

2021

Technology or Taboo?: An Analysis of Emerging Technology Weapons and Weapon Taboos

Mia R. Wilson
University of Central Florida



Part of the [International Relations Commons](#)

Find similar works at: <https://stars.library.ucf.edu/honorsthesis>

University of Central Florida Libraries <http://library.ucf.edu>

This Open Access is brought to you for free and open access by the UCF Theses and Dissertations at STARS. It has been accepted for inclusion in Honors Undergraduate Theses by an authorized administrator of STARS. For more information, please contact STARS@ucf.edu.

Recommended Citation

Wilson, Mia R., "Technology or Taboo?: An Analysis of Emerging Technology Weapons and Weapon Taboos" (2021). *Honors Undergraduate Theses*. 1092.

<https://stars.library.ucf.edu/honorsthesis/1092>

TECHNOLOGY OR TABOO?: AN ANALYSIS OF EMERGING
TECHNOLOGY WEAPONS AND WEAPON TABOOS

by

MIA ROSE WILSON

A thesis submitted in partial fulfillment of the requirements
for the Honors Undergraduate Thesis
in the School of Politics, Security, and International Affairs
in the College of Sciences
at the University of Central Florida
Orlando, Florida

Fall Term
2021

Thesis Chair: Ted Reynolds, Ph.D.

ABSTRACT

Technology tends to evolve over time, leading over things to evolve with it. One example may be the evolution of weapons with technological advancement. When these weapons change, it changes how war is conducted. This paper seeks to delve into the specifics of this phenomena. With technological advancement, the world has seen new threats such as lethal autonomous weapons (LAWs) and cyber weapons. New weapons have been, at times, too threatening. They have created so much stigma around themselves the international community ultimately decided against their use. These weapons may then receive a weapon taboo, discouraging their use. This paper seeks to analyze whether the aforementioned emerging technology weapons – LAWs and cyber weapons – may deserve a taboo. The paper will utilize case studies by examining weapons which were previously given a taboo. By determining why other weapons - specifically chemical and biological weapons (CBWs) and nuclear weapons - received a taboo, this paper will determine whether LAWs and cyber weapons also meet the criteria.

ACKNOWLEDGEMENTS

I would like to thank Dr. Ted Reynolds for working with me so willingly these past few years. Your undying support is the reason this thesis is possible. I am very grateful for your help.

I would also like to thank Dr. Roger Handberg. Your thoughtful insight and advice has made my thesis the way it is today. I appreciate all feedback you have given me.

Thank you to you both for agreeing to be a part of committee so I could complete this thesis. This journey has made me excited for a future in academia.

These past few years have been different and difficult due to the pandemic, but I am lucky to have had such fantastic committee members working alongside me. I appreciate their patience and understanding through this process. My gratitude is immense and immeasurable. From the bottom of my heart, thank you.

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION	1
Norm Evolution Theory	2
Norms	2
Theory.....	4
CHAPTER TWO: CURRENT WEAPON TABOOS	7
Chemical and Biological Weapons	7
Definitions and History	8
Reasons Behind the Taboo	11
Nuclear Weapons.....	14
Definitions and History	14
Reasons Behind the Taboo	19
Criteria for a Weapon Taboo.....	20
A Moral Quandary.....	20
Politics and Power as an Influence.....	22
CHAPTER THREE: EMERGING TECHNOLOGY WEAPONS	24
Cyber Weapons	24
Lethal Autonomous Weapons	26
CHAPTER FOUR: CONCLUSIONS	30

REFERENCES33

CHAPTER ONE: INTRODUCTION

This paper seeks to analyze how weapon taboos are established by utilizing norm evolution theory as well as current weapon taboos. As technology has evolved over time, there have been changes in how weapons stemming from these technological advancements are perceived. There is no shortage of research regarding specific weapon taboos and details about them. However, there seems to be a research gap in why weapons have taboos. As a result, there is also little research discussing the criteria for weapon taboos and how the criteria may apply to other existing weapons. Overall, this paper is seeking to identify these criteria and establish how weapon taboos are created. From there, this paper will analyze emerging technology weapons, specifically cyber weapons and lethal autonomous weapons (LAWs), in order to understand if they fit the determined criteria.

Cyber weapons were chosen due to their increasing use between states. As cyber weapons are becoming more prevalent, states must determine how to respond to such actions. Further, states must determine if this is how they would like to conduct covert actions, or even warfare. Lethal autonomous weapons were chosen due to their increased use in warfare. As computer technology has improved over time, it has been easier to utilize and program LAWs, which track and engage targets with little to no human intervention. As these weapons become more commonplace for states, it is important to determine whether they should be used in the future.

Norm Evolution Theory

As evidenced by its name, norm evolution theory is involved heavily in the idea of norms in international politics. To discuss norm evolution theory, the theoretical perspective upon which this paper has its basis, it is important to discuss norms. Scholars of international relations have an ongoing debate regarding the merit of norms and their impact on international politics. Many theoretical perspectives exist amongst these scholars, some of which ignore norms, while others believe they are impactful. This paper is of the belief that norms do have an impact on international relations, which then may influence how states make decisions. This paper assumes that norms are the basis of weapon taboos. As norms change regarding particular weapons, a taboo may come as a result.

Norms

Scholars tend to have slightly differing definitions of norms, but they all still contain the same idea. Florini, for example, defined norms as “a set of intersubjective understandings readily apparent to actors that makes behavioral claims on those actors.”¹ Still, there exists the question of how a norm becomes a norm on an international scale. According to Florini, there are two aspects: that norms are about behavior and that norms provide a “sense of ought.”² In other words, norms are not concerned with the beliefs or ideas held by states, but simply by their behavior. As well as this, the sense of ought determines how an actor should behave. This sense of ought can be determined by the actor itself or by other actors who may be assessing the behavior.³ An actor may not conduct certain types of behavior because it is not what they ‘should’ do. On the other hand, another actor may emphasize that the actor’s behavior goes against what ‘should’ be done. Both would be examples of the enforcement of norms.

In international politics, there are two main types of norms: regulative and constitutive. Regulative norms are those which “order and constrain behavior,” while constitutive norms create new concepts such as actors or interests.⁴ This paper will focus on regulative norms to discuss how norms may impact weapon taboos. This research operates under the assumption that weapon taboos stem from regulative norms. Regulative norms impact how states behave and weapon taboos state which weapons can be used by states, therefore impacting how states behave. Any states who break norms typically are faced with disapproval from other states, though there are exceptions. The best evidence for norms can be seen in communications from or between various actors. Finnemore and Sikkink use the United States as evidence for these communications.⁵ The United States explained “why it [felt] compelled to continue using land mines in South Korea,” which demonstrates the United States was aware of a growing norm against the use of those mines.⁶ In other words, the United States felt compelled to justify its behavior because it was aware of norms against those actions. If these norms did not exist or had no impact, the United States would not have justified its actions in such a way.

One result of regulative norms is how states decide to take actions. Under the influence of regulative norms, states make decisions based on two factors: the state’s own self-interest and the norm.⁷ While states are primarily operating in their own best interest, norms may influence how they plan to pursue such goals. For example, while the United States seeks to defeat terrorism for its own self-interest, decisions on how to achieve this goal are impacted by norms. Specifically, the United States decides upon the type and degree of force used in fighting terrorism based upon norms.⁸ In this case, the United States could use conventional methods to pursue its goal, such as targeting and assassinating a single leader of a terrorist group. However, the use of nuclear weapons would be an unacceptable method to defeat terrorism, as there is a

norm against such behavior. One way to describe norms, as stated by Christopher Gelpi, is as “reputational constraints” on states.⁹ This means that norms can impact the behavior of states because they fear a negative impact on their reputations amongst other nations.

Theory

The idea of norm evolution theory is that norms have an evolution over time that determine the impact these norms have. A norm that was just established is not nearly as impactful as one which has been generally accepted in the international community. Finnemore and Sikkink developed a life cycle of norms for their research, consisting of three steps: norm emergence, norm cascade, and internalization.¹⁰ In the first stage, norm emergence, actors develop the idea of the norm internally. In this case, it is a personal norm with no impact on other actors. From this point, the actor who created the norm must convince a “critical mass” of other states to accept the new norm.¹¹ If this fails, the norm will likely have no international influence. However, once the “critical mass” of states have been convinced, the second stage begins. The second stage, norm cascade, involves actors socializing with one another, further spreading the norm. This norm might ‘cascade’ for a variety of reasons, such as “pressure for conformity” or “desire to enhance international legitimation.”¹² The norm will then spread through the rest of the states to become a commonly held belief. At the end of the cascade, when the norm is widely accepted, the final stage occurs. The third and final stage, norm internalization, refers to when the norm is accepted on a broad scale and is “no longer a matter of broad public debate.”¹³ At this point, the norm permeates the beliefs of society and impacts how states behave and interact.

Florini’s interpretation of norm evolution theory compares norms to genes. Florini draws this analogy on three different levels. First, both genes and norms are both “instructional units”

which dictate the behavior of “organisms.”¹⁴ In the case of norms, the states serve as the organisms. Second, norms, like genes, are transferred between individuals via inheritance.¹⁵ In the case of norms, they are transferred through socialization, as described in the norm cascade process. Finally, norms and genes are both contested, meaning they are “in competition with other norms that carry incompatible instructions.”¹⁶ Norms cannot exist together if they are incompatible. For example, a norm discouraging the use of nuclear weapons cannot exist at the same time as a norm encouraging the use of nuclear weapons. As well as this, norms must compete to determine which are the most culturally relevant. As norms change, so does the behavior of society. Norm evolution theory is an important tenet in understanding weapon taboos. How norms evolve and develop over time may dictate how nations view actions from their peers. Changing norms may mean actions that were acceptable before are now seen as taboo and frowned upon. In Florini’s research, she states that the success or failure of various norms is dependent on three factors:

- (1) whether a norm becomes prominent enough in the norm pool to gain a foothold; (2) how well it interacts with other prevailing norms with which it is not in competition, that is, the "normative environment"; and (3) what external environmental conditions confront the norm pool.¹⁷

This corresponds to the idea of a norm life cycle in some ways. For example, the first factor is similar to the idea of norm emergence and norm cascade. The norm, upon its emergence, needs to become prominent enough to reach the cascade point. If it does not do so, we see the failure of this norm. Further, the second factor indicates that norms are constantly in competition with one another. Norms compete to become more prominent in the international forum. As well as this, norms cannot become relevant if they conflict with other existing norms.

For example, it is unlikely that a norm encouraging the use of nuclear weapons would gain traction in the current international system. The current norm is simply too popular amongst nations to change.

CHAPTER TWO: CURRENT WEAPON TABOOS

This paper is structured upon the use of case studies. This research will look at current weapon taboos in order to determine why they received a taboo. This analysis will determine what are the criteria which dictate the establishment of weapon taboos. In the next chapter, the paper will discuss how the aforementioned emerging technology weapons compare to the criteria determined in this paper. For the purpose of this research, two current weapon taboos will be discussed: chemical and biological weapons (CBWs) and nuclear weapons. Both of these weapons are within the category of weapons of mass destruction, or WMDs. This term dates back to 1937, when the phrase was used in a London Times article discussing Germany's use of aerial bombing.¹⁸ The term was adopted by the United Nations in 1947, which defined weapons of mass destruction as "atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect."¹⁹ This definition indicates that it is possible for other weapons to fit the idea of weapons of mass destruction, as long as they fit the criteria. This is, in part, what this paper seeks to do. Quite simply, this paper seeks to determine if the definition of weapons of mass destruction should be amended to include the emerging technology weapons to be discussed.

Chemical and Biological Weapons

The first weapon taboo to be discussed is that of chemical and biological weapons, which will henceforth be referred to as CBWs. Ilchmnn and Revill state that the CBW taboo is actually "based on an ancient cross cultural taboo against poison and disease used as weapons which have long been viewed as morally corrupt."²⁰ In other words, the CBW taboo did not only exist in

modern times, but relates to more ancient and long-standing beliefs held by society. Still, while there have been long-standing beliefs against the use of chemical weapons, there have also been treaties and agreements established. For example, there are three main examples of the taboo within international law: the 1925 Geneva Protocol, the 1972 Biological Weapons Convention, and the 1993 Chemical Weapons Convention.²¹ Together, these three contribute to prohibit the development, possession, and use of any CBWs.

Definitions and History

According to Iannotti et al., there have been regulations against chemical weapons on an international scale since ancient times.²² Of course, these regulations have ebbed and flowed over time. Chemical weapons can be defined as “each weapon containing chemical substances, nonliving matters capable of causing consequences against people, animals and plants and infrastructures.”²³ These weapons are incredibly dangerous and exposure can occur through skin contact or ingestion, among other possibilities. The use of chemical weapons can be seen very far back in history. For example, in 1000 B.C. chemical weapons were used by the Chinese via the use of arsenic smoke.²⁴ Further, the Greeks used “a mixture of sulfur and pitch resin to produce suffocating fumes” during the Trojan War.²⁵ In other words, the world has long known the effects of using chemical weapon, leading to various regulations for them throughout history.

However, as mentioned previously, these regulations were not continuous. In fact, there were times where regulations regarding chemical weapons were completely removed or even useless. An example of this would be after the 1874 Brussels Convention. The Brussels Convention attempted to control chemical weapons, but there was no clear definition at the time.²⁶ Therefore, this convention was expanded upon in 1899 with the First Hague Peace Appeal. This appeal led to agreement stating those nations at the conference would “abstain from

the use of projectiles the sole object of which is the diffusion of asphyxiating or deleterious gases.”²⁷ However, these agreements were basically useless at the time. Specifically, these weapons were not, at the time, being used by any militaries. Therefore, states agreed to the abstention because it would not actually impact them.²⁸ There would be no need to change any behavior if states were not participating in such behavior in the first place. To go even further, during the First Hague Peace Conference, delegates had refused to agree to any proposals that would limit or eliminate any weapons that were actively being used.²⁹

One of the most well-known examples of the use of chemical weapons would be the use during the First World War. For example, Germany utilized “canisters of chlorine gas at the battle of Ypres in Belgium” which “resulted in the deaths of 5,000 French troops and injured another 15,000.”³⁰ This served as an example of how effective and powerful such weapons could be when utilized in war. As such, both sides of the war started to increase the use of such weapons and developed more varieties. Ultimately, the war was faced with the use of mustard gas, which could “[burn] the skin and lungs.”³¹ Statistically, the gas led to nearly 100,000 deaths and around 1.2 million injuries. In total, it is estimated that “124,000 tons of chemicals were used in the war.”³² Still, the use of mustard gas is recognized as “ineffective as a military weapon” as its effects on both soldiers and civilians alike caused a “loss of support for war effects and retaliation.”³³ This is, in part, what led to the signing of the Geneva Protocol.

Finally, a modern example of chemical weapons usage is from Syrian President Bashar al-Assad. As a result of al-Assad’s actions, states have been clear regarding their distaste and disapproval. For example, the United States made it clear that “any employment of such weaponry by Syrian President Bashar al-Assad would constitute an intolerable and illegitimate act” and would lead to a shift in U.S. policy toward the Syrian conflict as a whole.³⁴ Still, this

begs one very particular question. While there are so many ongoing tragedies in the world, many of which are ignored or unnoticed, the use of chemical weapons by the Syrian regime required some amount of interventionism. Why is this the case? According to Bentley, the answer is fairly simple: the current weapon taboo leads to nations feeling the need to stand up against the use and employment of CBWs.³⁵ In other word, norms dictating the views on CBWs leads nations to feel uncomfortable with the idea of these weapons being used on an international scale. More specifically, CBWs can be classified as a weapon “whose employment so exceeds the limitations of acceptability that [its] avoidance and proscription are deemed essential.”³⁶ This exemplifies some modern views on the CBW taboo.

Biological weapons, on the other hand, are defined as “the use of a bacteria, virus, or other biological pathogen to attack or deliberately infect people, livestock, or crops.”³⁷ Overall, these are less commonly used than chemical weapons, but still have a long history, which may even date back to 184 B.C.E. In this early example, Hannibal of Carthage conducted this form of warfare by hurling “pots containing vipers onto the decks of enemy ships.”³⁸ Another example occurred in 1495, the Spanish conducted biological warfare by spiking wine “with the blood of leprosy patients” and giving the wine to their French enemies.³⁹ Overall, however, these early attempts at biological warfare tended to be unsuccessful. Nonetheless, it still effective demonstrates the history of the concept dates back thousands of years.

There are even examples of biological warfare within the United States itself. Delivering smallpox blankets to enemies had been utilized at least twice in American history. First, British officers planned to give smallpox blankets to Native Americans in 1763. Also, Luke Blackburn of Kentucky “sold blankets contaminated with smallpox and yellow fever to Union troops” during the American Civil War.⁴⁰ There are also more recent examples of the United States being

accused of biological warfare. This example also emphasizes that biological weapons are not solely used to target humans but can also impact crops or livestock. In the time period of 1962 to 1996, Cuban officials “accused the United States 21 times of attempting to use biological weapons,” including “the use of Newcastle disease against poultry” or “African swine fever aimed at pigs.”⁴¹ Overall, biological weapons do have a long history of use which still occurs even in modern times, but they are still much less common in use than chemical weapons.

Reasons Behind the Taboo

After discussing the definition and history of CBWs, it is important to discuss why these weapons have a stigma and a taboo against their use. Also included in this section will be a discussion on the aforementioned conventions and regulations against CBWs. For example, the 1925 Geneva Protocol came as a result to the response to CBW use in World War I. Specifically, it prohibits the “use in war of asphyxiating, poisonous, or other gases and of all analogous liquids, materials, or devices,” as well as “bacteriological methods of warfare.”⁴² In other words, this protocol was made to prohibit the use of CBWs. It was aimed at expanding upon what was established in the 1899 Hague Appeal. However, it is important to note that the agreement included in this agreement was one prohibiting first-use of such weapons, but did not prohibit their use in the context of reciprocity.⁴³ This was a condition upon which many states agreed to sign this protocol. Over time, however, this agreement has become so widely accepted that all states are expected to follow, not just those who originally signed.⁴⁴ Further, there were other places in which this agreement was lacking. For example, this agreement stated that only the use of the CBWs were prohibited but did not say the same regarding transferring or producing these weapons.⁴⁵ Further, states were not required to destroy any existing stockpiles of weapons.⁴⁶

Further, the other two previously mentioned agreements are the 1972 Biological Weapons Convention, or BWC, and the 1993 Chemical Weapons Convention, or CWC. The 1972 BWC states that using biological weapons “would be repugnant to the conscience of mankind and that no effort should be spared to minimize this risk.”⁴⁷ As well as this, it is important to discuss how, exactly, this agreement was worded and what this wording means. For example, the convention puts emphasis on the quantity. Article I of the BWC prohibits the use of biological agents “of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes.”⁴⁸ This is important as it means that this convention is unlikely to become obsolete over time. This statement is general enough in nature, and does not limit itself to naming specific biological agents, in order to ensure that the evolution of science does not make the agreement outdated.

Finally, the 1993 Chemical Weapons Convention also has a general purpose criterion, similar to the BWC. This general purpose criterion is also meant to be general enough that the agreement will remain relevant over time. Also, this agreement also includes obligations “prohibiting the transfer of chemical weapons” and “detailed requirements for national implementation.”⁴⁹ However, it is important to mention that this agreement does contain a list of specific chemicals, but most of the agreement is based on prohibiting uses of chemicals, meaning it still has general use. Also, there are exceptions within the CWC in which chemicals can be used against humans. One example of this is that law enforcement can use chemicals in order to control domestic riots, but they must be agents that “can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure.”⁵⁰ This agreement is similar to the BWC, but also provides some very specific cases and examples.

Finally, there are reasons that the general, international opinion on CBWs changed over time, leading to the taboo and agreements against them. One reason is simply the cruelty and damage that chemical weapons may cause. As well as this, the use of chemical weapons is indiscriminate in its damage.⁵¹ When a chemical weapon is deployed, there is no way to tell it to only harm the enemies. Instead, civilians may also face significant harm in this. Overall, CBWs are seen as “insidious, unseen, and secretive” as they can be used with little warning and can cause such harm.⁵² Still, the question becomes why are CBWs seen so negatively when a normal bomb can also indiscriminately harm civilians and enemies alike? One reason may be that the idea of choking on a poisonous gas may be viewed as a slower, more painful death than a bomb being dropped. As well as this, Michael Mandelbaum argues that “the aversion to chemical weapons may be deeply rooted in human chromosomes.”⁵³ This relates back to the idea presented at the beginning of this chapter: the chemical weapons taboo and the cultural aversion to such weapons has a long-standing and deep-rooted history within us. As well as this, CBWs have an association with poison, which may provide justification for their prohibition. For example, robust calls for the prohibition against the use of poison as weapon dates back to 1589, when Alberico Gentili called for the weapon’s ban.⁵⁴ This means, however, that the association with poison is not as historical and does not date back to ancient times, but rather only several hundred years. A 1625 treatise written by Grotius provides insight into why this agreement against poison weapons came to be. To put it simply, poison, similar to CBWs, was indiscriminate in its damage. As such, while royalty was typically safe from being killed on the battlefield by the common soldier, they were not nearly as safe from being the victims of poison.⁵⁵ Therefore, royalty discouraged the use of poison for their own protection, opting for the more conventional war methods.

Nuclear Weapons

The nuclear weapons taboo is the second of the current weapon taboos to be discussed within this research. Unlike CBWs, it is unlikely that humans have some deep-rooted historical aversion to their use, eventually leading to the taboo. In fact, nuclear weapons were widely accepted for some time, and many believed they would become commonplace in wars. For example, Secretary of State John Foster Dulles once stated that he believed in the “ultimate inevitability” that nuclear weapons would become “conventional.”⁵⁶ Still, nuclear weapons have become taboo and are altogether avoided in use in war. It is important to note that the revulsion toward nuclear weapons does not only apply to the big bombs, but rather to all forms of nuclear weaponry. As such, the versions of nuclear bombs that policymakers such as John Foster Dulles thought could become conventional, such as “tactical battlefield uses in limited wars,” are no longer plausible.⁵⁷ This begs the question of how this change in opinion came to be.

Definitions and History

To put it simply, nuclear weapons “can be constructed from highly enriched uranium or plutonium.”⁵⁸ Nuclear weapons are not very difficult to make and require a small amount of nuclear material to function. If a state, or even a non-state group, were to acquire the materials necessary for the weapon, it would not be difficult to construct it. Overall, the most difficult step in the process would be acquiring any and all components, as these components tend to be highly regulated on an international scale. As well as this, some states may be considered ‘rogue states,’ as they have nuclear weapon capability and may sell this information on the black market. The most notable of these states are North Korea, Pakistan, and Iran.⁵⁹ For example, it is possible that North Korea could sell the materials to create nuclear weapons, or the weapons themselves, on the black market in order to raise funds or harm their enemies.⁶⁰ Pakistan, on the other hand, has

a history of sharing the knowledge of nuclear weaponry. For example, Abdul Qadeer Khan, an engineer of the Pakistani nuclear program, admitted in 2004 that nuclear technology and equipment had been given to Libya, Iran, and North Korea.⁶¹ It has been alleged that even the Pakistani President was aware of such interactions and transactions. As such, there is still an underlying fear that these rogue states may share their knowledge with other enemies or even non-state groups, such as terrorist groups.

Still, it is essential to understand how these weapons came to be viewed as taboo. The origins of this taboo date back to August 6, 1945, the day the United States dropped the first atomic bomb on Japan. At the time of the bomb being dropped, nuclear weapons were accepted on an international scale as a perfectly valid weapon of war.⁶² After Hiroshima and Nagasaki, the horrifying and destructive powers of the nuclear bomb were clear, but this did not mean there was an immediate change in attitude. In fact, the United States crafted military policies including and relying on nuclear weapons beginning in 1948.⁶³

As well as this, the bombings of Hiroshima and Nagasaki developed debate within themselves regarding whether nuclear bombs should have been used at all. While it is typically viewed that the bombs were necessary to “save American lives and to end the war decisively,” some scholars feel that the bomb was unnecessary.⁶⁴ In this belief, it is stated that the United States simply used to end the war quickly, but it was not necessary to do so. For example, the US Strategic Bombing Survey concluded that Japan would have most likely “surrendered before November 1, 1945 even without the bomb, Soviet entry into the war, or an invasion of the Japanese islands.”⁶⁵ Therefore, it is likely that dropping the bomb was entirely unnecessary. Even advisors such as General Dwight Eisenhower and chief of staff William D. Leahy told Truman utilizing the bomb was unnecessary.⁶⁶ Still, it is important to note that even if the bomb

was unnecessary, there was no other reason to not use the bomb. There were no moral issues with using the bomb. Further, the course of World War II led to a connection being made between nuclear and conventional bombing. Nuclear weapons were seen as a more effective way to carry out conventional bombing strategies, and for leaders “it was not thought that any irreversible threshold had been crossed.”⁶⁷ In other words, it was not viewed that nuclear weapons were any worse than the already acceptable strategic bombing practices. Over the course of the war, there was a “general erosion of moral restraints” that meant that many practices were accepted, even strategically bombing cities and harming civilians. As such, it was unlikely for there to be moral qualms against the use of a nuclear weapon.

Ultimately, the use of the nuclear bomb in World War II led to two competing views. The first view stated that the atomic bomb was successful in its use and may be used more in the future. The U.S. Air Force was a clear example of this view, as they intended to use atomic bombs to drop on enemy cities commonly in war.⁶⁸ It would be no different than what had been done in Japan and the Air Force saw no issue with it. On the other hand, others viewed that nuclear weapons would meet the same fate of chemical weapons, where they would be used in one war and then discouraged in the next. Atomic scientists wrote in the Franck report of June 1945 that atomic bombs would most likely not be used after World War II because “public opinion would disapprove.”⁶⁹ This became a bigger concern as the aftermath of the Japan bombings came to light. When reports of deaths from radiation surfaced, there were concerns that atomic bombs would be compared to the poison gas from chemical weapons.⁷⁰ This marks the beginning of concerns regarding nuclear weapons and the origins of the taboo.

Concerns over the use of nuclear weapon continued to grow over the next few decades. In the late 1950s, groups would protest the testing of nuclear bombs. It was even a topic of the 1956

US presidential election as Adlai Stevenson had included a test ban in his platform.⁷¹ As well as this, distaste for nuclear testing was becoming more popular amongst the general public. For example, the National Committee for a Sane Nuclear Policy (SANE) was created in 1957 by Norman Cousins, an editor for the *Saturday Review*. By the following year, the group had reached 25,00 members.⁷² This is, however, only one example of the various groups which advocated against nuclear testing at this time. Ultimately, the nuclear taboo began to be formally established in the early 1960s via various arms control agreements. American policy at the time also began to shift more toward nuclear arms control, especially due to the ongoing arms race with the USSR.⁷³ Overall, the US held the view that nuclear weapons were to exist for the purpose of deterrence, rather than used in war.

There were several factors aided in institutionalizing the nuclear taboo on an international scale. First, the nuclear arms race made it clear that, if remained unchecked, nuclear war was possible and would be incredibly destructive.⁷⁴ Therefore, it was necessary to place some limitations on their use. Quite simply, both the US and the USSR realized that a lack of arms controls on nuclear weapons would only cause grand destruction on an international scale, especially following the alarm of the Cuban missile crisis. Second, the expansion in countries who had nuclear weapons was cause for concern. Over the past several decades, other nations had established their nuclear arsenal. For example, Britain had tested “its first weapon in 1952 and its first thermonuclear weapon in 1957” and France tested “its first nuclear weapon in 1960.”⁷⁵ As more nations developed nuclear weapons, fear of a world armed with nuclear arsenals became a larger concern. Third, developing nations began to demand arms control agreements as they gained a voice in the United Nations.⁷⁶ Many of the treaties to be negotiated on a larger scale depended upon smaller states, which did not possess nuclear weapons, to

succeed. This meant that smaller, developing nations became important players in these issues, more so than these nations usually would be.

The first examples of legal limitations on using nuclear weapons came to fruition in nuclear-weapons-free-zones. These zones were designed to limit “possession, testing, deployment, and use of nuclear weapons on a geographic basis.”⁷⁷ Typically, these were established by non-nuclear states in these areas who did not want to be faced with the consequences of a Cold War they were not involved in. In the end, however, these zones succeeded in making “much of the planet off-limits to the use of nuclear weapons.”⁷⁸ The nuclear-weapons-free-zone in Latin America was the first zone established in a populated area, as its predecessor was Antarctica. This was also the first ever non-use agreement.⁷⁹ The creation of this zone came as a result of the Cuban missile crisis. Nations in the area felt fear they would be unwillingly dragged into the nuclear conflict between the US and the USSR. Consequently, the Treaty of Tlatelolco was created and agreed to in 1967 to establish a nuclear-weapons-free-zone.⁸⁰

Another example of the codification of the nuclear taboo is the 1972 Anti-Ballistic Missile (ABM) Treaty. This treaty established a formal presumption of non-use of nuclear weapons between the two powers.⁸¹ In other words, both sides were agreeing to utilize nuclear weapons in the context of deterrence rather than using them in war. As well as this, this treaty included the idea that “the two countries... would not deploy anti-ballistic-missile systems to defend their territories against a nuclear attack,” meaning that they were confident neither nation would use their nuclear arsenals.⁸² According to Tannenwald, the ABM treaty had two effects. The first was the explicit regulative effect of banning ABMS, but there was also a secondary effect. The secondary effect was a constitutive effect, which was made to “codify and legitimize

deterrence... as the appropriate role for superpower nuclear weapons.”⁸³ This agreement exemplifies that the nuclear taboo was in effect at this point. Nations wanted to avoid actual use of nuclear weapons in war. Instead, nuclear weapons were meant to exist as a threat and a message to other nations. This message was that any attacks against them may result in nuclear war.

Reasons Behind the Taboo

There are several reasons that explain the development of the nuclear taboo over time. Some of these reasons can even be compared to those of the CBW taboo. However, the nuclear weapon taboo is still unique in its development. For example, the politics of the Cold War and the interests of world superpowers did play a role in the development of the taboo, but they were not the only factor by any means.⁸⁴ As mentioned previously, some other factors included the various peace groups that developed. These peace groups were resistant to the idea of nuclear weapons and nuclear testing. This was another factor that pushed toward the establishment of a taboo. Further, small, non-nuclear states attempted to encourage a taboo on the weapon by utilizing their collective power in the United Nations to call for actions and arms control.⁸⁵ The idea of power politics and small nations rising against the weapons did not occur in the lead up to the chemical weapon ban. These factors are unique to the nuclear ban and its conception. On the other hand, the main similarity with the CBW taboo is that both were, at least in part, by a strong moral component. For the nuclear taboo, nuclear weapons are viewed to “flagrantly violate long-standing moral principles of discrimination and proportionality in the use of force.”⁸⁶ Similar to CBWs, nuclear weapons are not discriminatory on whom they harm. If a nuclear weapon is dropped on a city, it does not only impact the combatants. However, it is a common view that it

is wrong and immoral to harm innocents in a war. This leads to nuclear weapons themselves to be viewed as immoral due to their destructive nature.

Criteria for a Weapon Taboo

There is not an exact, written list anywhere that establishes criteria for a weapon to have a taboo. As well as this, there are no values for these criteria. They are simply qualitative in nature. Nonetheless, this paper seeks to establish its own criteria based on research on current weapon taboos. This section will reiterate and analyze the factors which led to taboos being placed upon CBWs and nuclear weapons. These criteria will be further analyzed in the next chapter to determine if the emerging technology weapons match this criteria.

A Moral Quandary

The clearest criteria, evident in both the nuclear taboo and the CBW taboo, is the moral aspect of their use. The main concern with these weapons is the destruction they cause in their use. As mentioned previously, neither nuclear weapons nor CBWs are discriminatory in their harm. Therefore, it is clear that these weapons are of concern because they may harm innocent people. While there is also a supposed genetic basis for the aversion to CBWs, some scholars state that the norm is still heavily based on poisons being viewed as “inappropriate weapon of war.”⁸⁷ In other words, the genetic basis may have some factor, but poisons – and thus CBWs – were also just viewed as unacceptable weapons. This is, in part, due to their subtle and almost undetectable nature. Therefore, the CBW taboo has some basis in morality, as the weapons were generally viewed as immoral and inappropriate.

Nuclear weapons, especially when they were first developed, are incredibly destructive weapons. As well as this, nuclear weapons leave behind nuclear fallout, which can have its own consequences. The first nuclear weapon tested was able to create an explosion “equivalent to the

detonation of approximately 20,000 tons of TNT.”⁸⁸ These weapons only became more destructive and powerful over time. The norms against nuclear weapons developed rather quickly after their first use in Japan. These norms even led to President Truman rejecting their use against the Chinese in the Korean War.⁸⁹ This exemplifies that the norm, even before it was institutionalized, had a profound impact on policy decisions.

Still, there were officials who expressed concern with the employment of nuclear weapons even before the bombings of Nagasaki and Hiroshima. For example, General George Marshall stated that nuclear weapons should only be used against military targets. If civilians would be present where the weapon was targeting, advanced notice should be provided.⁹⁰ Admiral Leahy, on the other hand, went a step further in his beliefs. He did not believe nuclear weapons were to be used at all. To support his point, he compared nuclear weapons to chemical weapons.⁹¹ Nonetheless, these views were uncommon and were in the minority at the time. Peace-seeking groups, no matter their motivation, ultimately led to the development of the nuclear norm. For example, the Soviet-led World Peace Council approved the Stockholm Peace Appeal in 1950, calling for a ban on nuclear weapons.⁹² This signified a change in the nuclear norm because of how nuclear weapons were framed. As well as this, this appeal was popularized around the world, with hundreds of millions of signers. This petition called for “outlawing of atomic weapons as instruments of intimidation and mass murder of peoples.”⁹³ It also stated that any government who uses the weapons first against another nation would be “committing a crime against humanity and should be dealt with as a war criminal.”⁹⁴ This appeal provided a harsh, but popular, view on the horrors of nuclear weapons, supported by an incredibly large number of people. Peace-seeking groups, such as the World Peace Council, began to popularize views that nuclear weapons were heinous and immoral to bring into war.

Overall, the conclusion to be made is that both CBWs and nuclear weapons are viewed on a grand scale as immoral and therefore unusable in war. As such, it can be concluded that one factor to receiving a weapon taboo is the morality of the weapon. If a weapon is viewed as immoral and extremely destructive, it is likely to receive a weapon taboo. One thing to consider when discussing morality is how the weapon may impact civilians. CBWs and nuclear weapons, for example, have been known to cause harm to civilians. Nuclear fallout from the use of nuclear weapons is, most likely, unavoidable. Therefore, the consequences of using such a weapon would most likely harm innocent civilians in a war. Still, this is not the only factor which may lead to a weapon taboo, as to be discussed in the next section.

Politics and Power as an Influence

As discussed earlier in this chapter, the geopolitics of the Cold War era had influence on the development of the nuclear taboo. Though not as powerful, politics did also influence the CBW taboo as well. This section will discuss how politics and power have played a role in the development of taboos. In the section discussing CBWs and the corresponding taboo, self-interest did play a part in the taboo. This was more common centuries before the modern CBW taboo. As mentioned previously, Grotius published writing discussing how the power of the kings influenced a historical taboo against poison weapons. Kings pushed for this norm because they could not be protected from poison weapons, while they could be protected – to some extent – from soldiers.⁹⁵ Still, this is an early example and does not completely apply to the modern CBW taboo.

The influence of power politics is more evident in the nuclear weapon taboo. The nuclear taboo was in development during the Cold War period, in which two global superpowers were locked in standoff. Ultimately, discouraging and banning the use of nuclear weapons would be

beneficial to both, as the threat of nuclear war would diminish. In 1945, the United States – still the only state to possess nuclear weapons at the time – advocated for control over nuclear weapons via the Baruch Plan. The Baruch Plan was an agreement between the United States, Britain, and Canada for the United States to give up all nuclear weapons, so long as “all other nations agreed not to pursue them.”⁹⁶ This plan ultimately failed, however, as the Soviet Union rejected it. This does not mean the Soviet Union had no interest in advocating against nuclear weapons, the nation just did not agree with the Baruch Plan. On its own, the Soviet Union led anti-nuclear efforts, such as joining the United States to establish the UN Atomic Energy Commission, which had the goal of eliminating “national armaments of atomic weapons.”⁹⁷ This is just one example of Soviet anti-nuclear efforts, but it is important to note the motivation behind these efforts. Simply, similar to the United States, the Soviet Union pursued these avenues in order to gain an advantage in the Cold War. These efforts, according to Mazanex, were “largely intended to delegitimize U.S. nuclear weapons (despite the Soviets themselves acquiring such weapons in 1949).”⁹⁸ In other words, both the United States and the Soviet Unions were major advocates for constraints on nuclear weapons. While these actions were in part motivated by the morality of the use of such weapons, the power politics of the ongoing Cold War conflict also played a role.

Power and politics can play a role in the development in norms and taboos. If powerful, influential states feel strongly about weapons, they may seek to remove it. This was very evident in the development of the nuclear taboo and was also played a role, albeit smaller, in the CBW taboo as well. Therefore, it is possible that emerging technology weapons may be advocated against in the future if states were to feel it would benefit them. This next chapter will discuss these weapons and why they may be pursued for a taboo.

CHAPTER THREE: EMERGING TECHNOLOGY WEAPONS

This section seeks to analyze two emerging technology weapons: cyber weapons and lethal autonomous weapons (LAWs). This chapter will discuss the history and characteristics of these weapons in order for them to be compared to the previously established criteria in the following chapter. These weapons were chosen because they are becoming increasingly prevalent in conflicts today. Evolving technology has led to changes in the landscape of war and conflicts. As these forms of conflict become more utilized, it is essential to understand how they impact how states will interact going forward.

Cyber Weapons

Technology and its evolution has greatly changed how the individual and the collective functions on a day-to-day basis. Technological advancement is responsible for 60 to 85 percent of economic growth today.⁹⁹ It is difficult to understate just how impactful technology has been today. Still, this advancement does not only provide benefits, it also has emboldened threats. A 1991 US National Research Council study stated that “Tomorrow’s terrorist may be able to do more damage with a keyboard than with a bomb.”¹⁰⁰ This served as an early warning on the threat of cyberweapons and thus the need for cybersecurity preparedness. While this was a concern 30 years ago, it is even more prevalent now. The world is now deeply interconnected with computers and the internet, meaning that cyber attacks can be even more devastating. These attacks could harm economic growth or national security, for example.¹⁰¹ As well as this, cyber warfare enables asymmetrical warfare. While larger and more powerful states may have great cyber capabilities, they may also have more vulnerabilities to be exploited by their enemies.¹⁰² Cyber warfare is not exclusive to conflicts between states, non-state actors such as terrorist groups could also be the culprit. Evidence of this can be seen via WikiLeaks, Anonymous, and

LulzSec, which can have comparable influence to a state in the cyber realm.¹⁰³ The same can be said of weapons such as CBWs or nuclear weapons. It is not impossible for a terrorist group to gather the materials required to create a nuclear weapon. However, it is much simpler to utilize a computer in conflict, especially for a non-state actor. For example, Admiral Mike McConnell states “Sooner or later, terror groups will achieve cyber-sophistications. It’s like nuclear proliferation, only far easier.”¹⁰⁴ As such, cyber warfare may be a terrorist’s method of choice for this reason. Cyberwarfare can be defined as:

the use of computer networks to disrupt, deny, degrade, or destroy information resident in enemy computers and computer networks, or the computer and networks themselves.¹⁰⁵

Overall, there are limited examples of cyber warfare today. In fact, Thomas Ridd even asserts that “true cyber warfare has not yet occurred.”¹⁰⁶ Even if examples are limited, they are still existent. For example, various Distributed-Denial-of-Service (DDOS) attacks were committed against Estonia in mid 2007. This is the “first time a sophisticated cyber attack had been conducted against a nation-state.”¹⁰⁷ Further, Russia has been known to commit cyber attacks alongside traditional military action. One example of this occurred in 2008 against the nation of Georgia. While Russia invaded the nation with traditional military forces, it also committed a cyber attack against Georgia’s digital infrastructure.¹⁰⁸ Finally, one of the most common examples of a cyber attack is the Stuxnet virus. Stuxnet was a worm which impacted the uranium enrichment program in Iran.¹⁰⁹ The worm went undetected for a period of time, ultimately leading to 1,000 centrifuges to crash. This worm was intended to slow down and impede the Iranian nuclear program.

Cyber warfare has led to its own arms race between nations, similar to that of the nuclear age. Cyber warfare has led to “a frenzied contest to develop cyber offensive weapons and devise

new strategies to defend against them.”¹¹⁰ Various agreements are typically the solution to arms races, as evidenced by the nuclear arms race. However, any attempts to create such a treaty for the cyber realm have been rejected by international leaders.¹¹¹ Nations are instead relying on building up their own digital arsenals. In many cases, cyber weapons are treated similarly to nuclear weapons in that both are created in the name of deterrence. In other words, while there is some focus on cyber security and defense, nations are operating under the idea that strong, offensive capabilities are the best defense overall.

Research into the field of cyber warfare often leads to scholarly articles comparing cyber weapons to other weapons. As just mentioned, many scholars find that nuclear weapons and cyber weapons can be comparable. The biggest comparison between the two would be the idea of deterrence. In both weapons, deterrence is not a simple issue. In the case of nuclear weapons, second-strike capabilities are simple against large nuclear attacks. However, deterrence and retaliation become more difficult against lower-priority attacks.¹¹² As such, deterrence cannot rely solely on retaliation, but must be supplemented with other features such as conventional military action. On the other hand, the issue with cyber deterrence is attribution.¹¹³ Many cyber actions may be covert or difficult to trace, meaning it is also difficult to retaliate. As well as this, the entanglement and interdependence of various states has led to difficulties. For example, China would also be harmed by a cyber attack which impacted the American economy.¹¹⁴ As such, this emphasizes the need for robust cyber security. Retaliation cannot be the only answer to respond to cyber attacks, just as it was an inadequate response to the nuclear threat.

Lethal Autonomous Weapons

The next emerging technology weapon to be discussed are lethal autonomous weapons (LAWs). As evidenced by the name, these weapons work autonomously and with little to no

human intervention. In fact, these weapons work in such a way that “once activated, can select and engage targets without further human intervention.”¹¹⁵ In other words, these systems are typically programmed to target certain places or people. Once they have been given this task, the LAW can operate autonomously to complete it with no further action on the part of a human. The weapon can find the target they are programmed to by “searching and identifying targets within a set of preprogrammed parameters based on sensor input.”¹¹⁶ The main concern with LAWs, however, is not the state they are in now. Instead, concerns with LAWs are preemptive and deal with what these weapons may become. Particularly, scholars fear what will happen as humans become less and less involved in the weapons. Currently, humans are still ‘in the loop’ with these weapons, having manual control over the drones. However, in the future, humans are expected to be ‘on the loop,’ meaning that they will just oversee the mission, with the ability to override decisions. Even more concerning to scholars is the idea that humans may become ‘out of the loop,’ meaning they will be completely uninvolved with these weapons aside from the initial programming.¹¹⁷ This brings concerns to many who fear what may happen if such an autonomous weapon were to malfunction or if the programming is in some way flawed. The question becomes of what damage could occur.

There is also a question of how LAWs fit into the current international dynamic and into the current landscape of warfare. International figures and scholars question whether the utilization of autonomous weapons should be allowed or can be justified for use in warfare. At this time, LAWs are utilized and are allowed in warfare, but some states are unsure about this. For example, LAWs have been debated on an international scale, specifically in the context of the UN’s Convention on Certain Conventional Weapons (CCW). This debate demonstrated that states are facing disagreement on this subject.¹¹⁸ States are unsure about whether these weapons

should be allowed in war. Some are more hesitant, while others do not see an issue with the inclusion of such weapons. Even within this debate there are issues. For example, the CCW has functioned by “regulating the use of weapons, rather than through banning technologies.”¹¹⁹ However, this brings its own issue to light. There is no clear cut way to describe a LAW, and states disagree on the weapon’s characteristics. States could not reach an agreement on what constitutes autonomy in this weapon, as well as what could constitute “meaningful influence” over the weapon.¹²⁰ Such disagreements demonstrate there is a fundamental issue in the debate. It is difficult to regulate a weapon which no one can agree on. This may also lead to various loopholes in any possible agreements. States believe that LAWs should meet the requirements of the Geneva Convention, just as all other weapons must. This, however, begs the question of whether these weapons can do so. In order to meet these requirements, LAWs must meet three criteria: “the capability to distinguish between civilians and combatants, proportionality in the use of violence, and the personal responsibility of the person in charge of a mission.”¹²¹ However, officials believe that it would be impossible to program these weapons to meet these requirements. As such, it can be concluded that these officials feel that lethal autonomous weapons should not be utilized in warfare. Further, these officials also feel that the weapons cannot be morally justified, as machines “should never have the last word over matters of human life and death.”¹²² Still, the biggest concern on lethal autonomous weapons seems to be whether they can be regulated. As well as this, it is uncertain whether LAWs can be classified alongside other weapons due to the plethora of disagreements over their very nature. Analysis of these weapons is incredibly difficult with such ongoing debate on even the characteristics of this weapon.

CHAPTER FOUR: CONCLUSIONS

This paper has analyzed current weapon taboos and established criteria based on them. It has also analyzed emerging technology weapons in order to determine if and how these weapons might fit into the established criteria. To reiterate, this research has asserted that the main criteria for weapon taboos are the morality of the weapon's usage and whether nations of power may benefit from its regulation. Nuclear weapons were seen as immoral due to the disastrous consequences of their use. As well as this, powerful nations such as the United States and the Soviet Union advocated against these weapons for their own gain. Chemical weapons were viewed as immoral due to their relation to the long-standing poison taboo. As well as this, the poison taboo has roots in power and politics as powerful members of society wanted to remove poison weapons for their own protection.

In the case of cyber weapons, this paper feels that there could be a strong case for the establishment of a taboo. Cyber weapons have been compared to current weapon taboos in much research, especially nuclear weapons. However, this is not enough to create a taboo by any means. Cyber weapons are not wholly immoral by any means, but can be immoral if left unchecked. Particularly, the possibility of a cyber attack on critical infrastructure is a main concern. Morality, in the case of the current weapon taboos, was based heavily on whether the weapons could greatly harm civilians. Nuclear fallout and chemical reactions could harm civilians, leaving them to die in a horrid way. If critical infrastructure was to be attacked by any actor, there could be substantial impacts.¹²³ One possibility is the death of many individuals due to a lack of power, such as those who require power to breathe via oxygen tanks or those who are kept alive via machines in hospitals. However, the main concern about cyber weapons is the idea that nations of power may seek regulation. Overall, critical infrastructure attacks could be

disastrous, but are unlikely to occur. Nations, on the other hand, are constantly impacted by cyber attacks. As mentioned earlier, many nations are incredibly interconnected at this time and may be harmed if another nation were to be attacked. As such, this paper feels it is likely that states will seek to regulate cyber operations in the future in order to protect their own self interests, such as the welfare of their economy. While a weapon taboo may be appropriate based on the criteria established, there is one concern with the idea of a cyber taboo. As mentioned earlier, attribution is an issue regarding cyber warfare. It is difficult to determine who is responsible for many cyber actions. As such, creating a taboo may be possible, but enforcing it may not be. How can a state face punishment for their actions if it is difficult to prove that state did anything? In other words, while a cyber taboo does fit the criteria for a taboo, a taboo may not be practical.

Lethal autonomous weapons, however, are more uncertain. This paper concludes that it is difficult to determine whether a taboo should be applied on these weapons as there is such fundamental disagreement on the weapons. In particular, this paper feels that it is difficult to regulate weapons whose very nature and characteristics are debated. Still, LAWs should be kept under watch by all nations. As LAWs become more common in warfare and are developed more thoroughly, it may be easier to determine how they fit into current standards, such as the Geneva Convention. As well as this, analysis and research into these weapons brings up the concern of the weapon's morality, even if there is no certain conclusion. It may be immoral to leave such difficult decisions, such as whether individuals should live or die, into the hands of technology. While this may make war easier between nations, a slippery slope could occur. There are also concerns on what may happen if these weapons were to malfunction. These are issues to pay attention to in the years to come, when answers may be found.

One topic this paper does not explore is the idea of norm reversal. Just as a norm can be created and developed over time, circumstances may change and lead to a norm becoming irrelevant. More research could be done in the future on this topic and how it may impact the existence of weapon taboos. Further research could also be conducted on what happens if a weapon taboo is removed. As well as this, it brings up the question of what may lead to a taboo being reversed. I would love to explore these topics in future research as I did not get the chance to delve into them in the topic of this research.

REFERENCES

¹ Florini, A. (1996). The evolution of international norms. *International Studies Quarterly*, 40(3), 363-389.

https://ink.library.smu.edu.sg/soass_research/2066

² Ibid.

³ Ibid.

⁴ Finnemore, M., & Sikkink, K. (1998, Autumn). International Norm Dynamics and Political Change. *International Organization*, 52(4), 887-917. <https://www.jstor.org/stable/260136>

⁵ Ibid.

⁶ Ibid.

⁷ Romaniuk, S. N., & Grice, F. (2018, November 15). Norms, Norm Violations, and IR Theory. Retrieved from

<https://www.e-ir.info/2018/11/15/norms-norm-violations-and-ir-theory/>

⁸ Ibid.

⁹ Romaniuk, S. N., & Grice, F. (2018a, November 15). Norm Evolution Theory and World Politics. Retrieved from

<https://www.e-ir.info/2018/11/15/norm-evolution-theory-and-world-politics/>

¹⁰ Finnemore, M., & Sikkink, K. (1998, Autumn). International Norm Dynamics and Political Change. *International Organization*, 52(4), 887-917. <https://www.jstor.org/stable/260136>

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Florini, A. (1996). The evolution of international norms. *International Studies Quarterly*, 40(3), 363-389.

https://ink.library.smu.edu.sg/soass_research/2066

¹⁸ Iannotti, A., Schraffl, I., Bellecci, C., Malizia, A., Cenciarelli, O., Di Giovanni, D., Palombi, L., & Gaudio, P. (2016). Weapons of mass destruction: A review of its use in history to perpetrate chemical offenses.

¹⁹ Ibid.

²⁰ Ilchmann, K., & Reville, J. (2014). *Chemical and biological weapons in the “new wars.”*

<https://doi.org/10.1007/s11948-013-9479-7>

²¹ Ibid.

²² Iannotti, A., Schraffl, I., Bellecci, C., Malizia, A., Cenciarelli, O., Di Giovanni, D., Palombi, L., & Gaudio, P. (2016). Weapons of mass destruction: A review of its use in history to perpetrate chemical offenses.

²³ Ibid.

²⁴ Gaines, L. K., & Kappeler, V. E. (2018). *Homeland Security and Terrorism*. [Yuzu Reader]. Retrieved from

<https://reader2.yuzu.com/#/books/9780134560298/>

²⁵ Ibid.

²⁶ Ibid.

²⁷ Price, R. (1994). A Genealogy of the Chemical Weapons Taboo. *International Organization*, 49(1).

<https://www.jstor.org/stable/2706867>

²⁸ Ibid.

²⁹ Ibid.

³⁰ Gaines, L. K., & Kappeler, V. E. (2018). *Homeland Security and Terrorism*. [Yuzu Reader]. Retrieved from

<https://reader2.yuzu.com/#/books/9780134560298/>

³¹ Ibid.

³² Ibid.

³³ Ibid.

³⁴ Bentley, M. (2014). Strategic taboos: chemical weapons and US foreign policy. *International Affairs*, 5, 1033-

1048. <https://doi.org/10.1111/1468-2346.12155>

³⁵ Ibid.

³⁶ Ibid.

³⁷ Gaines, L. K., & Kappeler, V. E. (2018). *Homeland Security and Terrorism*. [Yuzu Reader]. Retrieved from <https://reader2.yuzu.com/#/books/9780134560298/>

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ilchmann, K., & Reville, J. (2014). *Chemical and biological weapons in the “new wars.”* <https://doi.org/10.1007/s11948-013-9479-7>

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Iannotti, A., Schraffl, I., Bellecci, C., Malizia, A., Cenciarelli, O., Di Giovanni, D., Palombi, L., & Gaudio, P. (2016). Weapons of mass destruction: A review of its use in history to perpetrate chemical offenses.

⁴⁶ Ibid.

⁴⁷ Ilchmann, K., & Reville, J. (2014). *Chemical and biological weapons in the “new wars.”* <https://doi.org/10.1007/s11948-013-9479-7>

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Bentley, M. (2014). Strategic taboos: chemical weapons and US foreign policy. *International Affairs*, 5, 1033-1048. <https://doi.org/10.1111/1468-2346.12155>

⁵² Price, R. (1994). A Genealogy of the Chemical Weapons Taboo. *International Organization*, 49(1). <https://www.jstor.org/stable/2706867>

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Tannenwald, N. (2005). Stigmatizing the Bomb: Origins of the Nuclear Taboo.. *International Security*, 29(4), 5-49. <https://doi-org.eu1.proxy.openathens.net/10.1162/isec.2005.29.4.5>

⁵⁷ Ibid.

⁵⁸ Gaines, L. K., & Kappeler, V. E. (2018). *Homeland Security and Terrorism*. [Yuzu Reader]. Retrieved from <https://reader2.yuzu.com/#/books/9780134560298/>

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Tannenwald, N. (2007). *The Nuclear Taboo. [electronic resource]: The United States and the Non-Use of Nuclear Weapons Since 1945*. Cambridge University Press.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Tannenwald, N. (2005). Stigmatizing the Bomb: Origins of the Nuclear Taboo.. *International Security*, 29(4), 5-49. <https://doi-org.eu1.proxy.openathens.net/10.1162/isec.2005.29.4.5>

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Tannenwald, N. (2007). *The Nuclear Taboo. [electronic resource]: The United States and the Non-Use of Nuclear Weapons Since 1945*. Cambridge University Press.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Ibid.

⁸³ Ibid.

⁸⁴ Tannenwald, N. (2005). Stigmatizing the Bomb: Origins of the Nuclear Taboo.. *International Security*, 29(4), 5-49. <https://doi-org.eu1.proxy.openathens.net/10.1162/isec.2005.29.4.5>

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ Mazanec, B. M. (2014). *Norm Wars: The Evolution of Norms for Emerging-Technology Weapons, from Chemical Weapons to Cyber Warfare*. Available from Political Science Database. <https://www.proquest.com/dissertations-theses/norm-wars-evolution-norms-emerging-technology/docview/1553000405/se-2?accountid=10003>

⁸⁸ Ibid.

⁸⁹ Ibid.

⁹⁰ Ibid.

⁹¹ Ibid.

⁹² Ibid.

⁹³ Ibid.

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ Ibid.

⁹⁹ Drezner, D. W. (2019). Technological change and international relations. *International Relations*, 33(2), 286-303. <https://doi.org/10.1177%2F0047117819834629>

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

¹⁰² Nye Jr., J. S. (2011). Nuclear Lessons for Cyber Security?. *Strategic Studies Quarterly.*, 5(4), 18-38.

¹⁰³ <https://journals.sagepub.com/doi/10.1177/0047117819834629>

¹⁰⁴ Nye Jr., J. S. (2011). Nuclear Lessons for Cyber Security?. *Strategic Studies Quarterly.*, 5(4), 18-38.

¹⁰⁵ Koblentz, G.D., & Mazanec, B.M. (2013). Viral Warfare: The Security Implications of Cyber and Biological Weapons. *Comparative Strategy*, 32(5), 418-434. <https://doi.org/10.1080/01495933.2013.821845>

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid.

¹¹⁰ Eilstrup-Sangiovanni, M. (2018). Why the World Needs an International Cyberwar Convention. *Philos. Technol.*, 31, 379-407. <https://doi.org/10.1007/s13347-017-0271-5>

¹¹¹ Ibid.

¹¹² Ibid.

¹¹³ Nye Jr., J. S. (2011). Nuclear Lessons for Cyber Security?. *Strategic Studies Quarterly*, 5(4), 18-38.

¹¹⁴ Ibid.

¹¹⁵ Bode, I., & Huelss, H. (2018). *Autonomous Weapons Systems and Changing Norms in International Relations*. <https://doi.org/10.1017/S0260210517000614>

¹¹⁶ Ibid.

¹¹⁷ Ibid.

¹¹⁸ Bieri, M., & Dickow, M. (2014). *Lethal Autonomous Weapons Systems: Future Challenges*. <https://doi.org/10.3929/ETHZ-A-010273874>

¹¹⁹ Ibid.

¹²⁰ Ibid.

¹²¹ Ibid.

¹²² Ibid.

¹²³ Maxwell, P. (2018). *Stockpiling Zero-day Exploits: The Next International Weapons Taboo*. Retrieved from https://digitalcommons.usmlibrary.org/aci_ja/57