

Cybernetic Enhancement of Soldiers: Conserving *hors de combat* Protections for Combatants Under the Third Geneva Convention

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INTRODUCTION

At 8:15 a.m. on August 6, 1945, the 9,700-pound nuclear bomb Little Boy fell from the belly of an American B-29 bomber and exploded 2,000 feet over the city of Hiroshima, “transform[ing] from a 10-foot-long bomb into a 1,200 foot-wide fireball hotter than the sun.”¹ It left absolute devastation in its wake: 80,000 people were killed in the attack, and thousands more would succumb to radiation exposure.² A mere three days later, Fat Man detonated above Nagasaki as the second and, to date, “the last bomb.”³ On August 10, 1945, after the nuclear

¹ William Swing & Tyler Wigg-Stevenson, *The Shame and Horror of Nuclear Weapons*, THE WEEK (Aug. 6, 2015), <http://theweek.com/articles/569555/shame-horror-nuclear-weapons>; *Little Boy and Fat Man*, ATOMIC HERITAGE FOUNDATION (July 23, 2014), <http://www.atomicheritage.org/history/little-boy-and-fat-man>; Richard Johnson & Bonnie Berkowitz, *An Illustrated History of the Hiroshima and Nagasaki Nuclear Bombs*, WASH. POST. (Aug. 5, 2015), <https://www.washingtonpost.com/graphics/world/hiroshima-nagasaki-illustrated/>.

² See *Bombing of Hiroshima and Nagasaki*, HIST. CHANNEL, <http://www.history.com/topics/world-war-ii/bombing-of-hiroshima-and-nagasaki>. Many died shortly after the attack, while some died of radiation-linked diseases decades later, often after experiencing severe social stigmatization, serious illness, disability and injury, and infertility. A young girl in Hiroshima, Kiyoko,

was the only survivor among her 400 classmates. Kiyoko was sent to live with distant family, where—like many *hibakusha*, or atom bomb survivors—she was stigmatized and ill treated. As Kiyoko grew into a young woman, Little Boy grew in her: as cancer in her pancreas, and then thyroid, and then colon: and then meningioma and unremitting pain. . . . She hoped to give birth and start a family. But Little Boy would not allow it. Miscarriage followed miscarriage.

Swing & Wigg-Stevenson, *supra* note 1.

³ Alex Wellerstein, *Nagasaki: The Last Bomb*, NEW YORKER (Aug. 7, 2015), <http://www.newyorker.com/tech/elements/nagasaki-the-last-bomb>.

attacks and the Soviet Union's declaration of war on the country, Japanese Emperor Hirohito announced an unconditional surrender, seeking to "pave the way for a grand peace for all the generations to come by enduring the unendurable and suffering what is insufferable" at the hands of "a new and most cruel bomb."⁴

The secretive Manhattan Project behind the development and creation of the atomic bombs combined renowned scientists and the U.S. military to develop "an entirely new kind of weapon."⁵ The "destructive birth of the nuclear age" was a paradigm shift in war, ushering in the conditions ripe for a nuclear arms race and the Cold War, the Cuba Missile Crisis, the military strategy doctrine of mutually assured destruction, nuclear non-proliferation, and generations plagued with anxiety, stress, and fear.⁶ Nuclear weapons are now cornerstones in states' foreign and national security policies, and news coverage of North Korea's attempts to launch an intercontinental ballistic missile underscores widespread fear of a nuclear "Third World War."⁷

From the controversial integration of crossbows in the twelfth century to the advent of cyber warfare, advances in technology have long irrevocably impacted the conduct of war.⁸ As exemplified by the Manhattan Project, paradigmatic technological advancements are

⁴ Johnson & Berkowitz, *supra* note 1; *Bombing of Hiroshima and Nagasaki*, *supra* note 2.

⁵ *Manhattan Project Background Information and Preservation Work*, DEP'T OF ENERGY: OPERATIONAL MGMT., <https://www.energy.gov/management/office-management/operational-management/history/manhattan-project>.

⁶ See, e.g., NUCLEAR TIPPING POINT (Nuclear Threat Initiative 2010).

⁷ See, e.g., EMMA CHANLETT-AVERY ET AL., CONG. RESEARCH SERV., CRS REPORT NO. R41259, NORTH KOREA: U.S. RELATIONS, NUCLEAR DIPLOMACY, AND THE INTERNAL SITUATION (2018), <http://fas.org/sgp/crs/nuke/R41259.pdf>; see also REPORT ON NUCLEAR EMPLOYMENT STRATEGY OF THE UNITED STATES SPECIFIED IN SECTION 491 OF 10 U.S.C., DEP'T OF DEF. (2013); Senator Barack Obama, Speech in Berlin (July 24, 2008) (transcript available at <http://www.nytimes.com/2008/07/24/us/politics/24text-obama.html>). Sam Nunn, *On Nuclear Weapons, Nations Must Cooperate to Avoid Catastrophe*, WASH. POST. (May 26, 2016), https://www.washingtonpost.com/opinions/on-nuclear-weapons-nations-must-cooperate-to-avoid-catastrophe/2016/05/26/f5af4c4c-21e0-11e6-9e7f57890b612299_story.html;

⁸ See Hitoshi Nasu & Robert McLaughlin, *Introduction: Conundrum of New Technologies in the Law of Armed Conflict*, in NEW TECHNOLOGIES AND THE LAW OF ARMED CONFLICT 1, 3 (Hitoshi Nasu & Robert McLaughlin eds., 2014).

frequently driven by the desires of a state's military and national security interests. Today, there is significant discussion on the use and development of lethal autonomous weapons systems (LAWSs) and the increasingly prevalent use of unmanned aerial vehicles (UAVs) in conflict zones reducing the "human cost" of war.⁹ Yet, there is also a less-discussed parallel thread to these developments that many fear, and some hope, will "dehumanize" armed conflict.¹⁰

Eyes are turning towards developments in the neurosciences to explore how human soldiers may be physically "enhanced" to perform better, and even recover from, military operations. Enhancements can take many forms, and, indeed, soldiers have always been outfitted with armor and weapons to be "beyond" humans.¹¹ Yet, what would it look like if the line between weapon and soldier blurred? What if soldiers were enhanced with exoskeletons to improve their strength; equipped with devices and prosthetics to enable faster healing; if their basic fears and needs were alleviated through chemical treatment; or if they were implanted with brain-machine interfaces to *be*, and not just *use*, a technological weapon? Such radical advancements are not just dreams, but actively pursued realities by people and entities interested in their military application.¹²

⁹ See AUTONOMOUS WEAPONS SYSTEMS: LAW, ETHICS, POLICY (Nehal Bhuta et al. eds., 2016); see generally Oren Gross, *The New Way of War: Is There a Duty to Use Drones?*, 67 FL. L. REV. 1, 1–71 (2015);.

¹⁰ See Markus Wagner, *The Dehumanization of International Humanitarian Law: Legal, Ethical, and Political Implications of Autonomous Weapons Systems*, 47 VAND. J. TRANSNAT'L L. 1371 (2014); Theodor Meron, *The Humanization of Humanitarian Law*, 94 AM. J. INT'L L. 239 (2000).

¹¹ Of course, claims of legendary battles of Celtic warriors fighting completely naked are an exception. See Fiona Keating, *The Ancient Celts: Bloodthirsty Naked Warriors or Lovers of Fine Arts?*, INT'L BUS. TIMES (Oct. 3, 2015), <http://www.ibtimes.co.uk/ancient-celts-bloodthirsty-naked-warriors-lovers-fine-arts-1522007>.

¹² The Neural Engineering System Design (NESD) research program being developed by the U.S. Defense Advanced Research Projects Agency (DARPA) "aims to increase brain neuron interaction from tens of thousand to millions at a time." Anthony Cuthbertson, *U.S. Military Plans Cyborg Soldiers with New DARPA Project*, NEWSWEEK (Jan. 21, 2016, 9:20 AM), <http://europe.newsweek.com/us-military-plans-cyborg-soldiers-new-darpa-project-418128?rm=eu>; see generally *Bridging the Bio-Electronic Divide: New Effort Aims for Fully Implantable Devices Able to Connect With up to One Million Neurons*, DARPA (Jan. 19, 2016), <http://www.darpa.mil/news-events/2015-01-19>.

A baseline example is the U.S. military's successfully testing of electrical brain stimulation to improve the effectiveness of drone pilots in high-pressure situations.¹³ The Pentagon's Defense Advanced Research Projects Agency (DARPA) has several initiatives to enhance soldiers' normal capabilities as part of a comprehensive war strategy. The agency is currently looking into brain prosthetics to allow soldiers with surgically implanted brain chips to perform tasks beyond the realm of the "human" and into that of a machine: such chips would make possible network-enabled telepathy, the transmission and receipt of data from GPS and drones, and the remote control of weaponry and drones via thought.¹⁴

Developments in neuroscience and bioengineering to make enhanced soldiers beyond the physical and mental capabilities of human bodies may sound reminiscent of the classic stories of Isaac Asimov and Philip K. Dick; yet, "we have to remember that pretty much everything we not take for granted sounded like fiction at some point, whether it was the fantastic dreams of mechanical flying beasts to the absurd concept of talking to someone on the other side of the world."¹⁵ Such advancements are likely to be a revolution in military affairs¹⁶ and, consequently, alter the conduct of warfare as well as the ability of current legal regimes to effectively cover the harms capable of occurring in those spaces.

¹³ Ian Sample, *US Military Successfully Tests Electrical Brain Stimulation to Enhance Staff Skills*, GUARDIAN (Nov. 7, 2016, 12:48 PM), <https://www.theguardian.com/science/2016/nov/07/us-military-successfully-tests-electrical-brain-stimulation-to-enhance-staff-skills>.

¹⁴ Sharon Gaudin, *DARPA: We're on the Cusp of Merging Human and Machine*, IT WORLD (Feb. 13, 2017) <http://www.itworld.com/article/3168840/artificial-intelligence/darpa-we-re-on-cusp-of-merging-human-and-machine.html>.

¹⁵ P.W. SINGER, WIRED FOR WAR: THE ROBOTICS REVOLUTION AND CONFLICT IN THE TWENTY-FIRST CENTURY 41 (2009); see PHILIP K. DICK, DO ANDROIDS DREAM OF ELECTRIC SHEEP? (1968); see also PHILIP K. DICK, UBIK (1969); ISAAC ASIMOV, I, ROBOT (1950).

¹⁶ See Ronald Arkin, *Lethal Autonomous Systems and the Plight of the Non-Combatant*, 137 AISB Q. 4, 5 (2013).

Further, the emergence of the concept of “cyborgs”¹⁷, a “hybrid of machine and organism,”¹⁸ raises profound questions about what it means to be human and whether the interface of human brains with machines is merely an enhancement of humans or whether it leads to the creation of a new, post-human species.¹⁹

Given the fact that the first super-enhanced humans, or cyborgs, will likely appear on the battlefield, it is imperative to explore how these technological advancements will comport with the laws of armed conflict (LOAC). The often-proffered justification for the development of enhancements is protective, not offensive: many argue that these enhancements will provide greater protection to soldiers engaged in the inherently dangerous hostilities of warfare.²⁰ However, an analysis of

¹⁷ Engineer Elon Musk has stated that, eventually, “we must all be cyborgs” and humans will “need to digitally enhance our brains if we are to remain relevant in a future filled with artificial intelligences.” WIRED Staff, *Elon Musk: We Must All be Cyborgs*, WIRED (Feb. 14, 2017), <https://www.wired.de/collection/tech/elon-musk-wir-muessen-alle-cyborgs-werden>. Musk is currently working on human-computer communication through neural lace woven into the brain. See Rima Sabina Aouf, *Humans Need to Become Cyborgs to Survive, Says Elon Musk*, DAZEEN (Feb. 15, 2017), <https://www.dezeen.com/2017/02/15/elon-musk-humans-become-cyborgs-survive-artificial-intelligence-technology-news>. Musk elaborated:

Over time I think we will probably see a closer merger of biological intelligence and digital intelligence . . . It's mostly about the bandwidth, the speed of the connection between your brain and the digital version of yourself, particularly output.

. . . .

While any such technology is still conceptual, it can be seen as an extension of contemporary prosthetics that are able to be controlled via electrical signals from the brain.

Id.

¹⁸ See DONNA HARAWAY, *A CYBORG MANIFESTO: SCIENCE, TECHNOLOGY, AND SOCIALIST-FEMINISM IN THE LATE TWENTIETH CENTURY* 149 (1984).

¹⁹ See generally MICHAEL BESS, *OUR GRANDCHILDREN RESDESIGNED: LIFE IN THE BIOENGINEERED SOCIETY OF THE FUTURE* (2016) (discussing how advances in bioelectronics and genetic interventions will “boost human physical and mental performance to unprecedented levels.”).

²⁰ See Hitoshi Nasu, *Nanotechnology and the Law of Armed Conflict*, in *NEW TECHNOLOGIES AND THE LAW OF ARMED CONFLICT* 143, 146 (Hitoshi Nasu & Robert McLaughlin eds., 2014), for a detailed discussion:

the ripple effects of the introduction and integration of such enhancements demonstrate the possibility of eroding some of the most important protections codified for soldiers in conflict: those that come with being a prisoner of war (POW).

POW status is a fundamental protection that was codified by the Third Geneva Convention relative to the Treatment of Prisoners of War (or “GCIII”).²¹ GCIII delineates the rights of POWs not to be killed, mistreated, or abused, prefaced upon a desire to protect those *hors de combat*, or “outside the fight” and no longer participating in hostilities. Soldiers who are enhanced with surgically implanted brain chips may be considered to be *fused* or unreasonably *unseverable* from their weapons and, consequently, unable to truly be *hors de combat* given their likely constant and remote access to the battlefield.

At a rhetorical level, it is also necessary to consider what occurs at the intersection of humanitarian impulses along the seismic fault lines beneath current conceptions of what it means to be a human, and, as such, who humanitarian law seeks to protect. Against the backdrop of an emerging post-human culture, the definition of “human” may become increasingly fluid and could call into question the coverage of enhanced soldiers by LOAC at all.

This Article argues that the cybernetic enhancement of soldiers will pierce serious legal lacunae through the mask of *hors de combat* statuses under LOAC and GCIII and further argues that an additional

[T]he fact that the weapons development programmes are by and large driven by the “needs” of troops are perceived from their past and present experiences (for example, greater situational awareness and improved explosive device (IED) detectors) In light of those practical constraints, military applications of nanotechnology are primarily found in the enhancement of existing military capabilities: for example, soldier survivability with the development of lighter, stronger and heat resistant armour and clothing; troop mobility with miniaturization of communication devices and more efficient energy storage and generation; maneuverability with greater precision targeting sensors; enhanced optical camouflaging; and focused force application.

²¹ Geneva Convention (III) Relative to the Treatment of Prisoners of War, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135; *see generally* Derek Jinks, *The Declining Significance of POW Status*, 45 HARV. INT’L L.J. 367, 368 (2004) (citation omitted) (“Conventional wisdom maintains that denial of POW status to captured combatants has drastic consequences for the scope of applicable humanitarian protections. Indeed, the prevailing view is that denying captured enemy combatants POW status places them ‘at the mercy of the detaining power.’”).

Geneva Convention is necessary to address the incoming revolution in military affairs.²² Part I begins with the development of LOAC and elaborates on POW protections under the GCIII and *hors de combat* status determinations. Part II explores brain-computer interfaces (BCI) as emerging technologies seeking to outfit soldiers to enhance their abilities beyond the “human.” Next, Part II introduces “the emergence of a creature known as the cyborg,” as well as the thickening mist of post-humanism surrounding our interactions with technology.²³ Part III then explores how BCIs fused with soldiers, and specifically DARPA’s proposed brain chips to make possible network-enabled telepathy and cerebral control of UAVs, would erode rather than bolster protections and lead to denials of POW status under the GCIII for captured or surrendering combatants. Part III closes by examining how these issues may be exacerbated against the linguistic and rhetorical challenges of post-humanism. Last, Part IV proposes plans for an additional Geneva Convention to address technology, including cybernetic enhancement, as a revolution in military affairs.

I. THE LAW OF ARMED CONFLICT: PROTECTIONS FOR COMBATANTS

This Part will trace the development of the law of armed conflict and explain the protections specifically provided to prisoners of war under the Geneva Conventions. Section A will discuss the impetus for and the development of international humanitarian law and how it underpins modern LOAC protections. Section B will discuss the law around POW protections, specifically GCIII and the requirements.

²² This Article will not explore many important issues, including the ethics of soldier advancements and enhancement, nor will it discuss autonomous weapons systems and robots, or the use of artificial intelligence. *But see* Stephen Coleman, *Ethical Challenges of New Military Technologies*, in *NEW TECHNOLOGIES AND THE LAW OF ARMED CONFLICT* 29, 30–41 (Rob McLaughlin & Hitoshi Nasu, eds., 2014) (considering intersection of just war theory and new military technologies related to the *jus in bello* and *jus ad bellum* phases of conflict); OWEN D. JONES, ET AL., *LAW AND NEUROSCIENCE* 673 (2014) (citing Karim Jebari, *Brain Machine Interface and Human Enhancement—An Ethical Review*, 6 *NEUROETHICS* 617, 617 (2013)); Stephen S. Wu & Marc Goodman, *Neural Implants and Their Legal Implications*, 30 *GPSOLO*, no. 1, Jan./Feb. 2013, at 68 (discussing privacy and autonomy risks).

²³ P.W. SINGER, *supra* note 15, at 380.

Last, Section C will explore the significance of the terminology used to refer to the body of law that regulates armed conflict spaces.

A. Development of the Laws of Armed Conflict

LOAC and its precursors are deeply entrenched in history. The temptation to follow Greek philosopher Cicero's quote, "*inter arma sine leges*", or, "in the time of war, laws are silent," has been resisted for centuries across the world. An ancient Sanskrit poem the *Mahabharata*, reflecting Hindu beliefs, stated, "a King should never do such injury to his foe as would rankle the latter's heart[]" while Sun Tzu's work in the sixth century advised the proper treatment of captured chariot soldiers.²⁴ Codes of chivalry guided the waging of war by knights during the European feudal period through the duty to act honorably at all times, including during war.²⁵ Political theorist Michael Walzer reflects on Thucydides' *History of the Peloponnesian War* and the need for justification as embodied in the moral doctrine of just war theory, demonstrating the cultural desire to tether war and morality together.²⁶ In addition, the allusion to moral virtue in great literature, from Homer's *Iliad* to Shakespeare's *Battle of Agincourt*, underscores it is "sufficient for us to note that warfare has been infused with some moral concerns from the beginning rather than war being a mere Macbethian bloodbath."²⁷

Yet, it was not until the nineteenth century that international treaties addressing the worst excesses of war emerged. Henry Dunant, a Swiss businessman, observed the infamous 1859 Battle of Solferino during Austria's war against Piedmont and France.²⁸ As was common

²⁴ GARY SOLIS, *THE LAW OF ARMED CONFLICT* 4–5 (2d. ed. 2016)

²⁵ *Id.* at 5.

²⁶ MICHAEL WALZER, *JUST AND UNJUST WARS* (1977);

²⁷ Alexander Moseley, *Just War Theory*, IEP, <http://www.iep.utm.edu/justwar>; HOMER, *ILIAD*; WILLIAM SHAKESPEARE, *HENRY V.*

²⁸ See SOLIS, *supra* note 24, at 51, for a discussion of the "significant battle in an insignificant war":

"[O]n June 24, 1859, the Battle of Solferino was fought alongside the Mincio River, in Lombardy, not far from Milan and Verona. In a battle involving more than 200,000 troops, the Piedmont/French force, commanded by Napoleon, defeated the Austrian force, led by the youthful Emperor Franz-Josef. Although

practice, wounded soldiers were often left to die on the battlefields. Dunant was “horried at the sight of the untended wounded and their pitiful cries.”²⁹ In addition to attempting to alleviate suffering and tend to their wounds, he wrote *A Memory of Solferino* depicting the horrors he witnessed that day, leading to a “worldwide political arousal” and a “consensus that something had to be done.”³⁰ Three years later, he formed the precursor to the International Committee of the Red Cross (ICRC), which “dedicated itself to establishing guidelines for the protection and care of the wounded” and, eventually, led to the first 1864 Geneva Convention.³¹ From then on, conferences, conventions, and declarations proliferated to outlaw weapons that cause unnecessary suffering, to codify customary battlefield practices with penalties for violations, and even to denunciate the waging of war itself.³²

The horrors of the Second World War and the atrocity crimes committed against civilians and POWs³³ lead to the realization by

numbers differ from account to account, there were roughly 17,200 French casualties and 22,000 Austrian—more dead and wounded than in any European battle since Waterloo.

²⁹ *Id.* at 51.

³⁰ *Id.* at 52.

³¹ *Id.* at 53.

³² The St. Petersburg Declaration of 1868 condemning the use of explosive projectiles, “was the first international agreement in which the use of a weapon developed through advances in technology was banned on humanitarian grounds.” *Id.* at 53–54; see generally General Treaty for the Renunciation of War as an Instrument of National Policy (Kellogg–Briand Pact), 46 Stat. 2343, 94 L.N.T.S. 57, July 24, 1929; Convention (IV) Respecting the Laws and Customs of War on Land and its Annex, 36 Stat. 2277 (entered into force Jan. 26, 1910),

³³ See SOLIS, *supra* note 24, at 51, for a detailed discussion of the issue:

“Calamitous events and atrocities have repeatedly driven the development of international humanitarian law. The more offensive or painful the suffering, the greater the pressure for accommodating humanitarian restraints.” The treatment of wounded captives by both former enemy states demonstrated a need for the strengthening of the 1929 convention regarding protection of the wounded; the unacceptable treatment of POWs, including medical experimentation, mandated a stronger regime of protections for POWs; the grievous loss of civilian lives and properly demonstrated a need for a new convention that protected civilians.

states and the ICRC³⁴ of the need for strengthening the inchoate legal regimes regulating the conduct of war. These insights culminated in the creation of the four 1949 Geneva Conventions seeking to enhance the protection of those *hors de combat*, including the wounded, sick, captured, surrendered, and, of course, civilians. The Geneva Conventions now form the “cornerstone of LOAC,”: Geneva Convention (I) for the Amelioration of the Condition of Wounded and Sick in Armed Forces in the Field (GCI); Geneva Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea (GCII); Geneva Convention (III) Relative to the Treatment of Prisoners of War (GCIII); and Geneva Convention (IV) Relative to the Protection of Civilian Persons in Time of War (GCIV).³⁵

Yet, the longevity and continued applicability of those Conventions were questioned as the means and methods of conflict evolved through to the 1970s into guerrilla warfare, insurgencies, internal armed conflicts, and national liberation movements.³⁶ In fact, “[w]ars involving two or more states were seen less frequently, whereas non-international armed conflicts grew in number and ferocity.”³⁷

³⁴ Since its conception, the ICRC has served as a “guardian of the treaties” of IHL to enforce and develop norms on protecting those *hors de combat*, such as civilians, wounded, sick and shipwrecked soldiers, those who have surrendered, and POWs. See P.W. SINGER, *supra* note 15, at 382–83.

³⁵ The 1949 Geneva Conventions are “the most ratified treaties in the history of the world. . . . If for some reason a new state were not to join the conventions by accession, in many respects it nevertheless will be bound by the conventions because many of their provisions, particularly those addressing basic human rights, are by now customary law, accepted by and binding on every state.” SOLIS, *supra* note 24, at 88; see, e.g., Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (First Geneva Convention), Aug. 12, 1949, 6 U.S.T. 3114, 75 U.N.T.S. 31; Geneva Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea (Second Geneva Convention), Aug. 12, 1949, 6 U.S.T. 3217, 75 U.N.T.S. 85; Geneva Convention Relative to the Treatment of Prisoners of War (Third Geneva Convention), Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135; Geneva Convention Relative to the Protection of Civilian Persons in Time of War (Fourth Geneva Convention), Aug. 12, 1949, 6 U.S.T. 3516, 75 U.N.T.S. 287.

³⁶ SOLIS, *supra* note 24, at 128–29.

³⁷ *Id.* at 128.

LOAC was “ripe for updating”³⁸ and states, with influence from some national liberation groups,³⁹ wrote and ratified two protocols to supplement the 1949 Geneva Conventions to better map onto the types of conflicts that were actually occurring rather than ones envisioned by the original writers of the post-World War II Conventions.⁴⁰ These were the 1977 Geneva Protocol I Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (API); and the 1977 Geneva Convention II Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (APII).⁴¹ One of the most significant spaces the Geneva Conventions sought to regulate has been one of the most historically horrific: conditions and treatment of captured soldiers in prisoner of war camps.

B. Prisoners of War Protections

LOAC depends upon statuses; whether or not a conflict is international or non-international has serious consequences on the rights afforded to the parties of the conflict. In addition, whether someone falls under the status of civilian or combatant is a determinative of his or her privileges and protections. The “defining distinction” of the lawful combatant is twofold: first, a lawful combatant has the “combatant’s privilege” to kill, in certain circumstances, without prosecution or penalty.⁴² Second, upon capture

³⁸ *Id.* at 129.

³⁹ The Palestine Liberation Organization (PLO), Irish Republican Army (IRA), African National Congress (ANC), and Algeria’s Front de Libération Nationale (FLN) were not given a vote, but they had a seat at the table and exerted influence in the negotiations of the Additional Protocols. *Id.*

⁴⁰ *Id.* at 130.

⁴¹ Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), June 8, 1977, 1125 U.N.T.S. 3; Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), June 8, 1977, 1125 U.N.T.S. 609.

⁴² SOLIS, *supra* note 24, at 46; see Heather Harrison Dinniss, *Participants in Conflict – Cyber Warriors, Patriotic Hackers and the Laws of War*, in

in a Common Article 2 international conflict, a lawful combatant is entitled to the status of POW and the protections that come with it.

Combatants are lawful targets for enemy forces. Yet, there are some exceptions, including when a soldier is rendered *hors de combat*. Then, the justification for killing a combatant under the combatant's privilege dissipates. Being *hors de combat* includes various scenarios: when "he [the soldier] is the power of an adverse party"; "he clearly expresses an intention to surrender"; or "he has been rendered unconscious or is otherwise incapacitated by wounds or sickness, and therefore incapable of defending himself."⁴³ The clearest intention of surrender is the indicated separation of a soldier from his or her weapon—through "laying down one's weapons and raising one's hands."⁴⁴

POW status is "one of the most valuable rights of combatants under the Law of War."⁴⁵ POWs are not held captive for engaging in the war—rather, they are held by enemy forces to keep them *hors de combat* and prevent them from returning to the fight.

The Third Geneva Convention (GCIII) delineates the rights and 163 protections that come with POW status emanating from a long-standing tradition of a desire to protect soldiers detained by enemy forces. Articles 13–14 and 16 specify that "prisoners of war must not be subjected to torture or medical experimentation and must be protected against acts of violence, insults and public curiosity."⁴⁶

INTERNATIONAL HUMANITARIAN LAW AND THE CHANGING TECHNOLOGY OF WAR 251, 252–78 (Dan Saxon, ed., 2013).

⁴³ SOLIS, *supra* note 24, at 573.

⁴⁴ *Id.* at 575.

⁴⁵ *Id.* at 201. The concept POW protections emerged from a long tradition, beginning with Sun Tzu in the sixth century leading up to Francis Lieber in the nineteenth century. The Lieber Code, guidelines and regulations for the means and methods of conducting warfare, was utilized by the Union Army under President Abraham Lincoln's General Order 100. It summarizes POW protections as follows: "A prisoner of war is subject to no punishment . . . nor is any revenge wreaked upon him by the intentional infliction of any suffering, or disgrace, by cruel imprisonment . . . death or any other barbarity. . . . Prisoners of war are subject to confinement or imprisonment such as may be deemed necessary on account of safety, but they are to be subjected to no other intentional suffering or indignity." *Id.* at 204.

⁴⁶ Third Geneva Convention, *supra* note 35; see AM. RED CROSS, SUMMARY OF THE 1949 GENEVA CONVENTIONS AND THEIR ADDITIONAL PROTOCOLS (2011),

Articles 25 through 27, and 30, prescribe that “captors must not engage in reprisals or discriminate on the basis of race, nationality, religious beliefs, political opinions or other criteria.”⁴⁷ Articles 50 and 54 entail:

POWs [] be housed in clean, adequate shelter, and receive the food, clothing and medical care necessary to maintain good health. They must not be held in combat areas where they are exposed to fire, nor can they be used to “shield” areas from military operations. They may be required to do non-military jobs under reasonable working conditions when paid at a fair rate.⁴⁸

Finally, Article 118 requires that “[w]hen the conflict ends, all POWs shall be released and, if they request, be sent home without delay.”⁴⁹ The effect of API was to augment some of the requirements for POW qualifications in an attempt to cover more combatants under its umbrella. Indeed, Article 44.4 of API stated that: “a combatant who falls into the power of an adverse Party while failing to meet the requirements... shall forfeit his right to be a prisoner of war, but he shall, nevertheless, be given protection equivalent in all respects for those accorded to prisoners of war.”⁵⁰

In summary, POWs are not to be abused or mistreated, and, upon end of the war, are to be released immediately.⁵¹ Importantly, a POW may never lawfully be killed so long as he or she “abstains from any hostile act and does not attempt to escape”⁵² because “POWs are confined only to keep them from returning to further fighting.”⁵³

Yet, throughout history, before and after the ratification of GCIII, prisoners of war have been murdered, mistreated, and seriously

https://www.redcross.org/images/MEDIA_CustomProductCatalog/m3640104_IHL_SummaryGenevaConv.pdf [hereinafter RED CROSS SUMMARY].

⁴⁷ Third Geneva Convention, *supra* note 35, arts. 25–27, 30.

⁴⁸ *Id.* arts. 50, 54; *see* RED CROSS SUMMARY, *supra* note 46.

⁴⁹ Third Geneva Convention, *supra* note 35, arts. 82, 84; *see* RED CROSS SUMMARY, *supra* note 46.

⁵⁰ Protocol I, *supra* note 41, art. 44; *see* SOLIS, *supra* note 24, at 136.

⁵¹ SOLIS, *supra* note 24, at 46. POWs may be tried for unlawful acts they committed either in conflict or in captivity, however. No support for this on page of source cited. *See id.*

⁵² *Id.* at 575.

⁵³ *Id.* at 204.

abused physically, sexually, and mentally. In modern history, egregious treatment of soldiers is evident from the notorious Andersonville in the American Civil War⁵⁴ to concentration camps in Bosnia and Serbia during the Bosnian War.⁵⁵ The Second World War, the conflict immediately preceding the Geneva Conventions, was rampant with mistreatment of POWs. For instance, Germany's treatment of Soviet Union POWs "violated every standard of warfare."⁵⁶ As Holocaust historian Doris Bergen describes how "[d]eath came in various ways to the more than three million Soviet POWs who died in German hands."⁵⁷ In Majdanek, Soviet POWs were often murdered in cold blood; in Gross-Rosen, sixty-five thousand Soviet inmates died after being fed nothing but a soup consisting solely of grass, water, and salt; in Flossenbug, they were burned alive.⁵⁸

⁵⁴ The military prison Camp Sumter, known as Andersonville, was "the deadliest landscape of the [American] Civil War. Of the 45,000 Union soldiers imprisoned [there], nearly 13,000 died." *Camp Sumpter / Andersonville Prison*, NAT'L PARK SERV., https://www.nps.gov/ande/learn/historyculture/camp_sumter.htm (last updated Apr. 14, 2015).

⁵⁵ The International Criminal Tribunal for the Former Yugoslavia (ICTY) prosecuted several individuals for murder and physical and sexual abuse committed against individuals held in detention camps during the Bosnian War. *See, e.g.*, Prosecutor v. Tadić, Case No. IT-94-I-A, Judgment on Appeal (Int'l Crim. Trib. for the former Yugoslavia July 15, 1999) (convening the first international criminal trial for wartime sexual violence committed against men); *see also Landmark Cases: Dusko Tadić*, INT'L CRIM. TRIB. FR. YUGOSLAVIA, <http://www.icty.org/en/features/crimes-sexual-violence/landmark-cases>. Many other wars saw serious mistreatment of captured individuals who were not POWs because their situations did not adhere to formal requirements for the status, such as non-international conflicts or insurgencies. While these individuals are sometimes granted equivalent protections, they are not formally considered prisoners of war. *See generally* ERIC FAIR, CONSEQUENCE: A MEMOIR (2016).

⁵⁶ DORIS L. BERGEN, WAR AND GENOCIDE: A CONCISE HISTORY OF THE HOLOCAUST 161 (2d ed. 2009).

⁵⁷ *Id.* at 162. POWs were killed on a massive scale: "between [] June 1941, and the end of the war, Germans took approximately 5.7 million Red Army soldiers prisoner . . . [today there are] 3.3 million—57 percent—unaccounted for. They were dead." *Id.* "German authorities viewed Soviet POWs as a particular threat, regarding them not only as Slavics and 'Asiatic' inferiors but as part of the 'Bolshevik menace,' linked in their minds to some imaginary Jewish conspiracy. No mercy was to be shown to Soviet prisoners." *Id.* at 163.

⁵⁸ *Id.* at 204.

Disturbingly, “[i]n Austria, so many POWs were killed that people living near the camp complained about pollution of their water supply; for days the rivers and streams of the area ran red with blood.”⁵⁹

States as well as non-state actor groups involved in the negotiations of the Geneva Conventions and their Additional Protocols specifically sought to inject strengthened protections to prevent the recurrence of the atrocities committed against combatants in the hands of enemy forces.

C. *International Humanitarian Law*

The strengthening undercurrent of humanitarianism in the regulation of warzones has been reflected in the name of the body of law itself, as the term “international humanitarian law” to refer to LOAC proliferates.⁶⁰ International humanitarian law (IHL), sometimes referred to as the “fraternal twin” of LOAC,⁶¹ is an umbrella term for those international laws seeking to “mitigate the human suffering caused by war” and, consequently humanize the waging of war and armed conflict.⁶² Word choice is highly relevant to application of law.⁶³ As international legal scholar Theodor Meron points out, using the term IHL is a significant because “it [] represents . . . the profound influence of human rights.”⁶⁴

IHL, like LOAC, is an attempt to stem the worst excesses of war and “achieve an equitable balance between humanitarian requirements and the necessities of war.”⁶⁵ Both refer to the body of law consisting of international treaties and customary international law seeking to protect individuals and provide an “oasis of humanity”⁶⁶

⁵⁹ *Id.* at 205.

⁶⁰ SOLIS, *supra* note 24, at 24.

⁶¹ *Id.*

⁶² *Id.*

⁶³ “[S]emantics are important and perhaps nowhere more so than in the study of the law, whether domestic or international.” *Id.* at 21–22 (citation omitted). While most military references use the term “law of armed conflict” “IHL’s invocation is widespread and growing, particularly in civilian and academic circles.” *Id.* at 24.

⁶⁴ *Id.*

⁶⁵ Dan Saxon, *Introduction to INTERNATIONAL HUMANITARIAN LAW AND THE CHANGING TECHNOLOGY OF WAR* 1, 2 (Dan Saxon, ed., 2013).

⁶⁶ SOLIS, *supra* note 24 at 24 (citation omitted).

within international armed conflicts and in non-international armed conflicts.⁶⁷

The term is deeply significant, as it utilizes the term “human” not only in its name, but in its mission: the “humanitarian” law to “humanize” the space many consider to be “hell.”⁶⁸ But, of course, evident in the language itself, “[t]he efforts of IHL to promote the ‘humanization of war’ presuppose that the war’s protagonists—soldiers, military officers, civilian superiors and insurgents—are human.”⁶⁹ Such may not always be the case.

II. EMERGING TECHNOLOGY: BRAIN-COMPUTER INTERFACES AND (POST)HUMAN SOLDIERS OF THE FUTURE

This Part will explore both emerging technologies and the creation of cyborgs as well as how those technologies are couched in a post-human context. Section A will discuss cognitive enhancement via brain-computer interfaces (BCI) and will explore the types of BCIs being explored for development by DARPA for military application. Section B will discuss the emerging rhetorical context of posthumanism in society and how that contributes to the notion of enhanced individuals as “cyborgs.”

A. Brain-Computer Interfaces

Breakthroughs in neuroscience have imparted deeper knowledge on the inner workings of our brains and these advances have

⁶⁷ See *id.* But, “[t]he melding of battlefield laws and humanitarian goals is not without its critics. Jean Pictet, editors of the Geneva Convention *Commentaries*, wrote that IHL has been “contaminated”: ‘A possible disadvantage of the term [IHL] is that it could be thought to exclude some parts of the laws of war (such as the law on neutrality) whose primary purpose is not humanitarian. Indeed, the term ‘international humanitarian law’ could be seen as implying that the laws of war have an exclusively humanitarian purpose, when their evolution has in fact reflected various practical concerns of states and their armed forces on grounds other than those which may be considered humanitarian.’” *Id.* at 25 (citing JEAN S. PICTET, INTERNATIONAL HUMANITARIAN LAW 3 (1985)).

⁶⁸ See *William Tecumseh Sherman Quotes*, AM. CIVIL WAR STORY, <http://www.americancivilwarstory.com/william-tecumseh-sherman-quotes.html>.

⁶⁹ Saxon, *supra* note 65, at 2.

enabled researchers and bioengineers to develop treatments for some of the most debilitating conditions resulting from trauma and disease, including through cognitive enhancement. Cognitive enhancement is the “the amplification or extension of core capacities of the mind through improvement or augmentation of internal or external information processing systems.”⁷⁰ Neuroprosthetic enhancement, an active “new discipline at the boundary of neuroscience and biomedical engineering,”⁷¹ can connect devices with neural circuits to either functionally improve degenerative diseases⁷² or disabilities emanating from an abnormal system as a way to “make a human whole.” Some in this field perceive “making a human whole” as the ethical limit to such enhancements.⁷³

Yet, many others envision and are developing enhancements that provide “additional capability” to an already “normal” human brain to make them something “more.”⁷⁴ Neuroscience and bioengineering are finding new ways to fuse and connect our brains with computers and technology: “External hardware and software

⁷⁰ Nick Bostrom & Anders Sandberg, *Cognitive Enhancement: Methods, Ethics, Regulatory Challenges*, in LAW AND NEUROSCIENCE 635 (Owen D. Jones et al. eds., 2014).

⁷¹ OWEN D. JONES, ET AL., LAW AND NEUROSCIENCE 669 (2014).

⁷² *Id.* at 667–68 (discussing Jan Scheurmann, the paralyzed writer with spinal cerebellar degeneration who, after permitting implantation of an array of electrodes in her motor cortex, was capable of controlling a robot arm to reach and grasp).

⁷³ See e.g., *The Medtronic Mission*, MEDTRONIC, <http://www.medtronic.com/us-en/about/mission.html> (stating its mission is “to contribute to human welfare by application of biomedical engineering in the research, design, manufacture, and sale of instruments or appliances that alleviate pain, restore health, and extend life”).

⁷⁴ LAW AND NEUROSCIENCE, *supra* note 71 at 636. “[Such processes] may be labeled as ‘conventional’ means of enhancing cognition. They are often well established and culturally accepted. By contrast, methods of enhancing cognition through ‘unconventional’ means, such as ones involving deliberately created nootropic drugs, gene therapy, or neural implants, are nearly all to be regarded as experimental at the present time.” *Id.* at 669; Parag G. Patil & Dennis A. Turner, *The Development of Brain-Machine Interface Neuroprosthetic Devices*, 5 NEUROTHERAPEUTICS 137 (2008), *reprinted in* LAW AND NEUROSCIENCE, *supra* note 71, at 671 (“Neuroprosthetic enhancement may take the form of functional improvement in a disease state in which residual function is below norm or an abnormal symptom arises, or of functional augmentation of the normal state where additional capability is desired.”).

supports now routinely give human beings effective cognitive abilities that in many respects far outstrip those of biological brains.”⁷⁵

Many technological developments are often intricately intertwined with the desires and needs of militaries.⁷⁶ The “ever expanding capacity to employ evolving technology in warfare” is highly salient to the means and methods utilized during conflict by warring parties and, consequently, the application of technology in conflict spaces has drastically increased.⁷⁷ BCIs “will... create

⁷⁵ LAW AND NEUROSCIENCE, *supra* note 71, at 636. Another DARPA proposal involves biological vision devices to enhance soldiers’ vision and elevate visual sensory information akin to that of magnified binoculars. *See* Ivan S. Kotchetkov et al., *Brain-Computer Interfaces: Military, Neurosurgical, and Ethical Perspective*, 28 NEUROLOGICAL FOCUS E25 (2010), *reprinted in* LAW AND NEUROSCIENCE, *supra* note 71 at 678. The recent DARPA proposal, “Cognitive Technology Threat Warning System,” includes “a requirement for operator-trained high-resolution BCI binoculars that can quickly respond to a subconsciously detected target or a threat. Such biological vision devices can have detection ranges of up to 10 km against dismounts and vehicles, and can expand soldiers’ field of view to 120 [degrees]. Thus, future generations of auditory and visual neuroprostheses may allow soldiers to perform better during combat situations through automated detection and interpretation capabilities.” *Id.*

⁷⁶ *See* Nasu & McLaughlin, *supra* note 8, at 2 (“On other occasions, however, technological developments outside the military sphere have influenced or informed the conduct of warfare and military expectations. . . The scope and pace of these evolutions—and in some cases revolutions—in the application of technology to the battlefield have radically and rapidly expanded over the last century and over the last several decades in particular.”).

⁷⁷ *See id.* (“Technology has enhanced traditional means and methods—in range, detectability, precision, and destructive power, for example. It has also created new means and methods options. The application of computing and software innovations to military purposes has enabled exponentially greater intelligence, surveillance and reconnaissance (ISR) accuracy, for greater fidelity in identification serves the purpose of removing doubt—and thus a restraint in targeting—as equally as it can confirm civilian status. Satellite navigation and global positioning systems (GPS) have enabled the use of precision-guided munitions and the remote operation of unmanned aerial vehicles (UAVs). It even presages yet further evolution in the rapidly evolving challenge of ‘human-out-of-the-loop’ decision-making for traditional conceptions of command and control, as well as means and methods—such as a fully autonomous fire control systems. The rapid growth of nanotechnology across a number of different fields—including fabrication, materials, photonics, and electronics—is expected to filter into military applications designed to enhance soldier survivability, force protection, force mobility, and force application capabilities.”).

opportunities for neurosurgeons to participate in improving military training and operations, particularly through combat performance modification and optimization.”⁷⁸ The advantages in a military context are evident: BCIs provide heightened opportunities for more effective “treatment modalities, augmented systems for controlling vehicles, and assistance for detecting danger on the battlefield.”⁷⁹ Beyond those, the newfound ability to enhance a brain through a computer interface opens up “wild new possibilities for war.”⁸⁰

DARPA has expended significant resources to fund researchers “who work at the forefront of the barely possible.”⁸¹ These involve a variety of technologies, including telepathic communication, remote control, and enhancement of sensory processing. DARPA’s Brain-Interface Project, the “most lavishly funded of nearly all of DARPA bioengineering efforts” could enable enhanced operators to fly UAVs controlled via thought and transmit images directly in the operator’s brain.⁸² Its Augmented Cognition (AugCog) program focused on the integration of communication channels between humans to “sens[e] and interpret[] a wide range of physiological measures of the human being in real time so they can be used to tune assistive behavior and thus enhance joint human-machine performance.”⁸³

“Network-enabled telepathy”, or inter-soldier communication, via BCIs is another enhancement sought to augment soldiers’ physical and mental abilities and provide significant advantages in the theatre of

⁷⁸ Kotchetkov, *supra* note 75, at 678.

⁷⁹ Michael N. Tennison & Jonathan D. Moreno, *Neuroscience, Ethics, and National Security: The State of the Art*, 10 PLOS BIOLOGY 3 (2012), reprinted in LAW AND NEUROSCIENCE, *supra* note 71 at 680.

⁸⁰ P.W SINGER, *supra* note 15, at 73.

⁸¹ *Id.* at 368. (“DARPA works by investing money in research ideas years before any other agency, university, or venture capitalists on Wall Street think they are fruitful enough to fund. DARPA doesn’t focus on running its own secret labs, but instead spends 90 percent of its (official) budget of 3.1 billion on university and industry researchers.”).

⁸² *Id.* at 73.

⁸³ COMM. ON MILITARY AND INTELLIGENCE METHODOLOGY FOR EMERGENT NEUROPHYSIOLOGICAL AND COGNITIVE/NEURAL RESEARCH IN THE NEXT TWO DECADES, NAT’L RESEARCH COUNCIL EMERGING COGNITIVE NEUROSCIENCE AND RELATED TECHNOLOGIES (2008), reprinted in LAW AND NEUROSCIENCE, *supra* note 71 at 677.

war, particularly in reconnaissance and during special operations.⁸⁴ Dependence on radios, external gestures, and audible sounds to communicate would be obviated, and soldiers would be capable of wirelessly sending instructions, pictures, or plans to intended recipients via thought.⁸⁵ DARPA's "Silent Talk" program aims to enable this type of camouflaged communication through EEG signals to transmit users' "intended speech".⁸⁶

These proposals and projects have been defended in the face of ethical criticisms for the increased protection they provide soldiers through enhanced capability to perform their missions at a lower-risk. Even the concept of protecting a state at large has been proffered as a benefit: "[the] development of BCIs can be seen as making a paramount contribution to the national security, which citizens . . . have a social duty to support."⁸⁷

It is pivotal to pay close attention to these developments, as they have rippling consequences for society, and, potentially "even, in the longer run, for the future of mankind."⁸⁸

B. Cyborgs and Post-humanism

Societal consequences resulting from the introduction of weaponized BCIs should be analyzed not just by how the new technologies will conform or comport with our current legal

⁸⁴ P.W SINGER, *supra* note 15, at 73.

⁸⁵ *Id.* at 74–75. ("It sounds otherworldly, but the U.S. government's National Science Foundation envisions such communication to be possible within the next two decades. But even all this direct interface will still not be enough. The systems will still be producing overwhelming amounts of data, only now dumping it directly into our heads. It may sound great, for example, to be able to fly a Global Hawk by thoughts alone and see what the drone is able to see. However, that drones can fly for thirty-five hours and cover an area the size of Maine with its sensors. So no matter how jacked up we get, our poor little monkey brains will still need some computer to help us control the drone, as well as make sense of what it is finding.").

⁸⁶ Kotchetkov, *supra* note 75, at 678 ("[S]uccessful applications of silent speech interfaces have already been reported.").

⁸⁷ *Id.* at 679. Kotchetkov warns, too, however, that "in the hands of a responsible military, BCIs can protect national interests and the population at large, but if obtained by rogue groups, they can promote terrorism and instability." *Id.*

⁸⁸ *Id.* at 636.

frameworks, but also how their existence may affect the rhetoric, understandings, and language that form the cultural and linguistic foundation at the very base of those legal regimes.

Therefore, we must analyze how enhancing soldiers may have consequences for *who* and *what* they are and for *who* and *what* society conceives them to be. These determinations will have vast consequences under a legal framework that is deeply rooted in status determinations.⁸⁹ It is in this context we must consider the “cyborg”, a “metaphorical as well as actually existing human” who has been intricately connected to technology.

Cybernetic organisms are of a future “that is already upon us” and just barely visible through those possessing artificial joints, lenses, skin, or even individuals with electronic pacemakers.⁹⁰ Yet, with emerging technologies, the fusion between technology and biological bodies has the capacity to be more permanent and capable of forming a deeper immersion through the combining of a human mind and a computer.⁹¹ Such fused individuals may be considered “posthumans” or “cyborgs”, in a technical sense, to refer to those whose bodies have literally been enhanced and circuited to a computer or other machine, such as the proposals in DARPA’s Silent Talk, AugCog, and Brain-Interface programs.

The deeper the fusion, however, the more difficult the disentanglement:

[t]he human body [] is not a simple machine into which you can just plug in new hardware. Our neural systems do not have USB ports like robots and computers do. Instead, researchers are finding that when technologies enter into us, our capabilities are not the only thing that changes. Like software rewriting itself, the human body actually

⁸⁹ “That those in the military will likely be among the first to get such enhanced powers adds new layers to complexity to civil-military relations.” P.W SINGER, *supra* note 15, at 380.

⁹⁰ UPENDRA BAZI, HUMAN RIGHTS IN A POSTHUMAN WORLD: CRITICAL ESSAYS 204 (2007); GARFIELD BENJAMIN, THE CYBORG SUBJECT: REALITY CONSCIOUSNESS PARALLAX 186 (2016) (“This ‘future’, however, is already upon us, and has been developing in nascent digital culture over many human lifetimes. Yet this vision emphasizes the persistent need to rethink cyborg relations beyond antagonism: between physical and digital; and between human and cyborg.”).

⁹¹ BENJAMIN, *supra* note 90, at 186.

alters the biologic pathways of its neurons to accommodate and incorporate the new machines placed inside it. As such, humans truly do become something different, creating an even more revolutionary demographic change that looms in the decades ahead. That something different is “cybernetic organisms” or “cyborgs,” creatures that have changed and enhanced their bodies’ capabilities via technology.⁹²

It is also necessary to consider what sort of effect this has on a soldier’s personal identity and the identity assigned to him or her by others.⁹³ Neil Harbisson, a “cyborg activist”, considers himself a human cyborg as a result of his treatment for achromatopsia. He has an implanted antenna attached to a chip at the back of his skull that allows him to perceive color through sound and enables him to sense invisible parts of the electromagnetic spectrum. “The antenna’s Internet connection allows Neil to receive colours from space as well as images, videos, music or phone calls directly into his head via external devices like mobile phones or satellites.”⁹⁴ Harbisson has stated that, “[i]nstead

⁹² P.W SINGER, *supra* note 15, at 380. “It is very exciting stuff until you realize we unenhanced humans are the equivalent of the Neanderthals, watching that first group of italic Homo sapiens walk across the hill, strutting their better bodies and technology. If trends hold, scientists believe that the next few decades will see a growing division of ‘natural’ humans and those who are ‘enhanced’ or ‘augmented.’” *Id.* “Kevin Warwick is a British university researcher who first connected his body directly into a computer via a technologic implant. His goal was simply to enhance the level of interface with his robots. But he described himself as experiencing not only a physical upgrade, but also a psychological change. ‘One of the reactions I had to having the implant was a feeling of affinity with my computer. Once that becomes a permanent state, you’re not really a human anymore, you’re a cyborg. Your values and ethics would be bound to change, I think, and you would view un-augmented humans a little differently.’” *Id.* at 381.

⁹³ For an analysis of cyborgs via a feminist lens, see HARAWAY, *supra* note 18. *Cf.* BENJAMIN, *supra* note 90, at 3 (“While [Haraway’s] work made an important shift away from the solidity of essentialist identifies towards a fluid and engaged cyborg, the framing of her discussion under explicitly socialist-feminist terms [] places a boundary of pre-existing social power relations upon cyborg consciousness. This enforces the materialist conception of embodiment that impedes a full assessment of the subject as the relations of consciousness to physical and digital worlds, by relating cyborgs only as a resistant political Other against dominant ideologies rather than as Other to itself in the void of subjectivity.”).

⁹⁴ *Meet the Cyborgs: Five People Who Have Modified Their Bodies with Tech*, BBC, <http://www.bbc.co.uk/programmes/articles/1g2gNvk4Gc4MwYqhtQ8KNlf/meet-the-cyborgs-five-people-who-have-modified-their-bodies-with-tech>.

of using technology or wearing technology constantly, *we will start becoming technology[.]*”⁹⁵

The permissiveness of that inference mirrors postmodern literary critic N. Katherine Hayles’ argument that we are entering a new rhetorical context and construction of societal meaning called “post-humanism”:

As long the human subject is envisioned as an autonomous self with unambiguous boundaries, the human-computer interface can only be parsed as a division between the solidarity of real life on one side and the illusion of virtual reality on the other, thus obscuring the far-reaching change initiated by the development of virtual technologies . . . [W]hen the human is seen as part of a distributed system, the full expression of human capability can be seen precisely to depend emphasis on the splice rather than be imperiled by it.⁹⁶

In a post-human context, humanist conceptions of human beings containing an essential element drift away due to the increasingly tangled evolution of human and technology as one. It is in this mutually reinforcing realm that a cyborg and cybernetic technologies may proliferate and continue to influence a society more amenable and receptive to their development and enhancement. Yet, it is constantly tethered to the society that created it, and for some, determinations of cyborg statuses would be “a cipher for the ever-changing relationships between humanity, technology, and politics”⁹⁷ and ever-dependent on a fluid, evolving, undulating relationship with technology.⁹⁸

The uncertainty that arrives alongside post-humanism will challenge of understandings of what it means to be human, as parts of humans become increasingly replaced or supplemented by permanent and invasive technologies. This changing conception can, in turn, have

⁹⁵ Aouf, *supra* note 17 (emphasis added).

⁹⁶ N. KATHERINE HAYLES, HOW WE BECAME POSTHUMAN: VIRTUAL BODIES IN CYBERNETICS, LITERATURE, AND INFORMATICS 290 (1999).

⁹⁷ Austin Corbett, *Beyond Ghost in the (Human) Shell*, 20 J. EVOLUTION & TECH. 43, 50 (2009).

⁹⁸ See HARAWAY, *supra* note 18 (arguing that “[t]he cyborg, in other words, serves as a representational figure that embodies the capacity of information technologies to erase gender and racial boundaries and the structures of oppression which have historically accompanied them.”).

consequences for how we conceive of humanitarian law and those actors it seeks to protect in conflict spaces.

III. APPLYING HUMANITARIAN PROTECTIONS TO (POST)HUMANS

This Part will explore how fledgling and fluid post-human terms may interact with established concepts in LOAC frameworks to erode pivotal protections for soldiers in conflict. As the saying goes, we must choose our words carefully. Significations used to identify ourselves, enhanced individuals, and statuses within the theatre of war crashing against embedded terminology in existing LOAC/IHL frameworks could leave ambiguity and legal lacunae in its aftermath.

Cultural theorist Garfield Benjamin argues: “[t]he relation of this cyborg practice [cybernetics] to the classical laws of physics is nomadic, shifting not only into quantum mechanics and biotechnologies, but also beyond all known scientific paradigms into the pure virtuality of creative consciousness engaging freely across shifting landscapes of flexible words.”⁹⁹ Increasing fluidity of terms such as human, cyborg, and *hors de combat* not only matter at a singular moment in time, but also along the projected evolutionary paths of those concepts as post-humanism and other cultural and societal changes resulting from proliferating technologies cast their shadows across facets of our languages, brains, and modes of thinking.

A. *Are Enhanced Soldiers Humans?*

The emergence of cyborgs and the engulfing of thought by post-humanism calls into the question the qualifier “humanitarian” for those protections LOAC accords its combatants, as ambiguity in whether we conceive of “human” in “humanitarian” as a physical, technical, or rhetorical requirement threaten to shred IHL frameworks and muddy conventional linguistic understandings of how we conceive of actors in these arenas.¹⁰⁰ As such, applying humanitarian protections to cyborgs and cybernetic organisms for purposes of GCIII will also be dependent

⁹⁹ BENJAMIN, *supra* note 90, at 57.

¹⁰⁰ See BAZI, *supra* note 90, at 204.

on whether we consider these cyborgs to be “human” based on parallel or coinciding conceptions of humans under LOAC.

IHL’s humanitarian impulse and goal minimize those acts that “dehumanize” a conflict. As such, if cyborgs are not humans, they are at risk of not being protected.¹⁰¹ This has short-term and downstream consequences, as it not only places soldiers at greater risk for death and “inhuman” treatment, but also can disincentive citizens from enlisting in their states’ militaries in the first place. Many would perceive that outfitting a soldier in such a way to place him or her in a legal no-mans-land would violate the inherent social contract between a soldier and a state that inevitably involves certain protections.¹⁰²

Further, given the military influence on the development of cybernetic technologies, it is likely that military paradigms will be the ones “shap[ing] what kind of cyborgs and cyborg soldiers are possible in the future.”¹⁰³ The prevalence of military application of such organisms could contribute to a willingness of society to see cyborgs as a dehumanized “other” or, even classified as a “weapon”, causing the GCs to seriously struggle in their application given the extreme difference in permissive treatment between captured human soldiers and their weapons.

B. Are Enhanced Soldiers Weapons?

It is imperative to consider how the categorization or classification of the interfaced technology reflects on how to conceive of the soldier that has been intimately connected to it. Whether the technology is defined as a “weapon” or as a “tool” that can be used as a weapon but is primarily not, can have serious consequences in a post-

¹⁰¹ Clearly, such a determination would have serious consequences outside the theatre of war, and would entail questions of constitutional protections, privacy, discrimination, autonomy, and accommodation. *See generally* LAW AND NEUROSCIENCE, *supra* note 71, at 693–98 (citation omitted); *see id.* at 701 (citing Samir Chopra & Laurence White, *Artificial Agents—Personhood in Law and Philosophy*, PROCEEDINGS EUR. CONF. ART. INTELLIGENCE (2004)).

¹⁰² *See generally* SAMUEL HUNTINGTON, *THE SOLDIER AND THE STATE: THE THEORY AND POLITICS OF CIVIL-MILITARY RELATIONS* (1981).

¹⁰³ CHRIS HABLES GRAY, *CYBORG CITIZEN: POLITICS IN THE POSTHUMAN AGE* 65 (2001).

human context for how the enhanced soldier is perceived. These definitions will likely be “bound to the modes of thinking presupposed by their purpose as part of the subjective assemblage [of words and purpose in relation to the human subject].”¹⁰⁴

Under LOAC, weapons can be destroyed; they can be co-opted and utilized by the capturing forces against the party from whom the weapon was taken. Therefore, if we understand the BCIs to be primarily weapons and technology secondarily, an exploitable ambiguity may be created that enables use of the cybernetic organism in an ordinarily impermissible way. While Articles 50 and 54 of GCIII prohibit the use of POWs in military work, they make no such prohibition on their weapons.

So, if the technology is classified predominantly as a “weapon” and is fused and reasonably inseverable from the soldier, then how does the transfer of weaponization to the body of the soldier translate into an inability to be outside the massively expanded conflict zone manifesting in the digital, virtual, and the physical?

C. Can Enhanced Soldiers Be Hors de Combat?

Even if cyborgs are conceived of as human as opposed to weapons, whether they’re lawful combatants capable of being rendered *hors de combat* for purposes of POW status determinations is also of consequence for their protection in conflict spaces. For, “implicit in the idea of combat is the assumption that one can be *removed* from combat.”¹⁰⁵ Yet, the proposed DARPA brain chips call into question whether BCIs prevent soldiers from ever truly being removed from combat so long as the surgically implanted brain chip remains.

One example of a soldier rendered *hors de combat* is when he or she surrenders to enemy forces. To envision this circumstance, it must be analyzed whether the brain chip is fused or severable. Is it easily turned off in such a way that is evident to others for purposes of POW status determinations? The capturing power may be forced to violate the Geneva Conventions in order to ensure that a soldier is *hors*

¹⁰⁴ BENJAMIN, *supra* note 90, at 39–40.

¹⁰⁵ Merve Stolzman & Griffin Ferry, *Humanity in War: An International Humanitarian Law Workshop*, AM. RED CROSS, Lecture at the University of Minnesota Law School (emphasis added).

de combat. That may entail confining them in a reclusive or solitary environment capable of blocking EEG signals potentially in violation of Articles 50 and 54 of GCIII on the right to adequate housing and the maintenance of good health. In addition, capturing forces may feel the need to actually remove a surgically implanted brain chip to ensure the enhanced soldier's inability to return to combat potentially in violation of Articles 13-14 and 16 of GCIII and their prohibition on biological experimentation.¹⁰⁶ Practically, would states or armed forces actually take this resource-intensive burden on or would the uncertainty incentivize the killing of soldiers in ambiguous enhancement states in violation of API, Articles 44.1, 41.1, and 41.2 on the prohibition of targeting combatants rendered *hors de combat*?¹⁰⁷

In an increasing post-human context intimately tethered to the militarization of technology, there lies a serious possibility that the answer to the above classifications be unclear or even culturally-dependent.¹⁰⁸ If we do consider enhanced soldiers human, the actual neurological fusion of the biological body and the technological device could call into question whether soldiers are ever truly *hors de combat* when the BCI permits permanent and remote access to military functions. If a soldier's technological device is a weapon, and they are fused to that weapon, then it is unlikely he or she can believably surrender unless the BCI has a visible and verifiable "off" mechanism readily apparent to the capturing power. As such, outfitting soldiers

¹⁰⁶ Yet, in increasingly asymmetric warfare, in which the technology of one side vastly outweighs the technology of the other, will the device be removable in a safe manner? Or, would removing a surgically implanted brain chip constitutes cruel, inhuman, and degrading treatment under the U.N. Convention Against Torture and other anti-torture prohibitions? See Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment arts. 1–2, Dec. 10, 1984, 1465 U.N.T.S. 85.

¹⁰⁷ SOLIS, *supra* note 24, at 573.

¹⁰⁸ Judeo-Christian monotheism entails the doctrine that only God can give life and any other creation is decreed idolatry and a sin in Exodus. See Frédéric Kaplan, *Who is Afraid of the Humanoid? Investigating Cultural Differences in the Acceptance of Robots*, 1 INT. J. HUMAN. ROBOT, 465, 472 (2004). The Japanese Shintoism, on the other hand, embeds the concept of "anima", or life, as existing within all natural and artificial surroundings. See Naho Kitano, *Animism, Rinri, Modernization; The Base of Japanese Robotics*, ICRA, 4 (2007).

with militarized BCIs may cause serious harm to them by eroding paramount protections.

These questions are not answerable today, but their importance will only increase as the technology exponentially advances.¹⁰⁹ As such, present consideration of emerging technologies and their capability of causing irrevocable change to conflict spaces is imperative.

IV. GENEVA CONVENTION V: HUMANITARIAN PROTECTIONS IN THE AGE OF ARTIFICIAL INTELLIGENCE, LETHAL AUTONOMOUS WEAPONS SYSTEMS, CYBER WARFARE, AND CYBERNETIC ENHANCEMENTS

The Geneva Conventions are supposed to be, and considered by many, “living documents”¹¹⁰ capable of reaching through time and covering conflict scenarios not necessarily envisioned by its founders. However, for others, the law of armed conflict is accused of being “one war behind” in its regulation of battlefield spaces, where the laws and norms emerging from each war look backwards on the experiences of the previous instead of forward to the evolution of conflict.¹¹¹ Consequently, much of their content failed to cover harms occurring in

¹⁰⁹ Compare Annie Sneed, *Moore's Law Keeps Going, Defying Expectations*, SCI. AM. (May 19, 2015) <https://www.scientificamerican.com/article/moore-s-law-keeps-going-defying-expectations>, with Tom Simonite, *Moore's Law is Dead. Now What?* MIT TECH. REV. (May 13, 2016) <https://www.technologyreview.com/s/601441/moores-law-is-dead-now-what>.

¹¹⁰ An analog to the “living Constitution” as one that “evolves, changes over time, and adapts to new circumstances.” David. A. Strauss, *The Living Constitution*, THE RECORD: UNIV. CHICAGO L. SCHOOL (Sept. 27, 2010) <http://www.law.uchicago.edu/alumni/magazine/fall10/strauss>.

¹¹¹ FRANCOISE BOUCHET-SAULNIER, *THE PRACTICAL GUIDE TO HUMANITARIAN LAW* xviii (2014).

modern conflicts.¹¹² Significantly, “[a]ny law’s strength depends on its relevance.”¹¹³

A mere thirty years between the 1949 Geneva Conventions and the 1979 Additional Protocols saw such an paradigmatic change in the conduct of war that states considered an update necessary for the Geneva Conventions’ continued viability. Many of the changes that served as a catalyst to the Additional Protocols were in how battles were fought strategically and the participants therein. The move from inter-state “battles in a field between men and machinery, war as a massive deciding event in a dispute in international affairs”¹¹⁴ to guerrilla warfare, insurgencies, and national liberation movements collapsed the easy distinction between civilians and combatants. Insurgents being “farmers by day and fighters by night”¹¹⁵ challenged the applicability of documents created with traditional European warfare in mind and whose primary negotiators were states envisioning conflict with one another.¹¹⁶

From robotics to nanotechnology, lethal autonomous weapons systems to cyber warfare, technological advancements are a paradigm shift that cannot be easily accommodated by current LOAC frameworks. Countless gaps from marked ambiguities will grow in a

¹¹² See Nasu & McLaughlin, *supra* note 8, at 2–3 (“The constant need for the law of armed conflict to respond and evolve was not always the norm. For millennia, the piecemeal precursors to the modern law of armed conflict existed in a relatively stable and slowly evolving equilibrium with the means and methods that they were tasked to govern. Certainly, the especially shocking or awe-inspiring employment of a new technology or tactic would occasionally act as a midwife to a period of rapid re-adjustment in both tactics and—to a much less evident extent—attitudes as to what was fair or chivalrous or honorable or right.”); *but see* P.W SINGER, *supra* note 15, at 387, 407 (“Dealing with digital warfare is a lot to expect of a treaty from 1949.”). “History tells us that, time and again, the society that builds and stands by a rule of law is the one that ultimately prevails. There is a ‘bottom line’ reason for why we should adhere to the laws of war, explains a U.S. Air Force general. ‘The more society adheres to ethical norms, democratic values, and individual rights, the more successful a warfighter that society will be.’” *Id.* at 412.

¹¹³ *Id.* at 387.

¹¹⁴ SOLIS, *supra* note 24.

¹¹⁵ David Akerson, *Applying Jus in Bello Proportionality to Drone Warfare*, 16 OR. REV. INT’L L. 174, 207 (2014) (citation omitted).

¹¹⁶ SOLIS, *supra* note 24 at 128–30.

“much more constant, radical, aggressive and exhaustive manner.”¹¹⁷ The introduction of revolutionary technologies constitutes at the very least the scale of change in warfare that catalyzed the creation of the Additional Protocols. Indeed, “[the] modern backdrop of technological change and expanding technological realms has sorely tested the applicability—but never the viability—of the law of armed conflict.”¹¹⁸

An update to the Geneva Conventions in the form of Geneva Convention V could comprehensively address the proliferating issues in LOAC fraught by advances in artificial intelligence, lethal autonomous weapons systems, robotics, nanotechnology, and BCI enhancements. Scholarship in these respective areas is vast and ever growing, and enhanced soldiers are but one part of the wave of change spreading over conflict zones. As such, a single convention would be an opportunity to address the watershed of advancing technologies on this space with potentially devastating consequences for continued inaction.

There exist several counterarguments to the arguments advanced in this paper. First, some may argue that network-enabled telepathy, drones controlled by thought, and other enhancement BCIs will never come into existence and belong solely to the realm of science fiction. Yet, cybernetic organisms are of a future “that is already upon us.”¹¹⁹ Further, taking into consideration the “extension of human consciousness . . . must include a consideration of the cybernetic relation to future developments. Confronting the potentialities of such future necessitates the use of fictional examples for expressions of technologies beyond what is currently available.”¹²⁰

An additional counterargument is the decreasing importance of POW statuses in modern conflicts. There are two components to this argument: first, in the modern theatre of war, the distance between soldiers and what we envision as the battlefield, where firefights and combat occur, is drastically increasing. A drone pilot stationed at an air force base in Indian Springs, Nevada can operate a Predator UAV in

¹¹⁷ Nasu & McLaughlin, *supra* note 8, at 5.

¹¹⁸ *Id.*

¹¹⁹ BAZI, *supra* note 90, at 204; BENJAMIN, *supra* note 90, at 186 (“This ‘future,’ however, is already upon us.”).

¹²⁰ BENJAMIN, *supra* note 90, at 185.

Afghanistan.¹²¹ This has serious consequences for determinations of legitimate targeting of lawful combatants or military objects, but also decreases the likelihood that enhanced soldiers operating UAVs remotely would be in the conflict zone or in a position to be captured by the enemy to begin with. Further, the dichotomous civilian and combatant distinction is inefficient in reflecting modern realities of conflict that involve non-state actor groups. The increasing conflation of civilians and combatants and the lack of prevalence of international armed conflicts demonstrate the decaying nature of POW protections. Therefore, POW policies should not be tied to the “escalating inefficiencies of approaches that calibrate treatment based on complex status determinations.”¹²²

In fact, “[m]uch of the technological evolution of warfare has introduced a distance between the parties involved. From the advent of firearms to airplanes, aerial bombs to remotely operated drones, the visceral reality of combat afforded by the physical proximity to one’s enemy has steadily eroded.”¹²³ The historical phenomenon of increasing distance has not made the concept of detention or capture irrelevant yet. Even were those situations to be few and far between, the statuses are still important for those individuals who do befall detainment. Further, similar to the broadening of protections under AP1, it is possible that notions on what it means to be “captured” or “detained” are also broadened alongside the category of persons to be afforded enhanced protections in those scenarios.

Last, some argue that new weapons that would cause deep ruptures in LOAC be *per se* banned.¹²⁴ General bans may be untenable,

¹²¹ Ed Pilkington, *Life As a Drone Operator: ‘Ever Step on Ants and Never Give it a Thought?’*, GUARDIAN (Nov. 19, 2015, 8:24 PM) <https://www.theguardian.com/world/2015/nov/18/life-as-a-drone-pilot-creech-air-force-base-nevada>.

¹²² Jinks, *supra* note 21, at 368.

¹²³ LAW AND NEUROSCIENCE, *supra* note 71, at 681.

¹²⁴ *Losing Humanity: The Case Against Killer Robots*, HUM. RTS. WATCH, <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots>. Historically, “injunctions against certain weapons, or limitations in their use, were often of minimal effect.” Nasu & McLaughlin, *supra* note 8, at 3. In Pope Innocent III’s Canons of the Second Lateran Council of 1139, he declared: “[w]e prohibit under anathema that murderous art of crossbowmen and archers, which is hateful to God, to be employed against Christians and Catholics from now on.” *Id.* However,

however. The International Court of Justice in its advisory opinion ruling on the legality of nuclear weapons carved out a “last resort” style exception to the banning of even the most destructive of weapons.¹²⁵ Certainly, weapons may be banned and many have been—from mustard gas to exploding bullets (and others that violate the core principle of unnecessary suffering).¹²⁶ Yet, there must also be political will: for the past three years, the United Nations has debated a ban on lethal autonomous weapons systems at its annual Convention on Certain Conventional Weapons, but many foresee any agreement as “extremely unlikely” given political intractability.¹²⁷

V. CONCLUSION

For some, cyborgs represent something new and unfamiliar. For others, it merely is a form of being emerged in a new vessel. Historian Lewis Mumford conceptualized the “very first machine” as:

an army, consisting of the soldiers and their weapons as the moving parts. . . . The special status of weapons, the disciplining of individual soldiers into cleanly working parts, and the military’s fostering of industrialization and automation have all contributed to the drive to

“crossbowmen and archers continued to form a key element of most armed companies in Europe for the next several centuries.” *Id.*

¹²⁵ Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. Rep. 226 (July 8). There is a mechanism for testing new weapons to ensure they comport with the requirements of the laws of armed conflict under Article 36 of the Additional Protocol I as “as a way of ensuring that existing legal norms are applied to modern technological developments and that the applicable law remains relevant as technology evolves.” William H. Booth, *The Legal Challenges of New Technologies: An Overview*, in NEW TECHNOLOGIES AND THE LAW OF ARMED CONFLICT 21, 26 (Hitoshi Nasu & Robert McLaughlin eds., 2014).

¹²⁶ SOLIS, *supra* note 24.

¹²⁷ See Steven Groves, *UN Conference Debating a Ban on Autonomous Weapons: Understanding Key Issues*, HERITAGE (Apr. 16, 2015); Bonnie Docherty, *U.S. Takes First Step on Fully Autonomous Weapons, but Stricter Controls Needed*, HARV. L. HUM. RTS. BLOG (Apr. 16, 2013). “Another significant and timely illustration of using general principles and the law of armed conflict exegeses and analogies to fill perceived legal lacunae, where there is little political will to address the gap through traditional treaty-making mechanisms, is through scholarship by experts . . . [a]s [i]ncident[s] of soft law[.]” Nasu & McLaughlin, *supra* note 8, at 6.

integrate humans and machines into effective complex systems. World War II culminated this process with the genesis of computers and the elaboration of incredibly complicated human-machine systems: ships, fleets, planes, wings, weapon teams, armies. [Here], the cyborg was born.¹²⁸

While technological advances with an eye towards enhanced protections for soldiers is a worthy goal, it is important that such advances are accompanied by thoughtful analysis as to how those advances fit into already established frameworks and simultaneously reshape and mold society's understandings of those frameworks.

Defining cyborgs as a foil to humans can exclude them from the humanitarian protections and the "oasis of humanity" that LOAC sought to instill into war. Any "unseverable" or "weaponized" nature of their fusion to technology as opposed to the transient and temporary versions of previous incarnations could further impede protections that depend on a soldier's ability to be rendered *hors de combat* and, consequently, be afforded POW protections.

As Isaac Asimov has lamented: "The saddest aspect of life [] is that science gathers knowledge faster than society gathers wisdom."¹²⁹ An update in the form of an additional Geneva Convention could better ensure that protections deeply rooted in international humanitarian law fulfill their ultimate aim: to protect soldiers and civilians from some of the worst atrocities committed during war, no matter the physical form individuals may take.

¹²⁸ GRAY, *supra* note 102, at 56.

¹²⁹ P.W SINGER, *supra* note 15, at 94.