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Devastation: field artillery, conventionality, and the pathological economy of modern warfare

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Abstract

Conventional weapons are paradoxical. While labeled as "normal" and "acceptable" in warfare, these weapons have inflicted mass human suffering and devastation in modern conflicts. This paper argues that such paradoxes are not incidental or even inherently contradictory but stem from the very epistemic foundation of conventionality, which is rooted in an economic vision of violence. The paper shows how the principle of the economy of force—the idea that weapons must be used efficiently, with maximum output for minimum cost—has not contained violence but rather rationalized and normalized its dramatic expansion. Eradicating the means-ends of warfare, this economic logic transforms devastation into a self-perpetuating procedural goal that ultimately creates a strategically and morally pathological normalization of organized violence. By introducing the notion of the uniformed brutalization of the world to unpack this process, the paper theorizes how the modern economic epistemology of conventionality renders the self-perpetuation of mass violence epistemically legitimate and morally unaccountable. To do so, and drawing on archival research in the United States and France, the paper traces the economy of force in American and French field artillery across three major conflict configurations: positional warfare (World War I), maneuver warfare (World War II), and counterinsurgency (the two Indochina Wars). It concludes by projecting this argument into the present, suggesting that conflicts such as the War on Terror and the wars in Ukraine and Gaza reflect the enduring power of the economy of force in the changing yet still ongoing proliferation of military-driven devastation.

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Introduction

Despite their benign name, "conventional weapons" have caused immense destructions. Emerging in the classic era and expanding technologically, quantitatively and geographically in the late 19th century with the industrial revolution, these weapons—ranging from rifles and artillery to tanks, jets, and missiles—have dominated battlefields, wreaked urban areas, caused mass casualties, and led to social and political upheaval (Shah, 2017: 81–82). Their use in two World Wars (WW), numerous regional conflicts, and recent military engagements reveals a paradox: labeled as "normal" or "acceptable" in warfare, these weapons have inflicted mass human suffering and devastation in modern conflicts.

The paper explores this paradox of conventionality, by paying attention to the economy of force. The economy of force is central to the instrumentality with which political-military institutions conceive weapons as tools for achieving political-strategic goals (Black, 2013: 33; Chin, 2023: 27–28). It advocates for rational and profitable weapon deployment to minimize unnecessary waste and wear on forces, in order to maximize the strategic impact of force (Chin, 2023: 76–77). The economy of force aims to ensure that no more violence than necessary is to be used to reach strategic aims, by covering aspects such as ammunition consumption, the type of munitions for desired effects, shooting accuracy, the necessary damages to be inflicted, and execution speed (Freedman, 2013: 74–75; Sloan, 2012: 30).

Advocating for a stronger problematization of the economy of force within Critical War Studies, the argument of the paper is that conventionality is founded on an economic epistemology of violence, leading to a *uniformed brutalization of the world*. The economy of force—the idea that weapons use must be profitable and cost-effective—has shaped conventionality both to sustain devastation and to turn it into an economic necessity and socially acceptable reality. The conventionality of weapons is understood as an epistemological construction. They are deemed conventional not because they are more controllable or reasonable than other types of weapons (of mass destruction by opposition), but because their destruction is practiced within an economic conceptualization of violence. In terms of processes, the notion of *uniformed brutalization* refers to how the economy of force has turned violence into a pathological yet normalizing exercise of strategy and morality. Strategically, it dissolves the distinction between means and ends, making destruction its very substance, a technically managed rather than politically oriented entity. Violence became self-justifying and reproduced for its own procedural sake. Morally, it signals ethical constraints' collapse under the weight of modern rationalism. Weapons' conventionality has made warfare governed by a technicized logic that absorbs and neutralizes any serious attempts to moralize organized violence.

This paper focuses on French and American field artillery[1] from WWI through the two Indochina wars. A cornerstone of modern conflicts, artillery has imposed overwhelming force in land warfare, causing extensive damage throughout the 20th century.

Analyzing its evolution in key major wars reveals how this weapon has shaped the parameters of endless devastation as acceptable warfare.

First, the paper advocates for a more thorough incorporation of the economy of force into the Critical War Studies research on weapons' conventionality. My theoretical position is then presented, offering an epistemic critique of the economy of conventionality, conceptualized as a *uniformed brutalization of the world*. Subsequently, I analyze the economy of French and American artillery warfare across three major conflict types: positional warfare (the Great War), maneuver warfare (WWII), and counterinsurgency warfare (the two Indochina wars). I conclude by expanding my argument to today's wars and insisting on the necessity to investigate the global connections structuring the brutal economy of weapons' conventionality.

From instrumentality to brutalization: devastation in weapons' conventionality

Before arguing for stronger critical engagements of the economy of force, we must address the perspectives that treat the link between conventional weapons and mass destruction as an inevitable response to the antagonistic ideological projects and industrial capacities of modern war (Chivers, 2010; Freedman, 2013: 123–124). While such accounts help to contextualize mass destruction, they fail to explain how such uses of weapons became epistemically possible and strategically qualifiable as "conventional." The key issue is not simply why violence escalates, but how large-scale destruction is rendered rational and controllable within modern military thought. To render weapons' devastation actionable, an underlying epistemic structure must exist (Bousquet, 2018), opening the problem of how the notion of conventionality is situated and constituted within these knowledge systems that turn the mass destructions of war into acts of reason. Approaches in terms of military culture (Adamsky, 2010; Mahnken, 2010), focusing on institutional preferences and strategic traditions, are more interested in technological and doctrinal evolutions rather than explaining how these changes sustain mass destruction on a global scale. These readings can hardly make sense of the fact that the evolution from carpet bombing to "surgical strikes" through precision-guided munitions, drones, and algorithmic coordination has not fundamentally changed the structural properties of mass destruction. It has only reconfigured it through different temporalities, spatialities, volumes of violence, and strategic orientations (Crawford, 2023; Gregory, 2011).

It is acknowledged that weapons massively destroy for political-military reasons, but what makes certain weapons normal vehicles for this and why is this "conventionality" of devastation shared among military traditions remains unclear. The reason is that these views overlook the deeper transformation of modern warfare: force rationalization. Analyzing the weapons/devastation nexus in political or military-institutional terms obscures the problematic relationship between modernity and weapons, where mass destruction emerges from decisions made in the name of efficiency and control.

Such accounts fail to address the structural dimension of modern military knowledge—the epistemic frameworks through which conventional force is conceptualized and legitimized. This is why this paper argues that weapons' conventionality can be more

strongly tackled through Critical War Studies. On ethics, Elke Schwarz (2018) and Neil Renic (2020) argue that the technological complexification of war dehumanizes killing, raising moral issues about accountability, proportionality, and the military-civilian distinction. Similarly, increased focus has been given to precision munitions. While praised for targeting specific objectives with minimal collateral damage, this narrative neglects messier war realities like miscalculations, flawed intelligence, and flexible definitions of precision, accepting the high risk of civilian damage in the name of military priorities (Zehfuss, 2011). The critical literature has finally paid attention to the "calibration of force," showing how military engineering controversies—such as the effects of bullets on bones and flesh—perpetuate a technicist and rational imagery of violence (Ford, 2020; Shah, 2017).

While critical discussions of the instrumental dogma focus on the ethical and techno-epistemic dimensions of how weapons strike targets and inflict pain, greater considerations should be given to conventionality as enabling, sustaining the devastation of the living. The literature tends to position mass destruction as a general consequence of the moral and ballistic foundations of modern technologies, rather than a vibrant producing site and deliberate outcome of the rationalization processes behind weapons. The engineering of conventionality and the calculated production of lethality are important; however, they must be reconsidered within the larger historical implications for the political existence of the living, namely the "intensified systematization of killing" (Renic and Schwarz, 2023: 324) and the facilitation of increasingly devastating conflicts.

Therefore, my critical approach shifts the focus to how the economic epistemology of conventional weapons, like artillery, has integrated devastation into military thinking. My central argument is that the economic epistemology of weapons' conventionality has enabled the unprecedented intensification and liberation of organized violence in the 20th century (Malesevic, 2017), embodying a *uniformed brutalization of the world*. Following Sinisa Malesevic's historical sociology of modernity as the "improved organizational means for the proliferation of mass killings" and "the proliferation of warfare" (2017: 39 and 142), the term *uniformed brutalization* aims to requalify the relationship between conventionality and the presumed strategic/moral limitation of violence. Hence, I invite to examine weapons' destructiveness through how it became normalized within this modern epistemology treating force as an economic variable. I will now explain how the economy of force has conciliated conventionality and devastation pathologically, showing that this principle creates an illusion of control that freed military violence from strategic and moral limits. This is what the process of *uniformed brutalization* is about: an economic epistemology of devastation.

On strategy, the paper contests the idea that the economy of force makes violence a mean to an end. The notion of brutalization suggests that military profitability has prioritized maximizing killing efficiency and physical obliteration, turning destruction into an end goal rather than a mean. The economy of force eradicates the means-ends distinction, making the maximization of killing efficiency a self-sustaining process pathologized through its reduction to calculable variables. The techno-economic management of devastation conceals that such violence no longer serves a purpose beyond its own perpetuation. It turns violence into an autonomous field of optimization and obliteration as equating, if not victory, at least operational progress. This is where the economy of force

is decisive to escalation: as long as weapons are maintained in this economy of control, their most extreme and sterile uses remain strategically conceivable. This logic might reveal continuities between past and present forms of violence. The rationalism of WWII strategic bombings, with their target lists and tonnage calculations, parallels the surgical drone strikes of the War on Terror. They both epistemologically reduce targets to data points and measure success through quantifiable destructions, in terms of cities razed on one side and the cumulative destruction of individual "high-value targets" on the other (Hippler, 2017: 207–211). Pushing forward this line of thought by examining field artillery, the paper presents economic profitability not as containing violence but as an epistemic catalyst that turns the devastations of modernity into reasonable necessities, perpetuating the possibility of warfare.

This position leads to two additional claims regarding the strategic illimitation of force. First, conventionality's uniformized character reflects the global extension of economic rationality, reducing human-social realities to militarized abstractions. This uniformization—disseminated across theaters from Europe to the Pacific and Southeast Asia—has sustained the desire for control in conventional warfare and enabled the globalization of devastation by making its logics appear rational (Bousquet, 2018: 148–150; Renic and Schwarz, 2023). Second, the paper challenges the conventional/non-conventional weapons binary by showing how economic rationality shaped the deployment of weapons like chemical and incendiary munitions. Their integration through conventional platforms like artillery has reinforced the status of the former and the later as acceptable war instruments. The economy of force collapses these categorical distinctions while stabilizing conditions under which war continues as a reasonable enterprise of destruction.

I also see the economy of force as a driver to the moral abomination of modern warfare. While we might think it is synonymous with the moralisation of war, where better calculation of violence would limit it, the paper shows the opposite. There is nothing inherently moral about calculating violence (Schwarz, 2018: 96–117). By reducing violence to technical problems, the economy of force eliminates normative thresholds and absorbs civilians, spaces and infrastructures into destruction, making them the entities on which the economic engineering of devastation is refined. Although moral constraints on warfare exist, they remain marginal against the extraordinary expansion of modern rationalism's lethal furies (Malesevic, 2017: 99–141). The weapons' economy of force shows the power of modern rationalism to generate unlimited violence, producing warfare as a domain of endless optimization and making our planet an open field of procedural destruction. Hence, the paper reveals another aspect of techno-strategic dehumanization. While critical literature tends to view this as techno-bureaucratic flows inhibiting agency and obscuring the moral weight of killing (see Renic, 2018), I argue that this dehumanization can also be viewed as a more conscious dynamic. It occurs through belief in economized force mastery. The economy of force does not dehumanize by morally inhibiting operators, but by giving them mastery through the rational control of their weapons.

The paper examines artillery deployment in three war configurations: positional (WWI), maneuver (WWII), and counterinsurgency (Indochina wars). This investigation of major wars that normalized the strategic reputation of artillery demonstrates

that conventionality's economic rationale operates pathologically and similarly across modern conflicts. The research draws from archival work, from the Great War to Vietnam, conducted between 2023 and 2025 at the US National Archives (NARA) in Maryland and Service Historique de la Défense (SHD) in France.

My methodological approach has been primarily inductive. The central argument emerged from observing a tension in the archival material: the juxtaposition of appalling levels of violence with American and French gunners' focus on economic management of that violence. This observation led to a broader inquiry into the relationship between artillery's conventional status, and the economic normalization of mass destruction. Documents were selected to reconstruct how artillery practices were shaped by an economic visualization of war, using two criteria: they had to cover widely implemented artillery practices and establish clear links to the economy of force through, for instance, firepower quantities, targeting accuracy, operational tempo, losses, or effectiveness evaluations.

Entrenching brutality: the Great War and the economy of field artillery in positional warfare

The Great War marked a new era for field artillery, with violence levels far surpassing those of the American Civil War, the Franco-Prussian War, or the Balkan Wars, when industrialized artillery gained importance on the battlefields (Keegan, 1994: 347–368). This shift was due both to the maturation of the industrial revolution since the late 19th century and the static form of trench warfare.

Following the failed attempts at maneuver between summer-autumn 1914, the Western front opposing Germany, France and its allies solidified into static trench warfare along a 700-km line from the Belgian coast to Switzerland, in which artillery became preeminent. Efforts to break through were thwarted by trenches, barbed wire, machine guns, artillery, and fortified positions, leading to a stalemate. Massive artillery bombardments aimed to weaken enemy defenses but resulted in minimal gains due to well-dug trenches and difficulties in coordinating advances under heavy fire. Artillery was both a cause of the impasse and a hoped-for solution (Horne, 2010: 17–18), leading to a neutralizing dynamic between increased firepower and defense. This blockade resulted in unprecedented industrial arms production. For France alone, the production of shells went from 3,396,000 in 1914 to 70,588,000 in 1917 (Aubagnac et al., 2016: 108). Production of the iconic French 75-mm gun increased from 380 units per month in spring 1917 to 750 by April 1918, reaching 1,000 in autumn 1918 (Cochet and Porte, 2017: 185).

Interpretations of violence massification during the Great War have oscillated between two broad perspectives. One portrays it as a transitional phase for modern strategy to adapt to the abrupt increase in firepower capabilities (Tuck, 2016: 102–111). The other views it as a senseless mechanized slaughter foreshadowing the grim future of industrialized warfare. As Keegan (2000) notes, "the First World War inaugurated the manufacture of mass death that the Second brought to a pitiless consummation" (p. 4). This section contends that these interpretations, while divergent in tone, converge on a deeper process: the normalization of mass violence through economic rationalization. Artillery deployment shows how weaponry's economy of force pathologized military reasoning,

transforming mass destruction into a pure negation of life and manageable variable of war. By embedding devastation within efficiency and calculation, the rationalist epistemology of the economy of force has reconciled these views while making hyper-violence central to conventionality.

WWI solidified the central principle of action in artillery—fire concentration—a tactic inherited from Napoleon's uses of field guns. To support infantry assaults, counter-battery operations, and repel enemy waves, artillery fire was massed on specific points to achieve maximum destruction and impact. The French strategy was further shaped by economic considerations, with particular attention to ammunition consumption.

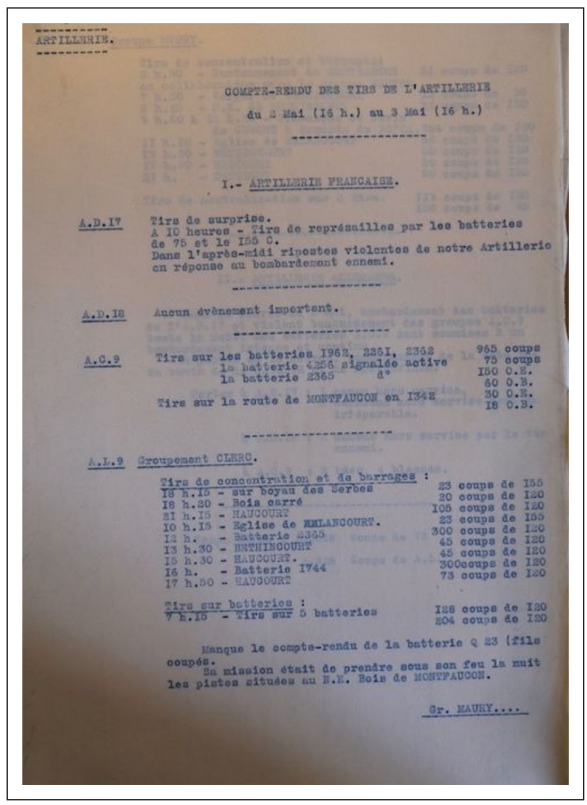
Fire concentration required the rational use of shells to prevent scattering, which would diminish effectiveness and unnecessarily waste ammunition. The 1915 shell crisis and the heightened consumption of munitions caused by the stabilization of the front, prompted the French army to plan allocations to optimize fire concentrations (Cochet and Porte, 2017: 185–194). However, the rationalization of shell consumption did not curtail artillery utilization. Firing economically did not mean killing reasonably, but obtaining the highest killing rate from the—usually important—number of shells spent. The instructions insisted on the strict economy of shell expenditure and the choice of the right type of shell to optimize the resource expenditure/killing ratio, such as in shrapnel fire. Essentially used against troops, shrapnel shells released bursts of metal fragments mid-air. Their aim was to maximize casualties by combining explosive force with high-velocity projectiles. They also caused terrifying wounds and mutilations. Shrapnel occupied an important place in these resource expenditure/killing ratio controversies, as indicated in this directive in case of an enemy attack:

> It is not advisable, in order to defend against an imminent attack, to direct a barrage on the front of the enemy trenches. This method presents the following danger: it requires a consumption of ammunition which can last for hours without producing any results if the enemy does not leave his trenches [. . .] If the attacker finally leaves his trenches, then the fired ammunitions were wasted. [. . .] If the attacker manages to get out for the assault, then a barrage fire must be unleashed on him, as intensely as possible from all the batteries; in this case shrapnel is used in priority (6ème Armée—Général Commandant de l'artillerie, 1916: 6).

More structurally, massive barrages occurred daily on the Western front (Herwig, 2010: 55). Priority objectives led to enormous shell spendings, as in Verdun and the Somme in 1916. Tens of millions of shells were fired (Bourlet, 2023). Therefore, French command maintained ambivalent views on ammunition economy. Artillery units were urged to shell to incessantly destroy German lines. Rationing ammunition and maintaining the continuous destruction of enemy lines were not incompatible. The economy of force was a cohesive force in this process that helped turn devastation into a self-generating epistemology, one in which the strategic sterility of violence became its own technically calculable goal. Harassment fires exemplified this approach. By maintaining pressure outside major offensives, harassment fire became key to attrition. While French Command criticized these shots for high ammunition use and limited results, they were deemed essential within an economy of force—a rationality of weapons' uses—aimed at psychological demoralization. Artillery brutality was intended to make enemy life unbearable, impacting morale and hindering trench repairs:

> Harass thoroughly, night and day, cut off all communications, make any relief and resupply at least costly, and make the exercise of command very precarious if not impossible. To ensure the breach, you can never have too much artillery (Grand Quartier Général des Armées du Nord et du Nord-East, 1917: 4).

Thus, unblocking the front was not the immediate purpose of shelling. With the superiority of defense over offense, the military grew lucid about artillery's strategic potential, insisting that "even with the very powerful modern artillery at our disposal, we cannot hope to destroy all the enemy's defenses in a few hours, to annihilate the gutters and [. . .] the personnel shelters [. . .]. [. . .]. But [. . .] we still need very heavy fire [. . .] which will be enough in any case to put them out of action" (Colonel Baignol—43ème Régiment d'artillerie, 1918: 4). Artillery fire became a strategic ritual, valued for its psychological and material toll. This ritual of endless devastation was underpinned by an elaborate system of quantification. Harassment, stopping, and destruction fires were logged in fire tables to record shot counts, coordinates, calibers, damages, and intended effects. These tables embodied the economy of force by transforming violence into an administrable and ultimately controllable sets of variables. This quantitative systematization became a defining feature of artillery throughout the 20th century, reflecting a pathological rationalism where devastation was optimized as the ultimate goal of military thinking[2]:



ARTILLERIE.

COMPTE-RENDU DES TIRS DE L'ARTILLERIE

du 2 Mai (16 h.) au 3 Mai (16 h.)

I.- ARTILLERIE FRANCAISE.

A.D.IV Tirs de surprise.
A 10 heures - Tirs de représailles par les batteries de 75 et le 155 C.
Dans l'après-midi ripostes violentes de notre Artillerie en réponse au bombardement ennemi.

A.D.18 Aucun évènement important.

A.C.9 Tirs sur les batteries 1962, 2351, 2362 965 coups
la batterie 4256 signalée active 75 coups
la batterie 2365 d° 150 O.E.
60 O.E.
Tirs sur la route de MONTFAUCON en 1342 30 O.E.
18 O.E.

A.L.9 Groupement CLERC.

Tirs de concentration et de barrages :

16 h.15 - sur boyau des Serbes	23 coups de 155
18 h.20 - Bois carré	20 coups de 120
21 h.15 - HAUCOURT	105 coups de 120
10 h.15 - Eglise de MALANCOURT.	23 coups de 155
13 h. - Batterie 2365	300 coups de 120
13 h.30 - BETHINCOURT	45 coups de 120
15 h.30 - HAUCOURT.	45 coups de 120
16 h. - Batterie 1744	300coups de 120
17 h.50 - HAUCOURT	73 coups de 120

Tirs sur batteries :

7 h.15 - Tirs sur 5 batteries	128 coups de 120
	204 coups de 120

Manque le compte-rendu de la batterie Q 23 (fils coupés.
Sa mission était de prendre sous son feu la nuit les pistes situées au N.E. Bois de MONTFAUCON.

Gr. MAURY....

Trench warfare spurred advancements in artillery, including various guns, calibers, and shells, driven by the economic imperatives to create technologies with specific destructive effects (Goya, 2004). Heavy artillery was developed to devastate defenses, while trench artillery, like mortars, targeted enemy trench corridors with their curve shots. Instructions emphasized to direct fire where it would cause the most damage to personnel and equipment, in targeting enemy encampments, trench gutters, and ration convoys at peak occupancy to maximize casualties (9ème Corps d'Armée—Artillerie, 1916: 1–26). This technological focus reduced the enemy to quantifiable targets, framing the issue to the conflict in the exclusive terms of physical destruction. Turning obliteration into an end in itself, such innovations and instructions prompted artillerymen to discuss optimal methods to full-fledge artillery's engineering of death. In February 1918, General Frédéric-Georges Herr, General Inspector of Artillery, commented on a report regarding the use of shrapnel with the 75-mm gun and argued for the progress made in the lethal spray of this shell/caliber combination during the war:

> Contrary to what Colonel GASCOUIN[3] believes, the performance of our gun increased appreciably during the war. [. . .] The 75 mm gun has been very good at hitting the enemy in their trenches and shell holes, thanks to the axe-like shrapnel of its explosive shell. In terms of assessment, the number of useful splinters beyond 10 m is indeed important and the 75 explosive shell still gives 25 useful splinters at 20 meters (Grand Quartier Général, 1918: 1).

The development of chemical artillery shells—starting after the 1915 Battle of Ypres—demonstrates how the economy of force was about to extend to non-conventional (back then termed "special") weapons. Chemical shells were integrated into artillery, reinforcing rather than questioning its strategic normality. In attritional trench warfare, their function mirrored high-explosive shells: maximizing devastation. Chemical munitions, killing through asphyxiation or burns, represented an alternative path to the same outcome of mass causalities within the same rational calculus (LePick, 1998: 163–164). Military planners aimed to avoid interferences between these different lethal mechanisms, likely to generate suboptimal killing rates. They rather sought integration, coordinating the killing virtues of chemical and explosive shells for maximum lethality. This optimized coordination was framed in economic terms, with chemical violence following the same logic of performance that characterized artillery warfare:

> Their asphyxiating properties also mean that they can be used against villages or complex organizations that prevent the smoke of asphyxiating gases from dispersing. [. . .]. Firing explosive shells beforehand would cause the enemy to dig in and is not to be recommended. Firing explosive shells in conjunction with asphyxiating shells would have the disadvantage of dispersing the smoke and reducing the effect of asphyxiation. [. . .] It will therefore be useful to follow up asphyxiating shells bombardment with explosive shells after a certain interval (Grand Quartier Général, 1915: 2–3).

Chemical shells were folded into the conventionality of artillery through this rationalized sequencing. The economy of force enabled the perception of chemical warfare as just another variable in this modern epistemology of procedural devastation.

The optimal lethality of chemical shells was pursued from the earliest testing phases prior to their deployment. French chemical warfare laboratories conducted experiments on animals to assess the effects of chemical shells, considering variables such as firing distance and the type of terrain where projectiles detonated. Artillery's economy of force absorbed both human and non-human living entities in its normalizing quest for perpetual destruction. These experiments reflected a methodical quest into maximizing destructiveness, resulting in significant harm to human life but also to animal populations. This impact was compounded by the exploitation of animals as a working force on the front, especially for the transport of artillery batteries (Baratay, 2013). An autopsy conducted from a firing experiment at Vincennes reports:

> Autopsies.
>
> On 16 December, an autopsy was carried out on 3 pigs, 2 sheep and 1 rabbit at the Trouau depot.
>
> 1—Pig dead on the spot
>
> Large pulmonary oedema. Slight dilatation of the heart.
>
> [. . .]
>
> 5—Dead sheep in the night
>
> Total pulmonary oedema. The lungs form a compact block that is impermeable to air.
>
> 6—Dead rabbit in the trench.
>
> Congested lungs.
>
> [. . .]
>
> Results.
>
> I—Mortality due to 155 mm. Considering that the trench was not swept by the cloud, only 29 large animals were hit by the cloud: 10 died, i.e. 34.5% (Ministère de la Guerre—Inspection des Etudes et Expériences Chimiques, 1915: 1–3).

The Great War marked an unprecedented intensification of field artillery, linking devastation with economic rationalization. From shell metrics to fire optimization, from harassment fire to chemical munitions, artillery violence was scaled up, made intelligible and self-perpetuated through quantification and procedural abstraction. The attrition stalemate entrenched, both epistemically and physically, the economy of force. In attritional warfare, military institutions focused on managing firepower as an optimizable asset. The Great War thus stands as a foundational moment in the institutionalization of the conventional epistemology of force: a military rationalism that normalizes extreme

violence as an economic reality. WWI artillery warfare crystallized the logic through which conventional weapons would continue to operate across the 20th century, as vectors of procedural annihilation, rationalized and controllable not in spite of their destructiveness, but because of it.

Expanding brutality: WWII and the economy of field artillery in maneuver warfare

The global dissemination of the conventional economy of force was also a matter of transnational connection between military powers. From 1917 onwards, the US artillery groups combating on the Western Front were strongly influenced by French tactics, since much of their guns and shells were supplied by France. The Meuse-Argonne offensive (26 September–11 November 1918), in which the US forces fired 4,214,000 shells, marked the peak of their familiarization to the artillery technics of trench warfare (Prince, 2021: 157). Despite further inter-war reductions in artillery and a shift toward mobility, the US maintained the principle of concentrated firepower, both inherited from the Civil War and the trenches of Europe (Prince, 2021: 166–183). In the 1920s and 1930s, French officers contributed to train American artillery schools, imparting knowledge from WWI's economy of total destruction to the next generation of gunners and promoting "aggressivity" as a key element in artillery warfare (Major Bertrand, 1919). This epistemic transnationalization persisted into WWII, aimed to help the Americans to optimize the giant concentrations of fire sweeping across Europe and the Pacific (Chef d'escadron Durette, 1942).

The primary difference in WWII was the return of operational mobility, enabled by the military integration of the internal combustion engine by the end of the Great War. Troops moved across vast areas, using a combination of aviation, tanks, infantry, and artillery. WWII maneuver warfare reinforced artillery as a conventional weapon crucial for mobile, coordinated operations and shifting perceptions from static, large-scale shelling to precision and rapid advances to end the war as fast as possible. The section rather argues that this economic vision of artillery normalized another episode of self-sustained global devastation, supported by speed, movement, and an even larger industrial capacity to feed war (Hanson, 2017).

It is first important to note that the pathological effect of the economy of force in WWII persisted through combat episodes close to WWI positional warfare, for instance, in city captures. Notable examples include the gigantic sieges of Leningrad and Stalingrad opposing the German and Soviet armies, but also battles involving US forces such as Manila (February–March 1945) against the Japanese and Aachen (October 1944) and Brest (August–September 1944) against the Germans. Artillery focused on attrition to weaken enemy positions, allowing infantry to advance into heavily bombarded, and ultimately largely razed, cities (Wahlman, 2015: 23–69). The 174th Field Artillery Battalion's report on Brest highlights how the renewed focus on economic principles such as speed and accuracy were made compatible with the celebration of aggressiveness and devastation into a battle against fortified positions close to WWI's attritional archetype:

> On 21 August [. . .] a major assault on Brest were organized. [. . .] During this period [until 31 August] the battalion [. . .] fired 1112 rounds on 145 targets [. . .]. [A]t times the earth around our position trembled like an earthquake from the concussion of our own guns firing and the detonation of the exploding bombs and shells. At about 1300 hours 25 August in preparation for an attack was probably the worst, for at that time the noise was almost deafening. [. . .].
>
> The Battery C personnel were highly praised by Col Edward R. Roberts their Group Commander for the speed and accuracy in accomplishing this mission. The battalion received some high compliments from commanders in the 6th armored division. General Grow, Comd Gen, 6th Armored Div stated that the 174th FA Bn was the fightingest bunch of artillerymen he had seen operate in France [. . .]. General Taylor [. . .] complimented the battalion for their aggressiveness in lying and servicing fire. In an official commendation, the Commanding General, 6th Armored Div stated: During the period the 174th FA Bn [. . .] moved rapidly in position and its fire power was quick, efficient and accurate. Throughout the entire action at Brest, the ingenuity, and resourcefulness of the staff officers and aggressiveness of the other officers [. . .] resulted in the destruction of many "krauts" installations (174th Field Artillery Battalion, 1944: 6–10).

On maneuver itself, my argument is that it did not fundamentally change the economy of conventionality. The strategic purpose in the combination of artillery's speed, ammunition economy and accuracy involved maximizing destruction quickly to move to the next target (Hanson, 2017: 387–389; Weigley, 1973: 312–362). This approach applied to artillery in both Europe and the Pacific. These spaces were encapsulated in an economy force where devastation was both the mean and the end of violence. The focus on the economy of weapons shatters the classic distinction between the attritional archetype of WWI and the movement of WWII. This resemblance does not just relate to specific operational episodes (city captures for instance as argued above). Both models were contained in the same epistemic economy of conventionality, where total destruction took precedence. During the Italian campaign, which started with the American landing in Sicily in summer 1943, artillery supported efforts to break defensive lines (like the Gothic Line in the North of the Apennines), capture towns, and pursue the enemy, contributing to the advance toward Rome and northern Italy (Cadick-Adams, 2013). The II Corps Artillery's Italian Campaign between! March and June 1944 illustrates that speed and extensive destruction, core to the economy of artillery in Italy, became the self-sustaining epistemology of warfare, transforming devastation into a celebrated metric of progress:

> They were constantly pressing forward to reach out and hammer a demoralized, retreating enemy at every possible opportunity. Daylight reconnaissance was continual. [. . .] Heavy guns and howitzers went into and out of position as if they were light artillery. The cannoneers sweated at their tasks with a will and an unbeatable morale that made difficult jobs look easy. Here was the opportunity the artillery had long sought to exploit to the maximum the devastating fire power of its weapons. This was hard and deadly shooting at visible targets. We were going places. On these moves forward, we could see for ourselves the destruction we had caused, the bodies, the damaged guns, the wrecked vehicles (II Corps Artillery, 1945: 9).

As US command praised the 174th Field Artillery Battalion for wracking Brest, similar reactions followed the deluges of fire in Italy. These reactions reinforced the belief that accelerated devastation was strategically beneficial: faster firing meant quicker advances;

greater devastation meant shorter campaigns. In this rationalized equation, moral implications of devastation gave way to procedural thinking; firepower was the mean of its own devastating end, and aggressiveness as well as rapid fire were markers of good soldiering:

> The accomplishments of every fighting wit have been superb, officers and men rising to inspired heights. Storming rapidly and relentlessly out of your Winter positions in the Apennines [. . .] you swarmed out of the valley of the Po to overwhelm the fanatical enemy. Creating confusion and chaos in his ranks, by the weight and fury of your attack, in scarcely more than two weeks you captured enormous numbers of personnel, seized huge quantities of stores of equipment, inflicted thousands of casualties, generated the widespread demoralization [. . .] of the [. . .] enemy [. . .].
>
> You have broken the GOTHIC LINE. I congratulate you upon this significant victory—the first step toward the ultimate destruction of our enemy. You must not pause in your gallant and determined drive, but push the enemy relentlessly, giving him no rest. The final goal is in sight, and I have every confidence that the men of II Corps will give the Fifth Army another Speedy Victory. [. . .]
>
> Keep up the good fight (Headquarters Fifth Army, 1945: 19–20).

The Italian campaign further shows how the economy of force extended to chemical munitions within its rationalized epistemology of pure destruction. Although employed on a smaller scale than in WWI, chemical shelling in WWII was similarly designed to brutalize the battlefield under the guise of greatest efficiency. Its use shifted from eroding static defenses to enabling rapid territorial gains. The activation of Chemical Mortar Battalions during the war embodied this transition, integrating chemical weapons into the epistemology of firepower management (Cadick-Adams, 2013: 114–115). This approach is evident in reports like that of the 84th Chemical Mortar Battalion during the Naples combat on 6 October 1943, which emphasized its fire mission's scale and effectiveness:

> The 84th was to have the job of screening the crossing by the 3rd Infantry Division. It was a big order, but well executed! One company fired more than 2,800 rounds of white phosphorous between daylight and dusk, [. . .] which helped drive the enemy from his strong points (84th Chemical Mortar Battalion, 1945: 14; for similar cases in the final push into Germany, see Headquarters 3rd Infantry Division, 1945: 4).

These examples confirm how chemical munitions were encapsulated within the same economized vision of perpetual destruction that defined artillery, rather than destabilizing the boundaries of conventionality. This logic extended to other dominant warfare practices, including US Air Force's incendiary bombings. The incineration of German and Japanese cities from above was part of an economy of bomb tonnage calculation and mass psychological demoralization, designed to speed up total surrender (Patton Rogers, 2023: 31–34). This extreme violence did not undermine the strategic normality of air

war, but, as in artillery, reinforced it through its inscription in the economic epistemology of force.

The Pacific theater further demonstrates the pathological logic of artillery's economy of force. The reconquest of the Philippines in October 1944 showed the centrality of artillery in reproducing the rationalized model of devastation seen in Europe, including against civilians (Smith, 1993: 694). The Luzon offensive shows how firepower was deployed against both resisting forces and isolated, incapacitated enemy units. The 251st Field Artillery Battalion's report during the Cagayan Valley capture exemplifies this. Even with Japanese forces fragmented and unthreatening, artillery continued at full intensity as standard procedure for concluding operations. This illustrates a key feature of the conventional economy of force. Violence continued not as a response to threat, but as part of an epistemological imperative combining the sustainment of annihilation momentum and efficiency expectations:

> The attack and advance along the Cagayan valley was so fast that the enemy was only once able to halt the fast advance [. . .]. This Battalion was making such a rapid advance that frequent contacts were made with disorganized portions of enemy elements. [. . .] At the end of the period, it was estimated that 15000 Japs still remained in isolated pockets, which constituted no threat of attack, but only required mopping up activities. This battle officially brought to a close the Luzon campaign [. . .]. This Battalion fired 9,505 rounds of ammunition in the Cagayan Valley Battle (Headquarters 251st Field Artillery Battalion, 1945: 13–14).

During WWII, American military thinking showed ambivalence toward precision. While precision, largely improved in artillery since WWI, was valued to achieve rapid and decisive outcomes by targeting enemy personnel and command infrastructures, this commitment coexisted with indiscriminate destructions through "area" bombardments meant to overwhelm through saturation. This "distorted [practice of] precision" (Patton Rogers, 2023: 31) was integral to the economy of force, which was all about the following ambivalence: gunners, like bombers, aimed for accuracy in devastating designated areas rather than specific targets. Precision rather meant saturating entire spaces with shells. In both the Philippines and Italy, precision was prioritized along with devastation of cities, with speed and movement replacing the stagnation of the Great War. In the battle for Munoz the same 251st Field Artillery Battalion reported the following "outstanding performance":

> The Battalion delivered 2140 rounds of effective artillery fire during its five days participation. The Munoz Battle was a part of the Luzon campaign and was described by high army commanders as being the toughest battle encountered in the campaign to that date. [. . .] The Japanese suffered a crushing defeat and the town of Munoz was captured by our forces on 6 February 1945. In the Munoz battle, approximately 90 tanks were destroyed and approximately 1900 enemy dead were counted. The block-to-block fighting in the battle for Munoz necessitated maximum use of artillery [. . .]. The necessity of delivering accurate fire under these circumstances cannot be over emphasized [. . .]. I feel that It Col Baker is deserving of an award for this outstanding performance (Headquarters 251st Field Artillery Battalion, 1945: 7–8)

As this extract suggests, precision should not be viewed as a corrective to excess but as part of the economy of force itself (Andresen, 2019: 7–9; Zehfuss, 2011)—within an epistemology valuing devastation for speed and physically observable outcomes. Precision did not curb the structural tendency toward mass violence in artillery but reinforced it, embedding the conventional dogma of control within optimized devastation.

Debates over ammunition consumption during WWII followed the same path. It meant achieving devastation with minimal material expenditure. The economy of force intensified violence by framing mass lethality as return on material input. The goal was not to conserve ammunition for containing violence but to devastate (Major Paul Wilson, 1945: 481). This conception of efficiency explains how mass destruction aligned with conventionality. The ideal was to inflict maximum damage by optimizing inputs, and the only difference with the Great War was that this optimization served movement and speed rather than static attrition. During the Luzon campaign battle for Ormoc, artillery's devastation was celebrated for its intensity relative to ammunition economy, as shown in this blunt after-action report. Violence was not contained, only managed:

> The infantry of the 24th and 32nd Divs advancing south from Pinamopoan found many large groups of Jap dead in the draws between the ridges killed by artillery fire. The Ist Cav Div upon entering Lonoy and Kananga reported those areas littered with Jap dead from artillery fire. [. . .] On the Ormoc Road from Limon south the shoulders of the road, as well as the small draws and defiles, were covered with Jap dead and with destroyed materiel. Burnt out tanks, trucks and personnel carriers [. . .] destroyed by artillery fire: munition, quartermaster and medical supply dumps scattered and destroyed, covered the entire area. [. . .] Not a building remained undamaged and very few were left standing in the town of Ormoc. Everywhere the devastating effect of artillery fire was apparent. All of the above damage was accomplished with a minimum expenditure of ammunition, as is indicated by the ammunition expenditure reports attached (Headquarters X Corps Artillery, 1945: 9).

By the end of WWII, artillery had reaffirmed its destructive primacy as a cornerstone of military rationalism. No longer confined to static trench warfare, artillery adapted to mobile campaigns while maintaining its core function: convert obliteration and mass killing into operational momentum. Underpinning this evolution, the economy of force normalized the globalization of this violence. By connecting accuracy, ammunition efficiency, and speed to total enemy/civilian incapacitation, artillery maintained its association with the economy of force that made devastation a self-sustained field of optimization. The conventionality of artillery reflected its integration into a pathological epistemology where devastation was managed and normalized as the end of modern warfare.

Brutalizing the postcolonial world: the Indochina Wars and the economy of field artillery in counterinsurgency

The self-sustaining economy of devastation persisted beyond interstate deflagrations, to irregular conflicts in the second half of the 20th century, mislabelled as "small wars" during the Cold War (Barkawi, 2009). This section explains why and how, despite strategic adaptation to the counterinsurgency environment, the economy of force maintained devastation as an unescapable horizon in artillery. In the Indochina Wars from the 1940s

to the 1970s, this dynamic was intensified by the inability to regain territorial control. Like in most modern counterinsurgency campaigns (Smith and Jones, 2015), the French and American armies resorted to repeated operations (and extreme escalation for the US in Vietnam) to temporarily diminish insurgents' military capacity.

In a way, it was artillery that initiated France's war in Indochina, through the bombardments of Haiphong and Hanoi between December 1946 and February 1947. The bombardments aimed to crush the burgeoning anticolonial rebellion following Ho Chi Minh's declaration of Vietnam's independence in September 1945. These massive and indiscriminate shelling caused thousands of civilian deaths and razed entire portions of the two cities (Bénot, 2005: 101). Resembling WWII saturation bombardments, these sieges transplanted the brutal economic epistemology of force into the postcolonial context. Destruction was measured against resources expenditure and time spending, civilian spaces were legitimate targets, and strategic value was ascribed to overwhelming violence, thereby qualified as "stunning" and "eloquent":

> Battle of Haiphong:
>
> In general, the targets were treated simultaneously, with each battery being assigned its own target. The fuel consumed was relatively high given the fuel generally consumed in Tonkin. The 1/R.A.C.M. fired 644 rounds on 23 November, 501 rounds on 24 November and 923 rounds on 25 November. But the results were stunning: Haiphong was cleared in 4 days.
>
> Battle of Hanoi:
>
> The operations to reduce the Sino-Vietnamese district of Hanoi [. . .] also involved the use of significant artillery resources. On 14 February 1947, the operation [was] to clean up the southern part of the indigenous city. [. . .] Firing lasted from 6.30am to 9.30am; [. . .] each battery [. . .] was allocated a block of houses to destroy. [. . .] A lot of shots were fired: 188 rounds of 102M2, 120 rounds of 155, 142 rounds of 105M3.[. . .] The results were eloquent: on the night of 18 to 19 February 1947, the last defenders in the Sino-Vietnamese district gave up the fight and we occupied the entire indigenous city" (Lieutenant-Colonel Pourdieu, 1947, 2–3).

This early phase of the Indochina War reveals how the economy of force was readily adapted to asymmetrical colonial warfare, where devastation was normalized through its equivalence with military efficiency. From this perspective, the WW's European battlefields obsessively influenced French artillerymen's conception of their presence in Indochina. The WWs, particularly WWI, were seen as the height of "brutality" (a term emphasized as in the Great War), representing a level of destruction they aspired to but could not achieve in Indochina. In the lessons he drew from the battle of the Black River between December 1951 and January 1952 in Hoa Binh, a commander of the North Vietnam artillery units explained: "The violence of the attack requires firing at a European rate, density, and consumption. The supply must therefore not be less than [. . .] six hours of fire" (C.F.T.N.V., 1952: 2). For the commanders, linking Indochina to European artillery warfare was integral to brutality:

> I—Artillery seeks to destroy enemy personnel and military assets.
>
> On personnel and on any moving target, the most considerable effects are obtained by sudden and brutal fire, taking the enemy by surprise and destroying him before he has time to take cover or avoid capture.
>
> To ensure surprise, it is important that these shots be fired from the outset. Their brutality results from the concentration, on the same target, of the greatest possible number of guns discharging a large series of projectiles in a very short time (Colonel De Winter, 1954: 3).

Nevertheless, commonly described in the French political-military circles as a *war without front*, the Indochinese counterinsurgency challenged this brutal desire of similarity. The guerrilla tactics of the Viet Minh and the natural environment made artillery concentrations difficult. The weapon was ill-suited in campaigns across forests, mountains, deltas, rice fields, and villages. Therefore, turning Indochina into a militarily thinkable terrain for artillery was not self-evident:

> The originality, if any, of the Indochina War came from the terrain and the enemy. [. . .] The terrain in Indochina is tyrannical for the artilleryman in terms of observation, which is paralysed, and the movement and deployment of batteries, subjects to imperious limitations. [. . .] The enemy is everywhere, there is no rear position, no safe route (Colonel Durand, 1954: 3–4).

Despite their belief in the effectiveness of the WWs barrages of fire, artillerymen had to face the impossibility to replicate it, and this tension structured French artillery throughout the conflict.

But the ambition to replicate the barrages of the WWs was never abandoned. The economy of force remained a central driver of continuity, sustaining efforts to adapt industrialized firepower to an asymmetrical context. A first key mechanism of this continuity was the quantification of firepower and enemy losses. As in the WWs, quantification made destruction visible: enemy bodies, shell tonnage, and areas covered by fire became metrics of military performance. This practice transplanted the well-entrenched cumulative logic of annihilation into counterinsurgency. In Indochina, artillery remained tied to this epistemology of progress-through-destruction. Effectiveness was judged by volume of damage rather than political impact. A report by a French artillery corps about a Viet Minh ambush in Bao Yen (North Vietnam) illustrates this logic:

> 11 DECEMBER 1951
>
> AMBUSH [. . .] OF BAO YEN
>
> I) A convoy [. . .] going from TRUNG-HA to TU-VU and transporting ammunition [. . .] falls into a very large ambush set up by the V.M. [. . .].
>
> V) ARTILLERY ACTIVITIES:

1) Types of shots fired

- Automatic weapons neutralisation shots

- Shooting at personnel

- Shots fired at entrenched personnel

2) Consumption

- 2nd GACAOF battery: 317 shots

3) Results

- Rebel losses:

57 fresh graves were found in the village.

About a hundred killed (confirmed by later information) (Chef d'escadron Cormery, 1952: 28).

The indicators measuring artillery effectiveness revealed their dual strategic status: fragile in meaning but epistemically entrenched. Despite doubts within the French artillery corps about the actual impact of bombardments, artillery fire remained an unescapable horizon, embedded in the economic epistemology. A 1949 report by Lieutenant-Colonel Crespin shows this tension between demanding measurable results and (un)verifying them:

> It is not easy to assess the results obtained; the C.R. of activities mention: "goal achieved," "V.M. dispersed," "corpses on the ground," "automatic weapon neutralised," "attack stopped." Most of the time, we do not have the opportunity to go and see the effects of our fire. [. . .]. If I have succeeded [. . .] in proving that artillery knows how to adapt to such circumstances and in giving the certainty that, despite the difficulties, it can be useful, I will have achieved my aim (Lieutenant-Colonel Crespin, 1949: 36–37).

This passage reveals the contradiction of the economy of force: Despite unverifiable results, artillery was unquestionably maintained and perceived as a rational instrument of war. Harassment fire exemplified this contradiction. In Indochina, poor observation capacity made harassment fire ineffective—"missing their target 9 times out of 10" (Chef d'escadron Bas, 1949: 19)—prompting accusations of ammunition waste in French Command. Nonetheless, its continuation was justified through the very same psychological and attritional economy of force of WWs-era shelling: even unverifiable or ineffectual strikes were believed to sap the enemy's morale (Colonel Gonnet, 1948: 13) by reminding him the technological superiority of modern artillery. The belief in psychological devastation was enough to preserve the legitimacy of harassment fire. The economy of force persisted through psychological rationalization, showing how conventional violence could endure, even in the heightened strategic uncertainty of counterinsurgency, as long as it fit within the epistemology of rationalized destruction.

The economy of force also influenced broader operational missions for artillery, such as attacks on villages and the defense of posts. Within days, artillery units could fire hundreds of shells at villages inhabited by civilians and (suspected) Viet Minh elements, targeting also rice fields and supplies vital for the socioeconomic life and food subsistence (McHale, 2021: 190–191). Artillery units were ordered on 6 and 7 January 1953 "to completely destroy a series of villages" in Tonkin (Lieutenant-Colonel Gavet, 1953: 2). The final report states: "On January 7, from 9.15 am to noon, 692 rounds were fired at the village of Phung Thon (117 J1) [. . .]" (Lieutenant-Colonel Gavet, 1953: 3). During the 17 days of *Opération Dromadaire* (28 April to 15 May 1952, in the Red River Delta), French field artillery fired 12,924 shells, with daily peaks of more than 1,900 shells, on villages and rice fields (Lieutenant-Colonel Prigent, 1952: 11). Shelling sometimes caused major fires, such as in Hoang Xa (in the North of the Black River region), where French artillery fired over 120 rounds between 3 pm and 5 pm on 31 December 1951 (Chef d'escadron Cormery, 1952).

While fire tables recorded these operations—including target coordinates, shell counts, destructions gained (Lieutenant-Colonel Prigent, 1952)—this quantification did not serve to support ethical constraints in shelling collective infrastructures but to instrumentally rationalize destruction, as evidenced in the previous paragraph. Unlike the WWs, where civilians were openly taken into the killing field, counterinsurgency in Indochina increased civilian visibility while erasing them as protected subjects. French counterinsurgency discourse claimed to distinguish combatants from non-combatants and protect the population, yet artillery practices collapsed this distinction, precisely in the name of military efficiency. This economy of force did not fundamentally alter the dramatic ethical status of civilians in modern warfare. Civilian presence was largely disregarded in fire missions and obscured by the logic of prioritizing efficiency over discrimination. Instructions for shelling villages focused on maximizing fire effect rather than minimizing civilian harm, which helps to explain the bombardments reported above. The choice of strike locations was indeed shaped by tactical pragmatism and less by ethical constraints. For instance, French batteries often lacked capacity to surround villages, so fire was concentrated on "strategic" zones. Heavier calibers were even recommended to compensate for limited guns, magnifying the scale of destruction:

> Attack on villages—For artillery, attacking a village has the following characteristics:
>
> - A very large target that it is generally impossible to neutralize effectively, even with several groups. [. . .] Less effective projectiles, at least 105 mm projectiles.
>
> These characteristics have the following consequences:
>
> - Neutralization must be limited to a part of the objective whose surface area is compatible with real effectiveness, given the volume of artillery available. [. . .] Relevance of heavy equipment (155) for better neutralization [. . .] (Commandement en Chef des Forces Terrestres en Indochine—Inspection de l'Artillerie, 1954: 13).

The defense of outposts—exposed to Viet Minh assaults—also embodied the economy of force as simultaneously pursuing overwhelming firepower and cost-effectiveness. Artillery fire in these scenarios was designed to be both intense and economical, meaning not restrained, but optimized. Some of the battles around the posts were so intense that they were described as "carnage" (1er R.T.M—2ème Compagnie, 1951: 6) by the French artillerymen, like the attack on the Tu Vu post (on the west bank of the Black River, facing Notre-Dame rock), on the night of 10 to 11 December 1951. During the 8-hour battle, thousands of shells were fired, and 250 enemies were killed. The artillerymen compared the violence of artillery fire to the Great War (Cadeau, 2015: 371). These WWI references served to normalize industrial slaughter rather than lament it, making it as a model of destruction for Indochina despite its asymmetrical and inadequate terrain. The economy of force remained central, unquestioned, and brutality expressed a logic that balanced intense lethality with resource management. This was reflected in post defense recommendations, which prioritized fire coordination, rates, and ammunition deployment within an epistemology linking devastation to military progress:

> Artillery only performs well ["*a un bon rendement*"] when used with brutality. [. . .] A post is almost always attacked by surprise, by an enemy positioned as close as possible to its objective. To stop him in his assault, the stopping shots ("*tirs d'arrêt*") must be conducted AS CLOSELY AS POSSIBLE. There is no need to execute long duration stopping shots: FOUR to SIX shots per piece, i.e. 30 seconds is enough (BRUTALITY). They can and must be repeated if necessary (C.F.T.N.V.—Commandement de l'artillerie, 1954: 1–4).

The shift from the French Indochina War to the American war in Vietnam marked a change of foreign involvement in Vietnam's anticolonial struggle. After France's defeat at Dien Bien Phu in 1954 and withdrawal, the US supported South Vietnam to contain communism as part of its Cold War strategy.[4] This transformed Vietnam from a postcolonial conflict into a key Cold War battleground, with the US replacing France to prevent a communist victory of the Viet Cong insurgency. Convinced that the French lost due to insufficient resources, and under MacNamara's push for incorporating productivity business models into the American war machine, the US relied on a managerial conduct of their war in Vietnam (Gibson, 1988). Through this military managerialism, prolonging the capitalistic-industrial model of WWII and stimulated by the Cold War technological competition, the US pursued success through quantified objectives of destruction ("body counts," "sortie rates," "enemy denial" zones) and heavy firepower (Wawro, 2024: 30).

While the French emphasized artillery quantification as success metrics, the Americans made it their strategic foundation. The Vietnam War thus represents the pathological culmination of the self-reinforcing economic epistemology of force. The US military's commitment to maximizing firepower, regardless of political-strategic necessity, reflected a profound detachment between means and ends. In this close economized world of military managerialism, technological determinism and statistics, the largest possible production of firepower was the key to everything: It was measured as a self-validating achievement that could break the strategic stalemate the US were trapped in (Gibson, 1988: 346–348).

This logic led to unprecedented levels of violence, especially compared to the conflict's asymmetry. In 1969 alone, American artillery fired approximately 10 million shells and 15 billion pounds of shells during the war (Turse, 2013: 91). Fire missions were driven by predetermined shell quotas to be spent rather than battlefield needs. An artillery officer noted, "The ammo kept coming whether or not we had targets for it, so the batteries fired their allotments every opportunity they had, whether there was actually anything to shoot at or not" (Krepinevich, 1986: 202). Harassment and interdiction—despite unclear effects—accounted for much artillery activity, while shell-firing milestones were celebrated in ceremonies by artillery units (6th Battalion/29th Artillery, 1969: 5).

Hence, the economy of conventionality in Vietnam sought to eliminate any barriers to maximizing lethal firepower as a necessarily viable solution against a much more inferior insurgency. Escalation and economic reasoning were co-substantial: counting and building statistics around these unparallelled volumes of fire was experienced as an efficient economic enterprise of military managerialism. A variety of measures were designed to further accelerate the tempo of fire and secure uninterrupted destruction: forest destruction through bulldozers and Agent Orange, relocating populations into "strategic hamlets" for free-fire zones, automating fire missions through enemy activity sensors, developing computerized targeting. The gunners in Vietnam particularly focused on improving targeting grids. A report from the 8th Battalion, 4th Artillery (175 mm guns)—which fired 251,847 rounds between 15 August 1967 and 31 January 1970—proposed increasing efficiency by grouping targets into pre-programmed fire blocks. In the wake of the WWs and even with considerable improvement in precision, artillery's accuracy was less about hitting specific targets than refining area bombardments tactics by grouping targets to maximize throughput:

> Target lists should be programmed in blocks of targets assigned for artillery raids. [. . .] This enables the heavy artillery laid on one azimuth to fire an entire block of targets and then merely relay to fire the next block of targets, rather than relaying to fire individual grids. This method makes it possible to easily fire a great number of targets in a short period of time (8th Battalion - 4th Artillery, 1970: 5).

This vision of fire efficiency captures the pathological endpoint of the economy of force in Vietnam: the ultimate transformation of artillery warfare into a pre-programmed machinery of devastation of entire areas, in which the obsessive sustainment of firing momentum displaced strategic judgment.

Vietnamese civilians bore the brunt of America's firepower, with artillery's harassment fires causing heavy civilian casualties, destroying thousands of villages and rice fields (Turse, 2013: 90–93). As in the French Indochina War, where artillery routinely struck populated areas under operational necessity, civilian suffering was subsumed within the economy of force. Rather than prompting ethical reconsideration, civilian deaths were normalized and treated as unfortunate byproducts of an efficient system. This framing of civilian harm as technically incidental, rather than structurally produced, allowed the military to maintain the moral appearance of counterinsurgency while sustaining devastation. Civilian deaths were often reclassified as "Artillery Incidents," reduced to technical reports of ballistic miscalculations, kill counts, firing rates, and

optimization. These reports, rarely exceeding two pages, focused on firing procedures and weapon performance, treating casualties as statistical noise rather than moral concerns. Under this logic, civilian life was rendered simultaneously visible and invisible: present enough to be rationalized (and to rationalize further the American war machine), but absent from strategic and ethical deliberation. The following excerpts from an "Artillery Incidents" sheet documenting a Vietnamese family's death by a 105-mm shell exemplify this logic of erasure and procedural optimization inherent to the epistemology of conventionality:

> On 10 January 1968 at approximately 1315 hours a civilian home was hit by a 105mn artillery round at Grid 672 542. The unit firing was Battery B, 2d Battalion, 4th Artillery located at Binh Phoue. The artillery round killed: Le Thi Dep, 27 year old woman; Bui Van Chay, 4 year old boy; Bui Van Chan, 12 year old boy. It wounded But Thi Ghon, 8 year old boy; Bui Thi Ton; 13 year old girl; Bui Van Cu, 10 year old girl. [. . .].
>
> All computed data was double checked and re-computed. [. . .] The observer was attempting to put the artillery into the wood-line. His correction however, put it out in the open about 100 to 125 meters from the woodline.
>
> Recommendations:
>
> Recommend that forward observers place at least on round of HE [high explosive] on the targeted ground and stay in a position where they can clearly observe the results of the artillery (Battery B/2nd Battalion/4th Artillery, 1968: 1–2).

The continuity with French counterinsurgency in Indochina is striking. Civilians were nominally visible in counterinsurgency discourses about protecting populations, but were erased through indiscriminate shelling for economic reasons. Even more, populations were entities on which the deadly war machine reinstated its economic rationality, as in this "Artillery Indicent" sheet, which reduces the problem of killing an entire family to an optimizable matter of fire observation. The economy of force acted at both the strategic and (im)moral levels, recoding the systematic destruction of civilian bodies as statistical imperfections to be corrected.

The Indochina Wars did not disrupt but reproduced and acted the transplantation of the economy of conventionality into the postcolonial world. While unclear front lines demanded tactical adaptations, the economy of force remained intact. Artillery turned spaces and lives into abstract targets, trajectories, and fire zones—variables in an epistemology of devastation geared toward optimization rather than ethical restraint or political clarity. In the First Indochina War, the French attempt to replicate the firepower-driven logic of the WWs often faltered, yet confirmed the hold of conventional thinking. In the American war in Vietnam, this became fully systematized. Artillery was an interface between the US rigid war managerialism and maximized firepower output. MacNamara's business managerialization of the economy of force achieved its pathological normalization. The counterinsurgencies reveal conventionality's adaptive capacity: absorbing civilian spaces by melting protection and annihilation, and reproducing, whatever the nature of the conflict is (symmetrical or not), devastation as a self-sustained procedural and statistical rationality.

Conclusion

This paper argued for deeper integration of the economy of force into Critical War Studies by reframing conventionality as an epistemology rather than shaped by military cultures, technological features, or the inevitable extremism of modern war. Conventional weapons are deemed "normal" because they operate within a pathological economic epistemology of force that renders devastation calculable and acceptable. From WWI to Vietnam, across interstate and counterinsurgency contexts, this economy has normalized violence globally by recoding it as a function of optimization. The socio-historical analysis of French and American artillery showed that economic rationalization of firepower uniformly brutalized across strategic, technological shifts and regions. Through shell quotas, fire tables, target lists, accuracy, speed, movement, attrition, artillery organized violence as a self-generating procedure. What emerged through weapons' conventionality is a pathological normalization of organized violence that eradicates means-ends distinction and consumes the moral limitations of war though the devastations of soldiers, civilians and natural environments. The economic epistemology of weapons consumes the living at gigantic scales while presenting its destructive logic as rational and necessary. Within this techno-economic universe of violence, nothing appears excessive. It is rather about calibration and optimized necessities. Even when excess is acknowledged, whether in civilian casualties or environmental destructions, it is reframed as a set of technical variables to be managed and corrected, thereby legitimizing and perpetuating the very processes of destruction that erode our world.

While post-Cold War liberal interventionism has been framed in terms of precision, proportionality, and higher moral considerations for civilian lives, the economy of force continues to structure conventionality. The War on Terror has reproduced patterns of incremental, quantified destruction under the guise of control and legality, shown through targeted killings, the obliteration of Afghan villages (Belcher, 2018), military surges (2007 in Iraq; 2009 in Afghanistan), the bombardment of Fallujah in Iraq (2004)—including white phosphorus shells (Spinner et al., 2004)—drone strikes and a persistent problematic conception of accuracy when it comes to sacrificing civilians in the name of military necessities (Andresen, 2019). The economic rhetoric of the more than two decades-long War on Terror—emphasizing proportionality, civilian protection, and a priority to impactful high technologies rather than mass—reflects a pathological epistemic continuity: the economic mastery of violence, where destruction constitutes its own procedural necessity.

The contemporary resurgence of high-intensity warfare calls for deepening this analysis. In Ukraine, the war has seen the most intensive use of artillery since WWII, yet under conditions shaped less by ammunition surplus but by chronic shortages, revealing that even when constrained by undersupply, artillery continues to structure the battlefield around a logic of attrition, spatial saturation, with civilian areas once again becoming zones of destruction. In Ukraine, artillery operates within this historically well-entrenched broader economy of force in which the war is understood as a cumulative accounting of endless destruction, measured in the number of drones attacks, missiles fired, or interceptions achieved, reducing violence to quantifiable metrics of progress. In Gaza, the mass killing of entire segments of the population is augmented by artificial intelligence (AI), which reveals a continuity of the economy of force, where AI extends under algorithmic forms older logics of calculability and dehumanized efficiency. By embedding

algorithmically augmented and automated principles such as precision, target identification and decision-making speediness, AI intensifies further the destructive calculus of modern warfare. These cases are worth to be investigated not as exceptions but as expressions of a global and structural condition. While the ethical standards of force evolve and fire volumes fluctuate across history, these variations do not alter the epistemic structure of modern military thinking, an architecture of economic rationalism that organizes war as a maelstrom of devastation.

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Notes

1. Field artillery refers to a set of heavy weapons—howitzers, mortars, field guns—firing explosive projectiles (shells, rockets, missiles) over long distances. It supports infantry and counters enemy batteries or assault waves. For brevity, the term artillery is used interchangeably with field artillery.
2. 9ème Corps d'Armée – Artillerie (1916) *Compte-rendu des tirs d'artillerie (Verdun) 2-3 mai*. SHD: GR22N606.
3. All words in capital letters are original from the archival records.
4. Anticommunism was already present in the first Indochina War. Leveraging the Cold War context and the threat of Chinese intervention, France recast the conflict as a front against communist expansion in Asia, to get military assistance from the US.

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