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## EFFECTS-BASED OPERATIONS AND THE LAW OF AERIAL WARFARE

MICHAEL N. SCHMITT\*

Law responds almost instinctively to tectonic shifts in warfare.<sup>1</sup> For instance, the Fourth Geneva Convention of 1949 constituted a dramatic reaction to the suffering of civilian populations during World War II.<sup>2</sup> Similarly, the 1977 Protocols Additional<sup>3</sup> updated and expanded the law of armed conflict (LOAC) in response both to the growing prevalence of non-international armed conflicts and wars of national liberation and to the recognized need to codify the norms governing the conduct of hostilities.<sup>4</sup>

In light of this symbiotic relationship, it is essential that LOAC experts carefully monitor developments in military affairs, because such developments may well either strain or strengthen aspects of that body of law.<sup>5</sup> As an example, the widespread use in Iraq of civilian contractors and

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1. Albeit usually lagging behind practices on the battlefield by periods measured in years. See Michael N. Schmitt, *Future War and the Principle of Discrimination*, 28 ISR. Y.B. ON HUM. RTS. 51 (1999).

2. Geneva Convention Relative to the Protection of Civilian Persons in Time of War, Aug. 12, 1949, 6 U.S.T. 3516, 75 U.N.T.S. 287.

3. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts art. 48, 1977, 1125 U.N.T.S. 3 [hereinafter Protocol Additional I].

4. Cases of law formulation in anticipation of *prospective* methods or means of warfare are far less common. An example is Protocol IV to the 1980 Conventional Weapons Convention, which outlaws the use of blinding laser weapons by Parties thereto. See Convention on the Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Protocol on Blinding Laser Weapons, Oct. 13, 1995, 35 I.L.M. 1218.

5. See Michael N. Smith, *War, Technology, and International Humanitarian Law*, OCCASIONAL PAPER SERIES (Harv. Univ. Program on Humanitarian Pol'y and Conflict Res., Cambridge, Mass.),

employees to perform an array of tasks that were traditionally the province of military personnel has generated heated debate over the legal notion of direct participation in hostilities.<sup>6</sup>

Perhaps the most noteworthy contemporary transformation of warfighting doctrine was noted by U.K. Secretary of State for Defense, Geoff Hoon, in the December 2003 U.K. Ministry of Defense White Paper *Delivering Security in a Changing World*.<sup>7</sup> In that document, Hoon proclaimed that the complexity of the new security environment has impelled a move away from “simplistic platform-centric planning to a fully ‘network-enabled capability’ able to exploit effect-based planning and operations.”<sup>8</sup> Such a revolutionary shift in the execution of combat operations renders a normative response inevitable.

This article explores effects-based operations (EBO) to ascertain how they might affect the law of armed conflict. In light of the dominance of American military power,<sup>9</sup> the U.S. approach to EBO, which is now reflected in the doctrine of other nations as well as the North Atlantic Treaty Organization (NATO), will serve as our model. Although EBO applies to every dimension of conflict, including the information sphere, it reaches its apogee in aerial warfare. Therefore, conflict in that medium will serve as the particular context of inquiry.

Summer 2005, available at <http://www.hpcr.org/pdfs/OccasionalPaper4.pdf>.

6. A major multiyear research effort sponsored by the International Committee of the Red Cross (ICRC) and the T.M.C. Asser Institute is being conducted by a group of international experts on the subject. For reports on the work completed to date, see <http://www.icrc.ch/Web/Eng/siteeng0.nsf/iwpList575/459B0FF70176F4E5C1256DDE00572DAA>. See also Michael N. Schmitt, *Humanitarian Law and Direct Participation in Hostilities by Private Contractors or Civilian Employees*, 5 CHI. J. INT’L L. 511 (2005); Michael N. Schmitt, “*Direct Participation in Hostilities*” and 21st Century Armed Conflict, in CRISIS MANAGEMENT AND HUMANITARIAN PROTECTION 505 (Horst Fischer et al. eds., Berlin, BWV 2004).

7. MINISTRY OF DEFENSE, DELIVERING SECURITY IN A CHANGING WORLD, 2003, Cm. 6041, at 1, available at [http://www.mod.uk/NR/rdonlyres/051AF365-0A97-4550-99C0-4D87D7C95DED/0/cm6041I\\_whitepaper2003.pdf](http://www.mod.uk/NR/rdonlyres/051AF365-0A97-4550-99C0-4D87D7C95DED/0/cm6041I_whitepaper2003.pdf) [hereinafter MOD WHITE PAPER].

8. *Id.* NATO has now adopted the doctrine of effects-based operations, styling it EBAO—effects-based approach to operations. “Effects Based Approach to Operations, or EBAO, aims to select those capabilities that produce the required effects and avoid wasteful effort and unnecessary attrition. EBAO encourages solutions that employ integrated joint military capability rather than stand-alone naval, land or air solutions.” Admiral Sir Mark Stanhope, Remarks to NATO Defense College General and Flag Officers and Ambassadors Course, Brussels, Belgium (Oct. 26, 2005), available at <http://www.act.nato.int/multimedia/speeches/2005/051026asactndcfogo.html>.

9. U.K. aircraft flew 2519 sorties (1353 strikes) of the 41,400 Coalition total during Operation Iraqi Freedom. Further, of 29,200 weapons released, British aircraft accounted for 906 (excluding Tomahawk launches). U.K. MINISTRY OF DEF., OPERATIONS IN IRAQ: LESSONS FOR THE FUTURE 86 (2003), available at [http://www.globalsecurity.org/military/library/report/2003/iraq-ops\\_lessons\\_ukmod\\_dec03\\_opsiniraq.pdf](http://www.globalsecurity.org/military/library/report/2003/iraq-ops_lessons_ukmod_dec03_opsiniraq.pdf).

In terms of the law of armed conflict, the U.K. Ministry of Defense's 2005 *The Manual of the Law of Armed Conflict (U.K. Manual)* shall be used as a frame of reference.<sup>10</sup> The *U.K. Manual* is the most recent LOAC manual adopted by any major military power, and it meticulously captures those principles that currently govern aerial combat.<sup>11</sup> As a military manual, it is infused with a sensitivity to the conduct of military operations that is often absent from a naked treaty. Thus, it is more useful than treaty text when assessing the impact of changes in the nature of military operations on the law governing these operations.<sup>12</sup> But before turning to legal issues, it is necessary to understand effects-based operations and the evolution of airpower doctrine that underpins EBO.

#### THE EVOLUTION OF AIRPOWER DOCTRINE

World War I represented the first concerted use of airpower in armed conflict. Early in the war, air forces engaged in surveillance and reconnaissance of enemy forces. They also began to provide a rudimentary form of close air support to ground forces directly engaged in combat. However, it was not until the 1917 Zeppelin raids on London that

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10. U.K. MINISTRY OF DEF., *THE MANUAL OF THE LAW OF ARMED CONFLICT* (Oxford Univ. Press 2004) [hereinafter U.K. MANUAL].

11. *Id.* Although an effort by the Department of Defense to produce a new manual is underway, the most current manual in force is over a decade old. U.S. NAVY, U.S. MARINE CORPS & U.S. COAST GUARD, *THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS*, NWP 1-14M, MCWP 5-2.1, COMDTPUB P5800.7, para. 8.1.1 (1995), 78 INT'L L. STUD. (1999) [hereinafter *COMMANDER'S HANDBOOK*]. The U.S. Army manual was published in 1956. DEP'T OF THE ARMY, *THE LAW OF LAND WARFARE*, (Field Manual 27-10) July (1956). The U.S. Air Force manual was produced in 1976 but has since been rescinded without replacement. DEP'T OF THE AIR FORCE, *INTERNATIONAL LAW—THE CONDUCT OF ARMED CONFLICT AND AIR OPERATIONS*, Air Force Pamphlet 110-31 (Nov. 19, 1976).

In 2005, the ICRC released its long awaited Customary International Humanitarian Law Study. JEAN-MARIE HENCKAERTS & LOUISE DOSWALD-BECK, *I CUSTOMARY INTERNATIONAL HUMANITARIAN LAW* (Cambridge Univ. Press 2005) [hereinafter CIHLS]. Although the CIHLS has proven controversial in certain respects, it generally tracks those provisions of the *U.K. Manual* that are relevant to the subject of this chapter. This is particularly important because treaty law provisions, such as Protocol Additional I, *supra* note 3, provide one source of law for certain provisions of the *U.K. Manual*. While the respective treaty is not binding on non-Party States, to the extent such a treaty norm reflects customary law, it would bind the latter.

12. Of course, it might be objected that the U.K. is a party to treaties, such as Protocol Additional I, *supra* note 3, or the Statute on the International Criminal Court, Rome Statute of the International Criminal Court, art. 8(2)(B)(ix), U.N. Doc. A/CONF. 183/9\* (July 17, 1998), 37 I.L.M. 1002 (1998), to which other states, most notably the United States, are not a party, and that therefore the *U.K. Manual* is not a sufficiently universal restatement of the LOAC for such an analysis. However, the *U.K. Manual* provisions implicated by effects-based operations are, except as discussed below, generally deemed reflective of customary international law and would therefore bind states that are not party to the treaties codifying them. In this regard, cross citations to the ICRC's CIHLS, *supra* note 11, are provided whenever *U.K. Manual* provisions are referenced.

airpower's nascent strategic strike capabilities were tested. By late 1918, the U.S. Air Service of the American Expeditionary Force had developed a strategic bombing plan designed to "drop aerial bombs upon commercial centers and the lines of communications in such quantities as will wreck the points aimed at and cut off the necessary supply lines."<sup>13</sup> This was a classic attrition strategy targeted against the enemy's logistical lifeline: starve the war machine by destroying the sources of the supplies that feed it.

The Strategic Bombing Survey, conducted in the aftermath of the war, criticized this approach, urging instead adoption of an early form of effects-based planning:

A careful study should be made of the different kinds of industries and the different factories of each. This study should ascertain how one industry is dependent on another and what the most important factories of each are. A decision should be reached as to just what factories if destroyed would do the greatest damage to the enemy's military organization as a whole. . . .

World War I showed that successful application of airpower requires a predetermined plan calculated to destroy the enemy's will and war sustaining capability. Achieving this goal requires systematic analysis to determine which targets, if destroyed, would do the greatest damage to the enemy.<sup>14</sup>

Consistent with this recommendation, officers at the U.S. Air Corps Tactical School (ACTS) refined strategic bombing notions. The key, in the minds of theorists such as Major Donald Wilson, lay in identifying those few vital targets, the destruction of which could both deprive the enemy of war material by crippling its industrial capability and erode civilian support for the government and war effort.<sup>15</sup> Achieving such results would require as yet unachievable precision bombing capabilities.

On the other side of the fence were those who urged relatively unrestricted bombing, including attacking civilian populations. Italian Brigadier General Giulio Douhet championed this tactic in his 1921 classic,

13. U.S. Air Force, *Intelligence Targeting Guide* (AF Pamphlet 14-210), attachment 2 (Feb. 1, 1998) [hereinafter U.S. AF Pamphlet 14-210]. See this attachment generally for a summary of airpower theory. For a full treatment of the history of airpower, see STEPHEN BUDIANSKY, *AIR POWER: THE MEN, MACHINES AND IDEAS THAT REVOLUTIONIZED WAR, FROM KITTY HAWK TO GULF WAR II* (Viking Press 2004).

14. U.S. AF Pamphlet 14-210, *supra* note 13.

15. See Nathan Canestaro, *Legal and Policy Constraints on the Conduct of Aerial Precision Warfare*, 37 *VAND. J. TRANSNAT'L L.* 431, 440-41 (2004).

*Command of the Air*.<sup>16</sup> Douhet suggested that the civilian population and its morale were important centers of gravity that should logically be targeted.<sup>17</sup> Responding to charges of immorality, Douhet noted that in twentieth century warfare, the civilian population contributed to the war effort through its work in industry. Thus, targeting certain civilians was not a question of striking innocents, but rather a justifiable act based on their contribution to the enemy's military wherewithal. He argued that this would result in earlier conflict termination, thereby promoting humanitarian ends.<sup>18</sup> Unlike the rather surgical ACTS approach, precision was not essential in unrestricted bombing operations.

The ACTS vision of strategic attack proved impossible to implement during World War II because of the need to fly during darkness and at high altitudes to avoid enemy air defenses and the lack of sufficiently accurate weaponry. Inevitably, both sides began to target the civilian population—especially industrial workers. For instance, Bomber Command Directive 22 set forth the Royal Air Force (RAF) strategy of attacking civilian morale.<sup>19</sup> This strategy was driven by the reality that, as Secretary of State for Air Sir Archibald Sinclair said, “in order to destroy anything it was necessary to destroy everything.”<sup>20</sup> Although the U.S. Army Air Force (USAAF) purported to conduct daylight precision bombing, in reality, the results were far from precise.

By the Vietnam War, advancements in technology made it possible to begin achieving the level of precision that had formed the basis of earlier concepts of air warfare. Laser-guided weapons, such as the Paveway,

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16. GULIO DOUHET, *THE COMMAND OF THE AIR* (D. Ferrari trans., 1921), reprinted in *ROOTS OF STRATEGY: BOOK 4*, at 262 (David Jablonsky ed., Stackpole Books 1999).

17. “By bombing the most vital civilian centers [the attacker] could spread terror through the nation and quickly break down [its] material and moral resistance.” *Id.* at 332.

18. Douhet wrote:

Tragic, too, to think that the decision [to submit] in this kind of war must depend on smashing the material and moral resources of a people caught up in a frightful cataclysm which haunts them everywhere without cease until the final collapse of all social organization. Mercifully, the decision will be quick in this kind of war, since the decisive blows will be directed at civilians, that element of countries at war least able to sustain them. These future wars may yet prove to be more humane than wars in the past in spite of all, because they may in the long run shed less blood.

DOUHET, *supra* note 16, at 336.

19. The Directive stated that “operations should now be focused on the morale of the enemy civilian population and in particular, of industrial workers.” MAX HASTINGS, *BOMBER COMMAND 147* (Dial Press 1979).

20. STEPHEN L. MCFARLAND, *AMERICA'S PURSUIT OF PRECISION BOMBING: 1910–1945*, 166 (Smithsonian Institution Press 1995). On the British offensive strategy fathered by Air Marshall Hugh Trenchard, see DAVID R. METS, *THE AIR CAMPAIGN: JOHN WARDEN AND THE CLASSICAL AIRPOWER THEORISTS 21–30* (Air Univ. Press 1999).

permitted single attacks against targets that had previously required multiple sorties and no small degree of luck to neutralize. However, precision-guided munitions (PGM) were not widely available and most air to ground attacks continued to employ “dumb bombs.”

Operation Desert Storm marked a watershed in precision attack. Although only 6.7% of munitions dropped were guided,<sup>21</sup> PGMs proved astonishingly accurate.<sup>22</sup> Additionally, the constant video footage of precision attacks shown during Coalition press briefings created public expectations about “smart weapons.” These expectations included the potential for minimizing collateral damage and incidental injury, which exceeded the actual capabilities of even the well-equipped American air forces. Precision bombing had finally come of age. However, before it could become a strategy in and of itself, the percentage of PGMs in the inventory would have to climb dramatically.

Inevitably, that occurred. During NATO’s 1999 Operation Allied Force against the Federal Republic of Yugoslavia, PGMs constituted 34% of weapons dropped.<sup>23</sup> By Operation Enduring Freedom in Afghanistan two years later, that figure had risen to 60%, whereas the comparable calculation for Operation Iraqi Freedom was approximately 70%.<sup>24</sup>

Of course, precision guided munitions are useless without accurate target intelligence and reliable communications/data links. Today, dramatic technological advances enable U.S. forces to “rapidly collect, share, access, and manipulate information.”<sup>25</sup> In some cases, a direct link from sensor to delivery system exists. This heightens the ability of aircraft to strike the right target, in the right way, right away. Additionally, the real-time nature of the information provides “shooters” enhanced situational awareness, thereby helping to minimize collateral damage to civilian objects and incidental injury to civilians.

Command and control technologies have likewise experienced phenomenal improvements. Commanders far from the battlespace can now watch battles unfold, even at the tactical level. They can also marshal and

21. MICHAEL R. RIP & JAMES M. HASIK, *THE PRECISION REVOLUTION: GPS AND THE FUTURE OF AERIAL WARFARE* 212 (Naval Inst. Press 2002).

22. Nearly 85% of PGMs hit within ten feet of the desired aim point. Stuart W. Belt, *Missiles over Kosovo: Emergence, Lex Lata, of a Customary Norm Requiring the Use of Precision Munitions in Urban Areas*, 47 NAVAL L. REV., 115, 117 (2000).

23. Canestaro, *supra* note 15, at 451 nn.127–28.

24. U.S. CENTR. COMMAND AIR FORCES, *ASSESSMENT AND ANALYSIS DIVISION, OPERATION IRAQI FREEDOM—BY THE NUMBERS* (Apr. 30, 2003), [http://www.globalsecurity.org/military/library/report/2003/uscentaf\\_oif\\_report\\_30apr2003.pdf](http://www.globalsecurity.org/military/library/report/2003/uscentaf_oif_report_30apr2003.pdf).

25. JOINT CHIEFS OF STAFF, *JOINT DOCTRINE FOR TARGETING*, Joint Publication 3-60, at I-5 (Jan. 17, 2002).

direct forces with unprecedented speed and react to changes in the flow of combat almost as quickly as events occur.

Finally, qualitatively new aerial platforms are dramatically reshaping warfare. For instance, unmanned aerial vehicles are replacing manned aircraft in reconnaissance and surveillance missions and have been used for time-sensitive attacks on fleeting targets. Equally significant in terms of the evolution of airpower doctrine are stealth aircraft, such as the F-117 and B-2, which decrease aircrew risk and make the battlespace more penetrable.

These technological advances, together with the advent of effects-based planning, have enabled the emergence of a new concept of operations: parallel war.<sup>26</sup> In a sense, air warfare has finally arrived at the point only dreamt of by early airpower theorists—the capacity to strike beyond the battlefield at targets that undercut both the enemy’s ability to fight effectively and its will to continue.

#### PARALLEL WARFARE

Traditionally, air bombardment was serial. For instance, in an attack against a high value, well-defended target set, the first strikes would be on early warning radars. Attacks would then flow sequentially through sector/interceptor operations centers, airfields, and surface-to-air missile sites until finally hitting the desired target. But even when air supremacy was achieved, the number of sorties required to reliably neutralize targets precluded mass simultaneous attacks across the battlespace.

Recent advances in technology and doctrine have overcome this limitation, making parallel warfare possible. The U.S. Air Force defines parallel attack (the operationalized aspect of parallel warfare) as “[s]imultaneous attack of varied target sets to shock, disrupt, or overwhelm an enemy, often resulting in decisive effects.”<sup>27</sup> Parallel attacks can be conducted concurrently at “multiple levels of war and [achieve] rapid effects that leave the enemy little time to respond.”<sup>28</sup>

Parallel differs from traditional warfare in three ways. The first is temporal. With parallel operations, aerial forces can mount a devastating number of attacks in a very short period, rather than conducting serial,

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26. For an explanation of parallel warfare by a leading contemporary airpower theorist, see BRIGADIER GENERAL DAVID A. DEPTULA, *EFFECTS-BASED OPERATIONS: CHANGE IN THE NATURE OF WARFARE* (Aerospace Educ. Found. 2001).

27. U.S. AIR FORCE, *AIR WARFARE*, AF Doctrine Document 2-1, at 108 (Jan. 22, 2000).

28. *Id.*

attrition attacks on enemy forces over time. Space is the second dissimilarity. Because technology now allows targets to be hit anywhere, distance no longer constitutes an effective shield against attack. Third, in traditional warfare, tactical effects combine over time to yield operational effects, and cumulative operational effects eventually generate strategic effect.<sup>29</sup> By contrast, parallel warfare allows the generation of effects at any level of warfare (or multiple levels simultaneously) at any time during the conflict.

Technological advances that free up weapons delivery platforms to conduct attacks against the enemy system underlie parallel warfare capabilities. With improved precision capabilities, fewer attacks are needed to destroy or otherwise neutralize a target. For example, a B-17 during the Second World War had a circular error probable (CEP)<sup>30</sup> of roughly 3300 feet. To achieve a high probability of destruction of a point target from 6500 feet, approximately 9000 bombs from 1500 aircraft had to be dropped.<sup>31</sup> By comparison, current CEPs are such that a single bomb

29. *The Department of Defense Dictionary of Military Terms* defines the levels of war as follows:

*Tactical level of war:* The level of war at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces. Activities at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve combat objectives.

*Operational level of war:* The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or other operational areas. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and applying resources to bring about and sustain these events. These activities imply a broader dimension of time or space than do tactics; they ensure the logistic and administrative support of tactical forces, and provide the means by which tactical successes are exploited to achieve strategic objectives.

*Strategic level of war:* The level of war at which a nation, often as a member of a group of nations, determines national or multinational (alliance or coalition) security objectives and guidance, and develops and uses national resources to accomplish these objectives. Activities at this level establish national and multinational military objectives; sequence initiatives; define limits and assess risks for the use of military and other instruments of national power; develop global plans or theater war plans to achieve these objectives; and provide military forces and other capabilities in accordance with strategic plans.

DEPARTMENT OF DEFENSE DICTIONARY OF MILITARY AND ASSOCIATED TERMS, Joint Publication 1-02, as amended through Aug. 8, 2006, *available at* <http://www.dtic.mil/doctrine/jel/doddict/>.

30. Circular error probable is the radius of a circle within which half of the bombs dropped will strike. *Id.* at 86.

31. Colonel Gary L. Crowder, Div. Chief Air Combat Command & Plans Dir. Strategy, Concepts, and Doctrine, U.S. Dep't of Def., Effects Based Operations Briefing (Mar. 19, 2003), <http://www.defenselink.mil/Transcripts/Transcript.aspx?TranscriptID=2067> [hereinafter Effects Based Operations Briefing].

can often neutralize a target. This dramatically increases the number of targets that a set number of aircraft can attack.<sup>32</sup>

Stealth also helps enable parallel warfare. Contrast conventional with stealth attacks during Operation Desert Storm, the first campaign with significant use of stealth aircraft.<sup>33</sup> In a conventional operation, attacking aircraft comprise a “package” that “fights” its way to the objective. One of the initial packages into Basra consisted of forty-one aircraft, only eight of which (four A-6s and four Tornados) were “bomb-droppers.”<sup>34</sup> The eight struck a single target using three different aimpoints (points where the bombs are intended to strike).<sup>35</sup> Accompanying them were four F-18s to provide “sweep and escort” services, that is, to “sweep” the area of any enemy aircraft before the package enters and escort the package to and from the target.<sup>36</sup> An additional twenty-nine aircraft conducted defense suppression tasks along the ingress and egress routes.<sup>37</sup>

Stealth aircraft need no escort. On the contrary, non-stealthy escorts would reveal their presence and position. The twenty F-117s launched on the first night of Operation Desert Storm (each carrying two independently targetable weapons) struck twenty-eight different targets with thirty-eight total aimpoints.<sup>38</sup> Thus, the F-117s hit nineteen more targets than the Basra package with half the aircraft. Although stealth aircraft are not appropriate for all types of attack, to the extent they can replace conventional packages for given targets, they free up non-stealth aircraft for other missions.<sup>39</sup>

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32. Most significant in this regard is the Joint Direct Attack Munition (JDAM), a guidance tail kit that attaches to existing gravity bombs. With an inertial navigation system and global positioning system satellite link, the JDAM can achieve a CEP of approximately twenty feet. Although not as accurate as certain other weapons systems, the JDAM is revolutionary for three reasons. First, it is cheap at roughly \$20,000 a copy, thereby allowing precision munitions to comprise a far greater percentage of the bomb inventory. Second, it can be carried by most attack aircraft with only minor modifications. Thus, the number of aircraft available for precision strikes grows. And third, each JDAM is independently targetable. For example, a B-1 can employ twenty-four JDAMs, each against a different target. As with precision advances in general, the net effect of the JDAM is to enable striking many more targets more quickly than was previously possible using a constant number of aircraft.

33. See Effects Based Operations Briefing, *supra* note 31.

34. *Id.*

35. *Id.*

36. *Id.*

37. Three drones “tickled” enemy air defenses to allow attacking forces to locate them. Four F-4G “Wild Weasels,” armed with anti-radiation missiles, were tasked with attacking enemy surface-to-air-missile sites that dared activate their radar, while five EA6-B Prowlers conducted electronic warfare by jamming enemy systems. Finally, seventeen F-18s were available to defend against enemy aircraft along the ingress route. *Id.*

38. *Id.*

39. The numerical relationship set forth here is not a constant. To the extent enemy air defenses are eroded over time, the size and composition of attack packages change. Other technologies even further increase the volume of fire that can be directed against the enemy. For instance, the benefits of

Effects-based operations, a relatively new concept of operations, also enable parallel warfare. To grasp the impact of effects-based operations, one must understand that war ultimately serves political or strategic ends.<sup>40</sup> In classic attrition or annihilation warfare, this end is achieved by progressively weakening the enemy through the serial destruction of its military assets and its support structure. Thus, destruction of four airfields is better than two, five factories better than three, and so on. Success is quantified through lists of objects destroyed, damaged, or neutralized. The “body count” pejoratively illustrates this approach.

In effects-based operations, the goal remains Clausewitzian,<sup>41</sup> but targeting is “focused on creating *specific effects* to achieve the joint force commander’s (JFC’s) campaign objectives or the subordinate component commander’s supporting objectives.”<sup>42</sup> Reduced to basics, effects-based operations “provide the commander with a methodology linking objectives with effects throughout the battlespace.”<sup>43</sup>

The EBO logic flow begins with identification of the effect(s) that will achieve the JFC’s objective (which relates to the overall political objectives). The enemy’s systems are then deconstructed to determine which components should be attacked to best realize the desired effect. At that point, it becomes possible to determine the most effective attack aircraft (or other platform), weapon, and tactic. This process addresses the causality between actions and their effects; concentrates on desired effects, both physical and behavioral; models the enemy as a system of systems; and considers timing, because the desirability of specific effects depends on the context in which they are created.<sup>44</sup>

precision are enhanced by the smaller size of weapons (more weapons per airframe) and the smaller explosive force made possible by accuracy (thereby limiting collateral damage and incidental injury). An example is the Small Diameter Bomb (SMB) under development. A 250 pound bomb with excellent penetration capability but only 50 pounds of explosive, the SMB can be used against hardened targets without risking high collateral damage and incidental injury. Coinciding with improved weapons technologies are advances in information technologies that enhance target system analysis, target identification, and battle damage assessment. The net result is that the enemy system is better understood and more vulnerable at less risk to its attacker.

40. MOD White Paper, *supra* note 7, at 4.4.

41. In *On War*, the nineteenth century Prussian general and military theorist, Carl von Clausewitz, penned his most famous line: “[W]ar is simply a continuation of political intercourse, with the addition of other means. In other words, war is always ultimately infused with some political purpose.” CARL VON CLAUSEWITZ, *ON WAR* 605 (Michael Howard & Peter Paret eds., Michael Howard & Peter Paret trans., indexed ed., Princeton Univ. Press 1984) (emphasis added).

42. JOINT CHIEFS OF STAFF, *supra* note 25, at I-1.

43. *Id.*

44. Brigadier General David Deptula, one of the architects of the Operation Desert Storm air campaign, illustrates the distinction by reference to the Coalition’s desire to destroy the four sector operations centers (SOC), which provided Iraqi air defense command and control. Initially, planners

It is particularly important to appreciate the various forms of effects that are realizable through an attack, because each form can contribute to achieving the intended objective. Most recognizable are direct effects, “the immediate, first order consequence[s] of a military action . . . unaltered by intervening events or mechanisms.”<sup>45</sup> For example, in bombardment, direct effects are those caused by the weapon’s immediate blast and fragmentation.

Indirect effects, which are “the delayed and/or displaced second- and third-order consequences of military action,” are frequently as crucial to effects-based operations as direct effects.<sup>46</sup> In many cases, indirect effects may be difficult to notice because they involve no more than subtle changes in enemy behavior. This does not diminish their importance. Consider an attack on a command and control facility. Aside from the destruction caused, such an attack creates confusion in the enemy’s operations, which may undermine enemy moral and confidence, and thereby further diminish combat effectiveness.

Whether effects are direct or indirect, three characteristics of effects determine their qualitative impact on enemy operations. The first is their sometimes cumulative nature, that is, effects may compound such that the ultimate outcome is greater than the sum of individual ones. For instance, attacking individual surface-to-air missile (SAM) sites every time their radar illuminates incoming friendly aircraft may deter the enemy from using its SAM network at all.

Second, effects may also “cascade,” in that a direct effect generates indirect effects that “ripple” through a target system, usually from higher to lower levels of war. Such effects may also pass into other connected systems. An example would be a strike on a headquarters that complicates command and control of subordinate units and causes loss of subordinate unit synergy.

Finally, unintended direct or indirect effects are labeled “collateral.” Although collateral effects are generally thought of as damage to civilian

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estimated it would take eight F-117s to destroy each of the bunkers at the SOCs. With only sixteen F-117s available at the time, thirty-two sorties would be necessary just to neutralize these particular targets. However, one of his campaign planners realized that if it were possible to simply cause the SOC to be evacuated, it would be fully neutralized during the relevant period. Doing so could be accomplished by simply striking the facility with a single 2000-pound bomb. DEPTULA, *supra* note 26, at 12. This is a classic example of the art of targeting, which “seeks to achieve desired effects with the least risk, time, and expenditure of resources.” JOINT CHIEFS OF STAFF, *supra* note 25, at I-4.

45. JOINT CHIEFS OF STAFF, *supra* note 25, at I-6.

46. *Id.* at I-6 n.34.

objects, the term also includes damage to military objectives that were not the purpose of an attack.

Effects-based targeting will usually prove to be quicker, more effective, and less costly in depriving the enemy of its ability to operate as it wishes than simply imposing destruction until the adversary collapses or surrenders. This is classic Sun Tzu, who over two millennia ago noted in *The Art of War*, “to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill.”<sup>47</sup>

Operations to deny the enemy electrical power illustrate how effects-based operations work in practice. Power is the lifeblood of command and control, air defenses, national leadership, and other aspects of the enemy’s nervous system. Traditionally, an attack on an electrical grid involves identifying the power stations, power substations, and generating plants; listing them as targets; and then sequentially hitting each target until all were destroyed.

In fact, though, the objective is not to physically destroy the entire electrical grid but rather to shut off power to select aspects of the enemy’s system. An effects-based analysis deconstructs the electrical grid to identify the discrete component that will deprive the opponent of the electricity in question. Only the discrete component is attacked. Of course, conducting an EBO attack depends on the quality of the attacker’s information about the grid as well as the attacker’s capability to conduct a precision attack such that the target may be destroyed with sufficient surety.

Limiting sorties to only those necessary to achieve a desired effect frees up aircraft to conduct other effects-based attacks. The additional sorties made available by EBO, in light of technological advances like precision and ISR (intelligence, surveillance, reconnaissance), permit the attacker to conduct strikes en masse across the entire spectrum of conflict. Parallel warfare is finally realized.

#### EFFECTS-BASED OPERATIONS AND THE LAW OF ARMED CONFLICT

Parallel warfare, as such, presents no significant challenges to LOAC. It simply envisages the simultaneous application, at different levels of war,<sup>48</sup> of a greater volume of firepower against more targets than previously possible with a fixed number of aircraft. However, the effects-

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47. SUN TZU, *THE ART OF WAR* 184 (Ralph D. Sawyer trans., Westview Press 1994).

48. The different levels of war are tactical, operational, and strategic. *See supra* note 29.

based operations that help render parallel warfare possible raise a number of subtle issues vis-à-vis the normative architecture governing them.

The most significant stress on LOAC that EBO is likely to cause involves present understandings of the term “military objective.” Pursuant to paragraph 5.4 of the *U.K. Manual*, “[a]ttacks shall be strictly limited to military objectives,” a provision based on Article 48 of Protocol Additional I.<sup>49</sup> Paragraph 5.4.1 repeats the Protocol Additional definition of military objective verbatim: “Those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.”<sup>50</sup>

The *U.K. Manual* emphasizes that both criteria (making an effective contribution to military action and offering a definite military advantage at the time) must be met before an objective may be styled a legitimate target.<sup>51</sup> Although this emphasis is merely explanatory, its inclusion signals a restrictive operationalization of the concept of military objective. Also reflecting the *U.K. Manual*'s restrictive approach is its list of examples, none of which are even marginally controversial: “combatant members of the enemy armed forces and their military weapons, vehicles, equipment, and installations . . . [and] other objects which have military value such as bridges, communications towers, and electricity and refined oil production facilities.”<sup>52</sup>

Unsurprisingly, the *U.K. Manual*'s explication of military objective tracks its fellow Protocol Additional I Party States and the International Committee of the Red Cross more closely than its closest ally, the United

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49. Protocol Additional I, *supra* note 3, art. 48. See also CIHLS, *supra* note 11, R. 1, 7. The *U.K. Manual* chapter on air operations refers back to the discussion of military objectives in the “Conduct of Hostilities” chapter. See U.K. MANUAL, *supra* note 10, paras. 12.21, 12.26a. See also CIHLS, *supra* note 11, R. 1, 7.

50. Protocol Additional I, *supra* note 3, art. 52.2. Protocols II and III of the Conventional Weapons Convention and the Second Protocol to the Cultural Property Convention, as well as many military manuals (including those of the United States) and the CIHLS, *supra* note 11, repeat this formula. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to have Indiscriminate Effects, 1980, 1342 U.N.T.S. 137; Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II) art. 2.6, 1980, as amended, 1996, 35 I.L.M. 1206; Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III), art. 1.3, 1980, 1342 U.N.T.S. 171; Second Protocol to the Hague Convention of 1954 for Protection of Cultural Property in the Event of Armed Conflict, art. 1(f), 1999, 38 I.L.M. 769; JUDGE ADVOCATE GEN.'S SCH., OPERATIONAL LAW HANDBOOK 10 (2003); COMMANDER'S HANDBOOK, *supra* note 11, para. 8.1.1; CIHLS, *supra* note 11, R. 8.

51. U.K. MANUAL, *supra* note 10, para. 5.4.4a.

52. *Id.* para. 5.4.1. It goes on to offer further examples in paragraph 5.4.5, relying heavily on a listing proffered by A.P.V. ROGERS, LAW ON THE BATTLEFIELD 83–84 (2d ed. 2004).

States.<sup>53</sup> In the most current U.S. LOAC manual, *The Commander's Handbook on the Law of Naval Operations (Commander's Handbook)*, the U.S. Navy alters the definition slightly, albeit in a normatively significant way:

Military objectives are combatants and those objects which, by their nature, location, purpose, or use, effectively contribute to the enemy's war-fighting or war-sustaining capability and whose total or partial destruction, capture, or neutralization would constitute a definite military advantage to the attacker under the circumstances at the time of the attack.<sup>54</sup>

The *Commander's Handbook* goes on to list examples, most notably "[e]conomic targets of the enemy that indirectly but effectively support and sustain the enemy's war-fighting capability."<sup>55</sup>

Although there are certainly cases where economic targets constitute military objectives, the *Commander's Handbook's* explanation has fairly been criticized by Professor Yoram Dinstein on the ground that it "goes too far" since it requires no "proximate nexus to military action."<sup>56</sup> On the same basis, he rejects any purely political purpose as justification for characterizing economic targets as military objectives.<sup>57</sup> Of course, attacks on military objectives often generate non-military consequences, but this does not preclude attack unless the non-military consequences are excessive (violating the principle of proportionality) or the strike violates "precautions in attack" requirements.<sup>58</sup> Indeed, actually intending to

53. In particular, the *U.K. Manual* defines "definite" as "a concrete and perceptible military advantage rather than a hypothetical and speculative one." U.K. MANUAL, *supra* note 10, para. 5.4.4. Although this text is drawn from the unofficial commentary on the Protocols in MICHAEL BOTHE, KARL JOSEF PARTSCH & WALDEMAR A. SOLF, *NEW RULES FOR VICTIMS OF ARMED CONFLICTS* 326 (Martinus Nijhoff Pub. 1982), in effect it differs little from that contained in the International Committee of the Red Cross' (ICRC) official commentary, which states that "it is not legitimate to launch an attack which only offers potential or indeterminate advantages." COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, para. 2024 (Yves Sandoz, Christophe Swinarski & Bruno Zimmermann eds., Int'l Comm. Red Cross 1987) [hereinafter COMMENTARY].

54. COMMANDER'S HANDBOOK, *supra* note 11, para. 8.1.1. Note that the *Commander's Handbook* has also been adopted by the U.S. Marine Corps and U.S. Coast Guard.

55. *Id.* A footnote to this paragraph cites the example of cotton during the American Civil War: "The American-British Claims Commission of 1871 recognized that the destruction of raw cotton within Confederate territory by the Union was justified during the American Civil war since the sale of cotton provided funds for almost all Confederate arms and ammunition." *Id.* at 403 n.11 of the annotated version.

56. YORAM DINSTEIN, *THE CONDUCT OF HOSTILITIES UNDER THE LAW OF INTERNATIONAL ARMED CONFLICT* 86 (Cambridge Univ. Press 2004).

57. *Id.*

58. Protocol Additional I, *supra* note 3, arts. 51.5b, 57. See also CIHLS, *supra* note 11, chs. 4, 5.

achieve political, economic, or other non-military ends is acceptable, so long as the target qualifies as a legitimate military objective on other grounds. To suggest that the mens rea of an attacker could immunize a military objective would clearly set a standard that would be impossible to implement or enforce in practice.

Effects-based operations bear on a number of matters in regard to military objectives, including the apparent normative divide between the United States and United Kingdom. At the most basic level is the question of whether potential targets that are unnecessary to strike to achieve a desired effect remain military objectives under the law of armed conflict. Recall that during the Coalition effort to take Baghdad quickly in March and April of 2003, much of the Iraqi Army was ignored because destroying forces lying outside the path of the onslaught would have merely slowed the advance. In effects-based terms, their destruction would not have contributed as meaningfully to the desired operational and strategic effects as the rapid decapitation of the Iraqi government and military. Even though these forces effectively contributed to military action, does it follow that they were immune from attack on the basis that their destruction “in the circumstances ruling at the time” would not have offered a definite military advantage, as required by the *U.K. Manual* and Protocol Additional I?

Obviously, the answer is no. It would defy reason to suggest a prohibition on striking an adversary’s fielded military forces. The *U.K. Manual* acknowledges as much when it categorically cites “the enemy armed forces” as a military objective;<sup>59</sup> clearly, they qualify, regardless of whether an effects-based strategy necessitates their attack.

Might one nevertheless argue that the effects sought through EBO determine whether objects that are not inherently military, such as bridges or other lines of communication, are military objectives in the circumstances ruling at the time? In the electrical grid example, such a restrictive interpretation would characterize as a legitimate target only that aspect of the grid necessary to achieve the effect sought.

Again, this would be going too far. True, when there are multiple targets that can be attacked to achieve a “similar military advantage,” the attacker must select the one that causes “the least danger to civilian lives and to civilian objects.”<sup>60</sup> However, an interpretation of the “precautions in attack” requirement that mandates attacking the target most likely to

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59. U.K. MANUAL, *supra* note 10, para. 5.4.5.

60. Protocol Additional I, *supra* note 3, art. 57.3; U.K. MANUAL, *supra* note 10, para. 5.32; CIHLS, *supra* note 11, R. 21.

generate a particular desired effect would set an impractical standard that would certainly be resisted by warfighters. In the first place, although modern technology permits increasingly objective calculations of the effects an attack is likely to generate, effects-based determinations remain fairly subjective. Moreover, it would be incongruent to require an analysis of potential targets to determine the one that would best yield the effect sought without assessing the appropriateness of the effect itself in achieving the ultimate objective of the military campaign. For instance, if the objective is to conquer another country, it may be unclear whether the best strategy is military defeat or decapitating the government.

Most importantly, the law of armed conflict balances humanitarian concerns with military considerations. Consider, for example, the assessment of incidental injury to civilians and collateral damage to civilian objects in light of military advantage in the proportionality principle, or the requirement that the military advantage yielded by attack on different targets be “similar” before requiring selection of that target resulting in the least harm to civilians and civilian objects. To suggest that the law requires striking one target over another (or others) because there should be a presumption of minimizing damage to the enemy force is to inject the law of armed conflict with a purpose it does not have.

The sole colorable exception is the principle of military necessity. Arguably, if a military force seeks a particular effect, striking targets other than those that produce the particular effect is unnecessary.

Any such interpretation would stretch the principle of necessity beyond its current bounds. An American military tribunal at Nuremberg described military necessity as follows in the *Hostage Case*: “The destruction of property to be lawful must be imperatively demanded by the necessities of war. Destruction as an end in itself is a violation of international law. There must be some reasonable connection between the destruction of property and the overcoming of the enemy forces.”<sup>61</sup> In other words, military necessity does not set a “no more than enough” standard; it only prohibits wanton destruction, that is, destruction without purpose in the context of the ongoing conflict.

This interpretation parallels the *U.K. Manual’s* text and Protocol Additional I’s official Commentary. They simply require that a “definite military advantage” be realizable from the attack, ruling out only those that are “hypothetical and speculative”<sup>62</sup> or “potential or indeterminate.”<sup>63</sup>

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61. *Hostage Case (USA v. Wilhelm List et al.)* (American Military Tribunal, Nuremberg, 1948), 11 NMT 1230, 1253-4.

62. U.K. MANUAL, *supra* note 10, para. 5.4.4i.

No requirement exists that the advantage be either more than slight *or* greater than that resulting from attacks on other objects, which might contribute to achieving a given goal. As will be discussed later, however, the intensive review of air campaigns that is now conducted following each major operation seems to be inexorably heading towards such second-guessing.

More troublesome with regard to the relationship between LOAC and EBO is the emergence of operational concepts that augur towards a broad interpretation of military objectives. In classic warfare, one generally thinks in terms of defeat of the enemy military and conquest of the enemy state. One always desirable effect is the neutralization (if not destruction) of the armed forces supporting the sitting government, for it is impossible to replace that government and maintain order with active armed opposition groups roaming the country. As a result, attacks on military forces, the quintessential military objectives, typically dominate air tasking orders. The campaign's Clausewitzian political ends depend in great part on the success of such strikes. World War II is archetypal. Operation Enduring Freedom and Operation Iraqi Freedom largely fit within this genre, although, there is no question, however, that their campaign objectives also included the ouster of the Taliban and Baathist regimes, respectively.

Yet, warfare is changing rapidly in no small part because of asymmetry in aerial warfare capabilities. When one side in a conflict can strike from the air with near total impunity, it becomes possible, at least in theory, to compel the other to either engage in or cease particular conduct through the imposition of progressively greater costs. The advantaged party simply sits back and pounds its opponent into submission over time, with the attacker defining the satisfactory level of "submission." A capability to progressively increase pressure on an opponent who cannot strike back (without significant risk to your own forces) makes the decision to resort to force for even limited purposes infinitely easier to take.

Technological advances and their resulting asymmetry have predictably moved such compellance campaigns (also labeled coercive campaigns) from theory to practice. For instance, Operation Desert Fox, the bombing of Iraq in December 1998 following its refusal to cooperate with United Nations Special Commission (UNSCOM),<sup>64</sup> was designed to attack Iraq's weapons of mass destruction capability, weaken its military

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63. COMMENTARY, *supra* note 53, para. 2024.

64. The United Nations Special Commission was established in UNSC Resolution 687 (Apr. 3, 1991) to conduct weapons inspections in cooperation with the International Atomic Energy Agency.

forces, and force it back into compliance with the United Nations inspections program.<sup>65</sup> The U.S. and U.K. harbored no intention of destroying the Iraqi military or toppling Saddam Hussein.

Despite the failure of Desert Fox to achieve its compellance aims, the following year NATO launched Operation Allied Force against the Federal Republic of Yugoslavia. This effort was intended to coerce President Slobodan Milosevic to return to the bargaining table and end the systematic and widespread mistreatment of the Kosovar Albanian population.<sup>66</sup> The compellance nature of the campaign became a point of international contention after President Clinton announced that no ground forces would enter the fray; instead, NATO would rely on airpower alone to force Milosevic to concede to its demands. Although the success of the strategy remains a point of contention, Operation Allied Force did demonstrate the growing willingness to leverage military dominance in pursuit of limited aims.

In a compellance campaign, the defining question is what to strike to most effectively pressure one's opponent into making a particular decision. Obviously, effects-based operations fit very naturally into such objectives since a compellance campaign seeks to force a particular decision, not necessarily to defeat the enemy militarily.

It is the search for such a target, which compels specified effects most effectively, that strains the principle of military objective. Under a restrictive interpretation, only strikes against the enemy armed forces and other self-evident military objectives, such as factories producing military equipment, may be attacked to compel behavior. Yet, it may well be that military capability is not of sufficient value to the enemy leadership to force a particular decision. This may be especially true when the side

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65. See William J. Clinton, U.S. President, Statement by the President (Dec. 16, 1998), *available at* <http://www.globalsecurity.org/wmd/library/news/iraq/1998/981216-wh2.htm>.

66. NATO's demands were set forth in a statement issued at the Extraordinary Ministerial Meeting of the North Atlantic Council on April 12, 1999, and reaffirmed less than two weeks later by heads of states and governments in Washington, D.C. on April 23 and 24. NATO's demands included: a cessation of military action; an end to the violence and repression of the Kosovar Albanians; withdrawal from Kosovo of military, police, and paramilitary forces; the presence of an international military force in Kosovo; safe return of refugees and displaced persons and unhindered access to them by humanitarian aid organizations; and the establishment of a political framework agreement on the basis of the Rambouillet Accords. Press Release, N. Atl. Treaty Org., *The Situation In and Around Kosovo: Statement Issued at the Extraordinary Ministerial Meeting of the North Atlantic Council Held at NATO Headquarters, Brussels, on 12th April 1999* M-NAC-1(99)51 (Apr. 12, 1999), <http://www.nato.int/docu/pr/1999/p99-051e.htm>; Press Release, N. Atl. Treaty Org., *Statement on Kosovo Issued by the Heads of State and Government Participating in the Meeting of the North Atlantic Council in Washington, D.C. on 23rd and 24th April 1999*, S-1(99)62, (Apr. 23, 1999), <http://www.nato.int/docu/pr/1999/p99-062e.htm>.

seeking to compel limits its own options, as in the case of Operation Allied Force's public exclusion of ground operations.

Operational concepts appreciative of the fact that attacks on military objectives may not be the best ways to generate desired effects are starting to gain traction. Although reaching their apogee in compellance campaigns, such operational concepts are being touted more generally as applicable across the spectrum of warfare.<sup>67</sup> Significant in this regard is the concept of axiological operations, which counterpoises utility with value.<sup>68</sup> Utility is the future usefulness of a prospective target to the enemy; value is its relative worth. Traditionally, targeting has focused on utility—deny the adversary what it needs to operate. Therefore, targets tend to be classically military in nature: airfields, vehicles, troops, headquarters, and command and control. As an example of sophisticated utility targeting, proponents of axiological operations cite Colonel John Warden's model, in which the enemy is attacked as a system consisting of five concentric circles: leadership, organic or system essentials, infrastructure, population, and fielded forces.<sup>69</sup> In Warden's approach, the intent is to cause the system to malfunction such that paralysis sets in.

While axiological operations do strike utility targets (that is, those that are objectively useful to the enemy), much greater attention is focused on the center ring, leadership. It is the target's value to the decision-maker that drives prioritization; in other words, the effect of a strike on a decision to be made by the relevant leader matters most.

Moreover, the types of leadership targets differ. One type of leadership target is the utility target, which is sometimes struck in order to diminish the ability of leadership to communicate with its military or even civilian population. An example of utility targeting is the controversial strike on Belgrade's Radio Televizija Srbije (RTS) facility during Operation Allied Force.<sup>70</sup> By contrast, axiological targets are struck because of their core

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67. See, e.g., Peter W.W. Wijninga & Richard Szafranski, *Beyond Utility Targeting: Toward Axiological Operations*, AEROSPACE POWER J., Winter 2000, at 45, available at <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj00/win00/szafranski.pdf>.

68. See generally *id.*

69. On Warden's theory, see JOHN A. WARDEN III, *THE AIR CAMPAIGN* (toExcel Press 2000) (1998).

70. The attack led to litigation in the European Court of Human Rights that largely centered on whether the target was a military objective. The Court later dismissed the case on jurisdictional grounds. *Bankovic & Others v. Belgium and 16 Other Contracting States*, App. No. 52207/99, 2001-XII Eur. Ct. H.R., available at <http://cmiskp.echr.coe.int/tkp197/default.htm> (follow "Access Hudoc Collection" hyperlink; click "Decisions" checkbox; search "Case Title" for "Bankovic") [hereinafter *Bankovic*].

value to the leadership, quite aside from their objective usefulness in the context of the ongoing campaign.

Recall the comments made by NATO air commander, Lieutenant General Michael Short, regarding Operation Allied Force air attacks against Belgrade:

I felt that on the first night the power should have gone off, and major bridges around Belgrade should have gone into the Danube, and the water should be cut off so the next morning the leading citizens of Belgrade would have got up and asked “Why are we doing this?” and asked Milosevic the same question.<sup>71</sup>

Short realized that the weakening of the Yugoslav military would not force Milosevic to comply with NATO demands because Milosevic could remain in power with a lesser military, so long as there was no threat of invasion. In Short’s view, Milosevic most feared losing the support of the population and thereby political power. In EBO terms, popular support for the regime was the value to be attacked to most effectively create the effects sought—“incentivizing” compliance with NATO demands.

Thus, the logic of axiological operations inescapably leads planners away from striking traditional military targets and towards striking those targets that are more valued by the leadership and are thus most likely to generate desired effects most quickly. From a legal perspective, this is problematic because it leads to a search for targets that is not necessarily undergirded by either the contribution prospective targets make to military action, or the extent to which their destruction, damage, or neutralization, in the circumstances at the time, produces military advantage. However, those are, strictly speaking, the current normative terms of reference for attributing military objective status.

That there is growing dissatisfaction with the restrictive definition pronounced in Protocol Additional I and the *U.K. Manual* is patently obvious. Certainly, the *Commander’s Handbook’s* broad interpretation evidences this trend. But the “war sustaining” dispute is no more than interpretive in nature; both sides agree civilians and civilian objects should enjoy immunity from attack.

The Short affair shifts the debate to the viability of the standard itself. Although General Short later retreated somewhat from his comments during a conference held at the U.S. Naval War College,<sup>72</sup> the fact remains

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71. Craig R. Whitney, *Air Wars Won’t Stay Risk-Free, General Says*, N.Y. TIMES, June 18, 1999, at A22.

72. See Michael Short, *Operation Allied Force from the Perspective of the NATO Air*

that the operational concept of striking targets that do not qualify as “military objectives” under traditional law of armed conflict interpretations, is gaining adherents. As effects-based operations become increasingly possible due to technological advances and doctrinal maturation, it should come as no revelation that operators are becoming enamored with its fullest possible application. Surprising, though, are calls from the standard’s guardians—judge advocates—for abandonment (not interpretive leniency) of facets of the prohibition on striking protected objects.

Most noteworthy in this regard is the provocative writing of Major General Charles Dunlap of the U.S. Air Force. In a fascinating and thoughtful 2000 *Strategic Review* article, he suggested the following:

We need a new paradigm when using force against societies with malevolent propensities. We must hold at risk the very way of life that sustains their depredations, and we must threaten to destroy the world as they know it if they persist. This means the air weapon should be unleashed against entirely new categories of property that current conceptions of LOAC put off-limits.<sup>73</sup>

General Dunlap was not suggesting the complete abandonment of the prohibition on attacking targets that do not presently qualify as military objectives under the law of armed conflict. He, for instance, would reserve such operations for societies with a “moral compass” that is “wildly askew.”<sup>74</sup> Nor would General Dunlap target civilians or objects “genuinely indispensable to the survival of the noncombatant. . . .” That said, “almost everything else of any value would be fair game.”<sup>75</sup> Depending on the extent to which such targets are valued directly by leaders or by those who could exert pressure on leadership, examples include “resorts, along with other entertainment, sports, and recreational facilities . . .” and “factories, plants, stores, and shops that produce, sell, or distribute luxury products. . . .”<sup>76</sup> That this is effects-based operations at its grandest is illustrated by General Dunlap’s assertion that “[r]educing the middle and upper classes to a subsistence level through the destruction of access to all

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Commander, in LEGAL AND ETHICAL LESSONS OF NATO’S KOSOVO CAMPAIGN, 78 U.S. NAVAL WAR C. INT’L L. STUD. 19 (Andru E. Wall ed., 2002), available at [http://www.au.af.mil/au/awc/awcgate/navy/kosovo\\_legal.pdf](http://www.au.af.mil/au/awc/awcgate/navy/kosovo_legal.pdf).

73. Charles J. Dunlap, Jr., *The End of Innocence: Rethinking Noncombatancy in the Post-Kosovo Era*, 28 STRATEGIC REV. 14 (Summer 2000).

74. *Id.*

75. *Id.*

76. *Id.*

but essential goods might pressure the very groups best positioned to effect the desired change.”<sup>77</sup>

These views have gained devotees. In an equally provocative 2001 article appearing in the *Air Force Law Review*, Major Jeanne Meyer suggested that it might be more humane to attack civilian property than purely military objectives if doing so would demoralize the civilian population and hasten conflict termination.<sup>78</sup> Of course, such theories have been around since the advent of airpower; but it is only with the recent and remarkable progress in precision, stealth, C4ISR,<sup>79</sup> and the resulting capability to mount parallel warfare and effects-based operations, that such theories have been realizable as anything more than blunt instruments with which to brutally beat the enemy into capitulation. In the 21st century, by contrast, attacks against civilian property can be conducted surgically, causing (in theory) only that harm that is actually desired. Indeed, advocates of axiological warfare, including those who would permit strikes on civilian targets, cloak themselves today in the very humanitarianism underlying the legal standard they reject. Nevertheless, their urgings are a vivid departure from the principle of distinction, a principle that the International Court of Justice labeled “intransgressible” in its *Nuclear Weapons* advisory opinion.<sup>80</sup>

Such a rejection is sure to be fiercely opposed by many in the international legal community, all of whom are certain to be heartened by the *U.K. Manual*’s embrace of the principle in its pure form. They will find much support for their position. In particular, external assessments of recent air campaigns consistently (and predictably) emphasize the principle of distinction, while eschewing any hint of a broadening thereof along the lines suggested in the *Commander’s Handbook* (let alone by General Dunlap and his protégées). For instance, in assessing strikes during Operation Allied Force, particularly that on the RTS station that formed the basis for the *Bankovic* litigation in the European Court of Human Rights,<sup>81</sup> those who prepared the *Final Report to the Prosecutor* of the International Criminal Tribunal for the Former Yugoslavia stated: “The media as such is not a traditional target category. To the extent particular media components are part of the C3 . . . network they are

77. *Id.*

78. Jeanne M. Meyer, *Tearing Down the Facade: A Critical Look at the Current Law on Targeting the Will of the Enemy and Air Force Doctrine*, 51 A.F. L. REV. 143, 182 (2001).

79. Command, control, communications, computers, intelligence, surveillance, reconnaissance.

80. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 35 (July 8).

81. See *Bankovic*, *supra* note 70.

military objectives . . . . As a bottom line, civilians, civilian objects and civilian morale as such are not legitimate military objectives.”<sup>82</sup>

Human Rights Watch (HRW) similarly rejected any deviation from existing LOAC prohibitions on the ground that Operation Allied Force was a compellence campaign in which effects-based concepts augured towards strikes on objectives that do not qualify as “military objectives” under the traditional law of armed conflict. Referring to attacks against media facilities, HRW noted that “[w]hile stopping such propaganda may serve to demoralize the Yugoslav population and undermine the government’s political support, neither purpose offers the ‘concrete and direct’ military advantage necessary to make them a legitimate military target.”<sup>83</sup> In a similar vein, the organization noted that “[t]he destruction of [six] bridges that are not central to transportation arteries or have a purely psychological importance does not satisfy the criterion of making an ‘effective contribution to military action’ or offering a ‘definite military advantage’ . . . .”<sup>84</sup> Amnesty International’s (AI) report, *Collateral Damage*, was in accord: “Amnesty International recognizes that disrupting government propaganda may help undermine the morale of the population and the armed forces, but believes it . . . stretches the meaning of ‘effective contribution to military action’ and ‘definite military advantage’ beyond the acceptable bounds of interpretation.”<sup>85</sup>

The sole external review of the Operation Iraqi Freedom air campaign to date, Human Rights Watch’s *Off Target*, retains the emphasis on strict adherence to Protocol Additional I’s two-pronged “effective contribution” and “definite military advantage” formula.<sup>86</sup> Referring to attacks against two transformers that resulted on the loss of power to Al Nasiriya for a

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82. Office of the Prosecutor, International Criminal Tribunal for the Former Yugoslavia, *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia*, para. 55, 39 I.L.M. 1257, 1272 (June 13, 2000).

83. Human Rights Watch, *Civilian Deaths in the NATO Air Campaign*, 12 HUMAN RIGHTS WATCH (Feb. 2000), [http://www.hrw.org/reports/2000/nato/Natbm200-01.htm#P421\\_112606](http://www.hrw.org/reports/2000/nato/Natbm200-01.htm#P421_112606).

84. *Id.*

85. AMNESTY INT’L, NATO/FEDERAL REPUBLIC OF YUGOSLAVIA: “COLLATERAL DAMAGE” OR UNLAWFUL KILLINGS? VIOLATIONS OF THE LAWS OF WAR BY NATO DURING OPERATION ALLIED FORCE 49 (June 6, 2000), <http://web.amnesty.org/library/engindex> (search “AI Index” for “EUR 70/018/2000”; then follow “PDF” hyperlink).

86. HUMAN RIGHTS WATCH, OFF TARGET: THE CONDUCT OF THE WAR AND CIVILIAN CASUALTIES IN IRAQ 42 (Dec. 2003), <http://www.hrw.org/reports/2003/usa1203/usa1203.pdf>. For a legal analysis of the conflict that differs in part from the conclusions drawn by Human Rights Watch, see generally Michael N. Schmitt, *The Conduct of Hostilities During Operation Iraqi Freedom: An International Humanitarian Law Assessment*, 6 Y.B. OF INT’L HUMANITARIAN L. 73 (T. McCormack ed., 2003). The organization replied in Dinah PoKempner et al., *Off Target on the Iraq Campaign: A Response to Professor Schmitt*, 6 Y.B. OF INT’L HUMANITARIAN L. 111 (T. McCormack ed., 2003).

month, HRW stated it was “unclear . . . what effective contribution to Iraqi military action” the transformers made.<sup>87</sup> Similarly, with regard to strikes against television facilities and the Ministry of Information, HRW claimed there was “no evidence that Iraqi media was being used to provide direct assistance to the Iraqi armed forces.”<sup>88</sup>

Lest such comments be dismissed as the application of impractical and exaggerated legal standards by over-zealous non-governmental organizations, explanatory text in the *U.K. Manual* embraces equivalent criteria. For instance, the *U.K. Manual*'s non-exhaustive listing of military objectives includes “other works producing or developing military supplies and other supplies of military value, including metallurgical, engineering, chemical, oil and power industries, and infrastructure supporting the war effort.”<sup>89</sup> The same standard applies to the media, for the listing includes “communications installations used for military purposes, including broadcasting and television stations, telephone and telegraph stations.”<sup>90</sup> To preclude an overly broad interpretation of their inclusion, the *U.K. Manual* offers the caveat that the “mere fact that an object is on the list does not mean that it is necessarily a military objective. It must always be tested against the definition of [military objective], especially the question: ‘does it make an effective contribution to military action?’”<sup>91</sup> Thus, as in *Off Target*, a relatively direct nexus to military operations is the *sine qua non* of military objective status.

It is clear that the U.K. Ministry of Defense has placed itself firmly within the camp of those who interpret the notion of military objective restrictively, that is, with fidelity to the plain text of Protocol Additional I. Because the British LOAC community was intimately familiar with the *Commander's Handbook*'s “war-sustaining” verbiage, the *U.K. Manual* must be seen as a clear rejection of the U.S. position.

To date, this difference has had a *de minimis* impact on the conduct of combined operations by these close Coalition partners.<sup>92</sup> That said, the advent of effects-based operations and concomitant calls for adjustment of the standard prohibiting attacks against civilian objects by influential U.S.

87. PoKempner et al., *supra* note 86.

88. *Id.*

89. U.K. MANUAL, *supra* note 10, para. 5.4.5e (emphasis added).

90. *Id.* para. 5.4.5h.

91. *Id.* para. 5.4.5.

92. However, the French government rejected a number of targets during Operation Allied Force. *US General Condemns French 'Red Card,'* BBC NEWS ONLINE, Oct. 22, 1999, <http://news.bbc.co.uk/2/hi/482015.stm>.

air war thinkers have created a fertile environment for a sharpening of positions between and within air forces.

Even if a potential target qualifies as a military objective, an attack thereon must still comply with the principle of proportionality, which prohibits indiscriminate attacks, and the duty to take precautions in attack. Do effects-based operations raise any thorny issues regarding the application of these standards to air warfare?

The *U.K. Manual*, in paragraph 5.33, articulates the principle of proportionality in text drawn verbatim from Protocol Additional I.<sup>93</sup> It prohibits attacks that “may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.”<sup>94</sup> Although the reference to “military” advantage might at first glance appear to raise the same issues as use of the adjective in conjunction with objectives, it does not. Rather, the target must be a military objective before being considered for attack and thus, before the principle of proportionality comes into play. So long as the targeted object or individuals make an “effective contribution to military action” such that their destruction, damage, or neutralization offers a “definite military advantage,” then by definition, concrete and direct advantage accrues.<sup>95</sup> The *U.K. Manual* expressly makes this connection when it provides:

“Concrete and direct” means that the advantage to be gained is identifiable and quantifiable and one that flows directly from the attack, not some pious hope that it might improve the military situation in the long term. In this sense it is like the term “definite” used in the definition of military objects.<sup>96</sup>

In fact, effects-based operations have the potential for considerably limiting the collateral damage and incidental injury against which military advantage is weighed in proportionality calculations. However, this possibility is less relevant to the application of the proportionality principle *per se*, than to the duty to take precautions in attack, the

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93. Protocol Additional I, *supra* note 3, arts. 51.5b, 57.2. See also CIHLS, *supra* note 11, R. 14, 18.

94. The official International Committee of the Red Cross Commentary to the Protocol Additional indicates that the expression “show[s] that the advantage concerned should be substantial and relatively close, and that advantages which are hardly perceptible and those which would only appear in the long term should be disregarded.” COMMENTARY, *supra* note 53, para. 2209.

95. U.K. MANUAL, *supra* note 10, para. 5.4.1.

96. *Id.* para. 5.33.3.

obligation to take “constant care” to “spare the civilian population, civilians, and civilian objects.”<sup>97</sup>

The precaution in attack rules set out comprehensively in paragraph 5.32 of the *U.K. Manual* reproduce those found in Article 57 of Protocol Additional I. Subsequent paragraphs in the *U.K. Manual* painstakingly interpret the rules in ways comporting with accepted understandings of Article 57. In almost every scenario, effects-based operations enhance compliance with the precautions in attack norms. Of particular relevance is the command that “[w]here there is a choice between different military objectives whose attack will yield the same military advantage, the one whose attack is expected to cause the least incidental damage should be chosen.”<sup>98</sup> During the effects-based planning process, target systems are deconstructed in search of that facet thereof that will best yield the desired effect. Doing so requires an assessment of other system elements such that multiple options will naturally surface. This, in turn, eases the identification of that target or group of targets that can generate the effect sought while causing the smallest amount of incidental injury or collateral damage. Indeed, EBO advocates cite the ability to moderate incidental injury and collateral damage as a key strength of the approach.<sup>99</sup>

Additional features of effect-based operations contribute indirectly to fulfilling the precautions in attack obligations. For instance, a duty exists to “do everything feasible to verify that the proposed target is not protected from attack and that it is a military objective.”<sup>100</sup> The ISR capabilities that underlie EBO and the comprehensive target system analysis required to effectively mount effects-based operations lend themselves to a greater appreciation of the selected target’s nature.

Requisite precautions also include “constant review” of target lists “in . . . light of fresh information and changing circumstances.”<sup>101</sup> In attrition warfare, such reviews are less important because the ultimate objective is to destroy the enemy military over time. However, as an aspect of parallel warfare, effects-based operations seek effects with the least possible expenditure of assets. Since effects depend on the circumstances at the time of attack, frequent reassessment of prospective targets necessarily occurs.

97. *Id.* para. 5.32; Protocol Additional I, *supra* note 3, art. 57.1; CIHLS, *supra* note 11, R. 15.

98. U.K. MANUAL, *supra* note 10, para. 5.32; Protocol Additional I, *supra* note 3, art. 57.3; CIHLS, *supra* note 11, R. 21.

99. *See, e.g.*, Effects Based Operations Briefing, *supra* note 31.

100. U.K. MANUAL, *supra* note 10, para. 5.32.2; Protocol Additional I, *supra* note 3, art. 57.2(a)(i); CIHLS, *supra* note 11, R. 16.

101. U.K. MANUAL, *supra* note 10, para. 5.32.3.

Further, planners must select “the means (weapons) and methods (tactics) [of warfare] which will cause the least incidental damage commensurate with military success.”<sup>102</sup> This is a subjective standard, particularly in an era when military technology improves measurably with each conflict. As noted by the *U.K. Manual*, “developing technology does bring with it a change in the standards affecting the choice of munitions when taking the precautions. . . .”<sup>103</sup> Robust examination of not only targets, but also of the most effective methods and means of striking them, dramatically eases fulfillment of this requirement. Indeed, the *U.K. Manual’s* listing of factors that commanders should consider to limit collateral damage and incidental injury when planning missions reads like a checklist for effective EBO planning:

- a. the importance of the target and the urgency of the situation;
- b. intelligence about the proposed target—what it is being, or will be, used for and when;
- c. the characteristics of the target itself, for example, whether it houses dangerous forces;
- d. what weapons are available, their range, accuracy, and radius of effect;
- e. conditions affecting the accuracy of targeting, such as terrain, weather, and time of day;
- f. factors affecting incidental loss or damage, such as the proximity of civilians or civilian objects in the vicinity of the target or other protected objects or zones and whether they are inhabited, or the possible release of hazardous substances as a result of the attack;
- g. the risk to his own troops of the various options open to him.<sup>104</sup>

EBO planning similarly promotes the injunction to consider the timing of an attack<sup>105</sup> because the ability and need to create desired effects shift over time.

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102. *Id.* para. 5.32.4; Protocol Additional I, *supra* note 3, art. 57.2(a)(ii); CIHLS, *supra* note 11, R. 17.

103. U.K. MANUAL, *supra* note 10, para. 12.51.

104. *Id.* para. 5.32.5.

105. *Id.* para. 5.32.6.

## CONCLUDING THOUGHTS

This Article has explored the law of armed conflict in the context of a new approach to targeting during armed conflicts: effects-based operations. The effort is especially relevant in the context of aerial warfare. Of all the media in which 21st century warfare is conducted (except perhaps cyberspace), air is the medium experiencing the greatest transformation in the conduct of hostilities. As the transformation unfolds, consequent conceptual innovations such as effects-based operations are placing stress on the existing normative architecture.

In some cases, effects-based operations promote observance of the law of armed conflict. This is the case with regard to the duty to take precautions in attack and the application of the principle of proportionality. Yet, negative pressures on existing understandings of the law also exist. Particularly disquieting is the rather subtle impact of such concepts on the principle of distinction, especially the reach of the term “military objective.” The U.K. Ministry of Defense has elected to hold the line by embracing the relatively restrictive notions expressed in Protocol Additional I.

This is a sage choice for three reasons. First, as long as the U.S. and its closest allies enjoy unchallengeable military supremacy, its opponents will have to fight them asymmetrically. As demonstrated by both transnational terrorism and insurgent operations in Iraq, militarily disadvantaged parties to a conflict commonly adopt tactics and strategies that violate LOAC, including attacks against civilians and civilian objects.<sup>106</sup> This being so, it hardly makes sense to relax the legal norms that enable the U.K. and other victim states to characterize such conduct as unlawful.

Second, relaxed norms, especially when not widely accepted, allow one’s opponents to engage in “lawfare,” i.e., alleging LOAC violations in order to undercut domestic and international support.<sup>107</sup> As the U.S. learned during its struggle to enlist troop contributors for operations in

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106. On this topic, see Michael N. Schmitt, *The Impact of High and Low-Tech Warfare on the Principle of Distinction* (Nov. 2003) (briefing paper, on file with the Harvard University Program on Humanitarian Policy and Conflict Resolution), available at <http://www.michaelschmitt.org/images/Hi%20Tech%20Low%20Tech%20Schmitt%20formatted.doc>.

107. Lawfare refers to the effort to undercut an opponent’s support by making it appear to violate international humanitarian or human rights law (or by publicizing actual violations). That support may be either domestic or international. For a discussion of lawfare, see Charles J. Dunlap, Jr., *Law and Military Interventions: Preserving Humanitarian Values in 21st Century Conflicts* (Nov. 29–30, 2001) (working paper, on file with the Harvard University Carr Center for Human Rights Policy, National Security and Human Rights Program), available at <http://www.ksg.harvard.edu/cchrp/Web%20Working%20Papers/Use%20of%20Force/Dunlap2001.pdf>.

Iraq, perceptions of unlawfulness, real or not, can seriously undermine operational and strategic objectives. Maintaining strict fidelity to widely accepted norms denies one's opponents the opportunity to engage successfully in "lawfare."

Finally, and conversely, a reputation for lawfulness can spawn soft power.<sup>108</sup> Maintaining the normative high ground in the face of contrary pressures generates state legitimacy that translates indirectly into tangible and intangible assets. For instance, it is easier for perceived law-abiding states to form "coalitions of the willing" than those who are seen to skirt the law imperiously.<sup>109</sup> Similarly, states that strictly abide by the *jus in bello* are more likely to enjoy the benefit of the doubt vis-à-vis grey area *jus ad bellum* cases than those who do not. It is therefore surprising how willingly states sometimes sacrifice the long-term value of soft power on the altar of short-term expediency. Effects-based operations must not be allowed to contribute to this unfortunate reality.

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108. For a discussion of the relationship between law and soft power, see Michael N. Schmitt, *The Law of Armed Conflict as Soft Power: Optimizing Strategic Choice*, in INTERNATIONAL LAW ACROSS THE SPECTRUM OF CONFLICT 455 (Michael N. Schmitt ed., 2000).

109. *Id.*