



U.S. Army

# Center of Gravity

## What Clausewitz Really Meant

By JOSEPH L. STRANGE and RICHARD IRON

**T**he Armed Forces have come a long way in understanding centers of gravity and critical vulnerabilities. The former are equated to strength; the latter to weakness. As stated in *The Joint*

*Staff Officer's Guide*, multiple centers of gravity may exist on a given level of warfare and change during a campaign, sometimes unexpectedly when an enemy shifts "the weight of its attack, thus uncovering or relying on a previously unforeseen center of gravity."

Nevertheless, ambiguities abound. That same publication contains the following statement: "Centers of gravity are the characteristics, capabilities, or locations from which a military force

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Beachhead on Okinawa.

U.S. Coast Guard

derives its freedom of action, physical strength, or will to fight. On the strategic level, centers of gravity might include a military force, an alliance, a set of critical capabilities or functions, or national strategy itself." According to this definition a military force cannot be a center of gravity, yet it is cited as an example. It also presents a choice among characteristic, capability, or location, when in reality all three exist simultaneously in mutual dependency. A force operating in a given location is ineffective without essential characteristics and capabilities. Moreover, the use of terms such as *foundation of capability*, *hub of all power and movement*, and *dominant characteristics* is ambiguous enough. And worse, they are invariably accompanied by an expansive list of examples that include alliances, communities of interest, public opinion, and "national strategy itself."

### A Collision of Centers

To understand centers of gravity, one must be grounded in the original context of *On War*. Book one defines warfare as "an act of force to compel

our enemy to do our will," which entails a "collision of two living forces."<sup>1</sup> Much of the work is focused on war as a clash between armed forces and the use of physical force to "throw an opponent" to break his will to resist. Chapter 27 in book six develops "the nature and effect of a center of gravity" in the context of "several theaters of operation" in which "division of forces then becomes inevitable. . . . 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 that struck by the center of gravity." Clausewitz drove to the heart of the matter in chapter 28: "A major battle in a theater of operations is a collision between two centers of gravity; the more forces that can be concentrated in a center of gravity, the more certain and massive the effect. Consequently, any partial use of force not directed toward an objective that either cannot be attained by the victory itself or that does not bring about the victory should be condemned."

### Misunderstanding Book Eight

In book six (Defense), Clausewitz offers a clear discussion of opposing armies as centers of gravity. But in book eight (War Plans), he applies the term to the broader realm of national and coalition (or grand) strategy, as opposed to the operational and tactical levels. On the strategic level, the army may be just one among several centers of gravity: "In countries subject to domestic strife, the center of gravity is generally the capital. In small countries that rely on large ones, it is usually the army of their protector. Among alliances, it lies in the community of interest, and in popular uprisings it is the personalities of the leaders and public opinion." Moreover, chapter 4 ("Closer Definition of the Military Objective: The Defeat of the Enemy") of book eight contains perhaps the most quoted passage regarding centers of gravity: "One must keep the dominant characteristics of both belligerents in mind. Out of these characteristics a certain center of gravity develops, the hub

of all power and movement, on which everything depends. That is the point against which all our energies should be directed.”

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for two reasons. First, the Howard and Paret translation of *On War*, the most commonly used English edition, may have confused some aspects of the original text. Moreover, some interpretations have taken the original out of context. Notwithstanding possible mistranslations, Howard and Paret are usually clear and consistent—provided the text is interpreted within the context of the relevant passages elsewhere.

Even in Howard and Paret, book eight supports the notion of armies or their components functioning as physical centers of gravity on the strategic level. For example: “For Alexander, Gustavus Adolphus, Charles XII, and Frederick the Great, the center of gravity was their army. If the army had been destroyed, they would all have gone down in history as failures.”

Secondly, commonly overlooked or ignored is the very large paragraph in *On War* that precedes the “dominant characteristics” and “the hub of all power and movement” passages quoted earlier. There Clausewitz explained the relationship between a capital city and a defending army in several different scenarios.

*If Paris had been taken in 1792 the war against the Revolution would almost certainly for the time being have been brought to an end. . . . In 1814, on the other hand, even the capture of Paris would not have ended matters if Bonaparte had still had a sizeable army behind him. . . . Again, if in 1812 Bonaparte had managed, before or after taking Moscow, to smash the Russian army. . . the fact that he held the capital would probably have meant that he could make peace in*

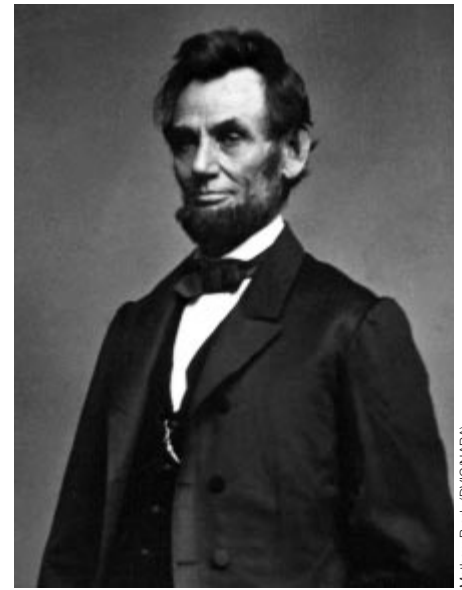
*spite of the enormous area still unoccupied. In 1805 Austerlitz was decisive. The possession of Vienna and two-thirds of the Austrian territory had not sufficed to bring about a peace. On the other hand, after Austerlitz the fact that Hungary was still intact did nothing to prevent peace being made. The final blow required was to defeat the Russian army. . . . Had the Russian army been with the Austrians on the Danube in 1805 and shared in their defeat [referring to Ulm], it would hardly have been necessary to take Vienna; peace could have been imposed at Linz.<sup>2</sup>*

Third, “the hub of all power and movement” must be understood in the broader context of the remarks found in chapter 27 of book six. The following passage appears immediately after the sentence “A center of gravity is always found where the mass is concentrated most densely.”

*The fighting forces of each belligerent—whether a single state or an alliance of states—have a certain unity and therefore some cohesion. Where there is cohesion, the analogy of the center of gravity can be applied. Thus these forces will possess certain centers of gravity, which, by their movement and direction, govern the rest; and those centers of gravity will be found wherever the forces are most concentrated.*

Here the phrase “hub of all power and movement” refers unequivocally to the main bodies of the opposing forces. This point is supported by a passage on the same page: “It is therefore a major act of strategic judgment to distinguish these centers of gravity in the enemy’s forces [that is, *concentrations* in their total force] and to identify their spheres of effectiveness [and influence]. One will constantly be called upon to estimate the effect that an advance or a retreat by part of the forces on either side will have upon the rest.”

The phrase “where there is cohesion” causes confusion. One commentator contends that *where* should be read as *if*. But based on the previous sentence it can be inferred that Clausewitz meant that although the degree of unity and cohesion is small, the concept still applies. Nor should concept



Matthew Brady (DVC/NARA)

be based only on cohesion, that is, interdependence or connectivity (*Zusammenhang*).<sup>3</sup> Consider the next to the last sentence in chapter 27: “Our position, then, is that a theater of war, be it large or small, and the forces stationed there, no matter what their size, represent the sort of unity in which a single center of gravity can be identified. That is the place where the decision should be reached.” Finally, it is difficult to conceive of a mass of an armed force acting as a physical center of gravity that does not also function as a “hub of all movement and power” and as a glue that holds everything together.

Fourth, even the term *dominant characteristics* has often been applied devoid of the context. The next sentence in the Howard and Paret version reads: “Out of these [dominant] characteristics a certain center of gravity develops, the hub of all power and movement.” Note the use of the terms *out of* and *develops*; the sentence does not read “One of these characteristics will emerge as a center of gravity.” Moreover, Clausewitz elaborates on one such characteristic—cohesion.

*There is a decided difference between the cohesion of a single army, led into battle under the personal command of a single general, and that of an allied force extending over 250 or 500 miles, or even operating against different fronts. In the one, cohesion is at its strongest and unity*



Pearl Harbor.

U.S. Navy



Inchon.

U.S. Marine Corps (WW. Frank)

[another characteristic] *at its closest. In the other, unity is remote, frequently found only in mutual political interests [another characteristic], and even then rather precarious and imperfect; cohesion between the parts will usually be very loose, and often completely fictitious.*<sup>4</sup>

In this context, cohesion, unity, and political interests are clearly not viewed as candidate centers of gravity.

They are variables that determine which armies or their components function as centers. Moreover, Clausewitz described these three characteristics in stark terms: unity of effort is remote because precarious and imperfect coalition political interests cause weak or fictitious cohesion—so much so that, like Napoleon, more often than not

they would be weaknesses akin to the concept of critical vulnerabilities today, not powerful centers of gravity.

Fifth, at the end of the chapter, Clausewitz indicates that “[book eight] will describe how this idea of a center of gravity in the enemy’s force operates throughout the plan of war.” Note that it is not *contributing* to the strength of an enemy nor *associated indirectly* with an enemy. Even in the Howard and Paret translation, the “hub of all power and movement” can

be seen in the proper light as the center of power or mass of a force, not a secondary element or characteristic from which power emanates or around which it revolves. Moreover, this interpretation is reinforced by the first reason for misinterpreting the concept of center of gravity.

### Alternative Translations

The description of center of gravity as “the hub of all power and movement” has appeared several times in this analysis. Actually, these words belong to Howard and Paret, not Clausewitz. He meant something rather different in the phrase *ein Zentrum der Kraft und Bewegung*, which is translated as “a center of power and movement.” The actual difference is small but significant. The analogy of a center of gravity as a hub of a wheel came from the translation, and the current concept has been shaped by its words.

While one should not adhere dogmatically to 180-year-old definitions, the original concept of center of

Bombing North Vietnam.



U.S. Air Force (Cecil J. Poss)

gravity was simpler than those found today in references such as the *NATO Glossary of Terms and Definitions*: “Those characteristics, capabilities, or localities from which a nation, an alliance, a military force, or other grouping derives its freedom of action,

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physical strength or will to fight.” Students of history may consider panzer groups and the Army of Northern Virginia or Winston Churchill and Abraham Lincoln as centers. It takes considerable imagination to regard any of those military formations or leaders as “characteristics, capabilities, or localities,” while they are undoubtedly centers of gravity.

This confusing definition is the root of disagreement on centers of gravity. It is so open to interpretation that analysts can view the same situation in a variety of ways. Hours are wasted in fruitless argument that could be better spent on planning.

The concept is much simpler. There is no doubt that Clausewitz meant center of gravity as the main strength of an enemy. The mechanics analogy as rendered by Howard and Paret states: “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.” According to a translation by J.J. Graham published in 1874: “As a centre of gravity is always situated where the greatest mass of matter is collected, and as a shock against the centre of gravity of a body always produces the greatest effect, and further, as the most effective blow is struck with the centre of gravity of the power used, so it is also in war.”<sup>5</sup>

The Graham translation is more literal, conveying a slightly different and clearer meaning. Note that Clausewitz was talking about the center of gravity having an *effect* on an enemy, and the blow it strikes is the most effective—not necessarily the heaviest. But both translations leave no doubt that reference is made to something physical that can strike blows. There is

no indication of alliance cohesion, lines of communication, or seaports.

According to one analyst, the original German text is more specific than Howard and Paret or Graham in “that a center of gravity is a center of strength.” The term *Schwerpunkt* (center of gravity) appears 51 times in support of this reading. Moreover, *Macht* [power] appears eight times in conjunction with *Schwerpunkt*. Chapter 9 of book eight in the Howard and Paret version “leaves out *Macht* quite a bit, and so leaves the door open for misinterpretation.”<sup>6</sup>

### The Adversarial Element

According to the Howard and Paret edition, “One must keep the dominant characteristics of both belligerents in mind. Out of these characteristics a certain center of gravity develops.” But there is another meaning in the original text: *Es kommt darauf an, die vorherrschenden Verhältnisse beider Staaten im Auge zu haben. Aus ihnen wird sich ein gewisser Schwerpunkt . . . bilden.*<sup>7</sup> Graham rendered this passage as “the great point is to keep the overruling relations of both parties in view. Out of them a center of gravity . . . will form itself.”

That translation includes an essential ingredient that is missing in Howard and Paret: what is important is the *adversarial* nature of centers of gravity. Clausewitz described centers emerging from the “overruling relations (*Verhältnisse*) of both parties”; that is, a center of gravity is relevant only in relation to an enemy. It is not an isolated concept. In the Civil War, the Army of Northern Virginia was a center of gravity because of the threat it posed to Washington and its ability to block the march of the Army of the Potomac on the Confederate capital of Richmond.

The Republican Guard constituted a center of gravity in 1991 not only because it was well trained and equipped, but because it was a threat to VII Corps. It was again identified as a center in 2003 because it was vital to the defense of Baghdad. However,



German soldier,  
World War II.

Unknown (DVIC/NAPFA)

Paret. Instead the term *dominant characteristics* was introduced. This is the origin of the NATO definition—a mistranslation of the original. It implies that center of gravity could exist in its own right and is a function of “nation, alliance, military force, or other grouping” taken in isolation. This assumption is obviously wrong. Nothing in war is vital except in the context of the balance between combatants. And using the English term *characteristic* permits inclusion of virtually anything as a center of gravity: logistics, road networks, unit cohesion, or radar systems. This confuses planners. The official definition is a long way from a strength that strikes “the most effective blow,” although many examples quoted in doctrine are precisely those Clausewitz would recognize, contrary to the formal definition.

Clausewitz would recognize the evolving concept of effects-based operations. A center of gravity exists because of its *effect* on an enemy or situation (for instance, striking a heavy blow), not because of its inherent capabilities. A center needs certain capabilities as well as characteristics and locations to achieve the effect, but that effect is the starting point, not the capability.

### Moral Centers of Gravity

It is possible to defeat an enemy, destroy its industry, and occupy its land. But if the spirit of resistance burns in the hearts of its people, one cannot claim victory. It might be possible to subjugate an enemy in the short term, but who can doubt that trouble will arise in the long run? It is difficult

to envisage, for instance, that the Israeli Defense Force can achieve lasting peace in the Occupied Territories while the Palestinians believe they are being wronged. That is a powerful example of a strong-willed people who lack conventional military power but are determined to fight indefinitely for their cause.

with the gift of hindsight, the *Fedayeen* were briefly more worrisome because of their grip on cities along supply lines from Kuwait. While the Kurdish *peshmerga* may have relished fighting the *Fedayeen*, the Republican Guard with its superior firepower, mobility, and protection were a more potent center of gravity. Thus centers of gravity are formed out of the relationships between two forces. Although the Iraqi operational center of gravity may have been the Republican Guard against the Kurds, it was more likely the asymmetric *Fedayeen* forces against the Coalition.

Clausewitz maintained that once an enemy decides to engage in a contest of physical and moral strength, centers of gravity are “active agents”



Kuwait.

Joint Combat Camera (David McLood)

until it ends. Physical centers function as active agents that endeavor to destroy enemy capabilities and the will to resist, and moral centers function as active agents to influence or control physical centers.

Nevertheless, the adversarial element in the concept of centers of gravity is largely missing in Howard and

Desert Storm.



U.S. Army (Robert L. Reeve)

Clausewitz understood the phenomenon of popular will. According to Howard and Paret, “The moral elements are the most important in war. They constitute the spirit that permeates war as a whole, and at an early stage they establish a close affinity with the will that moves and leads the whole mass of force. . . . History provides the strongest proof of the importance of moral factors and their often incredible effect.” Throughout history, many would-be conquerors have failed to succeed largely because they did not fully appreciate moral centers of gravity.

In chapter 4 of book eight, Clausewitz cites specific moral centers: “In countries subject to domestic strife, the center of gravity is generally the capital. . . . Among alliances, it lies in

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the community of interest, and in popular uprisings it is the personalities of the leaders and public opinion.” But does he mean “the center of gravity is generally the capital” or what is in the capital? He concludes that capturing the capital would be “important for the defeat of the enemy. . . if it is not only the center of administration but also that of social, professional, and political activity.” Who is governing

and conducting political and economic activities? Moreover, the Graham edition reads, “this centre generally lies in the capital.” *Lies in* is quite different than *is the*. Is it actually “the community of interest?” Both the Graham and the Howard and Paret translations render “lies” in the community of interest. But who determines that interest over the duration of a conflict? On popular uprisings, the Graham translation states that center of gravity resides “in the person of the chief leader, and in public opinion.” What if the public is apathetic? Is it still a center of gravity? A strong-willed population is a source of moral strength and, conversely, a weak-willed one is a critical vulnerability.

To reach a lasting settlement—self-sustaining peace—one must undermine enemy strategic, and especially moral, centers of gravity. There must be clear linkage between campaign objectives on the operational level and undermining moral centers of gravity (or resistance) on the strategic. That takes more than the military instrument; the total strategy should embrace every instrument of national power—military and nonmilitary. If operations stand alone, it is unlikely that defeating an operational center of gravity will undermine strategic moral centers of gravity.

The outcome of the Persian Gulf War was a resounding victory that achieved the limited objective of the Coalition, liberating Kuwait, by defeating the Iraqi operational center of

gravity, the Republican Guard. But Saddam Hussein, a strategic moral center, remained undefeated. In Operation Iraqi Freedom, Saddam was effectively neutralized early in the war, and the information operation undermined popular will (another potential strategic center) to fight on his behalf. Thus the moral centers of gravity were neutralized simultaneously with defeating operational centers of gravity, the Republican Guard and the *Fedayeen*. The Coalition achieved operational objectives, seizing Baghdad and toppling the regime. However, neutralizing a strategic center of gravity is not the same as defeating it, which is necessary for the wider strategic objective of lasting peace. The evolving nature of the conflict in Iraq demonstrates that continuing effort is required to win over the will of the Iraqi people to accept Coalition strategic postwar objectives.

How does one identify moral centers of gravity? The process begins and ends with people, for only they can create and sustain moral resistance. People fall into the following categories.

*Leaders* have the will to develop, execute, and sustain a policy of opposition to an enemy as well as the ability to exert that will through the military and people (examples include Saddam Hussein in 1990–91, Winston Churchill in 1940–41, and Joseph Stalin in World War II).

*Ruling elites* are closed groups in which real power resides in their members, who are loosely described as kingmakers, and who direct policy and wield control over the military and people (examples are the Soviet Politburo in the 1970s and clerics in the 1979 Iranian revolution).

*Strong-willed populations* are large groups with common beliefs that compel them to engage in conflict (examples include the Palestinians and Israelis in their dispute over the Occupied Territories and Americans in the wake of the Japanese attack on Pearl Harbor).

Two central elements common to these moral centers of gravity are the will to fight and the ability to command the necessary resources.

1<sup>st</sup> Marine Division Combat Camera (Kevin C. Quihuis, Jr.)

According to Clausewitz, “The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish . . . the kind of war on which they are embarking. . . . This is the first of all strategic questions and the most comprehensive.” They must therefore first appraise the moral and physical character of an enemy to include its moral and physical centers of gravity. There is no alternative, short cut, or analytical model to make up for inaccurate assessment of the enemy when deciding on centers of gravity.

Defeating a leader differs from undermining popular will. In Afghanistan, for instance, planners could have considered several moral centers of gravity: Mullah Omar, the Taliban elite, or large segments of the Pashtun population. The right choice assumed in-depth knowledge of the Taliban and the local situation, and a wrong one would likely have led to a misdirected campaign.

By appealing to the original concept of centers of gravity, one can determine that they are dynamic, positive,

active agents (people in formations and groups or individuals), obvious (more for physical than moral centers, depending on the quality of intelligence gathered on an enemy), and powerful and strike effective blows. Physical centers of gravity can be visualized more easily as armies or units, those things that resist an enemy. By contrast, moral centers of gravity are less obvious. Yet it is essential to understand them since they are likely to be more important on the strategic level.

Clausewitzian centers of gravity are not characteristics, capabilities, or locations. They are dynamic and powerful physical and moral agents of action or influence with certain qualities and capabilities that derive their benefit from a given location or terrain. Further analysis is required to clearly define the relationship between centers of gravity and critical vulnerabilities, thus enabling planners to better focus sources of power on developing successful strategies and campaigns. This process will indicate where characteristics, capabilities, and locations properly belong in the overall scheme of things when thinking about warfighting. **JFQ**

## NOTES

<sup>1</sup> Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), pp. 75, 77.

<sup>2</sup> *Ibid.*, p. 595.

<sup>3</sup> Antulio J. Echevarria II, “Clausewitz’s Center of Gravity: Changing Our Warfighting Doctrine—Again!” (Carlisle Barracks, Pa.: Strategic Studies Institute, U.S. Army War College, September 2002). See especially p. 10.

<sup>4</sup> Howard and Paret, *On War*, p. 486.

<sup>5</sup> Carl von Clausewitz, *On War*, translated by J.J. Graham (London: Kegan Paul, Trench, Trübner, 1908), volume I, book six, p. 354.

<sup>6</sup> Joe [Joseph L.] Strange, *Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language*, Perspectives on Warfighting Series, no. 4, 2<sup>d</sup> ed. (Quantico, Va.: Marine Corps University, 1996).

<sup>7</sup> Carl von Clausewitz, *Vom Kriege*, edited by Werner Hahlweg (Bonn: Ferd. Dümmler, 1980), p. 976. He uses the standard meaning of *Schwerpunkt*, which was center of gravity. The military definition as a point of main effort was accepted by the Prussian army. Since Clausewitz appeals to both, accurate translations must depend on the context.