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RED-TEAMING NLW: A TOP TEN LIST OF CRITICISMS ABOUT NON-LETHAL WEAPONS

David A. Koplow ¹

Critics of non-lethal weapons (NLW) have asserted numerous complaints about the concepts, the Department of Defense research and development efforts, and the pace of innovation in the field. These critiques challenge the cost of the programs, their consistency with international law, the adverse public reaction to some of the devices, and the dangers of proliferation, among other points. This article summarizes the various assessments, in form of a “top ten list” of criticisms, and evaluates their weight. The author concludes that some of these points of objection have merit, but overall, the NLW enterprise is worthy of continuation and even expansion, to meet more fully its ambitious goals.

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I. INTRODUCTION

The concept and practice of non-lethal weapons (NLW) is no longer a new and fledgling enterprise. U.S. Marine Corps Lt. Gen. Anthony Zinni's famous invocation of NLW to assist in covering the withdrawal of United Nations forces from Somalia occurred way back in 1995.² Directive 3000.3, the foundational charter for the U.S. Department of Defense (DoD) engagement in the field, was issued in 1996.³ The Joint Directorate, the organizational sanctum supporting the Pentagon's day-to-day research and development in the field, stood up in 1997.⁴

This makes NLW a twenty-year-old campaign. Measured another way, 1995 was two or three wars ago. And, of course, many of the relevant technologies and devices trace their lineage back much further. Conversely, many other familiar institutions and social phenomena that modern society considers mature and well established are younger than NLW. The Toyota Prius, for example, debuted in 1997,⁵ as did the first Apple online store.⁶ Nintendo released the Nintendo 64 video game system 1996.⁷ Of local interest, the re-birth of the current Cleveland Browns came in 1999.⁸ Even Pokémon,

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2. Dwight Jon Zimmerman, *The Joint Non-Lethal Weapons Program*, DEF. MEDIA NETWORK (Dec. 1, 2010), <http://www.defensemedianetwork.com/stories/the-joint-non-lethal-weapons-program/> (describing Lt. Gen. Anthony Zinni's innovative exploitation of NLW in Somalia, to protect the withdrawal of United Nations personnel without further inciting local opposition).
 3. DoD Executive Agent for Non-Lethal Weapons (NLW) and NLW Policy, DoD Directive 3000.03E (Apr. 25, 2013), *originally issued as Policy for Non-Lethal Weapons*, DoD Directive 3000.3 (Jul. 9, 1996).
 4. *History*, U.S. DEP'T OF DEF. NON-LETHAL WEAPONS PROG., <http://jnlwp.defense.gov/About/History.aspx> (last visited Mar. 4, 2015).
 5. *Toyota Prius 1997-2004*, AUTOEVOLUTION, http://www.autoevolution.com/cars/toyota-prius-1997.html#aeng_toyota-prius-2000-15 (indicating that the Toyota Prius's initial introduction was in Japan in 1997, while its global introduction was in 2001) (last visited Mar. 4, 2015).
 6. Daniel Eran Dilger, *The next ten years of Apple Retail*, APPLEINSIDER (Jan. 5, 2012, 09:41 AM), http://appleinsider.com/articles/12/01/05/the_next_ten_years_of_apple_retail.
 7. Chris Scullion, *History of Nintendo: N64*, OFFICIAL NINTENDO MAG. (Oct. 28, 2009), <http://www.officialnintendomagazine.co.uk/12769/features/history-of-nintendo-n64/>.
 8. Thomas George, *PRO FOOTBALL; The Old Becomes New as Browns are Reborn*, N.Y. TIMES (Aug. 9, 1999), <http://www.nytimes.com/1999/08/09/sports/pro-football-the-old-becomes-new-as-browns-are-reborn.html>.

unleashed in 1996, is as old as NLW.⁹ Thus, it has been long enough since the birth of NLW that it is now appropriate to undertake some serious, even skeptical, appraisal of the program and its constituent elements. The underlying theories and the programmatic features are now sufficiently strong and well established to be able to endure tough scrutiny.

One version of that searching analysis is *red-teaming*, trying to construct the strongest possible case against NLW, as a form of high-stakes testing. As an avid supporter of NLW, I am especially interested in exploring how well the program—its history, current status, and anticipated future directions—can stand up to this type of audit, as well as contemplating what rebuttals to the critiques may be persuasive. To begin this red-teaming, I have prepared a Top Ten List of objections, doubts, and concerns about NLW. I hope that a review of this roster of complaints can inspire a focused, even-handed appraisal of the overall pros and cons of the NLW enterprise.

II. NON-LETHAL WEAPONS COMPLAINTS

1. NLW Technology is Still Largely a Capability in Search of a Mission

To date, there really has been no great demand for NLW. Customers are not eagerly lining up to procure the products. The overwhelming function of the military remains “to kill people and break things,” and if the bad guys continue to shoot live munitions at us, then the good guys will need to return fire with ordnance that is as lethal as possible.¹⁰ Both force protection and mission accomplishment demand the traditional accoutrements of military operations; NLW will, at best, occupy a boutique niche. Even if civilians are present—which is the situation in which NLW would ordinarily be of greatest application—deadly force is typically still necessary and appropriate as a means of self-defense. The array of NLW capabilities, present and future, designed to fill a gap “between bullhorns and bullets,” is basically a solution to a nearly non-existent problem. Almost always, bullhorns or bullets will be both necessary and sufficient.¹¹

9. See Glenn Rose, *Pokémon Is Back*, MARLIN CHRONICLE, Oct. 29, 2013, <http://marlinchronicle.vwc.edu/?p=1140>.

10. Bob Wilson, *The Purpose of a Military is to Kill People and Break Things*, ETHICAL SPECTACLE, <http://www.spectacle.org/298/wilmine.html> (last visited Nov. 3, 2014).

11. See Lt. Col. Jesse Galvan & Maj. Theo Kang, *The Future of the Army Nonlethal Scalable Effects Center*, MIL. POLICE, Apr. 2006, at 4, 4, available at <http://www.wood.army.mil/mpbulletin/pdfs/pb19-06-1.pdf>.

2. *NLW Technology is Developing Too Slowly*

Despite the best, and quite admirable, efforts of the Joint Non-Lethal Weapons Directorate (JNLWD), the military services, and a small but growing armada of contractors in the nascent non-lethal military-industrial complex, there is still not enough *there* there. The requisite inventiveness, and the capacity to carry new capabilities into operation, have been in short supply. As one indicator, the current JNLWD annual report¹² is remarkably similar to its forebearers from five or ten years ago in describing the array of currently available technologies (which are still relatively modest) and in forecasting the more adventuresome future systems (which are seemingly not getting much closer to operability.) Some of the fact sheets, describing particular types of NLW programs, likewise reflect only incremental year-to-year editing, conveying a distressing suggestion that progress in NLW occurs at only a glacial pace.¹³

As an example of this perceived lethargy in development, there is currently no NLW that can effectively but safely address problems with groups of people at a distance of more than a few meters. Blunt trauma projectiles, tasers, and vehicle-arresting barriers are fine, but if these are the only products to come out of the creativity of the NLW sector, then the game is not changing fast enough. Perhaps this is a case of simply getting what you pay for. When the budget for NLW programs hovers around \$140 million annually, a paltry sum by

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12. *Compare* U.S. DEF. DEP'T, NON-LETHAL WEAPONS ANNUAL REVIEW 6 (2013) [hereinafter JNLWD 2013 REV.], *available at* http://jnlwp.defense.gov/Portals/50/Documents/Press_Room/Annual_Reviews_Reports/2013/DoD_Non-Lethal_Weapons_Program_Annual_Review_11.19.2012_HTML_format_v1.pdf (describing “[l]ow-energy dazzling lasers” as current technology in 2013 providing “discrete, non-verbal hailing and warning signals.” *with* U.S. DEF. DEP'T, NON-LETHAL WEAPONS ANNUAL REVIEW 10 (2010), *available at* http://jnlwp.defense.gov/Portals/50/Documents/Press_Room/Annual_Reviews_Reports/2010_2011/2010_Annual_Report_Final_PDF.pdf (describing “dazzling lasers” as current technology in 2011 providing “discrete, non-verbal warning signals”), *and* Staff Sgt. Will Skelton, *Active Denial System Demonstrated for Department of Defense Leadership and News Media*, U.S. DEP'T DEF. NON-LETHAL WEAPONS PROGRAM NEWSL. (Joint Non-Lethal Weapons Dir. Quantico, Va.), June 2012, at 4, *available at* http://jnlwp.defense.gov/Portals/50/Documents/Press_Room/Newsletters/Newsletter_053112.pdf (describing the Active Denial System as a millimeter-wave system as the system of the future).
13. *See Non-Lethal Weapons Requirements Fact Sheet*, JOINT NON-LETHAL WEAPONS PROG. (Oct. 2011), http://jnlwp.defense.gov/Portals/50/Documents/Press_Room/Fact_Sheets/NLWR_Fact_Sheet_Oct_2011.pdf (describing the need for, and progress in, non-lethal weapons development).

Pentagon standards, NLW will not experience many revolutionary advances.¹⁴

3. Public Opinion, in the United States and Elsewhere, Has Not Warmed to NLW

The most interesting and promising development among NLW is the Active Denial System (ADS), a novel millimeter “heat wave” mechanism for dispersing crowds at standoff distances.¹⁵ This device carries enormous potential for constructive application in all sorts of mixed civilian and military situations; it really would be something new under the sun.¹⁶ ADS was incrementally developed and thoroughly tested over a period of a decade; it is a proven technology.¹⁷ DoD deployed ADS to Afghanistan, but never used it.¹⁸ Why not? Was it because the administrators feared that the media coverage of its use would make it look too inhumane, too futuristic, too scary, or just too weird? If so, that is a terrible, but perhaps representative, illustration of excessive timidity surrounding the employment of new technologies that might provoke adverse public reactions. Sometimes, as with remotely piloted vehicles (weaponized drones) and stealth technology, for example, DoD has been willing to pay the price of that “CNN effect”;¹⁹ but, thus far, DoD has not expressed a similar assertiveness when it comes to NLW.

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14. JNLWD 2013 REV., *supra* note 11, at 4.
 15. *Active Denial Technology Fact Sheet*, U.S. DEF. DEP’T NON-LETHAL WEAPONS PROG. (Aug. 14, 2013), <http://jnlwp.defense.gov/PressRoom/FactSheets/ArticleView/tabid/4782/Article/4047/active-denial-technology-fact-sheet.aspx>.
 16. *See, e.g.*, Noah Shachtman, *Pain Ray, Rejected by the Military, Ready to Blast L.A. Prisoners*, WIRED (Aug. 24, 2010, 3:02 PM), <http://www.wired.com/2010/08/pain-ray-rejected-by-the-military-ready-to-blast-l-a-prisoners/> (describing how and why the Los Angeles County Sheriff’s Department purchased ADS systems brought back from Afghanistan for crowd control use in at least one LACSD detention center).
 17. *See* Brian Bergstein, *Military’s Energy-Beam Weapons Delayed*, USA TODAY (Jul. 9, 2005), http://usatoday30.usatoday.com/news/nation/2005-07-09-army-weapons_x.htm?csp=34 (stating that the U.S. military has analyzed the effects of ADS for decades, and has worked on the current ADS system since 1994).
 18. Shane McGlaun, *U.S. Military Demonstrates “Active Denial System” Non-Lethal Weapon*, DAILYTECH (Mar. 12, 2012, 10:22 AM), <http://www.dailytech.com/US+Military+Demonstrates+Active+Denial+System+NonLethal+Weapon+/article24208.htm>.
 19. *See* Eytan Gilboa, *The CNN Effect: The Search for a Communication Theory of International Relations*, 22 POL. COMM. 27, 34-37 (analyzing how various studies into the effect of media coverage of actions or inactions demonstrate that the media may be able to influence tactical decisions, such as the protection of certain threatened groups in the

4. *Costs and Logistics Demands are Excessive*

Some NLW are, or soon can be, available as commercial off-the-shelf products, so cost and prompt availability should not be major problems. But even then, DoD still needs to adapt and improve the tools to ensure that they are battlefield rugged and compatible with other standard-issue equipment. That process can become costly, especially when DoD is, admirably, committed to such thorough human effects testing upon which other customers might not insist.²⁰ Other, more path breaking NLW can be quite pricey. In a tight budgetary environment, NLW research, development, and procurement compete with pursuit of cyber, robotics, and other innovations where the payoff seems quicker and more dramatic.

Moreover, the logistics tail of NLW may become an important deterrent. If the military has to procure both NLW and its standard complement of equipment, train its force on both categories of weapons, store and transport both, and carry both into action, the sum of all these support operations can be an impressive burden. It might be that an infantryman on patrol encounters a particular situation in which access to a specified NLW would be advantageous, but how much weight and volume can he carry on that patrol? If he has to pick only a limited quantity of items, he will naturally favor the deadly tools and leave the NLW behind.²¹

former Yugoslavia, but are less influential in determining the strategic decisions of a country or coalition in a particular situation, such as in Rwanda).

20. Non-Lethal Weapons (NLW) Human Effects Characterization, DoD Instruction 3200.19 (May 17, 2012), *available at* <http://www.dtic.mil/whs/directives/corres/pdf/320019p.pdf>.
21. Philip Bulman, *Police Use of Force: The Impact of Less-Lethal Weapons and Tactics*, 267 NAT'L INST. JUST. J. 4, 7-8. An additional issue, which could in the future become an eleventh point for this article's list, is the danger that U.S. development and deployment of advanced NLW might impede effective coalition operations, if allies (in NATO or elsewhere) were not similarly equipped and trained. The United States has addressed this potential issue by collaborating with NATO allies in the pursuit of NLW, but it is not clear how vigorous other countries have been in fielding the relevant capabilities. *See, e.g., Joint Non-Lethal Weapons Directorate Participates in NATO Non-Lethal Weapons Experiment and Demonstration*, U.S. DEF. DEP'T NON-LETHAL WEAPONS PROG. (Mar. 8, 2011), <http://jnlwp.defense.gov/PressRoom/MediaReleases/tabid/4778/Article/577945/joint-non-lethal-weapons-directorate-participates-in-nato-non-lethal-weapons-ex.aspx> (describing the REAL DEAL experiments run by NATO to demonstrate NLW developed by the JNLWD).

5. *International Law Impedes Use of Some NLW*

Some emerging NLW technologies—acoustic wave systems and ADS, for example—are designed to affect a large group of people simultaneously.²² The concept is to drive away or disable the faint of heart, so that armed forces can identify the real, determined troublemakers, separate them from the innocent onlookers, and deal more forcefully with the actual threats.²³ However, the law of armed conflict forbids targeting civilians, and it requires “distinction” by treating non-combatants differently from belligerents.²⁴ The application of wide-area, deliberately indiscriminate force fits uncomfortably within the law.

Likewise, the application of chemical substances, such as riot control agents or potential calmativ agents, would be barred from use in war by the 1993 Chemical Weapons Convention,²⁵ and their hypothetical use in “military operations other than war” has appropriately been circumscribed as a prudential matter. The 1972 Biological Weapons Conventions even more comprehensively bars the use of conceivable biological agents, such as microbes that could attack enemy petroleum supplies or rubber tires and gaskets.²⁶ Most

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22. See, e.g., David Greig, *The Long Range Acoustic Device: Pirate Deterrent, Crowd Controller or Soft Drink Seller?*, GIZMAG (Apr. 10, 2009), <http://www.gizmag.com/lrad-long-range-acoustic-device/11433/> (describing a 2009 incident in which a cruise ship used a Long-Range Acoustic Device, a device somewhat similar to ADS, to deter a Somali pirate attack).
 23. See Lt. Col. Erik L. Nutley, *Non-Lethal Weapons: Setting Our Phasers to Stun? Potential Strategic Blessings and Curses of Non-Lethal Weapons on the Battlefield 20* (Air War Coll. Ctr. for Strat. & Tech. Occ. Paper 34, 2003), available at <http://www.au.af.mil/au/awc/awcgate/cst/csath34.pdf> (discussing, *inter alia*, “concept exploration programs” for non-lethal weapons systems that include the U.S. Army’s “Crowd Control” system that can “dispers[e] a crowd at ranges up to 1,000 meters, and direc[t] a crowd[s] movement, separating belligerents, and isolating specific individuals within a crowd.”).
 24. See *Customary IHL Practice Relating to Rule 1. The Principle of Distinction between Civilians and Combatants*, INT’L COMM. RED CROSS [ICRC] (2015), https://www.icrc.org/customary-ihl/eng/docs/v1_rul_rule1 (discussing the history and application of the principle of distinction).
 25. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction art. I(5), *opened for signature* Jan. 13, 1993, 1974 U.N.T.S. 45.
 26. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction art. I(1), *opened for signature* Apr. 10, 1972, 1015 U.N.T.S. 163.

NLW occupy space unconstrained by these treaties, but the treaties do bear upon some of the most intriguing possibilities.²⁷

6. NLW May Make Us Tactically Too Quick on the Trigger

Sometimes, the most appropriate weapon is no weapon at all. Don't just "do something"; stand there. Talk, smile, negotiate, walk away, or just wait. By affording police or the military a less hostile alternative to traditional firepower, NLW may encourage our forces to act precipitously, when the wiser course of action might actually be self-restraint. A telling example of the value of doing nothing is the conspicuous precedent of the sheriff's department of Orange County, Fla. that equipped all of its officers with tasers. The first effect was an expected and dramatic reduction in the frequency of the officers' use of deadly force. However, the second effect was an equally dramatic increase in the incidence of use of force overall, suggesting that police officers became quicker on the trigger when the adverse consequences of shooting first, and asking questions later, were mitigated.²⁸

7. NLW May Make Us Strategically Too Prone to Foreign Interventions

At the senior political levels, the allure of NLW might lull national leaders with an illusion of cheap, bloodless military operations. They might be drawn into an engagement with the expectation that NLW could allow the intervention to remain entirely, or at least largely, safe and humane. In fact, however, any such illusion cannot be sustained. NLW are not entirely non-lethal,²⁹ and any military operation can cascade into a deadly confrontation that the country might regret. In general, any time a new technology promises to reduce the adverse consequences of a particular course of action, the public should expect to see more exercise of that course of action, even if it still turns out to be undesirable.

27. See DoD Directive 3000.03E, *supra* note 2. An additional legal consideration is the possibility that if NLW do work as well as advertised, international and domestic U.S. law might eventually require that those capabilities be exercised first in any confrontation, rather than jumping immediately to the use of lethal force. U.S. policy denies that thesis, asserting that the availability of NLW does not imply any requirement to use them first, and does not raise the threshold for the application of deadly force. *Id.*, at ¶¶ 3(g), (h). But the law may nonetheless evolve in that direction.

28. See Alex Berenson, *As Police Use of Tasers Soars, Questions Over Safety Emerge*, N.Y. TIMES (Jul. 18, 2004), <http://www.nytimes.com/2004/07/18/us/as-police-use-of-tasers-soars-questions-over-safety-emerge.html>.

29. Recognizing that no weapon can reliably be considered entirely non-lethal, the Department of Defense specifies that NLW are intended to "minimize," rather than to eliminate, fatalities and permanent injuries. DoD Directive 3000.03E, *supra* note 2, at ¶¶ 2(a)(3), 3(e).

8. *Our Use of NLW May Embolden Opponents*

When adversaries face the prospect of the U.S. military using deadly force, they will be sensibly deterred from most confrontations. If, however, they were confident that the worst consequences that might befall them would be infliction of a bruise, nausea, or pain, they may gain a reinforced will to resist.³⁰ No one would ever consider the U.S. Marine Corps or domestic SWAT teams wimpy, even if fully outfitted with NLW, but even a slight reputation for gentleness can reduce the currently fearsome power of dissuasion.

9. *NLW Technology Will Proliferate to Foreign Militaries and Be Used Against Us*

Wise military strategy has to contemplate not only the first move (such as the U.S. adoption of various NLW), but the subsequent moves as well, including the readily foreseeable adaptation by opponents. If NLW are helpful in aiding U.S. forces in accomplishing a mission, then other states may come to appreciate those virtues as well, whether now or in the future. It is far from clear that a future battlefield bristling on each side with both NLW and deadly weapons would automatically work to the advantage of the United States. In like manner, terrorists might become leading beneficiaries of a NLW revolution. Imagine how the ability to seize and hold hostages or to hijack aircraft could be augmented by some of the disabling technologies now within reach.

10. *NLW Technology Will Spread to Other Bad Actors*

The nature of technology is to spread; NLW capabilities will inevitably bleed into non-military sectors, probably sooner rather than later. Already, street criminals have been drawn to stun guns and pepper spray.³¹ Imagine what they could do with commercially available or black-market sticky foam or acoustic weapons. Another invidious market would be human rights abusers, who could see a knock-off ADS as a mechanism for inflicting excruciating pain upon political dissidents or other disfavored groups, without leaving telltale external scars that subsequent human rights monitors could detect and document.³²

30. Gilbert Geis & Arnold Binder, *Non-Lethal Weapons: The Potential and the Pitfalls*, 6 J. CONTEMP. CRIM. JUST. 1, 5 (1990).

31. See Eugene Volokh, *Nonlethal Self-Defense, (Almost Entirely) Nonlethal Weapons, and the Right to Keep and Bear Arms and Defend Life*, 62 STAN. L. REV. 199, 209.

32. See PHYS. FOR HUM. RTS., WEAPONIZING TEAR GAS: BAHRAIN'S UNPRECEDENTED USE OF TOXIC CHEMICAL AGENTS AGAINST CIVILIANS 25 (2012), available at https://s3.amazonaws.com/PHR_Reports/Bahrain-TearGas-Aug2012-small.pdf (describing the weaponized use of tear gas in Bahrain in 2012).

III. CONCLUSION

Personally, I do not believe all these critiques. I think that there are adequate, or at least partial, responses to each complaint. However, NLW advocates should be careful not to over promise about the suitability or performance of NLW. No weapon, or family of weapons, is perfect or suitable for all types of engagements. At best, NLW offers a set of alternative tools rather than a magic wand.

What should occur at this point is a more vigorous and better funded pursuit of NLW, as well as more operation and application of capabilities, such as ADS, in the field by military and police. The Department of Defense should be more ambitious in exploring NLW and bolder in fielding them. NLW deserve to be put more fully to the test in actual field operations.

I hope that this red-team analysis, and the rebuttals and counterarguments it may stimulate, will help advance the further funding, development, and deployment of NLW in police situations and armed conflicts.