Live Free or Die: Security in a World of Decentralized Arms Manufacturing

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Abstract:

This article looks at the complicated legal histories behind 3D printing firearms and the effects that these open-source weapons have had due to their applications in far-right terrorism as well as being used by guerillas in the civil war in Myanmar. The legality of these weapons is complicated and varies case to case. The decentralization of the organizations that make blueprints is a means to circumvent gun control laws that bar manufacturing or ownership of guns, but also as a means to increase the share of expert knowledge to create more sophisticated technology. A few main groups have taken up so-called ghost guns for their cause: far-right terrorists and anti-junta rebels in Myanmar. This article compares these groups using a lens of critical security studies to argue that despite the dangers of the democratization of arms production, 3D printed firearms represent a means for oppressed groups to level the playing field against the state and gain emancipation through their own means. While there are inherent dangers in allowing anyone to print a firearm, that this paper will discuss, the technology can also be liberatory for oppressed peoples facing violent oppression.

Keywords:

3D Printed Firearms, Critical Security Studies, Far-right, Small Arms, Myanmar

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Introduction

In June 2012, law student Cody Wilson created his company Defense Distributed, an online, open-source organization dedicated to the manufacturing of 3D-printed firearms (Defense Distributed, n.d.). In 2013, Wilson posted the blueprints online for his first design of a functional 3D-printed firearm known as the Liberator (Morelle, 2013). Wilson, a self-described crypto-anarchist, viewed this as a human rights project and envisioned a world where everyone should be able to own a gun (Bryans, 2015; Jacobs & Haberman, 2017). In March 2020, a man using the pseudonym 'JStark' and his organization Deterrence Dispensed posted instructions online for how to print a semi-automatic 3D printed submachine gun chambered in 9x19mm, a handgun round (Basra, 2023). The FGC-9, or F*ck Gun Control-9mm, is one of the most well-known firearms designed by Deterrence Dispensed. This organization believes in unconditional free speech and unrestricted access to firearms (Hanrahan, 2020b). Credit must be attributed to JStark for the title of this paper (Hanrahan, 2020b). 3D-printed firearm enthusiasts are often characterized as neo-Nazis or anarchists, a misconception for a large number of users and designers, rather they believe that gun ownership is a human right and an expression of free speech (Hanrahan, 2020b). They view themselves as answering the question posed by Nicholas Cage in Lord of War; "How do we arm the other 11?" (Niccol, 2005).

The legality of these weapons is complicated and varies from case to case. The decentralization of these organizations that make blueprints is a means to circumvent gun control laws that bar manufacturing or ownership of guns, but also to increase the share of expert knowledge to create more sophisticated technology. A few main groups have taken up so-called ghost guns for their cause: far-right terrorists and anti-government rebels in Myanmar. This paper compares these groups using a lens of critical security studies to argue that despite the dangers of the democratization of arms production, 3D-printed firearms represent a means for subaltern

actors and oppressed groups to level the playing field against the state and gain emancipation through their own means. While there are inherent dangers in allowing anyone to print a firearm, that this paper will discuss, the technology can also be liberatory for oppressed peoples facing violent oppression. This paper builds on literature on the far-right as well as from the Welsh School of Critical Security Studies along with colonialism studies to argue that these weapons can be a liberatory tool.

Printing Your Own Gun and Laws Around It

3D-printed guns generally use a kind of plastic that can be used in a printer, the printer is then given a blueprint file known as a computer-aided design (CAD) file (Bryans, 2015). An organization called Solid Concepts used a metal printer to print a firearm, though plastic is much more common and accessible (Bryans, 2015). In more high-end designs, PLA plastic is used for its strength and better heat resistance (Hanrahan, 2020a). The Liberator, the first majorly publicized 3D-printed firearm was vastly underpowered compared to a conventional firearm, though it is still lethal (Cook, 2021). The Liberator was a single-shot pistol that would need to have the barrel replaced after a few rounds were fired through it and held up well in ATF testing (Greenberg, 2013). Recent developments in technology mean that these weapons are much more sophisticated and durable. The Plastikov is a 3D-printed AK pattern rifle made of plastic, chambered in 7.62x39mm, a rifle round, and capable of firing hundreds of rounds without issue (Plastikov - 3D Gun Builder, n.d.; Hanrahan, 2020a). With a large enough 3D printer, anyone with an internet connection can print a man-portable 66mm multiple rocket launcher (Accessories: M202 Flash Rocket Launcher, n.d.). 3D printers are also becoming increasingly affordable for people. Anyone can order a printer for less than USD 500 and get a printer capable of producing good-quality firearm prints (Hanrahan, 2020b). AR pattern rifles, Glock pattern handguns, full auto switches, suppressors, and all sorts of firearms have been and can be printed (Daly et al., 2021; Nopel, 2024). In the United States, printing a gun is largely legal,

though the Department of State continues to claim that posting the files violates arms trade laws. Before his arrest Cody Wilson fought these suits numerous times (Walther, 2015; Jacobs & Haberman, 2017). There is no good way to regulate the technology to begin with as it would be impossible to ban downloading CAD files, and regulating 3D printers would stifle a technology that has numerous civilian, medical, and industrial applications (Cook, 2021; Bryans, 2015). The US Supreme Court has also ruled that 3D-printed guns fall under protection from the First and Second Amendments (Berkowitz, 2018).

In the United States, manufacturing a firearm is legal, it is protected under the Second Amendment assuming that the weapon is for personal use and not to be distributed in any way (ATF, 2020). By extension, printing it, also called additive manufacturing, is considered legal. By now, many jurisdictions that prohibit manufacturing your own firearm have also made legal changes to cover 3D printing. For example, Canadian Bill C-21 extended unlawfully manufactured firearms to be included as prohibited weapons in response to the Canadian Border Services Agency seeing an uptick in firearms parts being shipped to Canada and the perceived threat of 'ghost guns' being printed in the country (Public Safety Canada, 2024). The United Kingdom and European Union also regulate the ability to print firearms under their regulations against manufacturing firearms (Inline Policy, 2014). From a simple regulatory perspective, 3D-printed firearms would fall under the purview of existing legal frameworks concerning arms manufacturing in a given country. Making a firearm from metal is not drastically different from printing one out of plastic assuming you are following the laws of the jurisdiction you reside within.

3D printing management software company 3DPrinterOS put out a statement in 2018, condemning the use of 3D printers for manufacturing firearms, but believing that the internet is too fast for the state to catch and regulate, requiring private companies to try to regulate their own technology to keep people from printing guns

(3DPrinterOS, 2018). The same company is working with Montclair State University to develop an algorithm that, in theory, could detect 3D-printed gun parts in a CAD file for manufacturers, regulators, and law enforcement agencies to remain on top of 3D-printed firearms (VoxelMatter, 2024). This form of regulation appears more feasible. While a state can delete files off the internet or take down certain websites, the information can simply be shared again. The state can only react to information being shared online. It would be easier to attempt to make machines unable to print firearms, though any algorithm can be circumvented or spoofed. There is also the question of what if, for example, a lifesaving medical device that can be 3D-printed looks like a firearm part? Regulating the printer through some form of AI could result in numerous people getting in legal trouble despite doing nothing wrong in theory if the algorithm messes up.

Regulation can also bring up the question of whether certain kinds of information can even be illegal. On Amazon, one can purchase a book of firearm schematics. This is not wholly different from having the files to 3D-print a gun. A CAD file is essentially a digital schematic, which is not illegal. This is part of why, in the US context, the US Supreme Court decided that the files to 3D print a gun are protected under the First Amendment, information, and by extension being able to share it and view it, is not inherently illegal. Can, and should, we ban information on the premise it may be used for bad things? It is legal to own counterinsurgency manuals, something one could use to mount an insurgency campaign. The issue is that the information itself is not necessarily bad. This is the issue with regulation. How does the state know if information is shared for hobby or illegal purposes?

Understanding how to regulate this technology brings up a lot of questions and practical issues. It is hard to stop information from being posted and shared online and we should question if banning specific information from the internet violates free speech laws. Currently, most states ban 3D printing firearms under existing laws on manufacturing firearms. The practical and ethical feasibility of

regulating this technology however is outside the scope of this paper and is a question for further research.

Case Selection

Of course, the focus of this paper is not to discuss the legality or processes of 3D printing firearms at length. Outside of broad coalition libertarians and anarchists that are involved in designing and printing firearms as a hobby and political statement, a few groups have taken a major interest in the technology as a means to further their specific political goals. Those groups are accelerationist neo-Nazis and anti-junta rebels in Myanmar.

The reasoning behind the selection of these cases is the fact that these are the only two notable groups that are actively using 3D-printed firearms in the pursuit of their goals or on any form of battlefield. Beyond hobbyists and Second Amendment purists, there is little evidence to suggest other groups are actively printing firearms for use outside their own homes or gun ranges. In August 2024, a man in Aroostook, New Brunswick was arrested for producing and selling 3D-printed firearms (RCMP, 2024). However, this is not occurring on a large enough scale, or at least the evidence is not there, to suggest that 3D printing is a new major avenue for black market arms sales. Outside of use by your average gun owner for hobbyist purposes, the main use case has been by neo-Nazis and rebel groups in Myanmar. Hobbyist and designer PrintShootRepeat claims that changes to existing 3D-printed gun files are made directly by rebels in Myanmar (PSR, 2023), suggesting heavy usage in the conflict. While 3D-printed guns have appeared all over the world, used by black market arms dealers, gangs, and hobbyists, fighters in Myanmar attest to the widespread usage, and various arrests have been made against neo-Nazis intending to use these weapons to harm (Dearden & Gibson-Neff, 2024). Given a lack of widespread evidence of use by other groups, neo-Nazis and rebels in Myanmar present the best cases as both are open about why they view 3D printing as supportive of their ideology and goals beyond the economic incentives that arms dealers may have or avoid state

forces that criminals would have. The idea behind comparing these two cases is to examine how the main actors using these weapons view the purpose of the technology. This paper seeks to explain the reasoning behind why these actors adopt the technology of 3D printing firearms.

Neo-Nazi Ideology and Printed Guns

Accelerationism is a political ideology focused on using violent or forceful means in order to cause societal collapse. Accelerationists reject traditional political processes in favour of attempting to create mass instability to the point of collapse so that their ideology can rise (Beauchamp, 2019). The term was coined by Noys (2010), citing Deleuzian notions of deterritorialization and forcing capitalism's tendency towards collapse to work faster through historical processes in order to end capitalism. Accelerationists focus on exploiting and advancing social cleavages and tensions and catalyze breakdowns of socio-political-economic structures (Loadenthal, 2022).

Modern neo-nazis usually follow the ideology of James Mason that has been laid out in his collection of works known as Siege (Hendry & Lemieux, 2021). Mason denotes that the modern neo-Nazi must have a 'siege mentality', that they must remain decentralized and act as guerillas while engaging in seemingly random acts of terror to accelerate societal collapse (Hendry & Lemieux, 2021; Ware, 2019). Siege calls for leaderless, underground, guerilla cells that fetishize violence as a core doctrine that will carry out terror attacks to cause a race war (Ware, 2019). White nationalists, neo-Nazis, esoteric Satanists, and white supremacists have been increasing in activity, carrying out more mass casualty events and trying to radicalize others through the internet, often by worshiping their 'martyred pantheon of saints' (Auger, 2020). The far-right has been known to have a pantheon of so-called saints, people who have engaged in terror attacks to advance their cause (Walther & McCoy, 2021). For these people, nihilistic terror is a means to an end, however, they prefer to speculate and imagine attacks, providing information and

targets in the hopes that someone will be just radicalized enough to engage in violence (Loadenthal, 2022).

Groups like Atomwaffen Division, National Socialist Order, Tempel ov Blood, or the Order of 9 Angles rely on propaganda, images, symbols, and specific identifiers to spread their messaging (Hendry & Lemieux, 2021). The online right-wing is an echo chamber of messaging, memes, and esoteric symbolism used to egg its followers on, never specifically saying what they do, just hoping that someone else will commit an act of terror (Ware, 2020). Unlike jihadists, neo-nazis never specifically order attacks, the decentralized nature of their ideology makes that taboo (Ware, 2020). They also focus on using memes as a propaganda tool. Fashwave and amateurist irony have specific aesthetic markers, designed to be memorable and a call to action (Hendry & Lemieux, 2021).

The online far-right has taken a major interest in the utility of 3D-printed firearms. The ability to 'mass' produce at home creates a form of production that is free from standard regulation and has created a disruptive political imaginary that goes beyond standard political economy disruptions due to the attention of the far-right (Fordyce, 2015). 3D printing is not only disruptive since it allows anyone to print things, circumventing IP laws, but it is also helping to fuel the violent imaginations of the far-right. The far-right has taken up 3D printing firearms as a means to further their desire for a race war. The belief is that the more people who can make their own guns, outside of the eyes of state security services, the greater the possibility for violence (Fordyce, 2015). The far-right seeks to further social violence, increase societal disorder, and push people towards being increasingly violent in the hopes that society will collapse (Walther & McCoy, 2021). What better way to ensure everyone can be violent than everyone making their own firearm? The far-right in the US is also an extreme manifestation of the American right-wing, viewing examples such as the Waco and Ruby Ridge sieges as exemplary of the state attempting to suppress their rights to own guns (Ware, 2019). If you believe the state is willing to kill you for exercising your

rights, you may be more willing to find ways to circumvent state control, such as making your own gun. Neo-Nazi organization Stormfront directly calls on everyone to print their own guns, as they believe that more guns circulating, whether in the hands of neo-Nazis or the minority groups they seek to kill, means violence is likely to be accelerated until society collapses (Fordyce, 2015).

The first major instance of a neo-Nazi using 3D-printed weapon technology was in December 2020 when British neo-Nazi Matthew Cronjager was arrested while attempting to pay an undercover cop to print a firearm for him from files Cronjager had downloaded (Dearden & Gibson-Neff, 2024). On October 12, 2022, 19-year-old Juraj Krajčík perpetrated a terrorist attack that killed two people and injured one outside a gay bar in Bratislava, Slovakia (Kupper et al., 2023). Krajčík's manifesto, along with his digital footprint, point towards an online subculture known as Terrorgram, a loose network of accelerationist neo-Nazis on the social media app Telegram (Kupper et al., 2023). While the attack was carried out with a conventional firearm, he was heavily influenced by another Slovakian neo-Nazi who went by the online nickname 'Slovakbro' (Hanrahan, 2022b). Slovakbro was arrested in July 2022 for conspiracy to commit terror and for distributing blueprints for printing a firearm, upon search of his home by Slovakian police a 3D printer and parts for 3D-printed firearms were seized (Eurojust, 2024). The far-right organization Stormfront is also a major supporter of 3D-printed firearms. They believe either 3D printing guns will help them circumvent firearm laws, or that their political enemies will use the technology to heavily arm themselves, either way, the proliferation of illegal firearms will help further their accelerationist views on social race war (Fordyce, 2015). In an interview with journalist Jake Hanrahan, JStark did admit that there was a worry about nazis in the 3D-printed firearm community, though the aggressive libertarian ethos of Deterrence Dispensed means they cannot stop people from accessing the technology as everyone should be able to own and make a firearm (Hanrahan, 2020b). In October 2019, neo-nazi Stephen Baille live-streamed himself shooting two people dead at a synagogue in

Germany with a 3D-printed firearm (Dearden, 2019). In July 2023, a four-man cell in Finland was arrested for planning to carry out racially motivated terror attacks with the use of 3D-printed firearms (Dass, 2023). The group were adherents to Mason's Siege ideology and had posted photos of their use of an FGC-9 and pictures of them in front of flags of the Third Reich holding FGC-9s (Dass, 2023). As recently as February 2024, three men in Leeds were arrested for planning to carry out a terror attack on an Islamic community centre; police seized FGC-9s in the raid (Dodd, 2024).

This is by no means a comprehensive list, nor is it within the limits of this paper to discuss every instance of far-right group members printing their own weapons. The above list is to show both the prevalence and reasonings why the far-right has picked up 3D printing as a means to achieve the desired ends; violent killings against groups they deem undesirable in the hopes of sparking a race war and the collapse of society. If one is seeking to engage in an act of terror, why legally purchase a gun that can theoretically be traced when you could make it yourself? The FGC-9 can allow neo-Nazis to avoid possible state surveillance when acquiring a firearm. Mass printing firearms also means they can easily arm large numbers of people, who may not be able to purchase a firearm or to create a militia readily able to engage in violence that is hard to trace.

The danger however in the fetishization of 3D-printed weapons by accelerationist neo-Nazis is not actually in their possession of them. The true danger lies in their ideology. Little needs to be stated about the ease at which a firearm can be purchased in the United States should an independent citizen seek to purchase one, no matter their political affiliation or background obviously. This is the basis of the Second Amendment, which most designers of 3D-printed firearms staunchly defend. Outside of the US, the context is different. The black market for firearms in Europe and North America is massive enough that neo-Nazis can and will possess firearms no matter what. The Small Arms Survey (n.d.) estimates that there are nearly 1 billion small arms in circulation around the world, one gun for every 7

people. Independent researchers with Militant Wire have noted the vast prevalence of Albanian and Chinese surplus AKM and AK-74 pattern rifles in the French black market that have made their way to Islamic and nationalist militant groups (War Noir, 2024). The Greek black market is flooded with a wide variety of weapons including AK and G3 pattern rifles, MP5 pattern submachine guns, Chinese RPG variants, and World War 2 era submachine guns and rocket launchers (War Noir & The Wannabewonk, 2023). 3D printing simply makes arms more accessible to wannabe terrorists. Of course, this is worrying but accessing the technology is not what makes them terroristic, their ideology would drive them to find other ways to use violence to accelerate collapse.

The real way to counter accelerationist extremism is by addressing the reasons why young men are becoming violently radicalized and countering the ideology of neo-nazism, rather than invoking strict law enforcement (Ware, 2020). Addressing the attack on reason in American politics goes hand in hand with addressing the rise of the far-right (Niose, 2014, p. 197). The US far-right is also deeply entrenched in American history of anti-government sentiment and relies on provoking state violence to further its goals (Robinson et al., 2023). Countering a decentralized ideology requires addressing the causes of why people become radicalized as these groups persist despite arrests of supposed leadership (Robinson et al., 2023). The legal mechanisms in place to restrict small arms proliferation are unable to deal with the disruptive technology that is 3D printing guns. The information is publicly available and would be impossible to get off the internet (Jacobs & Haberman, 2017). No regulation can feasibly cover every possibility in order to stem the flow of this information without being extremely difficult, if not impossible, to implement (Bryans, 2015). As will be argued in the rest of this paper, there are good reasons why this technology should not be regulated as it offers an important means for subaltern actors in the international system to engage in liberatory violence as a means to fight oppressive governments.

Arms and Liberatory Struggle

Guns are not simply weapons or tools of violence, but they are also symbols of power, primacy, and respect (Carr, 2008, p. IX). Many heavily armed non-state groups view the ownership of a firearm as liberatory and a means to keep their community separate from a state they do not believe represents them (Carr, 2008, p. 15). Armed violence and struggle were the means to independence for a vast number of formerly colonized states that gained their independence through war. Despite never being a specific core tenant of their ideology, the Palestinian Liberation Organization utilized armed struggle as a central means to gain some independence from Israel (Sayigh, 1997). The language of armed struggle through the 60s and 70s helped to give substance to an imagined community of Palestinians who saw themselves as a revolutionary people (Sayigh, 1997). Armed struggle helped preserve the PLO's status as virtually a state actor (Sayigh, 1997). In the context of the Cuban Revolution, Che Guevara (1985) stressed the importance of guerilla warfare not only as the primary tactic of revolutionaries but also as important for helping to build solidarity and community among the revolutionaries. In the Additional Protocols to the Geneva Conventions on the Laws of War, armed liberation groups were not given privileged belligerent status, justifying colonial wars to maintain imperialism (Whyte, 2018). During the anti-colonial wars of the post-World War II world, liberatory struggles were treated by European states as domestic terrorism rather than an international war in order to justify harsh violence against colonized peoples (Whyte, 2018). One cannot expect to simply gain equality or humanity, sometimes one must physically take it through force.

The politics of security create a situation in which some violence is permitted and other forms of violence are deemed terrorist or illegitimate, the logic of biopower prevails in a state-centric conception of security where only the state is allowed to use violence, and those on the receiving end of state violence are illegitimate in fighting back (Browning & McDonald, 2013).

Colonialism, and by extension state centrism, combines disciplinary power and biopower with necropolitics, putting the colonized or oppressed subject in a state of limbo between life and death, where they remain at the ultimate power of the state (Peoples and Vaughan-Williams, 2021). In Kurdish resistance groups, the arming of women is a necessary means not only to achieve gender equality but also to fight against state oppression (Burç, 2020). In the views of Abdullah Öcalan, women's empowerment is the only way that any oppressed people can truly be free (Burç, 2020). Women must demand their emancipation, not simply hope someone gives it to them, which is why they take up arms in the Kurdish context. Franz Fanon (2004) argues in The Wretched of the Earth that liberating counter-violence was necessary not only to end colonial violence but also to help forge a national identity through violent struggle against colonialism.

Governance of the arms trade and small arms proliferation also exerts power over non-state actors. Weapons manufacturing is for the most part under the auspices of the state, whether through state ownership or regulation (Lock, 1997). Non-state armed groups are also not able to legally buy weapons from states (Lock, 1997). While there is little transparency on the global arms trade, for the most part, Western governments refuse to openly provide arms to non-state armed groups, something that NGOs have taken issue with in some cases (Lumpe,1999). The UN arms embargo against Bosnia has been heavily criticized as aiding the

Serbian-led genocide as the Bosnians had no arms to defend themselves with (Gow, 1997, p. 37). Arms could only be sold to the Yugoslav Army, sales to non-state armed groups were not allowed. For oppressed groups that may struggle to gain international support, or do not have the means to purchase arms on the black or grey markets, 3D printing their own guns can be an important means to fight oppression. Of course, there is nuance to this view. What about groups that perceive themselves as oppressed, but would use this technology to enact greater violence on others? Neo-nazis view

themselves as reacting to something happening to them, that societal progress is oppressive to them (Loadenthal, 2022). They view themselves as oppressed by society and seek to become the oppressor instead, desiring to engage in racist and homophobic violence. Consider the case of Ansar Allah, more colloquially known as the Houthis, in Yemen. In 1997, with support from the IRGC's Quds Force, Hussein al-Houthi founded a militant Shia group using Hezbollah as its model which would become Ansar Allah (Uskowi, 2019, pg. 117). The Houthis claim to be fighting oppression following the end of Zaydi religious rule, and due to corruption in Yemen, the Houthi stronghold region of Saada is extremely underdeveloped (Al Jazeera, 2009). The Houthis view themselves as oppressed and seek to restore their own form of religious rule, even if their rule would be to further Iranian regional influence (Ghoble, 2019).

Following Horowitz's typology of ethnic relations and ethnic violence, many oppressed groups within states seek to become the oppressors themselves (Horowitz, 1985, pg. 31-34). Freire believed that in struggling to become free, without proper education, the oppressed will seek to become the oppressor instead. (Freire, 1970/1993, pg. 18). Of course, as with the case of neo-Nazis fetishizing 3D printing, it is not the technology itself that presents an issue, nor is it inherently liberatory for anyone. As with the case of the Bosnian arms embargo, if no one is willing to help a group of people truly seeking liberation, they must find ways to help themselves. In forgotten conflicts around the world where people are fighting simply for the right to be free, 3D printing firearms can represent a technology for self-help, and thus liberation.

While it may be hard to separate out the oppressed seeking liberty from the wannabe oppressor, we cannot deny that this technology furthers a view on armed liberation struggle. If armed confrontation is the only way an oppressed people can fight tyranny, and no one is willing to provide them with material or financial support, 3D printing allows them a chance to fight, as will be discussed in the next section.

3D-Printed Guns in Myanmar

The Burmese military, referred to as the Tatmadaw, seized power in a coup conducted in February 2021 (Paddock, 2022). Peaceful protest against the coup devolved into armed confrontation following the deaths of protestors by the Tatmadaw (Paddock, 2022). Of course, Myanmar has been in a near-constant state of war for years, the Rakhine State in Myanmar has been the site of guerilla conflict conducted by the Arakan Army and Rohingya groups, as well as a genocide carried out by the Tatmadaw (BBC News, 2024; Human Rights Watch, 2022). These are not the only armed groups active in Myanmar, basically every region of the country has an active armed group, either aligned with the military, pro-democracy forces, or for national liberation. This section outlines the use of 3D-printed firearms by anti-military armed groups in Myanmar.

Rebel forces in Myanmar have faced a major issue in their conflict, a lack of access to firearms, leading them to turn to 3D printing as a means to bridge the material divide (Molitch-Hou, 2023). The FGC-9 has an overhead cost between $300-$500 for the printer and the electromagnetic machining equipment, making it an extremely cheap option for mass-producing weapons (Molitch-Hou, 2023). Journalist Jake Hanrahan has reported on the widespread usage of the FGC-9 by anti-junta rebels in Myanmar (Daly, 2023). The civil war in Myanmar is a field test for the utility of these weapons, showing that they have real combat applications and if made properly are just as deadly and functional as traditional metal firearms (Molitch-Hou, 2023). Myanmar is not an easy place to get firearms. The country has been under an arms embargo since the beginning of the civil war (Arms Control Association, 2021).

However, this has done little to stop the flow of weapons from Russia and China to the Tatmadaw (Arms Control Association, 2021). Myanmar is also not a state where gun ownership is rampant (Carr, 2008, p. 3). This technology, exemplified by Burmese rebels, helps to show how sub-state actors can circumvent the governance of small arms and create their own mass-produced arsenals without needing

to rely on black or grey markets (Katsuya, n.d.). The FGC-9 is not the most powerful gun, only being chambered in 9mm, but when facing an oppressive dictatorship, having a plastic gun is better than not having one at all (Daly, 2023). According to hobbyist PrintShootRepeat, the FGC-9 is a gun that lets you get another gun, specifically from state military personnel (PSR, 2023). When facing a brutal, genocidal force like the Tatmadaw, rebels in Myanmar can mass produce their own guns at an extremely cheap cost that can give them a fighting chance. 3D printing is an important technology in a world where the means of production are increasingly being shored up by states and private corporations (Molitch-Hou, 2023). People no longer need to rely on clandestine or black market arms deals, people can secure power on their own, producing firearms in their own homes to fight oppression. Rebels in Myanmar usually use the weapons in ambush attacks, making use of guerilla tactics in order to capture the mass-produced weapons used by the military (Hanrahan, 2022a). As stated previously, these guns help to reduce technological divisions between states and rebels and present a means to fight back against tyranny and oppression.

The People's Defence Force, or PDF, is one of the largest rebel groups in the country, made up of remnants of the National Unity government which was removed by the coup in 2021 (PSR, 2023; Regan & Watson, 2024). At the beginning of the civil war, due to the lack of availability of civilian firearms in the country, many PDF rebels were using poorly constructed, homemade, bolt-action rifles chambered in .22LR (Hanrahan, 2022a). For context, the FGC-9 uses a 9mm round, which carries about 11,000 more psi and about 2 to 3 times the foot pounds of force (Ammo.com, n.d.). On pure ballistics, rebels adopting the FGC-9 presents a technological increase in capabilities. Being semi-automatic as opposed to bolt action also presents a material advantage. When used for its intended purpose, guerilla warfare and ambushes (Hanrahan, 2022a), the FGC-9 can fire faster and hit harder. This technological and material upgrade for the rebels has likely had an important effect in allowing rebels to wage a guerilla war. We also see evidence

pointing toward the rebels being in a position to defeat the junta as the territory controlled by the junta is decreasing (Ng, 2024; Regan & Watson, 2024). Self-described Burmese rebels online are claiming the use of weapons for the purposes described above, carrying out ambushes in order to secure weapons and ammo from the military, to use in order to continue the fight with better equipment (Hanrahan 2022a; Eydoux, 2022). Reports from the rebels themselves, along with independent confirmation of the use (Hanrahan, 2022c; WarNoir, 2024), coupled with the possibility that the rebels are winning the conflict, suggests that the FGC-9 has had some form of effect on the conflict, even if it has simply allowed ambushes to be more effective.

The importance of comparing these two groups is that both seek to use 3D-printed firearms as a political tool in order to further their cause, however, one finds its basis in terroristic violence against marginalized groups and the other seeks liberation from an oppressive state. Regulating 3D printing technology will not keep the far-right from carrying out terror attacks. America is one of the most heavily armed countries in the world, getting your hands on guns or explosives, black market or legal, is essentially trivial. The far-right needs to be ideologically countered, rather than taking legal or judicial action to target the symptoms of neo-nazism and white supremacy, that being accelerationist terror (Ware, 2020). In fighting a violently oppressive government with a vast track record of human rights abuses, people have little recourse other than taking up arms and taking these rights for themselves (Hanrahan, 2022a). The global governance that surrounds the arms trade is necessary, the proliferation of small arms in the world is already astronomical. However, adding another level of governance over 3D printing technology would not only be nearly impossible to implement, but it would also mean rebel groups in Myanmar, and other groups in the future, fighting tyranny would be greatly limited in their available sources to take up arms for their human rights. The technology can also help subaltern actors legitimize themselves and offers a recourse to the traditionally ‘weak and powerless’. Through a traditional security lens, the subaltern actor, specifically the non-state

actor, is often seen as the terrorist given their lack of options for recourse against oppressive state power (Peoples & Vaughan-Williams, 2021, p. 88). With the help of mass-produced 3D printed guns, the non-state rebel has a wider range of tactics and options available to them in order to fight the state.

3D-printed drones have also started appearing on battlefields, including in Myanmar. A former network engineer turned insurgent who goes by the nom de guerre '3D' has developed a printed drone for use by insurgents after witnessing anti-junta protests turn deadly in Myanmar (Wesdorp, 2023). He claims the 3D printing of weapons has helped the rebels who started out with nothing to fight back against a military force far superior to anything they could muster (Wesdorp, 2023). In Ukraine, 3D printers have been used to create munitions to be dropped out of drones with greater effect than the standard hand grenades usually used (O'Donnell, 2023). Ukrainians have also been 3D printing FPV drones in order to keep up production of these single-use weapons (Walsh et al., 2024). The technology has come a long way from the Liberator and is continuing to improve. Thousands of blueprints can be found online for all kinds of weapons. As Deterrence Dispensed member Ivan the Troll claims, there are hundreds of people around the world sharing knowledge and expertise, allowing these designs to be constantly refined and improved upon (Hanrahan, 2019). In both cases of Ukraine and Myanmar, 3D printing helps bridge gaps in productive and economic capabilities that the Ukrainians and the Burmese rebels do not have in comparison to the Russian or the Burmese militaries. 3D printing is a low-cost, relatively low-skill way for them to access guns and drones and fight for their freedom.

Limitations to the Technology

It should be stressed that there are practical limitations to this technology. As JStark himself says, the point of the FGC-9 was to create a weapon for guerillas, a weapon that is cheap, effective, and easily destroyed if needed (Hanrahan, 2020b). No rebel groups are going to be printing an aircraft carrier or fifth-generation fighter jet as

this is simply not possible, and while I have discussed earlier the ability to print rocket launchers, for most use cases, this has been more hobbyists seeing what is possible. Rebels in Myanmar have been reported to 3D print man-portable air defence systems, or MANPADS (Hanrahan, 2022a). As this technology is mostly used by some form of guerilla group, both rebels in Myanmar and accelerationist neo-Nazis rely on forms of guerilla war to combat real or perceived oppression, the technology remains somewhat limited by what its application is on the battlefield. While outside of the scope of this paper, it remains to be seen what the true limitations are for how this technology can be used in modern warfare. While one can easily 3D print a drone and some small explosives, or 3D print fully automatic weapons, will guerilla groups be able to 3D print technology to produce chemical weapons or parts for rocket artillery? This presents an avenue for further research into what the future implications are of 3D-printed weapons technology.

Conclusion

The security risks of these weapons have been wildly overestimated. While the technology has improved and become more accessible, 3D printing firearms still requires a degree of skill (Dass & Mok, 2023). Some of the legal worries around the technology relate more to copyright law than it does any security risks of the technology (Fordyce, 2015). There are hundreds of existing texts, manuals, and courses that can teach people how to manufacture conventional firearms, and in the US it is fully legal to do so as well (Jacobs & Haberman, 2017). US law doesn't explicitly forbid the technology either, since it is debatable whether or not posting CAD files online counts as exporting defence materials, which would be a crime (Bryans, 2015). However, it still remains a niche occurrence. While there have been some concerns in the US around a large influx of 3D-printed, untraceable guns, and these also being used by cartels, both Americans and the cartels are already so heavily armed, there is no real need to 3D print guns (Daly et al., 2021). The main security risk exists with the European far-right, where gun control laws are

extremely restrictive and 3D printing a firearm is at least cheaper than purchasing one on the black market, if not easier as well. As argued throughout this paper, attempting to regulate the technology would have vast impacts, not only within fully legal civilian markets but also for non-state armed groups fighting for freedom from oppression. People must be able to arm themselves in order to gain their freedom from tyranny. 3D printing allows this and should continue to be allowed to do so.

This paper has examined the legal and technical regimes that surround 3D printing firearms, as well as assessing the two main actors who have been making use of the technology. While the global far-right and their ideology of accelerationist violence is a major concern for state and human security, defeating neo-nazism is more complicated than making arrests or scouring the internet for people downloading gun blueprints. The far-right has to be defeated in the ideological domain and the causes of radicalization must be addressed. For anti-junta rebels in Myanmar, JStark's FGC-9 is a tool for them to be able to challenge a brutal military dictatorship that has been well-funded and armed. Without these weapons, Burmese rebels, and likely other rebel groups in the future, would stand little to no chance of defending themselves and gaining their freedom. The technology allows these actors to circumvent global governance surrounding the arms trade that has historically been deadly to subaltern actors, specifically non-state actors. 3D-printed guns do not pose a major security risk, rather they facilitate armed, liberatory struggle for actors facing a vastly superior force. While there is nuance to the idea of who is truly engaging in a liberatory struggle, and who may use this technology for engaging in greater violence, 3D-printed guns can still be helpful in bridging the material gap between a guerilla group and a state military force. There is also further research to be done on how this technology can be properly regulated. There are ethical and technological questions on how, if at all, the technology should be regulated, which presents opportunities for further research into the subject.

Bibliography

3DPrinterOS. (2018, August 1). Thoughts on 3D printing and guns. 3DPrinterOS. https://www.3dprinteros.com/articles/thoughts-on-3d-

printing-and-guns

"Accessories: M202 Flash Rocket Launcher." (n.d.). 3D Gun Builder. Retrieved from https://3dgunbuilder.com/accessories/m202-flash-rocket-launcher/

Al Jazeera. (2009, August 12). Profile: Yemen's Houthi Fighters. Al Jazeera.http://english.aljazeera.net/news/middleeast/2009/08/200981294214604934.html

Ammo.com. (n.d.). 22 vs 9mm Ammo Comparison: Choosing Between .22 LR & 9mm Caliber Cartridges. Ammo.com. Retrieved November 12, 2024, from https://ammo.com/comparison/22-vs-9mm

Arms Control Association. (2021, July). UN adopts nonbinding arms embargo on Myanmar. Arms Control Association. Retrieved from: https://www.armscontrol.org/act/2021-07/news-briefs/un-adopts-nonbinding-arms-embargo-mya nmar

Auger, V. A. (2020). Right-wing terror: A fifth global wave? Perspectives on Terrorism (Lowell), 14(3), 87–97.

Basra, R. (2023, October 19). Behind the mask: Uncovering the extremist messages of a 3D-printed gun designer (Report). International Centre for the Study of Radicalisation and Political Violence.

BBC News. (2016, October 9). Myanmar policemen killed in Rakhine border attack. BBC News. Retrieved from https://www.bbc.com/news/world-asia-37601928

Beauchamp, Z. (2019, November 11). Accelerationism: The obscure idea inspiring white supremacist killers around the world. Vox. https://www.vox.com/the-highlight/2019/11/11/20882005/accelerationism-white-supremacy-christchurch.

Berkowitz, J. (2018). Computer-aided destruction: Regulating 3D-printed firearms without infringing on individual liberties. Berkeley Technology Law Journal, 33(1), 53–88.

Browning, C. S., & McDonald, M. (2013). The future of critical security studies: Ethics and the politics of security. European Journal of International Relations, 19(2), 235–255. https://doi.org/10.1177/1354066111419538.

Bryans, D. (2015). Unlocked and loaded: Government censorship of 3D-printed firearms and a proposal for more reasonable regulation of 3D-printed goods. Indiana Law Journal, 90(2), 901-934.

Burç Rosa. (2020). Non-territorial autonomy and gender equality: The case of the Autonomous Administration of North and East Syria - Rojava. Filozofija i Društvo, 31(3), 319–339.

Bureau of Alcohol, Tobacco, Firearms and Explosives. (2020, March 17). Does an individual need a license to make a firearm for personal use? https://www.atf.gov/firearms/qa/does-individual-need-license-make-firearm-personal-use

Carr, C. (2008). Kalashnikov culture: Small arms proliferation and irregular warfare. Westport, CT: Praeger Security International.

Cook, P. (2021). The international security implications of 3D printed firearms. In Emerging technologies and international security (1st ed., Vol. 1, pp. 192–205). Routledge.

Daly, M. (2023, May 22). What unites organised crime in Europe with rebels in Myanmar?

3D-printed guns. Vice. Retrieved from: https://www.vice.com/en/article/xgwyga/3d-printed-guns-gangs-rebels

Daly, A., Mann, M., Squires, P., & Walters, R. (2021). 3D printing, policing and crime. Policing & Society, 31(1), 37–51. https://doi.org/10.1080/10439463.2020.1730835.

Dass, R. (2023, October 6). 3D-printed weapons and the far-right: The Finnish accelerationist cell. GNET. Retrieved from https://gnet-research.org/2023/10/06/3d-printed-weapons-and-the-far-right-the-2023-finnish-acce lerationist-cell/

Dass, R., & Mok, B. (2023, February 20). Assessing the impact of 3D-printed weapons on the violent extremist milieu. GNET. Retrieved from https://gnet-research.org/2023/02/20/assessing-the-impact-of-3d-printed-weapons-on-the-violentextremist-milieu/

Dearden, L. (2019, October 10). 3D gun print used in Germany synagogue shooting. The

Independent. Retrieved from: https://www.independent.co.uk/news/world/europe/3d-gun-print-germany-synagogue-shooting-st ephan-balliet-neo-nazi-a9152746.html

Defense Distributed. (n.d.). Defense Distributed. Retrieved March 16, 2024, from https://defdist.org/

Dodd, V. (2024, February 27). Three men charged over far-right terror plot allegedly involving

3D-printed gun. The Guardian. Retrieved from https://www.theguardian.com/uk-news/2024/feb/27/three-men-charged-over-far-right-terror-plotallegedly-involving-3d-printed-gun.

Eurojust. (2024, July 8). Slovak and Czech authorities take action against right-wing terrorism. Retrieved from https://www.eurojust.europa.eu/news/slovak-and-czech-authorities-take-action-against-right-win g-terrorism

Eydoux, T. (2022, January 14). Myanmar rebels turn to 3D-printed weapons in fight against the junta. France 24. https://observers.france24.com/en/asia-pacific/20220114-3d-printed-weapons-myanmar-rebels Fanon, F. (2004). The wretched of the earth (R. Philcox, Trans.). New York: Grove Press.

Fordyce, R. (2015). Manufacturing imaginaries: Neo-Nazis, men's rights activists, and 3D printing. Journal of Peer Production, 6.

Freire, P. (1993). Pedagogy of the Oppressed (M. B. Ramos, Trans.). Penguin Modern Classics. (Original work published 1970)

Dearden, L., & Gibbons-Neff, T. (2024, September 10). He's known as "Ivan the troll." his 3D-printed guns have gone viral. The New York Times. https://www.nytimes.com/2024/09/10/world/europe/ivan-troll-3d-printed-homemade-guns-fgc9. html

Ghoble, Vrushal T. "Saudi Arabia–Iran Contention and the Role of Foreign Actors." Strategic Analysis 43, no. 1 (January 2, 2019): 42–53. doi:10.1080/09700161.2019.1573772.

Greenberg, A. (2013, November 16). 3D-printed gun stands up to federal agents' test-firing--except when it explodes (Video). Forbes. https://www.forbes.com/sites/andygreenberg/2013/11/14/3d-printed-gun-stands-up-to-federal-ag ents-testfiring-except-when-it-explodes-video/?sh=6c2f4e83455c

Global firearms holdings. (n.d.). Small Arms Survey. Retrieved from https://www.smallarmssurvey.org/database/global-firearms-holdings

Gow, J. (1997). Triumph of the lack of will: International diplomacy and the Yugoslav War. New York: Columbia University Press.

Guevara, C. (1985). Guerrilla warfare (B. Loveman & T. M. Davies, Eds.). (J. P. Morray, Trans.). Lincoln: University of Nebraska Press.

Hanrahan, J. (2019, May 20). 3D-printed guns are back, and this time they are unstoppable. Wired. Retrieved from https://www.wired.com/story/3d-printed-guns-blueprints/

Hanrahan, J. (2020a, August). 91. Plastikov and the 3D printed gun resistance [Audio podcast episode]. In Popular Front. Spotify. https://open.spotify.com/episode/6otZx6EBvvHBOgup3lR902?si=5e319b1803b24111

Hanrahan, J. (2022a, November). 165. JStark's legacy: 3D-printed guns of the Myanmar rebels [Audio podcast episode]. Popular Front. Spotify. Retrieved from: https://open.spotify.com/episode/4BBQPv2GdztNviXQIGLZzn?si=88c313a992184635

Hanrahan, J. (2022b, December). 168. The Bratislava Terrorgram shooting [Audio podcast episode]. Popular Front. Spotify. https://open.spotify.com/episode/3psWyLGuZsk9pRaInaYtTL?si=7180e13e2fa94732

Hanrahan, J. [@Jake_Hanrahan]. (2022c, July 20). The first footage of the 3D-printed FGC-9 gun (JStark's gun) being used by anti-junta guerrillas in Myanmar against the military. Incredible. [Tweet]. X. https://x.com/Jake_Hanrahan/status/1549770223997358085

Hanrahan, J. (2020b, November 23). Plastic defence: Secret 3D printed guns in Europe [Video]. YouTube. https://www.youtube.com/watch?v=jlB2QV5wVxg

Hendry, J., & Lemieux, A. F. (2021). The visual and rhetorical styles of Atomwaffen Division and their implications. Dynamics of Asymmetric Conflict, 14(2), 138–159. https://doi.org/10.1080/17467586.2021.1913203.

Horowitz, Donald L. (1985). Ethnic Groups in Conflict. University of California Press.

Human Rights Watch. (2022, August 24). Myanmar: No justice, no freedom for Rohingya 5 years on. Human Rights Watch. Retrieved from: https://www.hrw.org/news/2022/08/24/myanmar-no-justice-no-freedom-rohingya-5-years

Inline Policy. (2014, June 19). 3D printing regulation: Should governments intervene? Inline Policy. https://www.inlinepolicy.com/blog/3d-printing-regulation-to-intervene-or-not-to-intervene

Jacobs, J. B., & Haberman, A. (2017). 3D-printed firearms, do-it-yourself guns, & the Second Amendment. Law and Contemporary Problems, 80(2), 129–147.

Katsuya, M. (n.d.). Toy guns and rebel groups: The proliferation of 3D-printed armaments. Foreign Affairs Review. Retrieved from: https://www.foreignaffairsreview.com/home/toy-guns-and-rebel-groups-the-proliferation-of-3d-p rinted-armaments

Kupper, J., Rekawek, K., & Kriner, M. (2023). Terrorgram's first saint: Analyzing accelerationist terrorism in Bratislava. Accelerationist Research Consortium.

Loadenthal, M. (2022). Feral fascists and deep green guerrillas: Infrastructural attack and accelerationist terror. Critical Studies on Terrorism, 15(1), 169–208. https://doi.org/10.1080/17539153.2022.2031129.

Lock, P. (1997). Armed conflicts and small arms proliferation. Policy Sciences, 30(3), 117.

Lumpe, L. (1999). Curbing the proliferation of small arms and light weapons. Security Dialogue, 30(2), 151–164. https://doi.org/10.1177/0967010699030002003.

Molitch-Hou, M. (2023, August 25). Myanmar rebels rely on 3D-printed guns to fight military junta. 3DPrint.com. Retrieved from: https://3dprint.com/302100/myanmar-rebels-rely-on-3d-printed-guns-to-fight-military-junta/

Morelle, R. (2013, May 6). Working gun made with 3D printer. BBC News. https://www.bbc.com/news/science-environment-22421185

Niccol, A. (Director). (2005). Lord of War [Film]. Lions Gate Films.

Niose, D. (2014). Fighting back the right: Reclaiming America from the attack on reason. New York: St. Martin's Griffin.

Ng, K. (2024, September 27). Myanmar rebels reject embattled junta's peace offer. BBC News. https://www.bbc.com/news/articles/cj04955442ro

Nopel. (n.d.). Odysee. Retrieved from https://odysee.com/@Nopel:6/M1337_VersionB1:5 Plaboiiii. (2024, March 15). Video [Tweet]. Twitter. https://x.com/plaboiiii/status/1760678510010708243?s=20

Noys, B. (2010). The persistence of the negative: A critique of contemporary continental theory. Edinburgh University Press.

O'Donnell, W. (2023, August 2). Ukraine is now 3D-printing bombs to keep up with demand. Medium. Retrieved from https://wesodonnell.medium.com/ukraine-is-now-3d-printing-bombs-to-keep-up-with-demand-7 0588843cf61

Paddock, R. C. (2022, December 9). Myanmar's coup and its aftermath, explained. The New York Times. Retrieved from https://www.nytimes.com/article/myanmar-news-protests-coup.html

Peoples, C., & Vaughan-Williams, N. (2021). Critical Security Studies: An Introduction (3rd ed., Chapter 5). New York: Routledge.

"Plastikov V3 - 3D Gun Builder" (n.d.). 3D Gun Builder. Retrieved from https://3dgunbuilder.com/rifles/plastikov-v3/

PSR. (2023, July 13). This war is being fought with 3D printed guns [Video]. YouTube. https://youtu.be/l0oXupwf2D4

Public Safety Canada. (2024, February 20). Ghost guns and illegal manufacturing in Canada. https://www.publicsafety.gc.ca/cnt/trnsprnc/brfng-mtrls/prlmntry-bndrs/20240220/13-en.aspx

Regan, H., & Watson, A. (2024, August 2). Myanmar rebels are claiming their biggest victory yet over junta forces. could it be a turning point in the Brutal Civil War?. CNN.

https://www.cnn.com/2024/08/02/asia/myanmar-lashio-junta-resistance-intl-hnk/index.html

Robinson, K., Malone, I., & Crenshaw, M. (2023). Countering far-right anti-government extremism in the United States. Perspectives on Terrorism (Lowell), 17(1), 73–87.

Royal Canadian Mounted Police. (2024, August 20). Man arrested following 3D printed firearm investigation.https://www.rcmp-grc.gc.ca/en/news/2024/man-arrested-3d-printed-firearm-investigation Sayigh, Y. (1997). Armed struggle and state formation. Journal of Palestine Studies, 26(4), 17–32. https://doi.org/10.1525/jps.1997.26.4.00p00037

Uskowi, Nader. Temperature Rising: Iran's Revolutionary Guards and Wars in the Middle East. Lanham: Rowman & Littlefield, 2019.

VoxelMatters. (2024, February 8). 3DPrinterOS develops algorithm to identify 3D printed gun parts. VoxelMatters. https://www.voxelmatters.com/3dprinteros-develops-algorithm-to-identify-3d-printed-gun-parts/

Walsh, N. P., Rappard, A.-M., Gak, K., & Laine, B. (2024, February 29). Russian quad bike raids, 3D printed drones and a lack of ammo: Life on the front line in Ukraine's Robotyne. CNN. Retrieved from https://www.cnn.com/2024/02/29/europe/drones-front-line-ukraine-robotyne-russia-intl/index.ht ml

Walther, G. (2015). Printing insecurity? The security implications of 3D-printing of weapons.

Science and Engineering Ethics, 21(6), 1435–1445. https://doi.org/10.1007/s11948-014-9617-x

Walther, S., & McCoy, A. (2021). US extremism on Telegram: Fueling disinformation, conspiracy theories, and accelerationism. Perspectives on Terrorism (Lowell), 15(2), 100–124.

War Noir. (2024, February 22). Weapons of France's illicit arms markets. Retrieved from https://www.militantwire.com/p/weapons-of-frances-illicit-arms-markets.

War Noir & The Wannabewonk. (2023, March 30). Guns and grenades of the Greek underground. Militant Wire. Retrieved from: https://www.militantwire.com/p/guns-and-grenades-of-the-greek-underground

War Noir. [@war_noir]. (2024, August 9).#Myanmar (#Burma) □: People's Defense Forces carried out an attack on Military Council checkpoint in #Myingyan, #Mandalay. [Tweet]. X. https://x.com/war_noir/status/1822114246441783508

Ware, J. (2020). Fighting back: The Atomwaffen Division, countering violent extremism, and the evolving crackdown on far-right terrorism in America. Journal for deradicalization, Winter 20/21(25), 74–116.

Ware, J. (2019). Siege: The Atomwaffen Division and rising far-right terrorism in the United States [Report]. International Centre for Counter-Terrorism. Retrieved from http://www.jstor.org/stable/resrep19615.

Wesdorp, D. (2023, September 29). The rebel drone maker of Myanmar. Wired. Retrieved from https://www.wired.com/story/the-rebel-drone-maker-of-myanmar/

Whyte, J. (2018). The 'dangerous concept of the just war': Decolonization, wars of national liberation, and the Additional Protocols to the Geneva Conventions. Humanity (Philadelphia, Pa.), 9(3), 313–341. https://doi.org/10.1353/hum.2018.0017