

The Concept of Logistics derived from Clausewitz: All That is Required so That the Fighting Force Can be Taken as a Given

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ABSTRACT This article assesses the existing literature on logistics in war, concluding that there is no satisfactory conceptual definition of logistics. It proposes a concept of logistics derived from Clausewitz's theory of war to fill that void. This is presented as a derivation because Clausewitz's distinction between (1) the use of the fighting forces (tactics and strategy) and (2) all other activities in war that were required so that forces could be taken as a given. The latter, left unnamed by Clausewitz, corresponds to a concept of logistics that proves to be an analytical peer to Clausewitz's categories of politics, tactics and strategy.

KEY WORDS: Clausewitz, logistics, theory of war, strategic studies, force creation

This article proposes a concept of logistics derived from Clausewitz that results from his distinction between (1) the *use* of the fighting forces by tactics and strategy and (2) all else that is needed so that fighting forces can be taken as a *given* for tactical and strategic purposes. This is presented as a derivation because although Clausewitz calls the whole of activities in war the *art of war* and the use of fighting forces (tactics and strategy) the *conduct of war*, he leaves unnamed the category that accounts for what remains in the art of war once one has segregated the conduct of war from it. This category comprises all the other activities in war: the creation, movement and maintenance of the fighting forces.

We argue this category conceptualizes logistics within the framework of Clausewitz's theory of war. Logistics accounts for all activities in

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war that are pre-conditional to the use of the fighting forces. It is the *condition of possibility* for the conduct of war, and becomes a tactical or strategic concern to the exact extent that it affects the engagement or the use of (the results of) engagements in war.

The *purpose of logistics* is defined by the needs of tactics or strategy, but it has *a logic of its own*. The logic of logistics has to do with the necessary attributes of products and processes so that they can fulfil certain roles. This corresponds to criteria and standards that *are not* those of combat: they belong to as many fields of endeavour as become relevant to war, expressing the state of the art of these various fields. In what concerns the theory of war, logistics is classified in terms of *its proximity to the engagement*: (1) it can *be part* of the engagement, and thus in some respects identical to fighting; or (2) it can *affect* the engagement but not be part of it.

This concept of logistics:

1. clarifies the nature of the various activities in war that comprise logistics;
2. establishes the relationship between logistics, tactics and strategy;
3. classifies logistical activities within the framework of Clausewitz's theory of war;
4. clarifies the difference between the logic of the conduct of war and the logic of logistics; and
5. identifies the creation of the fighting force as logistical, arguing that this is implicit in Clausewitz's writing.

This sets logistics as an analytical peer to Clausewitz's categories of politics, tactics and strategy, allowing the appreciation of logistics in Clausewitzian critical analysis, identifying logistical causes from its effects in war.

The derivation of the concept of logistics from Clausewitz's theory of war requires rather extensive quotations from *On War*. This is unavoidable because of the need to substantiate the full course of Clausewitz's presentation and his authorship of the various elements and arguments presented below.

Inconsistent, Insufficient or Marginal: a Brief Review of the Literature of Logistics in War

The liberty with which the term logistics has been applied to war provides evidence of the frailty of its definition. Authors feel free to take logistics as shorthand for the whole of the material aspects of warfare, like William H. McNeill's *The Pursuit of Power* (1982) or Martin van Creveld's *Technology and War* (1989).¹ As a result, logistics becomes so

diverse and omnipresent that its specific contents and distinctive connection to war are diluted in a breadth of scope that accounts for all aspects of life.

Most of the literature on logistics in war takes the meaning of logistics for granted. As it addresses limited, specific problems or cases, it sees no need to place logistics within a theoretical framework. For most authors of historical or strategic texts, logistics is assumed to mean support or supply, with such variation as one might find in dictionaries or military field manuals, or with such adaptation as the subject-matter might require. The appreciation of the relationship of logistics with tactics or strategy is a matter of factual, not conceptual, concern.²

This open, adaptable meaning of logistics serves the purposes of most historical or managerial narratives. For example, Charles E. Kirkpatrick's 1990, *An Unknown Future*, describes the elaboration of the Victory Plan of 1941. This was the pre-war document that outlined the fighting force required by the US to win the Second World War. Kirkpatrick candidly presents how actual planning and practice overran any doctrinal lines that would separate logistics in war from politics, strategy and tactics. But Kirkpatrick feels no need to conceptualize logistics in his historical narrative.³

The literature that addresses logistics in war with theoretical or critical ambition is small and ultimately unsatisfactory. It can be broadly divided into two main branches. The first, which adopts or adapts Jomini, proves to be inconsistent. The second, which declines to propose a conceptual definition, proves to be insufficient. The few works that have subscribed, explicitly or implicitly, to Clausewitz's theoretical framework are marginal to these two branches and offer no concept of logistics.

Authors of the first branch subscribe to Jomini's understanding of logistics as expressed originally in his 1838 *The (Summary of the) Art of War*:

Logistics is the art of moving armies. It comprises the order and details of marches and camps, and of quartering and supplying troops; in a word, it is the execution of strategical and tactical enterprises.⁴

This self-standing definition can be adopted uncritically, but authors frequently choose to adapt it, in order to deal with Jomini's contradictory propositions.⁵

Martin van Creveld's *Supplying War* (1977) and Archer Jones's *History of the Art of War in the Western World* (1987) try to salvage Jomini's propositions, resolving his contradictions and expanding the scope of his definition. Creveld is content to conclude that logistics can be decisive in war, but goes no further. Jones proposes a classification of strategy that sets logistical and combat objectives as polar, purely

military alternatives in the pursuit of a campaign. However, this does not hold water. The pursuit of logistical objectives leads to military ones; the pursuit of military objectives admit logistical considerations; objectives may be neither logistical nor military. The particular value of any one of these is given by politics which, *deus ex machina*, resolves all trade-offs case-by-case. But politics has been explicitly excluded by Jones from his considerations.⁶

George Thorpe's *Pure Logistics* (1917), Kenneth Macksey's *For Want of a Nail* (1990) and Julian Thompson's *Lifeblood of War* (1991) associate quotes and passages from Jomini with those of other authors to support an accommodation that defines logistics as supply with some *ad hoc* additions. Whereas Macksey and Thompson are content to add communications and services, respectively, to an understanding of logistics that accounts primarily for the supply of consumables, Thorpe is more consistent, and goes as far as to propose a science of logistics distinct and separate from the science of war.⁷

As it turns out, even partial reliance on Jomini's propositions fatally compromises the ability of the authors of this branch of the literature to account satisfactorily for the social, political, strategic and tactical aspects of logistics in war. They offer no concept of logistics, as their starting choice leads them to either enlarge Jomini's original free-standing definition until it fits the case at hand, or to adjust the case in hand to whatever adaptation of Jomini's definition is being used. As a result, their treatment of logistics is inconsistent: something apart from war but omnipresent in warfare, relevant to campaigns but unrelated to tactics or strategy.

Authors of the second branch choose to address the matter *ab initio*. Donald Engels's *Alexander the Great and the Logistics of the Macedonian Army* (1978), Jonathan Roth's *The Logistics of the Roman Army at War* (1998) and Bernard S. Bachrach's *Early Carolingian Warfare* (2001) work from the ground up. They discuss the material elements of force creation, movement, supply and maintenance that affected strategic or tactical decision-making in specific historical cases.⁸ However, they are narrowly focused on the systematic appreciation of the way finite resources of humans, animals, victuals and materials constrain alternatives in peace and war. They offer schemes and models that can inspire other efforts, but neither subscribe to, nor propose, any theoretical framework of war. As a result, for all of the value of their contribution, this turns out to be insufficient, as they decline to offer a concept of logistics.

Thus, the two main branches of the literature fail to propose a concept of logistics or to place logistics within the framework of a theory of war.

The few authors who address logistics in war within Clausewitz's theoretical framework fall outside these two main branches, and could be described as marginal. Julian S. Corbett's *England in the Seven Years War* (1907), *Campaign of Trafalgar* (1908) and *Some Principles of*

Maritime Strategy (1911); T.E. Lawrence's *Seven Pillars of Wisdom* (1922) and Hans Delbrück's *History of the Art of War Within the Framework of Political History* (1923) address any number of activities they describe as logistical in their presentation, analysis and theoretical formulations of war. But for all of their explicit or implicit theoretical affiliations, for all their individually consistent appreciation of some elements as logistical, they do not propose a concept of logistics.⁹

So logistics, for all of its importance, remains open to definition almost on a case-by-case basis. There is no clear understanding of what logistics is, or of the way it relates to tactics and strategy in war.

One Cannot Read it as it Stands: a Criterion for Resolving Inconsistencies in *On War*

Carl von Clausewitz never finished the final revision of *On War*. Parts written and revised on different dates *coexist* in the text of this book as it has reached present readers. This has led to various and conflicting interpretations of *On War*, and the perception that the text contains contradictions.¹⁰ As a result, any attempt to present or use Clausewitz's theory of war has to explain how it deals with this situation.

We subscribe to a particular criterion to resolve inconsistencies in the unfinished text of *On War* consistent with Clausewitz's own thinking, based on the notes of what he intended to do at the various stages of his writing. However, because this method of reading *On War* is not yet widely accepted, it requires a few explanatory remarks and examples.

In sum, we accept the approach developed in Diniz¹¹ and refined in Diniz and Proença Júnior,¹² which resulted from the development of Azar Gat's 'Clausewitz Final Notes Revisited',¹³ and benefited from the works of Raymond Aron¹⁴ and Peter Paret.¹⁵ The approach developed by these scholars establishes the degree of revision of the various parts of *On War*, and allows for the resolution of inconsistencies among the various parts of the text by establishing the precedence of the contents of the more revised parts over the others. This approach assumes that there is a hierarchy within the various parts of *On War*, and that a straight reading of the unfinished text from first to last page is misleading. The use of passages from different parts can indeed produce inconsistency or offer contradiction.

This article adopts the following guidelines as necessary and sufficient for the interpretation of *On War*:

1. The contents of Book I, Chapter 1, preside over the reading of everything else. Any inconsistencies must be resolved in favor of the contents of Book I, Chapter 1 and subordinate to its results.
2. Book I, Chapter 2, presides over all other parts.

3. Book VIII, Book VII and Book VI, Chapters 27 to 30, in this sequence, have precedence over Book VI, Chapters 1 to 26.
4. Book VI, Chapters 1 to 26, have precedence over Book II, Chapters 1-2 and 5-6.
5. Book II, Chapters 1-2 and 5-6, have precedence over Book II, Chapters 3-4 and Books III to V.
6. Any inconsistency must be decided against Book I, Chapters 3 and 8.¹⁶

When using this criterion, it becomes critical to state explicitly which specific part of *On War* is being quoted at any one time, and references to it are annotated directly on the text in the following manner: quotations in English are taken from the unabridged English 1976 translation (1984 edition) edited by Michael Howard and Peter Paret, annotated OW – *On War*, amended in confrontation with the German edition by Halweg in footnotes when necessary.¹⁷ *On War* is divided into books, numbered with Roman numerals; chapters within books, numbered with Arabic numerals; and sections which, when they are numbered, also have Arabic numerals: this is annotated accordingly and the page is also indicated. Thus a quote annotated [OW I-1: 75] corresponds to section 1, chapter 1 of Book I, page 75, in the Howard and Paret translation.

Clausewitz's eminence as a classical author may have led more than one author to gloss over the difficulties of the unfinished state of *On War*, arguing that there is no real incompatibility between Clausewitz's various statements. That is certainly the case for some parts, but not for all of the text.

An example that explains the utility of the criterion refers to the issue of friction. In Chapter 7 of Book I ('Friction in War'), one reads: 'Friction is the only concept that more or less corresponds to the factors that distinguish real war from war on paper' [OW I-7: 119]. However, one reads in Chapter 1 of Book I that 'an interruption of military activity is not explained by anything yet said' [OW I-1: 81], and that has become the critical element to separate war in abstraction from war in reality. This means that friction is not enough to account for this difference – nor are any of the other factors considered in terms of the 'modifications in practice' [OW I-1: 78–81]. Friction, then, can be found to be both insufficient in I-1 and the only concept more or less sufficient in I-7 to account for the difference between war on paper and war in reality.

The criterion proposes a way to deal with this inconsistency: as I-1 is closer to Clausewitz's final thinking, the passage of I-7 no longer stands and has to be abandoned. After the criterion, then, *friction can no longer be taken* as the only concept that would distinguish real war from war on paper.

Moreover, this supports a more economical and critical reading of *On War* than has previously been possible. If the focus of one's interest

lies in the more revised parts, then it is unnecessary to dwell on what Clausewitz says about it in the unrevised parts. This turned out to be the case in the treatment of logistics. Conversely, if one's interests lie in those parts that are more distant from Clausewitz's final thinking, then a review of how the more revised parts affect it becomes mandatory.

For example, if one wanted to address the Arming of the People ('The Nation in Arms', VI-26) as Clausewitz's understanding of the various ways the people can become a fighting resource in war, then the above criterion would suggest that substantial review could be necessary to bring it in line with Clausewitz's final thinking. In such a review, one would come to appreciate, taking I-1 into account, that VI-26 does not consider that there are two kinds of war. This is such a paramount component of the theory of war that major adaptation would be needed before the contents of VI-26 could be used authoritatively.

The Art of War, the Conduct of War and the Concept of Logistics

Clausewitz's concern with the *object* of a theory of war, that is to say, the conduct of war, is to be found in Book Two ('On the Theory of War'). It leads him to address the centrality of combat in war and its consequences. This is the topic of II-1, titled 'Classifications of the Art of War':

Essentially, then, the art of war [Kriegskunst] is the art of using the given means in combat; there is no better term for it than *conduct of war* [Kriegsführung]. To be sure in its wider sense the art of war includes all activities that exist for the sake of war, such as the creation of fighting forces, their raising, armament, equipment, and training. [OW II-1: 127, emphasis on the original, brackets with original German term]

What is at stake in terms of Clausewitz's gradual presentation is the distinction between *the art of war in its narrower sense*, the conduct of war, which is the object of his theorization, and *the art of war in its wider sense* of all activities that exist for the sake of war, *including* the conduct of war.

Clausewitz differentiates between tactics, the use of force in the engagement, and strategy, the use of (the results of) engagements for the purpose of war [OW II-1: 128]. Tactics and strategy are sufficient for the purposes of a theory of (the conduct of) war. But Clausewitz remarks that this:

... classification [tactics and strategy] applies to and exhausts *only the utilization of the fighting forces*. But war is served by many

activities that are quite different from it; some closely related, others far removed. All these activities concern the *maintenance of the fighting forces*. While their creation and training precedes their use, maintenance is concurrent with and a necessary condition for it. Strictly speaking, however, all these should be considered as activities preparatory to battle, of the type that are so closely related to the action that they are part of military operations and alternate with actual *utilization*. So one is justified in excluding these as well as all other preparatory activities from the narrower meaning of the art of war – the actual conduct of war. [OW II-1: 128 – 129, emphasis on the original, square-brackets added]

We argue here that all other activities in war, the art of war in the wider sense *excluding* the conduct of war, that are preconditions or preparatory in the sense of pre-conditional to combat, then, constitute Clausewitz's *concept of logistics*.

This results from Clausewitz's understanding of the role and requisites of theory making:

Indeed, it is necessary to do this if theory is to serve its principal purpose of *discriminating between dissimilar elements*. One would not want to consider the whole business of maintenance and administration as part of the utilization of the troops, the two are essentially very different. [OW II-1: 129, emphasis in the original]

Clausewitz's categories, then, reflect this concern:

... the activities characteristic of war may be split into two main categories: those *that are merely preparations for war*, and *war proper*. The same distinction must be made in theory as well.

The knowledge and skills involved in the preparations will be concerned with the creation, training and maintenance of the fighting forces. It is immaterial what label we give them, but they obviously must include such matters as artillery, fortification, so-called elementary tactics, as well as all the organization and administration of the fighting forces and the like. The theory of war proper, on the other hand, is concerned with the use of these means, once they have been developed, for the purposes of the war. All that it requires from the first group is the end product, an understanding of their main characteristics. That is what we call 'the art of war' in a narrower sense, or 'the theory of the conduct of war', or 'the theory of the use of the fighting forces'. For our purposes, they all mean the same thing.

That narrower theory, then, deals with the engagement, with fighting itself, and treats such matters as marches, camps, and billets as conditions that may be more or less identical with it. It does not comprise questions of supply, but will take these into account on the same basis *as other given factors*.

The art of war in the narrower sense must now in its turn be broken down into tactics and strategy. The first is concerned with the form of the individual engagement, the second with its use. Both affect the conduct of marches, camps, and billets only through the engagement; they become tactical or strategic questions in so far as they concern either the engagement's form or its significance. [OW II-1: 131–132, emphasis in the original]

Thus, the art of war in its wider sense has at its core the conduct of war. Logistics, what remains of the art of war in the wider sense, is like a ring around the conduct of war, its *condition of possibility*. As both are part of a coherent whole, the art of war, logistics and the conduct of war are constantly interacting with each other.

If the entire text of *On War* had been revised, then this could be in itself taken up without further discussion as the expression of the final stage of Clausewitz's thought. However, II-1 ranks low according to the criterion. The passages quoted above might be inconsistent with more revised parts of *On War*. This makes it necessary to review it in light of those parts. The content of II-1 on this matter is coherent with I-2, which ranks high in the criterion. The fundamental point can be found, almost unchanged, in I-2:

[The art of war]¹⁸ comprises everything related to the fighting forces – everything to do with their creation, maintenance, and use.

Creation and maintenance are obviously only means; their use constitutes the end.

Combat in war is not a contest between individuals. It is a whole made up of many parts, and in that whole two elements may be distinguished, one determined by the subject, the other by the objective. The mass of combatants in an army endlessly forms fresh elements, which themselves are parts of a greater structure. The fighting activity of each of these parts constitutes a more or less clearly defined element. Moreover, combat itself is made an element of war by its very purpose, by its *objective*.

Each of these elements which become distinct in the course of fighting is named an *engagement*.

If the idea of fighting underlies every use of the fighting forces, then their employment means simply the planning and organizing of a series of engagements.

The whole of military activity must therefore relate directly or indirectly to the engagement. The end for which a soldier is recruited, clothed, armed, and trained, the whole object of his sleeping, eating, drinking, and marching *is simply that he should fight at the right place and the right time*. [OW I-2: 95; emphasis in the original, amendment shown in square-brackets]

Logistics is properly considered as a means; the use of forces in combat is its end. This connects logistics to the theory of war. It also gives logistics an objective and establishes an intrinsic criterion for the consideration of logistics. Logistics is to be considered in terms of its *effects on combat*. As a result, it is *the proximity to the engagement* that classifies logistical activities. Thus the concept of logistics as derived above can be taken as coherent with the most advanced stage of Clausewitz's thought.

The confidence that II-1 is compatible with the most advanced stage of Clausewitz's thinking justifies the exercise of taking a long passage from this chapter concerning logistics for a critical review. This is complemented by the appreciation of its contents in the light of this most advanced stage of Clausewitz's thought, considering in turn the engagement, tactics, strategy and politics. This seems essential because it is the only way that Clausewitz's own categories and analysis can be shown to point to a concept logistics with full authoritative attribution of his original content.

Clausewitz's Categories of Logistics: Logistics that in One Respect is Identical to Combat and Logistics that Just Affects Combat

According to Clausewitz, the engagement is the criterion for the classification of logistical activities. Clausewitz begins by recalling his understanding of the engagement:

In the third chapter of Book I we pointed out that, if combat or the engagement *is defined* as the only directly effective activity, the threads of all other activities will be included because they all lead to combat. [OW II-1: 129, emphasis in the original]

However, Clausewitz refers in this passage to one of the lowest rated chapters according to the criterion. This requires an inquiry as to whether this definition of the engagement, the one in his mind as he wrote II-1, stands when confronted with the more revised parts of the text.

As it turns out, this is entirely compatible with the understanding of the engagement expressed in I-2 [OW I-2: 95, quoted above]. So it is possible to move on:

The statement meant that all these activities are thus provided with a purpose, which they will have to pursue in accordance with their individual laws. Let us elaborate further on this subject.

Activities that exist in addition to the engagement differ widely.
[OW II-1: 129]

Although all these widely varied activities share the same purpose, to serve the engagement, they do so according to their own laws, to their own logic. The logic of these other activities is *not that of combat*.

The fact that these activities serve the engagement does not mean that the engagement dictates their methods. Each one of these activities has its own *logic*, which is peculiar to each one of them. In turn, each of these methods offers alternatives, the whole of which may be taken as a given, once they have been consolidated or expressed in positive doctrine. This relates directly to Clausewitz's remarks on the utility of method and routine for activities in war expressed in II-4. Although II-4 ranks low in the criterion, its content seems eminently compatible with the above passages of II-1, which rank higher; and these, in turn, are reaffirmed in I-2 as shown above.

Clausewitz proposes a distinction in logistics that results from an appreciation of the role each activity plays or the effect it has on the engagement. Clausewitz categorized all these activities, *all of logistics*, as follows:

Some of these are in one respect part of combat proper and identical with it, while in another respect they serve to maintain the fighting forces. Others are related to maintenance alone; which has an effect on combat only because of its interaction with the outcome of the fighting. [OW II-1: 129]

This makes the understanding of logistical considerations as a realm apart from war untenable according to Clausewitz, as they are present in war throughout. Even those logistical activities that have no role in the engagement must be considered in terms of their relevance to the

outcome of the engagement. Clausewitz details each one of these in turn:

The matters that in one respect are still part of the combat are *marches, camps, and billets*: each concerns a separate phase of existence of the troops, and when one thinks of troops, the idea of the engagement must always be present.

The rest, concerned with maintenance alone, consists of supply, medical services, and maintenance of arms and equipment. [II-1: 129, emphasis in the original]

According to Clausewitz's own structure, it is useful to divide the first of these in terms of *the movement of the fighting force*, or marches, on the one hand, and when *the fighting force stands*, or camps and billets, on the other. Then to address those activities that deal exclusively with *the maintenance of the fighting force*. Following these three items, we make explicit Clausewitz's implicit remarks on *the creation of the fighting force*.

It might appear odd to begin with the movement of the fighting force, since it has to be created before it can be moved. But this is because Clausewitz's classification is analytical. From the point of view of the theory of war, the movement of the fighting force must be addressed first because of its greater proximity to combat.

The Movement of the Fighting Force

Marches are completely identical with the utilization of troops. [OW II-1: 129]

According to Clausewitz, then, the movement of the fighting force is identical to the use of the fighting force. Clausewitz addresses in turn tactics and strategy in what concerns movement:

Marching in the course of an engagement (usually known as 'deployment'¹⁹) while not entailing the actual use of weapons, is so closely and inescapably linked with it as to be an integral part of what is considered an engagement. [OW II-1: 129, emphasis in the original]

All that concerns the ability of the force to move in a given space in a given time in the engagement is integral and, in fact, identical to the *use* of the fighting force: it is tactics. So a number of propositions can no

longer stand in Clausewitz's terms. To argue that movement is one thing and combat another is in error; that movement in the face of the opponent is something different from movement itself, for example 'maneuver', is in error; that movement out of the opponent's sight would not be 'combat', but, for example, 'march' is in error. So long as it takes place in the course of an engagement, movement is identical to combat: its purpose given by tactics, its achievement constrained by logistics.

Logically, then:

[a] march that is not undertaken in the course of an engagement is simply the execution of a strategic plan. The latter determines *when, where* and *with what forces* an engagement is to be fought. The march is only the means of carrying out this plan. [OW II-1: 129, emphasis in the original]

Clausewitz points out that tactics, strategy and logistics cannot be taken in isolation:

A march that is not part of an engagement is thus a tool of strategy, but it is not a matter of strategy exclusively. Since the forces undertaking it may at any time become involved in an engagement, the execution of the march is subject to the laws of both tactics and strategy. If a column is ordered to take a route on the near side of a river or a range of hills, that is a strategic measure: it implies that if an engagement has to be fought in the course of the march, one prefers to offer it on the near rather than the far side. [OW II-1: 129]

The way the fighting force can move for tactical or strategic purposes is dependent on its intrinsic mobility, constrained or facilitated by terrain, by the quality of roads, by weather and so on and so forth. Tactical and strategic considerations *do not exclude one another*, and *neither do they exclude logistical considerations*.

The fighting force moves with fighting in view. The *possibility* of combat, of an engagement, is a concern at all times. This must be taken into account in the way the force is set in motion, in the way it moves, as it moves. This defines what parts of the fighting force goes where, and when, and how, according to its relative mobility and the logistical constraints and tactical benefits of terrain and weather.

The way the fighting force moves takes into account what would be needed should an engagement take place at any time. This accounts for the space and time required by the way the fighting force fights: in terms of the range of its weapons, the nature of its formations, the

requirements of combined arms, the requisites of its plan of engagement and the way each of these relates to terrain and weather. *This is why moving the fighting force is identical to fighting even when combat does not take place:*

If on the other hand a column takes a route along a ridge instead off following the road through a valley, or breaks up into several smaller columns for the sake of convenience, these are tactical measures: they concern the *manner* in which the forces are to be used in the event of an engagement. [OW II-1: 129–130]

When the fighting force moves for *strategic* purposes, *tactical* considerations determine the composition of the parts of fighting force that move simultaneously or successively, as explained above. Strategic considerations dictate which parts should go where and when, and for what purpose. *Both* strategic and tactical considerations determine their relative position and speed, as well as their sequence in movement. But these are bound by what is logistically feasible in terms of access, space and time: by the intrinsic mobility of forces, the terrain, the weather and so on. All come together in defining possible deployments of the fighting force should an engagement occur along a given route, or at a given site, for a given tactical or strategic purpose. The concentration or dispersion of the fighting force within a theater of operations corresponds to what is logistically possible in order to meet the needs of tactics in pursuit of the purpose of war. As a result, whenever the fighting force moves for strategic purposes, it is strategically oriented, tactically composed and logistically constrained. The movement of the fighting force for strategic purposes goes hand in hand with the appreciation of logistical possibilities and tactical requirements, making it *indistinguishable* from fighting.

The internal order of march bears a constant relationship to readiness for combat and is therefore of a tactical nature: it is nothing more than the first preliminary disposition for a possible engagement. [OW II-1: 130]

Clausewitz appreciates the influence of *the way the fighting force is organized*, in this case, for movement. This expresses yet another aspect of the movement of the fighting force that welds together logistics, tactics and strategy. This means that there is a theoretical basis for the appreciation of the *order of march* and the *readiness* of the fighting force whenever it moves, and that corresponds to considerations about the *order of battle*.

The march is the tool by which strategy deploys its effective elements, the engagements. But these often become apparent only in their effect, and not in their actual course. Inevitably, therefore, in discussion the tool has often been confused with the effective element. One speaks of decisive skilful marches, and really means the combinations of engagements to which they lead. This substitution of concept is too natural, and the brevity of expression too desirable, to call for change. But it is only a telescoped chain of ideas, and one must keep the proper meaning in mind to avoid errors.

One such error occurs when strategic combinations are believed to have a value irrespective of their tactical results. One works out marches and manoeuvres, achieves one's objective without fighting an engagement, and then deduces that it is possible to defeat the enemy without fighting. Only at a later stage shall we be able to show the immense implications of this mistake. [OW II-1: 130]

One may succeed in a *coup de main* and outmaneuver, or out-deploy, the opponent in an engagement. But Clausewitz is emphatic that when the opponent yields a position, or concedes an engagement, this is not because of such a movement in itself. Rather, the opponent anticipates the results of an engagement in those conditions as unfavorable. Thus the opponent declines to engage with those prospects, and gives up that particular position or avoids that particular engagement. [OW III-1: 181, eminently compatible with II-1 and I-2; that combat is combat even when it does not take place is in I-1, the top of the criterion, as well, esp. I-1-12, I-1-13: 81-83]

One might even succeed in terms of wider movements. It is conceivable to so outmaneuver the opponent that the same bleak prospects might be expected from a whole series of prospective engagements, strictly speaking, a strategic result. The same logic would apply. Rather than fight those engagements that have negative prospects, the opponent can choose to give up a region or a line of march. But in order to argue that movement alone could win engagements or wars, one would have to assume that the opponent would *always* shy away from an engagement when its prospect was unfavorable.

Thus, even if the prospect of an engagement was that of a tactical reverse, even if the prospect for a whole series of engagements was negative, *this does not mean that the opponent would be unwilling to fight it.*

First, the opponent might gamble. A negative prospect for the result of an engagement, or series of engagements, is just that: an estimate. The opponent might be willing to risk such an engagement in the hope

that fortune, or virtue, might reverse the expectations and produce a favorable outcome. Fighting would then take place. Both sides would have moved their fighting force so as to be able to fight this unlikely engagement. Further, the opponent's gamble might pay off; the more so as one mistakenly believed movement alone would be enough. The physical and moral outcome of such an unlikely victory might well affect the overall situation. Even if this prospect applied to a series of engagements, if prognosis of fighting was that of strategic defeat, even if fighting would lead with reasonable certainty to the loss of the war, even then this does not mean that the opponent would automatically yield in all cases, because war is not decided upon tactical or even strategic prospects alone.

War is an extension of politics. If what was at stake was not important enough, then indeed the opponent might be forced to yield by sufficiently negative prospects of fighting. If those prospects exceeded what the opponent was willing to do for a given political objective, then indeed one could see a war won 'by maneuver' – in fact, won by the anticipation of results of the engagements that movement could bring about.

If what was at stake was important enough, however, then the opponent might choose to fight in order to bear witness to that importance or to chance an unlikely victory. The political gesture of fighting might be more important than the prospect of a tactical, or strategic, success. Depending on the political objective of the war, on the political situation in which the war took place, even the prospect of losing one, or many, engagements might play a part in the conduct of the war as a whole. Any number of uses might be given to a defeat: a defeat that affirmed the willingness to fight, a defeat that weakened the victor to the point that others would exploit that weakness, a defeat that brought allies to the defeated or a defeat that rallied the population of the defeated. An engagement can have political effects that outweigh the control of a position or the losses to the forces involved in it. A reverse here can serve for success elsewhere, or contribute towards overall success. And 'there is only one result that counts – *final victory*' [OW VIII-3A: 582 which ranks high in the criterion].

It is possible to have victory in war that is seemingly based solely on movement. Again, this is a matter of politics, and relates to the political objectives of those involved. Any number of circumstances can make a *demonstration of force* enough to win a limited war. For example, the movement of a force can be enough in itself *if* the point of the matter resided on the *willingness* to use force *at all*. And yet again it is fighting that is controlling, not movement. For what is at stake is simply the imminent character of an engagement, or series of engagements, the risk and cost of which the opponent is unwilling to chance or bear for the specific political objectives of this particular war.

So long as there are means and will, so long as the opponent still possesses a fighting force and is willing to carry on, the war can go on. Even a vast movement with capital strategic import does not mean that the war will automatically end. The ultimate reason that prevents one from winning a war by movement alone is simple. Without actual combat, *the opponent's fighting force still exists*. The opponent still possesses the means with which to fight, and can still decide to go on fighting if the political objective of the war is important enough.

So that is what concerns movement which in some respect is identical to combat proper. But movement in some respects is distinct from combat:

Although marching can be seen as an integral part of combat, it has certain aspects that do not belong here, and that therefore are neither tactical nor strategic. These include all measures taken solely for the convenience of the troops, such as building roads and bridges, and so forth. These are merely preconditions; under certain circumstances they may be closely linked with the use of troops and be virtually identical with them – for instance, when a bridge is built in full view of the enemy. But essentially these activities are alien to the conduct of war, and the theory of the latter does not cover them. [OW II-1: 130]

Before movement in time, but after movement in analysis, it is necessary to consider the way the fighting force is concentrated and how it stands in-between movements.

The Fighting Force Stands

The same reasoning applies when the fighting force stands. Clausewitz deals with this in terms of camps and billets:

The term 'camp' is a term for any concentration of troops in readiness for action, as distinct from 'billets'. Camps are places for rest and recuperation, but they also imply strategic willingness to fight wherever they may be. But their sitting does determine the engagement's basic lines – a precondition of all defensive engagements. So they are essential parts both of strategy and of tactics.

Camps are replaced by billets whenever troops are thought to need more extensive recuperation. Like camps, they are therefore strategic in location and extent, and tactical in their internal organization which is geared to readiness for action.

As a rule, of course, camps and billets serve a purpose besides that of resting the troops; they may, for instance, serve to protect a certain area or maintain a position. But their purpose may simply be to rest the troops. We have to remember that strategy may pursue a wide variety of objectives: anything that seems to offer an advantage can be the purpose of an engagement, and the maintenance of the instrument of war will often itself become the object of a particular strategic combination. [OW II-1: 130]

Here the duality of logistics that in some respects is identical to fighting proper and in some respects is a precondition to the engagement can be addressed more distinctively. On the one hand, camps and billets can serve to secure a position. In this case they are an engagement, or the intention of an engagement, by themselves. When rather than hold a position, the fighting force uses it as a starting point for movement, that position entails the consideration of prospective engagements, and thus camps and billets are a precondition for those future engagements.

On the other hand, camps and billets serve another purpose entirely: to allow fighting forces to rest. Clausewitz is one of the very few authors to keep the humanity of fighting forces always present in his considerations. Fighting forces, being composed of human beings, need to rest. But even:

So[,] in a case where strategy merely aims at preserving the troops, we need not have strayed far a field: the use of troops is still the main concern, since that is the point of their disposition anywhere in the theater of war. [OW II-1: 130–131]

So that is what concerns the part of camps and billets that relates to combat proper.

On the other hand, the maintenance of troops in camps or billets may call for activities that do not constitute a use of the fighting forces, such as the building of shelters, the pitching of tents, and supply and sanitary services. These are neither tactical nor strategic in nature.

Even entrenchments, where site and preparation are obviously part of the order of battle and therefore tactical, are not part of the conduct of war so far as *their actual construction* is concerned.

On the contrary, troops must be taught the necessary skills and knowledge as part of their training, and the theory of

combat takes all that for granted. [OW II-1: 131, emphasis in the original]

These aspects of camps and billets are distinct from combat proper. This provides an illustration of the way logistics has a logic of its own, and thus falls outside the scope of the theory of war. The theory of war *assumes* that the fighting force either has or does not have the capability to accomplish any one logistical activity. In either case this *is a given* from the point of view of the conduct of war. However, the effects of logistics are relevant to the conduct of war to the exact extent that they have tactical, or strategic, or both tactical and strategic relevance. Entrenching, to take Clausewitz's own example and expand it, offers a good illustration of how *logistics has a logic of its own that concerns its accomplishment*.

The decision to entrench at a given location results from the simultaneous appreciation of strategic, tactical and logistical considerations. Strategic considerations will account for preserving the fighting force, holding a position, securing a passage, or anticipating an engagement that can favorably alter the balance of forces in the theater of operations, whichever is the case. Tactical considerations will determine the requisites of trenches as part of a plan of engagement that serves a particular strategic purpose: whether entrenchments should minimize the opponent's or maximize one's own ability to use close or stand-off combat. Logistical considerations will account for the feasibility of entrenching on a given piece of ground.

However, *how to accomplish entrenchments that serve strategic and tactical purposes* on a given site, in a given time, for a given fighting force against an expected opponent *is no longer a matter of tactics or strategy*. It is a matter of logistics that affects, but is distinct from, the engagement.

The state of the art of logistics will determine what constitutes an entrenchment: the physical attributes that offer effective protection from weapons, sustain the standing or passage or fighting of various types of troops in given formations, successively or simultaneously. The building of these facilities, their requisites and ancillaries, will make use of specific techniques and designs to build entrenchments for a given fighting force, on a given ground, in a given time, against the expected opponent fighting force. These will determine how deep, thick, high, spaced or shaped the troop positions and their ancillaries need to be. This requires, in turn, an appreciation of the possibilities and characteristics of the site one would wish to entrench: matters such as the lay of the ground, the relative physical placement of terrain, the variations of weather, the characteristics and design of fighting positions.

Entrenchments will be built subject to parameters such as the design and managerial skills of those in charge, the competence and willingness of the workforce, the access to, characteristics and difficulties of the ground, the availability of materials, tools and time. This will identify and guide the provision of all that is required in order to build such facilities and arrangements as will, in fact, be entrenchments. The accomplishment of entrenchments – digging and bracing and raising walls – is the result of engineering, not of fighting. The logic of engineering, not the logic of combat, presides over the logistics of entrenching. Once entrenchments exist, *their effects in the engagement* become a matter of tactical or strategic or both tactical and strategic concern.

This appreciation of the way logistics can have a role in war and yet retain its own particular logic serves well to address all other activities that have no participation in the course of an engagement, but that affect it.

The Maintenance of the Fighting Force

Of the items wholly unconnected with engagements, serving only to maintain the forces, supply is the one which most directly affects the fighting. It takes place almost every day and affects every individual. Thus it thoroughly permeates the strategic aspects of all military action. The reason why we mention the strategic aspect is that in the course of a given engagement supply will rarely tend to cause an alteration of plans – though such a change remains perfectly possible. Interaction therefore will be most frequent between strategy and matters of supply, and nothing is more common than to find considerations of supply affecting the strategic lines of a campaign and a war. Still, no matter how frequent and decisive these considerations may be, the business of supplying the troops remains an activity essentially separate from their use; its influence shows in its results alone. [OW II-1: 131]

What is at stake for Clausewitz is not the *relevance* of supply in war. It is obviously relevant to the exact extent that supply makes fighting forces capable of fighting, or even of existing. This explains why logistics will affect the consideration of strategic alternatives and be a common concern in the formulation and execution of strategic plans.

The point, however, is precisely the same as the one above concerning entrenchments. Supply affects the fighting force's ability to take part in the engagement but is not usually part of the engagement. Supply can affect the ability of a fighting force to go on

using engagements and their results in pursuit of the purpose of war, supplying is not the use of engagements, even if it a necessary condition for such use.

The purpose of supply is given by its role in the conduct of war. Supply is but a precondition for the continued existence of the fighting force as a fighting force, either in the engagement or during a campaign or war. Supply comprises the feeding of men and beasts, the availability of arms and munitions and so on. Supply has a logic of its own: a logic of management in collecting and processing raw materials, in manufacturing according to standards, in packaging and distribution, which corresponds, in broad terms, to procurement, stocks and flows. This corresponds to a state of the art of provisioning supplies that goes all the way from the design of products and services to their delivery to the end user. Undoubtedly when supplies are not available to a fighting force for any reason, it suffers and can even cease to exist as such.

Short of the extreme, lack of adequate volume or type of supplies can be such that it compromises the ability of the force to fight. For most of history, the most sensitive supply restraint on war concerned victuals; in recent years, it is usually related to fuel or ammunition. An abundance of supply, in turn, can overwhelm the opponent's force with the benefits that might be obtained from a profligate expenditure of *materiel*. Thus supply affects the engagement, and can become a factor in tactics in terms of its effects. But this is uncommon enough so that the expectation of theory is that the fighting force will be supplied enough to simply *be* a fighting force, with the loss or benefit due to lack or abundance of supplies being taken as a given in what concerns any one individual engagement.

Should attacking the opponent's or defending one's own supply become a profitable course of action, decisions will have to be made about which engagements to fight. This leads to engagements that are preparatory, in the sense that their purpose is to undermine the opponent's or to preserve one's own fighting force, so that one will have the advantage in later engagements. This will establish a mutual interaction between the opponents, with one or both sides considering how much force will be necessary in order to produce, prevent or restore a given supply condition, and how this allocation affects those engagements that pursue the purpose of war. Thus one can use engagements to preserve one's own or reduce the opponent's supply, in light of those engagements that pursue the purpose of war, assessing how this affects the balance of forces in the theater of operations, estimating how this approximates the political objectives of the war: the matter is thus revealed as being strategic.

Supply considerations will be relevant to the exact extent that they can have an effect on the conduct of war. This will bring them to

the fore as they affect, and to the extent they affect, the ability of the fighting force to take part in an engagement, to use tactics; to use (the results of) engagements in pursuit of the purpose of war, that is to say, to use strategy; or to use force to compel one's opponent to one's will, that is to say, to make war itself:

The other administrative functions we have mentioned are even further removed from the use of troops. Medical services, though they are vital to an army's welfare, affect it only through a small portion of its men, and therefore exert only a weak and indirect influence on the utilization of the rest. [OW II-1: 131]

This is even more so in terms of administrative and, to follow Clausewitz's example, medical considerations. The point is exactly the same as above. Ordinarily, they can be taken as a given. They become tactical or strategic concerns to the exact extent that they become substantive in terms of the conduct of war.

One can indeed conceive of ways and circumstances through which these activities could become a relevant consideration in war. If the managerial services of one side in war were more efficient in the use of resources than the other, it would provide more fighting strength for the same resources. If the medical service, or the repair service, of one side returned a much higher proportion of casualties and damaged equipment to the fighting force than the other after each engagement, this would give one side an advantage, making it stronger than the other for the same amount of resources or by recovering more strength from losses in engagements. Regardless, however, of the existence of such differences in effectiveness and their effect on the strength of one side, their results will be *taken as a given* from the point of view of the conduct of war.

It is harder to conceive of a way the one would be able to affect the opponent's management, medical or repair service. That is certainly possible, for example in terms of raids upon the opponent's rear against managerial, manufacturing, medical or repair facilities which will indirectly weaken the opponent's fighting force. When that turns out to be the case, then the same strategic reasoning that applied to supply would come into operation:

Maintenance of equipment, other than as a constant function of the fighting forces, takes place only periodically, and will therefore rarely be taken into account in strategic calculations. [OW II-1: 131]

This removal of the concerns of equipment from 'strategic calculations' is a point that has been taken, we would argue, erroneously, as evidence of a blind spot about technology in Clausewitz's theory of war.

Maintenance cycles vary from equipment to equipment, and include the needs of animals as well. Human needs could belong here, as well, if it were not that humans *are* the fighting force itself. So it is consistent to exclude human needs from an appreciation of the maintenance of the fighting force in terms of its *equipment*, even if one would include animals. But the broad parameters of equipment maintenance are a constant in war. So, for example, the requirements of sandal maintenance in the Roman Legions have little counterpart to modern combat boots, but the need to clean and maintain firearms is more involved than the maintenance of blades and armor. The care and feeding of a horse, a daily if not hourly concern with the rhythm of march, grazing, drinking, resting, horseshoes and all the other accoutrements of riding, have parallels but are substantially different from those of, say, aircraft or tanks. In all ages, boats and ships, riverine or maritime, have always been finicky pieces of hardware. And each one of them is certainly important, even potentially decisive in the engagement, in the use of the results of engagements and in the prosecution of war.

However, to see the matter in these terms alone is to miss the point. All these concerns belong to logistics, each has its own logic and state of the art, but they are not part of the engagement, they only affect it. What is relevant is whether the tactical possibilities that any given equipment allows will be available in the engagement.

Availability rates apply to all but the simplest of equipment, and they can *affect* the engagement. They reflect the resources or discipline of proper maintenance. Even blades have to be sharpened. The point is that these will either be available or not available with a given effectiveness in the engagement, *because* they depend on periodical maintenance in order to maintain a given level of performance. But that maintenance *itself* has no place *in* the engagement except in extreme situations.

Some parts of the fighting force may require a particular piece of equipment that is more difficult to maintain than others. But this can hardly be taken as an exclusive characteristic of modern times. On the contrary, it is the nearly limitless supply of industry can be contrasted with the scarcity of previous eras.

Clausewitz's point is very well taken: *the maintenance of equipment* as such will indeed rarely be taken into account in strategic calculations. Their effect, that is to say, how a given level of equipment availability or performance affects the engagement is the critical concern. *What fighting force* is available is the paramount consideration: *what this equipment allows in terms of the conduct of war and whether it is available or not.*

Clausewitz systematically addresses the possibilities of the weapons and equipment, both on land and at sea. In V-4 ('Relationship

Between the Branches of the Service'), he shows his grasp of the characteristics of the combatant arms of his own time, while aware that they are those of his own time, that things would change, as they were changing: 'destruction being a more effective factor than mobility, the complete absence of cavalry would prove to be less debilitating to an army than the complete absence of artillery' [OW V-4: 285]. This was a challenge to the still prevailing medieval-inspired notions of the unchanging role and pre-eminence of cavalry. In VIII-9 ('The Plan of a War Designed to Lead to the Total Defeat of the Enemy'), he explains the requirements of balanced land forces in view of the terrain [OW VIII-9: 632], appreciating the possibilities of amphibious operations and the needs of coastal defense [OW VIII-9: 634]. Since the issue here is a thematic concern, a review is not necessary under the criterion.

Clausewitz then marks with characteristic candor the limits of theory itself:

At this point we must guard against a misunderstanding. In any individual case these things may indeed be of decisive importance. The distance of hospitals and supply depots may easily figure as the sole reason for very important strategic decisions – a fact we do not want to deny or minimize. However, we are not concerned with the actual circumstances of any individual case, but with pure theory. Our contention therefore is that this type of influence occurs so rarely that we should not give the theory of medical services and replacement of munitions any serious weight in the theory of the conduct of war. Unlike the supplying of the troops, therefore, it would not seem worth while to incorporate the various ways and systems those theories might suggest, and their results, into the theory of the conduct of war. [OW II-1: 131]

The Creation of the Fighting Force

The authors argue that Clausewitz is making explicit references to the process and implicit characterization of the elements that concern the *creation* of the fighting force in the above presentation. Further, that the creation of the fighting force corresponds to a logistical activity that in some respects is identical to fighting.

Clausewitz's theory of war takes the existence of fighting forces as an *intrinsic part of human existence*. This is expressed in the very first lines of I-1, on the very *concept* of war and its summary development. The 'heart of the matter' is the fight between any two human beings, the brawl²⁰ [OW I-1-2: 75]. When quoting from I-1, the usual review for

consistency is unnecessary, because I-1 is the very last stage of Clausewitz's thought.

According to Clausewitz, fighting forces will come into being as long as, and as soon as, humans have a reason to fight. It is implicit in his presentation that *as soon as people gather with the willingness to fight, they are already a fighting force*.

Granted, the effectiveness of this fighting force is limited. Its tactical capabilities, for example, can be close to minimal. But its tactical capability is not *nil*. It is a fighting force, and like any fighting force its use in war will have to take its effectiveness in consideration. This is simply the result of Clausewitz's theoretical point: the conduct of war will take the fighting force as it finds it, and *use it* as it finds it.

Tactical and, as a result, strategic considerations will determine whether this fighting force is enough for the war one intends to fight, if it is adequate to pursue the purpose of war that approximates the political objective of the war against the opponent's fighting force. Since a war is in contemplation, it is probable that the opponent will fight it with a fighting force that is capable of winning it. One, in turn, would wish to have a fighting force capable of meeting the opponent's fighting force with a reasonable expectation of success. Politics will decide how much is enough given possible political objectives and given possible wars that may have to be fought.

This is so basic a consideration in Clausewitz's theory of war that it is understandable that he would address the whole of it in a single line, also in I-1:

Force, to counter opposing force, equips itself with the inventions of the art and science. [OW I-1-2: 75]

In this passage, Clausewitz applies his concept of the art of war, his focus on the conduct of war and, thus implicitly, the present authors argue, inevitably, he makes a *logistical* point.

The fighting force corresponds to the social possibilities of a given polity, in a given time, for a given purpose. The fighting force will be created commensurate with what is possible, as capable as it is judged necessary to deal with a given opponent in a given war, at a cost that is considered acceptable given the political objectives contemplated.

This *implies* the appreciation of the effectiveness of many possible alternative configurations for the fighting force that result of the application of whatever art and science is available or can be brought to bear, as well as the social underpinnings of any one polity and the decision of how much to spend in what kind of fighting force against a given opponent in a given war. So Clausewitz's remarks are directed

precisely at the creation of the fighting force: all matters that pertain to armament, mobilization, methods as well as all the possible products of social, economic, industrial and technological development. All the inventions of art and science needed to deal with the opponent's fighting force.

Once again, it is when Clausewitz is clarifying the object of the conduct of war that one can find evidence of his awareness of what this entails:

The conduct of war has nothing to do with making guns and powder out of coal, sulphur, saltpeter, copper and tin; its given quantities are weapons that are ready for use and their effectiveness. Strategy uses maps without worrying about trigonometrical surveys; it does not enquire how a country should be organized and a people trained and ruled in order to produce the best military results. It takes these matters as it finds them in the European community of nations. [II-2: 144]

Although II-2 ranks low in the criterion, this passage is consistent with the concerns of II-1 and I-2 and can be taken as faithful to the point made in I-1.

The present authors argue that this passage can be read as showing Clausewitz's awareness of the relevance of raw materials and the role of industry, of stocks and organization; an attention to what constitutes the proper support of staff activities, even. Further, he shows his appreciation of the way social life and government influence the effectiveness of the fighting force, and that each one of these admits variation. Clausewitz shows that he is aware that there are different ways in which a country can be organized and ruled, alternatives in how its people is trained, and that some produce better results in warfare than others. Conversely, that any one form of organization and rule will allow some, but not all, fighting force alternatives, with a given result for tactical and strategic purposes. His perspective is furthermore an international one, and not a narrow list of any one country's assets or traditions.

How humans willing to fight, raw materials and products of all kinds will be made into a given fighting force belongs to the part of the art of war that is not the conduct of war. This is *the creation of the fighting force* and it belongs to logistics.

The organization of the fighting force as it is created will take into account tactical and strategic purposes. Tactical purposes will direct the preparation of the various parts of the fighting force in terms of their armament, organization, number and so on. This in turn will require troops to meet certain state of the art requirements in terms of

elementary tactics: to be able to handle weapons in certain ways, to assume, change and maintain certain formations under the stress of fighting, and be proficient in and out of combat in various circumstances in a given number of ways. The intrinsic attributes of humans as leaders or troops, of equipment, and the effectiveness of their tactical proficiency as individuals or teams will distinguish troops of different qualities: élite formations of veterans or specially picked troops with above average proficiency; regulars that can be taken as proficient in the art of war; militia, and irregulars often lack proficiency in one or more aspects.

Combat arms will be defined according to tactical purposes, having different capabilities, strengths and weaknesses. Different types of combat arms will be created in order to play different roles in the engagement. Each will be held up to different performance parameters, and thus will require specific, socially constrained intakes and demand specific materials and training so that they can be organized, equipped and trained according to their intended tactical purpose. This is tactics to the precise and exact extent that it anticipates the use of force in the engagement.

Strategic purposes will define how many of each combat arm, and how much fighting force, will be required for the prosecution of current, prospective or potential wars. The consideration of the relative cost and tactical effectiveness of various alternatives for the fighting force will also result from strategic appreciation. At any one given time, there would be a best composition of the fighting force in terms of those engagements one would wish to make so as to best pursue the purpose of war that approximates the political objective of a particular war. This is strategy to the precise and exact extent that it entails the anticipation of the use of (the results of) engagements for the purpose of war. The same applies to the siting of fortifications, supply and to all that affects the ability to use engagements and their results in war.

Political considerations will determine whether the expenditure required by each alternative so identified is commensurate with the political objectives one might fight for. Specific political objectives will argue for particular configurations and capabilities. Political perspectives will also guide the appreciation of the overall structure of the fighting force in light of its intended or potential use. Political appreciation will assess and decide upon the political requirements and implications of any and all of these decisions, including whether some, all or none of these should be administratively affiliated to civilian apparatus or bureaucracies or incorporated, in whole or in part, by the armed services as arms, branches or other establishments.

Clausewitz is quite explicit about the place of the creation of the fighting force, and it does to repeat a previous quote with a new purpose in mind:

[The art of war] comprises everything related to the fighting forces – everything to do with their creation, maintenance, and use.

Creation and maintenance are obviously only means; their use constitutes the end. [OW I-2: 95]

Clausewitz, then, clearly envisioned the creation of the fighting force as part of the art of war, but not as part of the conduct of war.

The creation of the fighting force comprises the organization of the fighting force on a permanent basis. The *order of battle* is constrained by the *organization* of the fighting force itself, that is to say, the specific arrangements that gather manpower and materiel to create fighting forces. This organization is part of the plan of the engagement, and thus part of the engagement. But the process of creating the fighting force *itself* will be neither tactics nor strategy, but logistics. The creation of the fighting force is a logistical activity, and further, the present authors argue, it is a logistical activity that is in some respects identical to fighting.

As a result, as entrenchments followed the logic of engineering given the purposes of tactics and strategy, so the process of creation of the fighting force will follow a logic of its own. The resulting fighting force will, in turn, be taken *as a given* for the conduct of war, as entrenchments were taken as a given above.

It will do to make a few careful remarks, as Clausewitz himself always does. It is conceivable that the creation of the fighting forces might be decisive, or very important, in one particular case. That a given polity might lack the fighting force, or the kind of fighting force it needs, through ill fortune or short-sightedness. Conversely that time, or any one critical resource needed for the creation of the fighting force, might prove to be essential in order to fight, carry on or win a war. This was, in fact, the case of Prussia in 1813–15, in which Clausewitz played a role. But even so, this hardly merits a theoretical treatment from the point of view of a *theory of war*. The creation of the fighting force can be taken for granted in what concerns the conduct of war because it would be an extreme situation that would have the creation of the fighting force as part of the engagement itself. But that does not belong to theory. What the fighting force, or its various parts, *can do* in tactical and strategic terms is the sole relevant concern for the conduct of war.

Clausewitz on the Conduct of War and Logistics

Clausewitz proposes the following terms for his summation:

To sum up: we clearly see that the activities characteristic of war may be split into two main categories: those *that are merely preparations for war*, and *war proper*. The same distinction must be made in theory as well.

The knowledge and skills involved in the preparations will be concerned with the creation, training and maintenance of the fighting forces. It is immaterial what label we give them, but they obviously must include such matters as artillery, fortification, so-called elementary tactics, as well as all the organization and administration of the fighting forces and the like. The theory of war proper, on the other hand, is concerned with the use of these means, once they have been developed, for the purposes of the war. All that it requires from the first group is the end product, an understanding of their main characteristics. That is what we call 'the art of war' in a narrower sense, or 'the theory of the conduct of war', or 'the theory of the use of the fighting forces'. For our purposes, they all mean the same thing. [OW II-1: 131-132]

The vast content of Clausewitz's concept of logistics is subordinate to his theoretical wish to make clear his object of a theory of war. He mentions the 'creation, training and maintenance' of the fighting forces in a single line as self-evident, and declines to even give these considerable number of activities a name.

In a passing thought he groups 'such matters as artillery, fortification, so-called elementary tactics, as well as all the organization and administration of the fighting forces and the like'. Thus he compresses all of that in terms of those elements necessary and sufficient to make valid his primary assumption that the fighting force *can* be taken as a given.

Clausewitz's primary concern remains the clear enunciation of his object, which he tries to retain conceptually beyond any one particular denomination, but in fact is proposed in a progressively clear sequence as the art of war in the narrow sense, the conduct of war, the theory of the use of fighting forces. Further:

That narrower theory, then, deals with the engagement, with fighting itself, and treats such matters as marches, camps, and billets as conditions that may be more or less identical with it. It does not comprise questions of supply, but will take these into

account on the same basis *as other given factors*. [OW II-1: 132, emphasis on the original]

The way logistics will be taken up and interact with the conduct of war, then, comprises an appreciation of those activities that are, in one respect, part of the engagement and those that are not, and as he does so he indirectly conceptualizes logistics.

Conclusions

We argue that the preceding offers a concept of logistics. The core of the matter lies in the necessary distinction between the *use* of the fighting forces and all else that is necessary so that they can be taken as a *given* for tactical and strategic purposes.

War comprises a vast number of activities, the whole of which is the art of war. The *use* of fighting forces is the conduct of war, which corresponds to tactics and strategy, and accounts completely and exhaustively for war properly speaking. The conduct of war is the *object* of Clausewitz's theory of war.

Clausewitz does not address logistics, as such, in his text. It does to return to a previous quote with that in mind:

The knowledge and skills involved in the preparations will be concerned with the creation, training and maintenance of the fighting forces. *It is immaterial what label we give them*, but they obviously must include such matters as artillery, fortification, so-called elementary tactics, as well as all the organization and administration of the fighting forces and the like. [OW II-1: 131 emphasis added]

Clausewitz analyses all else that exists for the sake of war, all that is necessary for the existence of fighting forces in a given place at a given time: all of the creation, movement, positioning and maintenance of the fighting forces. This includes the material aspects of products and the cognitive aspects of procedures, the physical and moral forces of the fighting force as it is created, as it stands, as it moves, and as it is sustained for or in war. The present authors argue that this is *logistics*, and present it as a derivation because Clausewitz was so successful in distinguishing what was the object of the conduct of war, that he provided all the necessary elements for the conceptualization of logistics within the theory of war.

The concept of logistics does result from a division of the whole of the art of war that sets it in opposition to the conduct of war. But it is a

distinction that separates the conduct of war from its condition of possibility analytically, and admits that logistics in some respects can be identical to fighting. This is not a negative definition, but rather an analytical result.

The line that divides the conduct of war from logistics is not an insurmountable barrier. On the contrary: in some respects, logistics is identical to fighting. Logistical considerations are present in the engagement: the width of a front, the range of weapons. Logistical considerations are present in the use of (the results of) engagements: the reach of transports, the access to objectives, the sustainability of the fighting force itself. There is no dividing line or timing between logistics, tactics and strategy. Logistics emerges, then, as a full analytical dimension of war.

The concept of logistics derived from Clausewitz's theory of war can be presented positively as follows.

Logistics comprises all those activities in war that are a precondition, or preparatory in the sense of pre-conditional, to tactics and strategy. It is all that is required so that the fighting force can be taken as a given by the conduct of war. Logistics is the *condition of possibility* of the conduct of war, and its purpose is defined by the needs of tactics or strategy.

Logistics can become a tactical or strategic concern to the exact extent that it affects the engagement or the use of (the results of) engagements in war. But in itself it is neither tactics nor strategy. Logistics is presided by a logic of its own, as diverse as the various activities that make it up.

Logistics is classified in terms of its proximity to the engagement. Logistics can be part of the engagement, and thus in some respects identical to fighting, as in marches, camps and billets – and, the present authors argue, in the creation of the fighting force itself. Or logistics can only affect the engagement but not be part of it, as in all that concerns the maintenance of the fighting force.

This concept of logistics (1) clarifies the role of logistics in war, (2) establishes the essential content of the concept of 'logistics' within Clausewitz's theory of war, and (3) supports the identification of cause-and-effect links among logistics, politics, tactics, and strategy in war. Further, (4) such a concept of logistics serves critical analysis by ascertaining causes from effects in war.

This article proposes a concept of what is to be understood as logistics in war. It entails and argues for substantial change in the use of the term, proposing the contents of a concept of logistics as an analytical dimension on the same standing as politics, tactics and strategy within the framework of Clausewitz's theory of war. All previous efforts at a history or analysis of logistics, the authors suggest, could come to benefit from this new understanding.

Notes

- 1 William H. McNeill, *The Pursuit of Power* (Chicago, IL: Chicago UP 1982); Martin van Creveld, *Technology and War* (New York: Free Press 1989); even then there is considerable leeway in what is 'material': McNeill is attentive to the consequences of drill in terms of its effect on morale and cohesion in war; Creveld understates psychological and cognitive requisites or results.
- 2 See, for example, Richard M. Leighton and Robert W. Coakley, *Global Logistics and Strategy* (Washington, DC: US GPO 1984, originally published 1955); James A. Huston, *The Sinews of War: Army Logistics, 1775–1953* (Washington, DC: US GPO 1970, originally published 1966); David C. Ruthenberg and Jane S. Allen (eds), *The Logistics of Waging War* (Gunter Air Force Station, AL: Air Force Logistics Management Center 1985); William Pagonis, *Moving Mountains* (Boston, MA: Harvard Business School Press 1992); Congressional Budget Office, *Moving US Forces: Options for Strategic Mobility* (Washington, DC: US Congress 1997); Norma Betaque *et al.*, *Naval Expeditionary Logistics* (Washington, DC: National Research Council 1998).
- 3 Charles E. Kirkpatrick, *An Unknown Future and a Doubtful Present: Writing the Victory Plan of 1941* (Washington, DC: US GPO 1990).
- 4 Antoine Henri Jomini, *The Art of War* (Westport, Connecticut: Book Club Edition, Greenwood Press 1862, originally 1838), Jomini's sole definition, p.62; the chapter on logistics pp.230–53, but logistics proper restricted to pp.230–32. Jomini pre-empts the chapter on logistics in previous chapters, taking and removing activities from logistics as in pp.44–5, 78–9, pp.91–2; there is no summation.
- 5 For a broader appreciation of Jomini, see John Brinton, 'Jomini', in Edward M. Earle (ed.), *Makers of Modern Strategy: Military Thought from Machiavelli to Hitler* (Princeton, NJ: Princeton UP 1943) pp.77–92; John Shy, 'Jomini', in Peter Paret (ed.), *Makers of Modern Strategy: Military Thought from Machiavelli to the Nuclear Age* (Princeton, NJ: Princeton UP 1986) pp.143–85; and Azar Gat, *A History of Military Thought* (New York: Oxford UP 2001) pp.108–37.
- 6 Martin van Creveld, *Supplying War: Logistics from Wallenstein to Patton* (New York: Cambridge UP 1977) esp. pp.1–3; Archer Jones, *The Art of War in the Western World* (New York: Oxford UP 1987); Jones's own definition is inconstant; cf. p.1 with p.45, and pp.49–64 with pp.396–408.
- 7 George Thorpe, *Pure Logistics* (Washington, DC: NDU Press 1986, originally published 1917) pp.1–5, p.11, pp.65–7; for his final position, pp.74–85; Kenneth MacKsey, *For Want of a Nail: the Impact of War on Logistics and Communications* (London: Brassey's 1990) cf. pp.5–6 with pp.8–14, for his final amendment p.194; Julian Thompson, *The Lifeblood of War: Logistics in Armed Conflict* (London: Brassey's 1991), esp. pp.3–8; but his final position is expressed in note 10 of Chap. 1, on p.194.
- 8 Donald Engels, *Alexander the Great and the Logistics of the Macedonian Army* (Berkley, CA: University of California Press 1978), well summarized in pp.20–22; Jonathan Roth, *The Logistics of the Roman Army at War* (Boston, MA: Brill Academic 1998), esp. pp.1–5, review of the literature and focus on supply; for conclusion that no generalization is possible, pp.332–3; Bernard S. Bachrach, *Early Carolingian Warfare: Prelude to Empire* (Philadelphia, PA: University of Pennsylvania Press 2001), esp. pp.136–8, supply of victuals, see also pp.202 ff, planning.
- 9 Julian S. Corbett, *England in the Seven Years' War* (London: Elibron Classics, n.d., originally 1907); *The Campaign of Trafalgar* (London: AMS Press 1908, 1970); *Some Principles of*

- Maritime Strategy* (Annapolis, MD: Naval Institute Press 1988, originally 1911); Hans Delbrück, *History of the Art of War within the Framework of Political History – Vols I–IV* (Lincoln, Nebraska: University of Nebraska Press 1990, originally 1923); T.E. Lawrence, *Seven Pillars of Wisdom – the complete 1922 ‘Oxford’ text* (Frodingbridge, J. and N. Wilson 2004, originally 1922).
- 10 Carl von Clausewitz, *Vom Kriege*, 19th edn. Werner Halweg (ed.), (Troisdorf: Dümmler 1980); Carl von Clausewitz, *On War*, Michael Howard and Peter Paret (eds), (Princeton NJ: Princeton UP 1976, quotes from 1984 edition). For an appreciation of Clausewitz, see Michael Howard, ‘The Influence of Clausewitz’, pp.27–44 and Bernard Brodie, ‘The Continuing Relevance of *On War*’, pp.45–58 of the Howard and Paret edition; H. Rothfels, ‘Clausewitz’, in Edward Mead Earle (ed.), *Makers of Modern Strategy* (Princeton, NJ: Princeton UP 1973, originally 1943), pp.93–113; Peter Paret, ‘Clausewitz’, in Peter Paret (ed.), *Makers of Modern Strategy* (Princeton, NJ: Princeton UP 1986), pp.186–213. See also von Caemmerer, *The Development of Strategical Science during the 19th Century* (London: Hugh Rees 1905); Michael I. Handel (ed.), *Clausewitz and Modern Strategy* (London: Frank Cass 1989); Christopher Bassford, *Clausewitz in English* (New York: Oxford UP 1994); Gert de Nooy (ed.), *The Clausewitzian Dictum and the Future of Western Military Strategy* (The Hague: Kluwer Law International 1997); Andreas Herberg-Rothe, *Das Rätsel Clausewitz. Politische Theorie des Kriegs im Widerstreit* (Munich: Wilhelm Fink Verlag 2001); Uwe Hartman, *Carl von Clausewitz and the Making of Modern Strategy* (Potsdam: miles-Verlag 2002); Beatrice Heuser, *Reading Clausewitz* (London: Pimlico 2002); Hugh Smith, *On Clausewitz* (New York: Palgrave Macmillan 2005).
 - 11 Eugenio Diniz, *Clausewitz, o Balanço Ataque-Defesa e a Teoria das Relações Internacionais* [Clausewitz, the Offense-Defense Balance and International Relations Theory] (Rio de Janeiro: UFRJ 2002).
 - 12 Eugenio Diniz and Domício Proença Júnior, ‘A Criterion for Resolving Inconsistencies in *On War*’ (Rio de Janeiro: Grupo de Estudos Estratégicos 2004).
 - 13 Azar Gat, *A History of Military Thought* (New York: Oxford UP 2001) pp.257–68.
 - 14 Raymond Aron, *Penser la Guerre, Clausewitz, vol 1: L’Âge Européenne* (Paris: Gallimard 1976).
 - 15 Peter Paret, *Clausewitz and the State* (New York: Oxford UP 1976).
 - 16 Diniz and Proença Júnior (note 12).
 - 17 Clausewitz, *On War* (note 10); Clausewitz, *Vom Kriege* (note 10).
 - 18 Howard and Paret chose ‘Warfare’ as the subject of this sentence. However, the original text is: ‘Es gehört also alles zur kriegerischen Tätigkeit, was sich auf die Streitkräfte bezieht, also alles, was zu ihrer Erzeugung, Erhaltung und Verwendung gehört’. [Clausewitz, *Vom Kriege*, p.222] The passage reads: ‘As a result, it includes all that concerns activities in war, everything that has to do with the creation, maintenance and use of fighting forces’. This ‘it’ is *precisely* Clausewitz definition of the art of war, as shown above.
 - 19 The term in German is *Evolution* the movement before the forces of the opponent in an engagement. Howard and Paret chose ‘deployment’ and annotated the matter. Clausewitz, *On War*, p.129.
 - 20 Howard and Paret chose *duel* for the German word *Zweikampf*, which means the fight between any two. The issue here is that *Zweikampf* can be a desperate life-or-death struggle, a martial art competition, or a brawl; thus, the implicit expectations of rule and containment expressed in *duel* seem to mangle the full course of Clausewitz’s point. The present authors chose brawl to divest this fight of any kind of rule. See also [OW I-1–3: 76] for Clausewitz’s remarks on the effects of civilization or the lack of it on the destructiveness of war.

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