, May 1997) 7-10.

Press, Daryl G. "Lessons from Ground Combat in the Gulf: the Impact of Training and Technology." *International Security*. 22 no. 2 (Fall 1997) : 137-146.

Semianiw, W. "Western Operational Theory: Breaking the Industrial Paradigm," paper prepared for AMSC 1, 1998.

Zimm, Alan D. "Desert Storm, Kosovo and ‘Doctrinal Schizophrenia." Strategic Review. 28 no. 1 (Winter 2000) : 32-39.

Government Publications

United States Department of the Army. *FM 100-5 Operations*. Baltimore, MD : U.S. Government Printing Office, 1986.