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## CLAUSEWITZ CENTRE OF GRAVITY: FRICTION OR USEFUL?

Maj C.A. Butler

**JCSP 43**

### ***Exercise Solo Flight***

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CANADIAN FORCES COLLEGE – COLLÈGE DES FORCES CANADIENNES  
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EXERCISE *SOLO FLIGHT* – EXERCICE *SOLO FLIGHT*

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Maj C.A. Butler

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DS548 SOLO FLIGHT

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By Major Craig Butler

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## CLAUSEWITZ CENTER OF GRAVITY: FRICTION OR USEFUL?

### INTRODUCTION

In his seminal work, *On War*, military theorist Carl Von Clausewitz wrote, “A center of gravity is always found where the mass is concentrated most densely. It presents the most effective target for a blow; furthermore, the heaviest blow is struck by the center of gravity.”<sup>1</sup> It is an easy assumption to make that at the time of his death in 1831 Clausewitz did not perceive the profound impact his book would have. His concepts of the trinity, friction and center of gravity have shaped modern warfare, both theoretically and amongst practitioners of war. However, unlike the concepts of the trinity and friction that have been seamlessly incorporated into military doctrine around the world the same can't be said of center of gravity.

The concept of center of gravity has been used recently in strategic and operational plans in Afghanistan, Iraq and Libya. These campaigns and the ambiguity surrounding their success or lack thereof has led to a debate in both over the methodology used to determine a center of gravity. This debate has put into question the utility of the term and in some professional circles it has been discussed whether it should be used at all in the planning process.

This persuasive essay will show; despite the ongoing debate surrounding it, that center of gravity is still is a valuable tool for planners. The concept remains relevant because it assists planners to think through a problem set in order to devise an appropriate solution, regardless of the methodology. This will be demonstrated by illustrating the

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<sup>1</sup> Carl von Clausewitz, *On War*, ed. And trans. Michael Howard, Peter Paret, and Bernard Brodie (Princeton, N.J: Princeton University Press, 1976), 485.

value of the concept of center of gravity from three different perspectives. The first part will discuss center of gravity as defined and then applied by Clausewitz in On War. It will focus on both the theory and reality of center of gravity. This will then lead into a review of the current debate over center of gravity. It will be focused on two opposing intellectual points of view.

Part 2 will discuss the first point of view of the debate. It will look at Dr Joseph Strange's critical vulnerabilities, critical capabilities, and critical requirements methodology that will lead to a proper identification of an operation's center of gravity. Part 3 will look at the other side of the debate. It will review the school of thought proposed by Dr Antulio Echevarria. His school attempts to move the use of center of gravity in planning away from it being a source of strength and towards the idea that it is a focal point where physical or psychological forces come together.

Together parts 2 and 3 will build a foundational knowledge of the debate. It will include an analysis on whether the methodologies work and whether one is potentially better than the other. Part 4 will complete the discussion with recommendations on how future planners can incorporate the methodologies into their planning.

## **CLAUSEWITZ**

Carl Von Clausewitz's concept of center of gravity was proposed as a theoretical concept; however, in a real war it needs to be used judiciously, easily identifiable and susceptible to the influence of tactical actions within an operational design. If these criteria cannot be met than center of gravity should remain in the realm of theory.

In Book 2, Chapter 5 of *On War* he offers an example on how attacking a center of gravity could theoretically affect a war. The example he uses is Napoleon's decision in February 1814 to attack the army of Schwarzenberg after he defeated Blucher's army. Clausewitz says, "Even though Blucher was weaker than Schwarzenberg, his enterprising spirit made him more important. The center of gravity lay with him, and he pulled the other forces in his direction."<sup>2</sup>

A critical look at what Clausewitz was saying leads to an understanding how to determine the center of gravity in this isolated example. He spoke about the enterprising spirit of Blucher which led to his criticism of Napoleon. Firstly, this is a reference to another concept in *On War* proposed by Clausewitz which is the genius of the commander. It can be surmised that this is the reason Clausewitz identified Blucher as the enemy's center of gravity. Secondly, this passage refers to the pursuit. It is clear in this example that Clausewitz meaningfully incorporated other parts of his theory of war. Unfortunately Clausewitz was only talking in the theoretical as Napoleon went on to attack Schwarzenberg which arguably allowed the Sixth Coalition to seize Paris.

Marine Colonel Rudolf Janiczek who argues that; center of gravity should not be applied when there is no decisive action, takes a different approach to Clausewitz. He proposed that Clausewitz was more concerned with having the military professional focussed on key considerations, in essence focusing their decisions on what is important in the battle space.<sup>3</sup> In this case the genius of commanders and the value of the pursuit of defeated forces.

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<sup>2</sup> Carl von Clausewitz, *On War*, ed. And trans. Michael Howard, Peter Paret, and Bernard Brodie (Princeton, N.J: Princeton University Press, 1976),163.

<sup>3</sup> Rudolph Janiczek, *A Concept at the Crossroads: Rethinking the Center of Gravity* (Strategic Studies Institute, U.S. Army War College, 2007), V.

Janiczek's argument against the use of Clausewitz's center of gravity actually speaks volumes as to why it should still be considered. If a planner looks for an enemy center of gravity and they cannot find a mass to strike a blow it just means that the conflict is at a different stage. Perhaps the conflict is not at the theoretical total war stage. The enemy could be dispersed, in the defensive; or they may be fighting a counterinsurgency war in which case the teachings of Mao Zedong and Sun Tzu may be more appropriate. Ignoring Clausewitz's center of gravity is a mistake. A planner should look for a center of gravity that can be affected by tactical action. If not they may miss a critical factor in the planning process.

Another key aspect that Janiczek missed is that Clausewitz was talking about the theory of war. In reality there may not be a center of gravity. Until a planner looks for it they cannot determine its existence or not. Military practitioners following the current Joint Doctrine for Campaign Planning could undoubtedly agree with Clausewitz's analysis of the faulty decision made by Napoleon. The doctrine definition of center of gravity is written as follows, "the COGs ... theoretically, if attacked and neutralized or destroyed will lead either to the adversary's inevitable defeat or force opponents to abandon aims or change their behaviour."<sup>4</sup> The key word in this definition is theory. The definition that the joint publication is using is validating Clausewitz's theory of center of gravity. It does however fall short in discussing what turns the theory into reality.

With further examination of Clausewitz's Napoleon example it can be argued that he too falls short in turning his theory into reality. In the example he goes on to state the defeat of Blucher would have destroyed the morale of Schwarzenberg's staff, which he

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<sup>4</sup> United States. Joint Chiefs of Staff, *Joint Doctrine for Campaign Planning* (Washington, D.C: Joint Chiefs of Staff, 2002), IX.

called timid. He also suggests that if he had pursued Blucher; Schwarzenberg would have been forced to abandon his push towards Paris.<sup>5</sup> Clausewitz is building his case for center of gravity based on the theory that Napoleon knew that Schwarzenberg had a weak staff. It is a safe assumption that the Prussian Clausewitz knew this fact however it is far from certain that Napoleon did. Clausewitz again makes a large leap of logic that Schwarzenberg would have halted his push towards Paris if Blucher and by extension the Rhine River was threatened by Napoleon.

The case study provided by Clausewitz was theoretical and it relied on hindsight and further theory to prove a point. The value of center of gravity, military genius and the pursuit; it did not tell future practitioners how to translate theory into reality. This ambiguity has fueled the current debate on center of gravity which is represented in both the Janiczek example and in joint doctrine. The next part of the essay will take a closer look at one side of the debate that attempts to turn theory into reality.

## **STRANGE MODEL**

Dr Joseph Strange's analysis of what constitutes a center of gravity and his methodology to determine what it is in a specific operation is valid to use in designing an operational plan. Marine Corps War College professor Dr Joseph Strange and Colonel Richard Iron of the United Kingdom Military attempted to illuminate the intellectual friction over Clausewitz's description of center of gravity. They stated that Clausewitz's true meaning of the term was that it was strength, which could be on the moral or

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<sup>5</sup> Carl von Clausewitz, *On War*, ed. And trans. Michael Howard, Peter Paret, and Bernard Brodie (Princeton, N.J: Princeton University Press, 1976),163 - 164.



physical plane.<sup>6</sup> Dr Strange went farther in Perspectives on Warfighting; Number 4 written for the United States Marine Corps by developing a methodology to assist planners on identifying the center of gravity. He developed the concepts of critical vulnerabilities, requirements and capabilities (CV/CR/CC) that when properly identified and subsequently influenced through tactical actions in the operational design can negatively affect or even destroy the enemy's center of gravity.<sup>7</sup> The methodology was designed to bridge the gap between theory and reality.

Both Dr Strange's concept of center of gravity and his methodology have proven effective as a planning tool. When applying his methodology to an analysis of Operation DESERT STORM he identified Saddam Hussain, Iraqi air defense, the Republican Guard and concentrations of artillery as the centers of gravity between the strategic, operational and tactical levels of war.<sup>8</sup> This proved true in the actual operational design of Desert Storm as General Norman Schwarzkopf campaign identified the Republican Guard as the Iraqi operational center of gravity.<sup>9</sup>

Operation DESERT STORM is an excellent example of how effective the use of applying center of gravity can be. The campaign was arguably one of the greatest military examples of maneuver warfare and joint planning. The application of Strange's methodology also demonstrated why the coalition had to strike the air defence of Iraqi forces. The effectiveness of destroying the air defence was evident in the news as vivid

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<sup>6</sup> Royal Australian Airforce, "Understanding Center of Gravity and Critical Vulnerabilities," last accessed 4 May 2017, <http://www.au.af.mil/au/awc/awcgate/usmc/cog2.pdf>, 1.

<sup>7</sup> Joe Strange and Marine Corps University (U.S.), *Centers of Gravity & Critical Vulnerabilities: Building on the Clausewitzian Foundation so that we can all Speak the Same Language*. 2nd ed. Vol. no. 4 (Quantico, VA: Marine Corps University, 1996), IX.

<sup>8</sup> Royal Australian Airforce, "Understanding Center of Gravity and Critical Vulnerabilities," last accessed 4 May 2017, <http://www.au.af.mil/au/awc/awcgate/usmc/cog2.pdf>, 18.

<sup>9</sup> Michael D. Krause, Cody Phillips, and Center of Military History. *Historical Perspectives of the Operational Art*. (Washington, D.C: Center of Military History, United States Army, 2005),462.

images of what was dubbed the highway of death. Columns of Iraq vehicles destroyed on the roads moving north into Iraq as they fled the coalition. The air force's ability to have such a profound effect was only due to the targeting of the air defence early in the campaign.

Marine Officers Alford and Coumo argued against using the Joseph Strange model when discussing the center of gravity being the population in a counter insurgency operation such as Afghanistan and Iraq. They rationalized that the Joseph Strange model would characterize the population as a critical objective vice the center of gravity.<sup>10</sup> This counter-argument is a prime example how strictly following methodologies can create difficulties in applying the center of gravity concept. In fact the methodologies themselves can be ambiguous and open for interpretation. An example of this is that when applying the Joseph Strange model it could be argued that a population that provides insurgents safe haven, free passage and supplies is indeed the strength of an insurgent group. Based on this perspective it meets the requirement for Joseph Strange's definition of center of gravity.

The Joseph Strange concept of center of gravity proved effective when looking at Operation DESERT STORM. Detractors however have pointed to its potential flaw as it calls center of gravity a strength. The word strength has led to some ambiguity causing some military practitioners and academics using the Strange model to eliminate such things as populations as centers of gravity. The question is if there is situational ambiguity in Strange's model does it accurately represent Clausewitz's center of gravity

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<sup>10</sup> Julian D. Alford and Scott A. Cuomo, "Operational Design for ISAF in Afghanistan: A Primer." *Joint Force Quarterly* : JFQ no. 53 (2009): 92.

in reality? The next part will look at an alternative interpretation of Clausewitz's center of gravity.

## **ECHEVARRIA**

The Dr Antulio Echevarria interpretation of center of gravity is an effective methodology to determine the operational center of gravity. Echevarria argues that center of gravity is not a specific strength but rather a focus point. The center of gravity is a factor of balance. When effects are focussed on an enemy's center of gravity it can bring about its collapse. This differs from the Strange model which is capability based.<sup>11</sup> Essentially Echevarria's definition moves the emphasis away from more tangible things such as the Republican Guard's combat capabilities during Operation DESERT STORM and it widens the discussion to less tangible things that can still influence the center gravity. Conducting an analysis of Op DESERT STORM a proponent of the Echevarria methodology might say the following. The effect of destroying the Republican Guard, the elite Iraqi fighting unit, might cause the morale of the remainder of the army to falter. It will also permit armoured infantry columns an increased freedom of movement since the Iraqi tanks were destroyed. In the case of counter insurgency warfare the focussed effects on the population's support of an insurgency could cause the collapse of an insurgency.

The debate between Echevarria and Strange camps is a nuanced one. Echevarria argues that his definition is closer to the true intent of Clausewitz. He stated that Clausewitz was using a modern physics analogy on center of gravity.<sup>12</sup> When applying Newton's law of gravity it means that in an object or a mass of objects there would be a

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<sup>11</sup> Antulio Joseph Echevarria, *Clausewitz's Center of Gravity: Changing our Warfighting Doctrine--again!* (United States: 2002), VI, VII.

<sup>12</sup> *Ibid.*, VI.

point of balance that would coincide with the center of gravity. Any outside force would disrupt the balance. United States Marine Corps Engineer Robert Dixon is a proponent of this approach as he concluded, “As science begins to describe the world in ways that reveal and rationalize its complexity, so should military doctrine.”<sup>13</sup>

Although logically and from a strict scientific background the Echevarria approach supported by people of science like Dixon appears extremely rational it adds to the level of complexity in determining the center of gravity. Retired United States Army Officer and proponent of design thinking Ben Zweibelson notes that the current use of center of gravity is fractured do to multiple opinions and variations in doctrine.<sup>14</sup> One clear deduction from Zweibelson is that adding quantum physics to the planning process will not bring more clarity to the planning staff.

The logic from Zweibelson although rational misses the Echevarria intent. His intent was to simplify or demystify the concept of center of gravity. To move the definition away from Dr Strange’s model which he believed, “failed to offer a way to focus one’s efforts and other resources on something that will prove decisive.”<sup>15</sup> Echevarria’s approach was not toted as a simplification to Strange’s approach rather a correction more in line with what he thought Clausewitz originally meant.

We have just concluded that Echevarria methodology can be effective and part 2 concluded the same for the Strange methodology so Zweibelson is correct in that the intellectual debate surrounding center of gravity continues to be polarized. From a

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<sup>13</sup> Robert Dixon “Clausewitz, Center of Gravity, and the Confusion of a Generation of Planners.” *Small Wars Journal* (Oct 2015): 3.

<sup>14</sup> Zweibelson, Ben. “Gravity-Free Military Decision-making: Breaking Away from Clausewitz’s ‘Centres of Gravity’ in Military Planning.” In *Directorate of Future Land Warfare*. Manuscript pending publication in Spring 2016 with Australian Department of Defence.7.

<sup>15</sup> Echevarria, Antulio Joseph, 1959. *Clausewitz's Center of Gravity: Changing our Warfighting Doctrine--again!*. United States: 2002. VI.

practical stand point planning staff are still left with a decision on how to incorporate the concept. The next part will address how this can be done.

## **FUTURE OF CENTER OF GRAVITY**

Both Dr Echevarria and Dr Strange definitions and methodologies to determine the center of gravity are valid and can be a useful tool for military practitioners when planning operations. Both attempted to move the Clausewitz theoretical center of gravity out of the realm of theory and into the realm of practical application. Clausewitz did acknowledge distinction between inconsistencies in his theory of warfare. In Book Eight, Chapter 2 he addresses the difference by saying, "... war turns into something quite different from what it should be according to theory ---- turns into something incoherent and incomplete."<sup>16</sup>

The debate has been generated over time on how to bridge the inconsistency between the theory and the reality. Unfortunately that was never clearly laid out by Clausewitz in *On War*. Perhaps if he had lived to complete his master craft he would have addressed this issue. Instead we have been with conflicting methodologies that present both a logical and practical approach to deal with the inconsistencies on how to apply the concept of center of gravity. Returning to Marine Colonel Janiczek he made the following comment about search for a center of gravity, "... misguided belief that every enemy has an Achilles heel against which force must be applied, and that the planner's task is to find it." Many agree with this statement however it has already been shown through the example provided by Operation DESERT STORM that it does hold merit.

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<sup>16</sup> Carl von Clausewitz, *On War*, ed. And trans. Michael Howard, Peter Paret, and Bernard Brodie (Princeton, N.J: Princeton University Press, 1976),580.

It is based off of the conclusions drawn from parts 2 and 3 that both the Strange and Echevarria models can add value to planning operations. Couple this with the continued opinion by some, such as Janiczek, that it is a fool's errand then it is best that a more pragmatic approach be taken. It is recommended that commanders and planning staff do not limit themselves to just one method. As long as the method they choose will assist in shedding light on the factors of an operation and create unity of effort neither the Echevarria nor the Strange model should be discounted. The other logical deduction is that if an operation does not lend itself to targeting a center of gravity than their does not need to be one in the plan.

## **CONCLUSION**

The previous discussion first looked at Clausewitz and his discussion of center of gravity in On War. The applicability of center of gravity was reviewed focusing on the theory of war verses the reality of war. It showed that Clausewitz himself had difficulty explaining how the center of gravity can be identified. Specifically it focussed on his criticism of Napoleon for not identifying Blucher as the Sixth Coalition. Clausewitz's exclamation on why Blucher should have been the Napoleon's center of gravity was not necessarily obvious to Napoleon. It was determined that the center of gravity is still a valuable planning tool however it is easy to speak about in theory however the reality is it can be difficult to put into practice.

The next two parts of the discussion looked at the Strange and Echevarria definitions of center of gravity. It was shown that when the Strange model was used it proved effective in identifying the Republican Guard as the operational center of gravity

for Operation DESERT STORM. The Echevarria model was more effects based which moved the idea of center of gravity from the capabilities concept promoted by the Strange model. It is validated by eliminating the ambiguity of whether or not the population in a counter insurgency campaign can be a center of gravity. The final part concluded that a pragmatic approach had to be taken when applying the concept of center of gravity. Either model if used appropriately would be effective if used properly or if the operation does not lend itself to easily identifying and affecting the center of gravity then it did not need to be in the plan.

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