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Naval War College
Newport, Rhode Island

Measuring Operational Success:

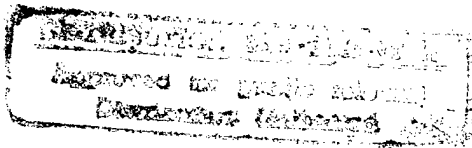
Establishing Criteria to Benchmark

the Point of Culmination:

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or Department of the Navy.

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Signature: _____

~~13 June 1997~~

BERG QUALITY CONTROLLED 4

Paper directed by Captain G.W. Jackson, US Navy
Chairman, Joint Military Operations Department

Unclassified

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Security Classification This Page

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED			
2. Security Classification Authority:			
3. Declassification/Downgrading Schedule:			
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.			
5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT			
6. Office Symbol: C		7. Address: NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207	
8. Title (Include Security Classification): Measuring Operational Success: Establishing Criteria to Benchmark the Point of Culmination (Unclassified)			
9. Personal Authors: Dominic J. Caraccilo, MAJ, USA			
10. Type of Report: FINAL		11. Date of Report: 7 Feb 1997	
12. Page Count: 29			
13. Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.			
14. Ten key words that relate to your paper: Culminating Point, Contradictory Nature of War, Clausewitz, Criteria, Objectives, Missions, Goals, Principle of Continuity, MOE, FOM			
15. Abstract: This paper specifies a descriptive methodology for analyzing military missions. More specifically, it identifies the apparent disregard that US doctrine has for the establishment of criteria that measure operational success on the battlefield. This void, in-turn, impacts directly on the operational commander's capability to identify his point(s) of culmination. Numerous studies exist describing how to identify a culmination point so that one can know when to bring the battle to fruition. What is lacking, however, is the matching of criteria with objectives at every level of war to determine what the measurement is that ultimately defines victory. Therefore, there is no method to benchmark the culminating point prior to battle. This paper will first explore the Clausewitzian "contradictory nature of war" and then (1) establish a methodology for defining measurable objectives at the operational level of war and (2) correspondingly define guidelines for establishing discernible criteria that will benchmark not only the success of the objectives but also the point of culmination.			
16. Distribution / Availability of Abstract:	Unclassified X	Same As Rpt	DTIC Users
17. Abstract Security Classification: UNCLASSIFIED			
18. Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT			
19. Telephone: 841-6461		20. Office Symbol: C	

Unclassified

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Introduction

This paper specifies a descriptive methodology for analyzing military missions. More specifically, it identifies the wayward disregard that US doctrine has for the establishment of criteria that measure operational success on the battlefield. Considering this void, this paper attempts to offer some practical advice for dealing with the Clausewitzian “contradictory nature of war.”¹

The inability to benchmark the point of culmination is an operational void that a commander must overcome. However, even Clausewitz has been unable to fill this void. What Clausewitz has done, however, is make commanders aware of and provide insights into an area that he claims “cannot be determined in advance.”² Nonetheless, he offers no practical advice for overcoming the paradigm of dealing with the point of culmination.

Currently there exists a plethora of literature describing the different levels of war and their associated missions. Furthermore, there exists a myriad of ideas considering the definition(s) of the “culminating point” and Clausewitz’s “contradictory nature of war.” Accordingly, numerous studies exist describing *how* to identify a culmination point (in real time) so that

¹ This theory contrasts the Principle of Continuity (the commander’s natural desire to exploit an advantage by keeping the enemy under relentless pressure, thereby denying him to respite or time to regain his equilibrium) which is in tension with the Clausewitzian concept of the culminating point. Michael I. Handel, Masters of War: Classical Strategic Thought (Portland, Oregon: Frank Cass & Co. LTD., 1996), 99, 114.

² Carl von Clausewitz, On War (Princeton, New Jersey: Princeton University Press, 1984), 570.

one knows *when* to bring the battle to fruition. What is lacking in our doctrine, however, is the matching of criteria with objectives at every level of war (*prior to battle*) to determine what the measurement is that ultimately defines victory. Hence, there is no doctrinal method for establishing a way to measure the point of culmination that could directly impact on the ability to achieve such a victory.

In the spirit of Clausewitzian theory, no one starts a war (or no one should) without first being clear in his mind what he intends to achieve if he should succeed. In the same sense, a war's culminating point is easier to identify if it is benchmarked prior to battle. This paper will initially explore the Clausewitzian contradictory nature of war and then (1) establish a methodology for defining measurable objectives at the operational level of war and (2) correspondingly define guidelines for establishing discernible criteria that will benchmark not only the success of the objectives, but also the point of culmination.

In reality, to dogmatically define exact measures is difficult, if not impossible. Nonetheless, if commanders do nothing more than relieve themselves of some of the fog and friction associated with Clausewitz's "contradictory nature of war" they will surely benefit.

The Contradictory Nature of War

"A vital consideration for an operational commander during a major operation or campaign is to sense his own culminating point so he can

defeat the enemy before reaching it... However anticipating the culmination point is one of the most difficult problems facing any operational commander."

Dr. Milan Vego
Fundamentals of Operational Design
Naval War College Pamphlet 4104

Most leaders accept the presupposed "fact" that the culminating point is not defined prior to battle. Instead, they strive to *recognize* it during the execution phase of the operation. Even Clausewitz states that "... the culminating point of the attack/victory cannot be determined in advance."³ Furthermore, he writes that "... what matters therefore is to *detect* [emphasis added] the culminating point with discriminative judgment."⁴ However, and in most instances, recognizing the culminating point during battle and attempting to avoid it, is a futile if not impossible endeavor. Likewise, if the enemy is reaching his culminating point and no method exists to detect it then we may lose the opportunity to exploit his weakening posture.⁵

My premise, therefore, is simple: *The task placed on the operational commander should NOT be to recognize or sense the culminating point during battle, rather he should plan for it in advance!* A commander must schematically plan for the culminating point of his own forces as well as that of the enemy. Waiting until the battle commences is far too late. Therefore,

³ Handel, 119.

⁴ Clausewitz, 528.

⁵ Dennis J. Hejlik, "Recognizing and Controlling the Culminating Point at the Operational Level of War," Unpublished Research Paper, US Naval War College, Newport, Rhode Island: 17 May 1993, 1.

it is essential that the operational commander conducts the following activities during the planning phase of an operation: (1) establish a *method* to determine the factors that measure the point of culmination and then (2) specifically identify the factor(s) that requires such a measurement.

Additionally, this need indicates a requirement for establishing a criterion to measure the factor's success. This presumption and associated activities are by no means trivial. Identifying specific objectives and their associated criteria to measure the culminating point requires a methodical framework that supports the operation's objective hierarchy.

Many authors simply identify general factors or "recurring characteristics and common indicators" such as, logistics, command and control systems, casualties, and public opinion as measurable factors that help indicate when the culminating point is *coming*.⁶ While these factors may generally denote the measuring of most culminating points, their feasibility as measurable criteria is questionable unless they are framed in a methodology that is consistent with the specific objectives that pertain to the operational mission.

⁶ James D. Coomler, "The Operational Culminating Point: Can You See It Coming?" Unpublished Research Paper, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas: 16 May 1986, 1; Frank P. Janecek, "In Limited War -- Victory Before the Culminating Point," Unpublished Research Paper, US Naval War College, Newport, Rhode Island: 16 May 1995, 11.

Establishing Measurable Criteria

The many contradictions associated with war are difficult enough to manage without the general labeling of ways to identify the realization of the point of culmination.⁷ Therefore, it is critical to identify this criterion in the planning phase. At a cursory look one may imagine that the establishment of criteria is an elementary process. It simply involves using the current doctrine that stipulates the method for establishing measurements to gauge the success of established objectives. Unfortunately, no such doctrine exists.

In US Army Field Manual (FM) 100-5 titled *Operations* there are 33 sub-headings under the word *objective* and 12 additional headings for related topics.⁸ This reference demonstrates that the word *objective* is obviously an important expression in US military doctrine. However, the FM does not discuss the need for a measure of effectiveness (MOE), or figures of merit (FOM), which translates into a measure of success. This void can result in an inability to reach the actual goals, not knowing when the goals set forth by our leaders are achieved, and a lack of a proper hierarchy that defines the commander's objectives and criteria. As a result, this void may have an extremely negative impact on the commanders'

⁷ For instance, the Clausewitzian Principle of Continuity suggests that success must be exploited relentlessly while the culminating point of victory tells us that sooner or later, every offensive will lose momentum even if it succeeds. Correspondingly, the commander must know when to stop his advance, pursuit, or exploitation and move over to the defense. Handel, 181-82.

⁸ US Army Field Manual (FM) 100-5, Operations (Washington DC; Headquarters, Department of the Army, June 1993).

operation and leave soldiers at every level searching for success.⁹

To properly define the criteria necessary to measure the point of culmination we must first establish a sound hierarchy of goals and objectives. This hierarchy will help to delineate the conditions for victory before seeking battle and help measure the objectives set forth by the commander. By establishing a goals hierarchy and then matching respective objectives, the operational commander can intuitively and analytically interject a paralleling means for measuring the culminating point of victory.

A Method for *Planning* Instead of *Sensing*

"Once operations begin, the attacking commander must sense when he has reached or is about to reach his culminating point, whether intended or not, and revert to the defense at a time and place of his own choosing.

Colonel George M. Hall
"Culminating Points" article published in
Military Review, July 1990, p. 80.

As stated above, most commanders attempt to sense for the culminating point instead of planning for it in advance. Much research involved with the study of the point of culmination poises the question, "How, on the field of battle does one know if he has won, and when does he

⁹ Michael Barbero and Dominic J. Caraccilo, "Measuring Mission Success," *Military Review*, July-August 1995, 43.

know it?"¹⁰ One way to overcome having to rely on recognition rather than to identify it in advance is the proper establishment of what the business and systems engineering world calls goals and objectives trees (see Figure 1).

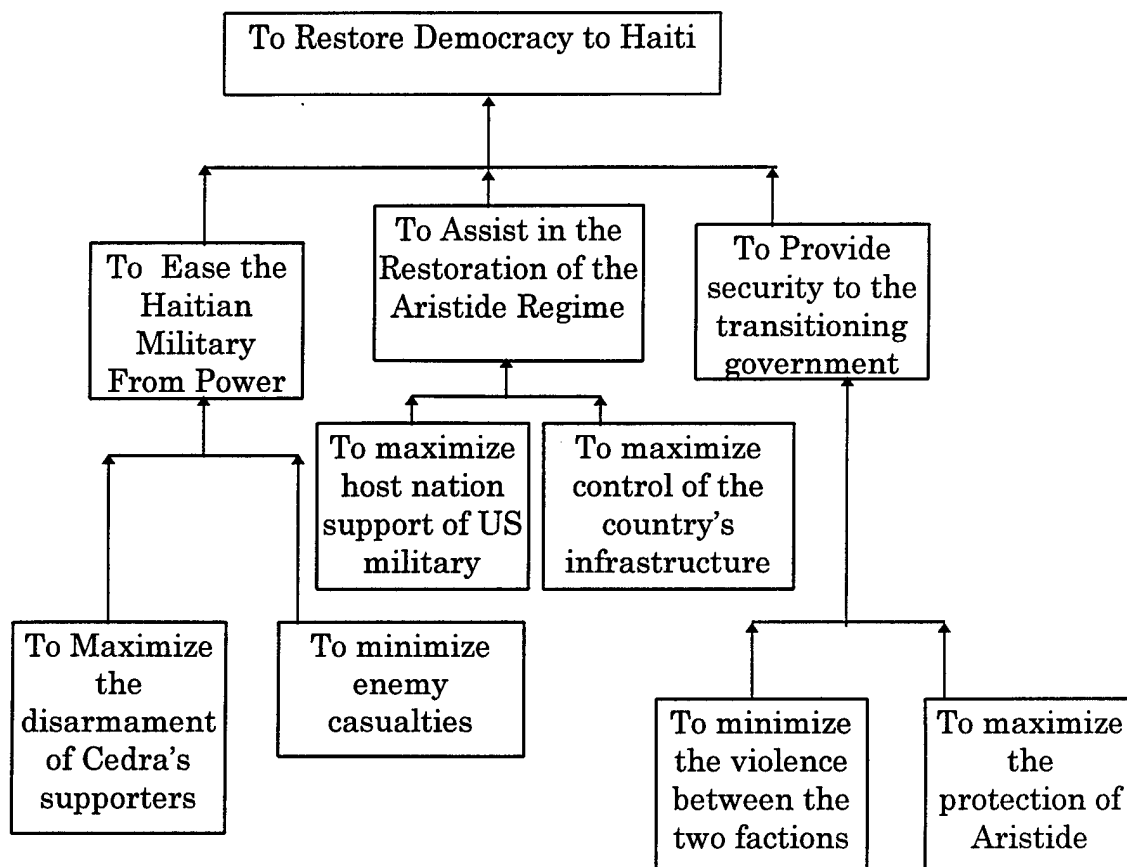


Figure 1: Objectives Tree Example of the 1994 US Haiti Operation¹¹

¹⁰ George S. Webb, "The Razor's Edge: Identifying the Operational Culminating Point of Victory," Unpublished Research Paper, US Naval War College, Newport, Rhode Island: 16 May 1995.

¹¹ The top level goal is the strategic level objective. It is what the subordinate goals or objectives must assist in accomplishing. The next level set of objectives pertain to the strategic-operational level of war, but they are still too broad to be measured effectively. However, these subordinate objectives are established to ensure that the top level, or strategic, goal is accomplished. The analyst at this point must ensure all possible operational objectives have been considered to make sure the strategic goal is met. In the same sense, the lower (tactical) level goals, are determined and exhaustively listed to ensure each operational goal is accomplished. This level provides for the measurable set of objectives that will allow the mission to be measured effectively in terms of success. Barbero and Caraccilo, 42.

Objectives trees are nothing more than a visual representation of the objectives structured in a hierarchy. The proper development of these trees establishes a linkage on a continuum between each level of war. The structure assists the commander in organizing his tasks by matching operational missions to those at the strategic level, and, in turn, providing a framework by which the tactical commanders can assist in attaining the operational goals.¹²

Goals or mission statements are important aspects of military decision making, and *goal* development is the most critical function for defining what a commander wants to accomplish. However, there is a tendency to define a mission in too specific terms and in an ad hoc manner without researching and generalizing what the commander proposes to do.¹³ Without a definitive method for establishing a set of goals and their related objectives and criteria a commander has no other choice but to wait until the battle begins to *sense* when he has reached or about to reach his culminating point.¹⁴

Historical Models Involving the Point of Culmination

Early in the afternoon of July 3, 1863, General Robert E. Lee's

¹² "Course Notes: SE401, Introduction to Systems Design," Unpublished Text Book, West Point, New York: Fall 1994, 2-3.

¹³ Ibid., 2-4.

¹⁴ George M. Hall, "Culminating Points," Military Review, July 1989, 80.

Confederate forces approached Cemetery Ridge to engage in battle with the Union forces from the North. Lieutenant General James Longstreet had recognized the futility of attacking uphill, across an open field, and against an entrenched defender who was fighting on his own soil and had the advantage of interior lines and reinforcements from reserves without interdiction.¹⁵ Nonetheless, Lee proceeded and at some point during his approach his unit had passed its culminating point of victory. The Confederate's offensive strength no longer significantly exceeded that of the defender and, therefore, further operations would risk over-extension and, as in this case at Gettysburg, defeat.

Most theorists chastise Lee for not having the ability to sense his point of culmination. However, if he had planned for it properly he would not have to sense it -- he could see it coming. Let's look at a more current war that may relate better to the way operational leaders may plan for and execute combat operations in the future (See Figure 2).

After Desert Storm many critics insisted that when the February 28, 1991, cease-fire occurred the US led ground forces had reached a culminating point.¹⁶ Moreover, Clausewitz may have termed the Allied cease-fire as an example of his "contradictory nature of war" since the Allies, in their attempt to pursue and cut-off the Iraqis, had displayed the Principle

¹⁵ Ibid., 81.

¹⁶ More specifically, many analysts determined that the Allied ground forces had reached a logistical point of culmination. Hallman, iii.

of Continuity that was in tension with the culmination of their offensive capability. For the purpose of this analysis I am submitting that the activities at the end of the Gulf War did *not* suggest a Clausewitzian contradictory nature of war.

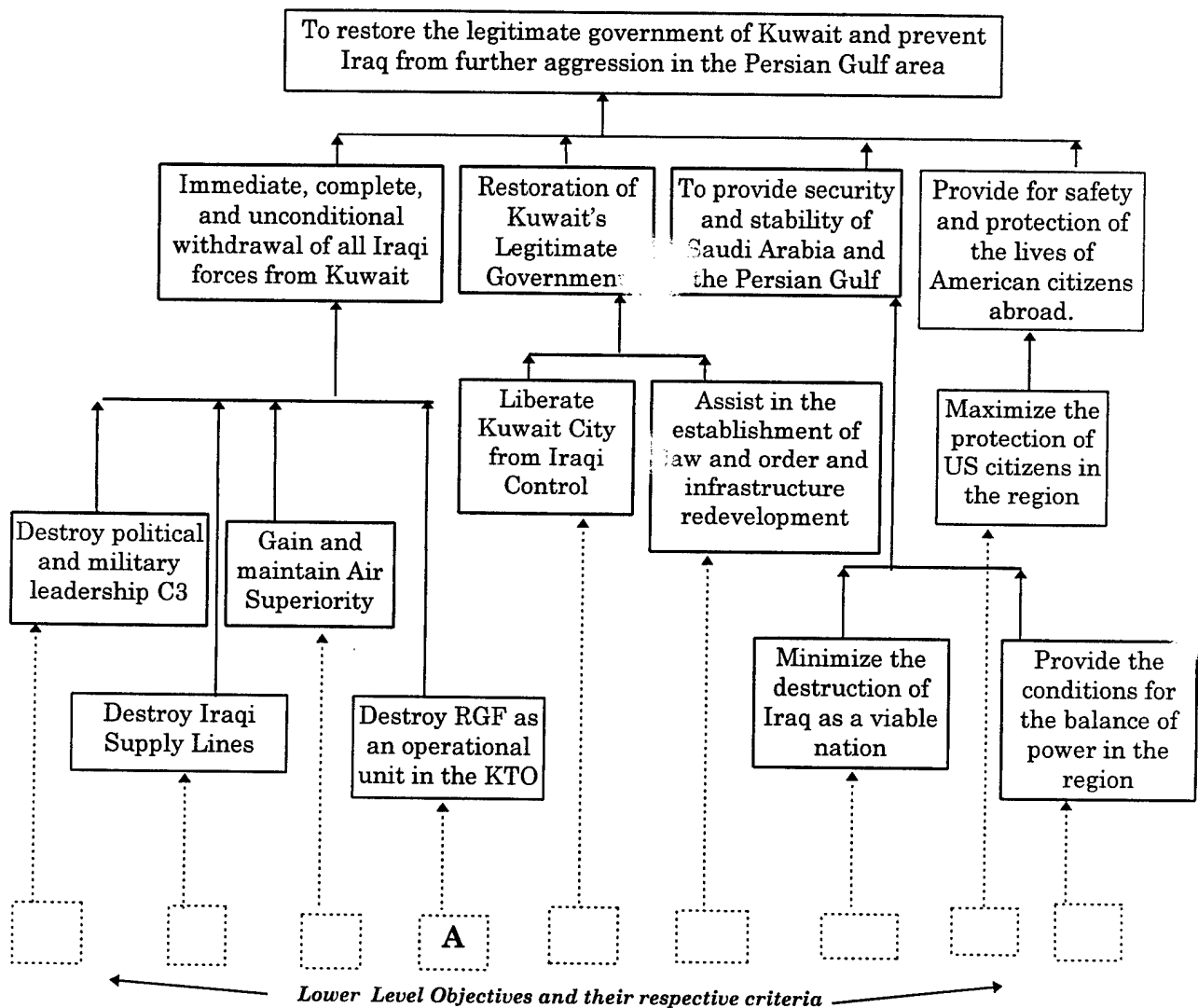


Figure 2: Desert Storm Objectives Tree¹⁷

¹⁷ Beufort C. Hallmar, "Desert Storm vs. Desert Disaster: Examination of the Culminating Point," Unpublished Research Paper, US Naval War College, Newport, Rhode Island: 18 June 1993, 5; US Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress (Washington DC: US Government Printing Office, 1992), 19.

The commander's desire to pursue the escaping Republican Guard Forces (RGF) was not in contradiction with the culminating point of victory in Desert Storm. The US goal at the operational level was to destroy the operational capability of the RGF in the Kuwaiti Theater of Operations (KTO). Referring to the above objectives tree one can see that the objective to destroy the RGF clearly supports the strategic-operational objective calling for an "immediate, complete, and unconditional withdrawal of all Iraqi forces from Kuwait." What is lacking in this tree, however, is the clearly defined lower level criterion (designated in this example as A) used to measure this objective.¹⁸ Arguably, this measurement was not the *total* destruction of the RGF as many analysts claim, but the destruction of a *proportioned amount* of republican guards that would clearly render that force incapable of fighting.¹⁹

If one considers that the US destroyed a proportioned amount of the RGF and that it achieved all other objectives as indicated in the tree, then it follows that the US accomplished its proposed objectives prior to reaching their point of culmination. Therefore, the desire to pursue further into Iraq to *destroy* the RGF was not a suitable option, thus the US did not prematurely achieve its point of culmination. In short, there was not a

¹⁸ This tree was deliberately left incomplete to represent the lack of criteria or MOEs established prior to the actual battle, thereby accurately portraying the inability of the US to measure, or benchmark, their efforts in *destroying* the RGF.

¹⁹ While this is an important topic it is not the intent of this paper to explore it further. For the purpose of this analysis, which is in part a *process* type analysis, it is my hope that the reader will accept this assumption.

“contradiction in the nature of war” at the end of Desert Storm.

It is difficult to determine what could have been the US point of culmination in the Gulf War. Some analysts conclude that at the strategic level it was the US public’s threshold to accept a protracted, casualty infested war and some argue that it was the coalition’s volatility. Others, such as Lieutenant General Gus Pagonis, the logistical genius for this war, insisted that the US was operationally on the “edge of the logistics envelope.”²⁰

FM 100-5 provides for numerous examples of various operations that reached their culminating point prior to achieving their objectives.²¹ Many of these historical examples illustrate Lieutenant General Pagonis’s analysis that logistics limitations are the first place to explore when examining a possible point of culmination. Ironically, some analysts claim the need to plan for logistics requirements in advance in the same analysis that indicates that commanders must *sense* the point that the ability to supply the force culminates.²² Regardless, my argument is that if logistics were a critical vulnerability or “Achilles heel” for the Allies during Desert Storm then it should have been realized as such prior to the commencement of

²⁰ Lieutenant General William G. Pagonis and Michael D. Krause, “Operational Logistics and the Gulf War,” The Land Warfare Papers, No. 13 (Arlington, Virginia: Association of the United States Army, October 1992), 14.

²¹ FM 100-5 lists various operations that the commanders, in pursuit of the enemy, unexpectedly achieved their point of culmination. However, considering each one of these examples, for instance, Patton’s rapid advance across France which was bogged down for lack of supplies, the commander should have been able to foresee the respective problem prior to battle and plan for it accordingly. FM 100-5, 6-8.

²² Hejlik, 11.

battle.²³

With that stated, how could one establish such an anticipatory method that foretells the point of culmination? The above Desert Storm objectives tree provides some insight into the answer since the completeness of this hierarchy should enable the commander to foresee how the ensuing battle unfolds.

For instance, a subordinate objective that supports the operational goal to "destroy the RGF as an operational unit in the KTO" may include, among many other objectives, the subordinate objective, "to maximize the force that is brought to bear on the RGFs." Additionally, a subordinate objective to that subordinate objective may read "to maximize the US logistical capability that will directly support the amount of force brought to bear on the RGF." The impact these two lower level objectives have on the operational goals should now become apparent.

Considering these lower level objectives a commander is now able to identify critical weaknesses inherent in the operation. For instance, the critical weaknesses identified in this operation may include the ability to maintain the force "brought to bear" and the various characteristics of the force's logistical tether. Both of these are examples of criteria used to measure the aforementioned objectives.

²³ Many analysts accept that the Achilles heel in defining the culminating point is inherent in one's logistical ability. Supplies, casualties, and force ratios are all quantitatively measurable terms that make the identification of the culminating point easier. However, just because it is easier to measure doesn't make it right. Hejlik, 2.

By deriving this information, the operational commander can perform an identical process for each of his higher level goals until he establishes a measurable term for each of his lowest level objectives. As a result, the commander can analyze the criteria and develop constraints that prevent him from reaching his point of culmination prior to achieving his objectives. For instance, if a lower level objective is "to maximize the US logistical capability that will directly support the amount of force brought to bear on the RGF" then the criterion used to measure this objective may be "the amount of fuel required in gallons per day to support the forces engaged with the RGF."

Determining this criterion and then establishing the proper units of measure, the commander can now establish a *benchmark* for the amount of fuel consumed during the battle. If he violates this benchmark, which in this case is the amount of fuel on hand required to accomplish the mission, he is able to now *sense* the point of culmination because he has properly *planned* for it. To properly paint the battlefield in terms of MOEs and areas of potential points of culmination the commander should repeat this process for every branch of the objectives tree. The synergy that evolves from combining all of the mission criteria will not only lead to an ability to properly measure success, but also a method to overcome the contradictory nature of war.

The Precise Nature of Establishing Criteria

"...the political object is the goal, war is the means of reaching it, and means can never be considered in isolation from their purposes."

Carl von Clausewitz
On War, page 87.

Being precise in what commanders say when issuing orders as mission statements is absolutely essential, especially for the US Military. However, most decision makers do not go through a painstaking methodology of defining easily understood *criteria* that measure the *goals* and *objectives* that support a mission. Given this lack of precision and coupling it with the nature of limited wars, which appear to be the wave of the near future, then our task to define precise MOEs becomes all the more difficult.

FM 100-5 states that even in military operations other than war (MOOTW), defining clear objectives may be difficult, nonetheless, it is absolutely essential.²⁴ The question now becomes, does the ambiguity of MOOTW stem from ill defined objectives or does it come from the inability to circumscribe the criteria that will measure the objective's success? "Limited wars are by their very nature political wars" and the Clausewitzian theory of the point of culmination is a total war based concept where the point of culmination is a military based criterion.²⁵ Therefore, it is imperative that

²⁴ FM 100-5, 2-4, 13-3.

²⁵ Janecek, 1.

the operational commander understands the fact that during MOOTW the politicians will most likely establish a set of *a priori* criteria, such as "time to complete the operation."

These politically imposed criteria often define the acceptable terms of the operation and thereby impose a benchmark for success on the military commander before the operation begins. The operational commander should not confuse this benchmark with the establishment of military based criteria since, in most cases, the political based criterion is politically and not analytically derived.²⁶ Therefore it is beneficial, even in MOOTW, to determine a method of establishing criteria to assist the commander in measuring his success.

In order to clearly determine criteria that gauge the success of an objective, two simple rules must be met. First, criteria must be measurable. A commander must ask himself, do the criteria sufficiently describe the success of the objective? For example, if the objective is "to maximize the number of refugees fed in the camps along the Rwandan-Zairian border, a criterion that measures this objective may be, "the number of refugees fed a recommended daily allowance in a 24 hour day."²⁷

In this example, we might attempt to measure the same objective

²⁶ The difference here is not between the political and military driven criteria. It is between criteria that are developed due to political motives (partisanship, lobbying, etc.) and those that are derived by using an analytical thought process.

²⁷ Barbero and Caraccilo, 41.

with the criterion, "the number of meals distributed a day to the refugees." However, does this criterion accurately measure the degree of success in meeting the stated objective? The amount of food distributed does not directly measure the number of refugees fed. We may want to first determine the number of refugees in each camp and measure the success in attaining the objective by measuring the percentage of refugees per camp fed on a periodic basis.

The next rule criteria must follow is that each objective is measured by only one criterion. There must be a one-to-one correspondence between the criterion and the objective they measure. By following these two rules, commanders can clearly define objectives and then measure the successfulness of each objective with clearly identifiable criteria.

Referring back to the Haiti objectives tree, we can measure the success of "maximizing the disarmament of Cedra's supporters" with the criterion "the number of organized elements he has remaining under his control." The objective "to minimize enemy casualties" is measurable with the criterion "the number of enemy combatants and noncombatants injured by hostile fire or by other means." "The number of military engagements between the two factions in Haiti" will measure the objective "to minimize the violence between the two factions, and "the vulnerability of Aristide as a leader or his perceived risk while in power" can be the measurable criterion for the objective "to maximize the protection of Aristide."

At this point, the commander has established the objectives hierarchy and he has determined a set of measurable criteria to help him measure success. Derived from this set of criteria are the established benchmarks to describe the potential points of culmination based on the characteristic limitations of the critical weaknesses in the operation. However, there still may exist a potential culminating point in an area not yet defined. By interjecting a paralleling objective(s) into the objectives hierarchy the commander can ensure he has exhausted the determination of all possible points of culmination.

Paralleling Objectives

Referring again to the Haiti objectives tree (See modified tree in Figure 3) the commander may determine that his operational objectives have neglected an area in which a potential point of culmination exists. These criteria may include the historically defined parameters many analyses describe as "traits and events" that influence the culminating point.²⁸

²⁸ James D. Coomler, "The Operational Culminating Point: Can You See It Coming," Unpublished Research Paper, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas: 16 May 1986, 23.

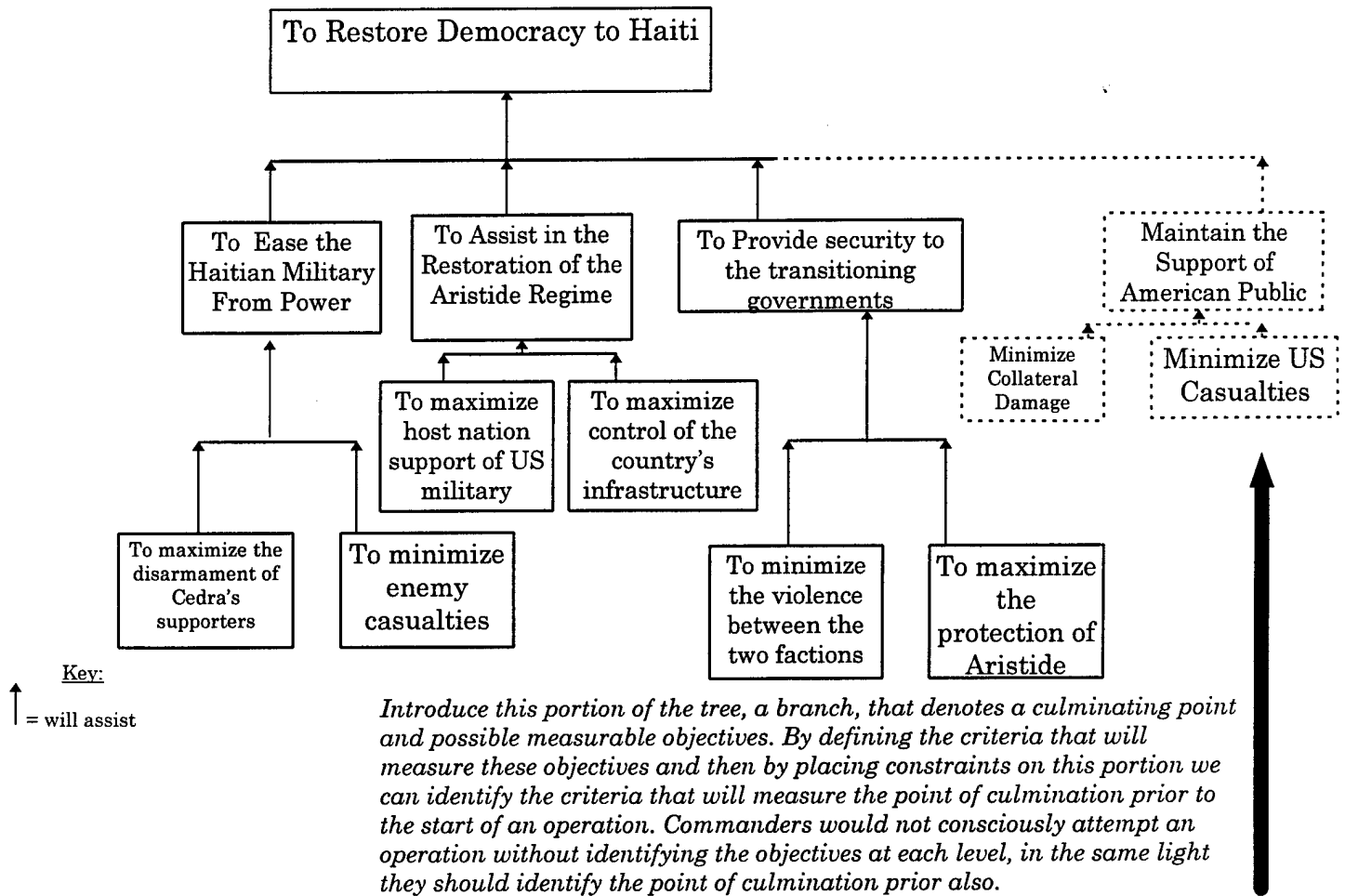


Figure 3: Modified Haiti Objectives Tree

In accordance with the Weinberger and Powell Doctrines developed in the late 1980s, if the US decides to use its military it will attempt to employ a credible force. However, in the past decade or so the issue of a credible force is suffused with the fear of casualties and inhibited by strictures developed within the higher level of the Department of Defense.²⁹ As a

²⁹ James, Nathan, "The Rise and Decline of Coercive Statecraft," Proceedings, October 1995, 59.

result, the operational commander may decide that “to minimize US casualties,” is a need that supports an evolving military desire to maintain the public’s support. One can argue that this objective is not inherent in the true objectives of the mission, accordingly, it is one of the “unarticulated but apparent conditions of the new military writ as developed in PDD25.”³⁰ Therefore, it is clearly a measurable criterion that if violated could instigate an operational point of culmination.

As depicted on the objectives tree in Figure 3, the addition of the strategic goal “to maintain public support” is a paralleling objective in the mission’s hierarchical structure. By including it in this nature the operational commander indicates, early-on in the planning process, that the way he can support this paralleling strategic objective is by “minimizing US casualties” and by “minimizing collateral damage.”

Contradicting the Contradictory Nature of War

Considering the premise that the commander should determine the point of culmination in advance ascertains that the Clausewitzian contradictory nature of war is, in fact, not so contradictory. The Principle of Continuity implies that a force did not meet an objective at a certain point in an operation, thereby forcing the attacker to pursue relentlessly in order to

³⁰ Department of State Presidential Decision Directive (PDD) 25, Office of Peace Keeping and Humanitarian Operations: Washington, DC, 5 May 1994 and Nathan, 63.

achieve that objective. Perhaps the pursuit ensues because the measure of success is not properly defined or, as in our Desert Storm example, a continuation of the ground campaign would have meant a change to US objectives. While some argue that the attack should have continued until Saddam Hussein was removed from power, it is clear from the tree constructed above that it would have been in clear violation of the US objective to "provide the conditions for the balance of power in the region." A coalition removal of Hussein could have led to an imbalanced state in the Persian Gulf which was directly the opposite result that the US and its Allies desired.

The Principle of Culmination, in the same light, is a dubious theorem only because, in the past, commanders had no means to properly plan for it. Therefore, it follows logically that if the commander properly develops his hierarchy of objectives prior to battle and then appropriately matches his criteria then he will have some means for benchmarking the possible points of culmination. Therefore, he can see them coming and not have to rely on sensing for them; making the Principle of Culmination much less dubious than before.

Conclusion

Establishing MOEs and then modeling them to gain usable output is

not a new process for the Army. Battle labs and simulation centers throughout the military conduct these type analyses on a routine basis. In this paper we have shown that establishing a hierarchical structure for displaying a commander's objectives enables him to identify measurable criteria. From this process, we have also shown that identifying the criteria that measure success will also assist in developing a benchmark for the point of culmination.

The ability to properly benchmark the culminating point prior to battle will directly impact on the operational commander's capability to measure his success in accordance with his stated mission. Additionally, the criteria established to benchmark the various points of culmination will benefit the commander immensely in designing his war termination strategy (linking objectives with desired end-state). A secondary benefit derived from the established methodology this paper presents is the visual display of the established objectives.

In short, this process allows the operational commander to devise a methodology to determine measurable criteria to identify the point of culmination prior to battle. The development of such criteria will provide the commander a method for establishing a linkage between the hierarchical nature of objectives and their clearly defined criteria and help to delineate the conditions for victory before seeking battle.

With any theory it is essential to recall that, as Clausewitz says, "... if

we remember how many factors contribute to an equation of force we will understand how difficult ... [to determine] which side has the upper hand."³¹ Therefore, it follows that even if every fact is known and the commander acts in concert with his military genius to arrive at a proper course of action, if he disregards the actions of the enemy, then his operation may still reach a point of culmination. This is true regardless of how well one plans for the culminating point in advance.³²

In summary, there exists many extraneous factors that may impede any plan and obviously prevent the commander from succeeding. However, if the commander establishes a set of objectives and matching criteria early on then the possibility of overcoming the fog and fiction of war increases dramatically. After all, if he can do nothing more than to limit the effects of battlefield uncertainty then he will surely benefit.

³¹ Coomler, 2.

³² Regardless of how well a command plans for an operation, extraneous factors, such as the enemy behaving in a way not previously expected, may cause the commander to adjust to the uncertainties of the battlefield. Ibid., 24, 33.

BIBLIOGRAPHY

Government documents

- Department of State Presidential Decision Directive (PDD) 25. Office of Peace Keeping and Humanitarian Operations: Washington, DC, 5 May 1994.
- Joint Military Operations Department. "Elements of Operational Warfare (NW4096). Newport, Rhode Island: Naval War College, August 1996.
- Taylor, James G. Lanchester Models of Warfare. Monterey, California: Operations Research Society of America, March 1983.
- US Army Field Manual (FM) 100-5, Operations. Washington DC; Headquarters, Department of the Army, June 1993.
- US Department of Defense, Conduct of the Persian Gulf War: Final Report to Congress. Washington DC; US Government Printing Office, 1992.

Published Books

- Battlega, John A. and Grange, Judith K. The Military Applications of Modeling. Wright-Patterson Air Force Base, Ohio: Air Force Institute of Technology, No Date.
- Clausewitz, Carl von. On War. Translated and edited by Michael Howard and Peter Paret. Princeton, New Jersey: Princeton University Press, 1984.
- Dupuy, T.N. Numbers, Predictions, & War. Revised Edition. Fairfax, Virginia: Hero Books, 1985.
- Handel, Michael I. Masters of War: Sun Tzu, Clausewitz and Jomini. Portland, Oregon: Frank Cass & Co. LTD., 1996.
- Joint Pub 3.0. Doctrine For Joint Operations. US Government Printing Office, 1993.

Published Articles

- Barbero, Michael and Caraccilo, Dominic J. "Measuring Mission Success." Military Review, July-August 1995, 40-43.

Hall, George M. "Culminating Points." Military Review, July 1989, 79-86.

Nathan, James. "The Rise and Decline of Coercive Statecraft," Proceedings, October 1995, 59-65.

Pagonis, Lieutenant General William G. and Krause, Michael D.
"Operational Logistics and the Gulf War." The Land Warfare Papers,
No. 13. Arlington, Virginia: Association of the United States Army,
October 1992.

Reed, James W. "Should Deterrence Fail: War Termination in Campaign
Planning." Parameters, Summer 1993, 41-52.

Unpublished Papers

Anglim, Edward P. "Pacific Military Strategy: Are We Meeting Our Strategic
Objectives?" Unpublished Research Paper, US Naval War College,
Newport, Rhode Island: 18 May 1992.

Benjamin, David J. Jr. "Prerequisite for Victory: The Discovery of the
Culminating Point." Unpublished Research Paper, US Army School of
Advanced Military Studies, Fort Leavenworth, Kansas: 13 May 1986.

Coomler, James D. "The Operational Culminating Point: Can You See It
Coming." Unpublished Research Paper, US Army School of Advanced
Military Studies, Fort Leavenworth, Kansas: 16 May 1986.

Hallman Beufort C. "Desert Storm vs. Desert Disaster: Examination of the
Culminating Point." Unpublished Research Paper, US Naval War
College, Newport, Rhode Island: 18 June 1993,

Hejlik, Dennis J. "Recognizing and Controlling the Culminating Point at the
Operational Level of War." Unpublished Research Paper, US Naval
War College, Newport, Rhode Island: 17 May 1993.

Ivey, William D. "Objectives and Success -- Linking National Policy
Objectives and Military Strategic Objectives to Achieve Success."
Unpublished Research Paper, US Army War College, Carlisle
Barracks, Pennsylvania: 7 April 1996.

Janecek, Frank P. "In Limited War -- Victory Before The Culminating Point."
Unpublished Research Paper, US Naval War College, Newport, Rhode
Island: 16 May 1995.

Kalb, John F. "A Foundation for Operational Planning: The Concepts of Center of Gravity, Decisive Point, and the Culminating Point." Unpublished Research Paper, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas: 21 April 1987.

Raines, Virgil E. "Criteria for Success in the War on Drugs." Unpublished Research Paper, US Army War College, Carlisle Barracks, Pennsylvania: 31 March 1989.

Taddonio, Frank T. "The Concept of the Culminating Point of the Attack." Unpublished Research Paper, US Army School of Advanced Military Studies, Fort Leavenworth, Kansas: 16 May 1986.

Vego, Milan. "Fundamentals of Operational Design." Naval War College Paper (NWC 4104). US Naval War College, Newport, Rhode Island: August 1996.

Webb, George S. "The Razor's Edge: Identifying the Operational Culminating Point of Victory." Unpublished Research Paper, US Naval War College, Newport, Rhode Island: 16 May 1995.

Unpublished Text

"Course Notes: SE401, Introduction to Systems Design." Unpublished Text Book, West Point, New York: Fall 1994.