



We Ain't No Ways Tired: We Demand a Ban on the AR-15 Rifle Now

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I have elected to forgo the normal editorials for this edition. I have asked Dr. Joyce Newman Giger, Christine Brannon, and our new friend to the JNBNA, Michael Blanchard, former police officer, Indianapolis, Indiana, and current Investigator, Saint Joseph County, South Bend, Indiana, to assist in writing this editorial. The last time the four of us combined to write, it was about bump-stock fire. Shortly after the journal came out, there was a mass shooting in a Parkland, Florida, high school and three school staff members and 14 of this nation's children were killed. The accused shooter there, a 19 year-old former student, used an "AR-15-style" semi-automatic rifle.

From There to Here

We ain't no ways tired of writing about the carnage caused by guns and assault weapons. Through our research, we have come to learn quite a bit about why we need gun control in this country. This time we turn our attention to the AR-15 rifle. To understand the AR-15 rifle, we need to trace its historical origins. In the late 1950s, Eugene Stoner originally designed the AR-15 rifle while working as an engineer for ArmaLite an upstart California company, a division of the Fairchild Aircraft & Engine Corporation (Personal Communication, Michael Blanchard, May 16, 2018). The influence of the AR-15 was so far-reaching that when Stoner died in 1997, not only was he a millionaire, but he also held over 100 patents on small arms (Lach, 2012). Many people think that AR stands for assault rifle; but it does not. The "AR" is an abbreviation for "ArmaLite Rifle," after the company that designed the firearm. However, what this rifle is called is not as important as what it does when fired. The AR-15 was not designed for ordinary civilian use, but for military use as a highly lethal combat weapon (Zimba, 2014). To understand this rifle and what it is capable of doing, especially to the human body, it is necessary to understand how we got from there to here, where we are today.

How We Got from There to Here: The Gun That Went to War and Back

The AR-15 was conceived in response to the search for a replacement of the heavy rifles used in prior conflicts. It was specifically designed to be a lightweight and practical weapon for use by the military (Modern Sporting Rifle Facts, 2013). Originally, the AR-15 was made from aluminum alloy and synthetic materials. In fact, it was so light and practical that when it was fully loaded, it only weighed approximately 6-9 pounds (Walters, 2014), which as an added benefit, allowed the troops to carry more ammunition into battle with them. But, although the AR-15 was an excellent design, ArmaLite experienced various financial problems and had limited manpower as well as limited manufacturing capabilities to produce the AR-15. In 1959 they sold the design and the AR-15 trademark to the Colt Manufacturing Company (Zimba, 2014).

Colt continued ArmaLite's program with the United States Military to develop the next generation of fully automatic battle rifle. In 1964 the Department of Defense accepted the AR-15, rebranded as the M16, for use by all branches of the military and Colt's Firearms Division in Hartford, Connecticut, was awarded a huge contract to manufacture the M16. A year later, in 1965, the M16 made its way onto the battlefields of Vietnam and into the contemporary culture of America. With the M16, the United States finally had a weapon that stood in remarkable contrast to its counterpart the Soviet AK-47, designed by Mikhail Kalashnikov in 1947 (Bocetta, 2018) and used by the North Vietnamese and Viet Cong.





The newly designed AR-15, now rebranded as the M16, was a lightweight, air-cooled, gas-operated, and magazine-fed weapon, built to deliver a small-caliber, extremely high-velocity cartridge (700–950 rounds/min at a velocity of 3,150 ft/s). Since 1964, the U.S. military has used four variants of the rebranded M16 including the M16A1/A2/A3/A4 (Bartocci, 2012; Bocetta, 2018). The M4 carbine, a shorter and lighter variant of the M16A2, is currently used extensively by the United States Armed Forces. With a 55 year history of longevity and success, the M16 became synonymous with the term “assault rifle” (Bartocci, 2012) and the “Colt AR-15” successfully entered the contemporary culture, and the weapon that had been designed for the battlefield became a favorite in the consumer gun marketplace.

In 1964, armed with the success of the M16, the Colt Manufacturing Company turned its eye to production of its own consumer version of the AR-15, which would be equipped with an improved mechanism designed for semi-automatic firing. Their “Colt Sporters” and “Colt Match Target” rifles, targeted for sale to the hunting, sporting, and law enforcement communities, proved to be highly popular (Zimba, 2014). One mark of excellence of a new product is whether it can be mass-produced. Mass production brings the product to the market more quickly and economically. Colt proved it could certainly mass-produce the AR-15 and make it highly customizable as well. The new “Colt AR-15” offered on the consumer market still fired a powerful .223 Remington round that had been designed by Stoner specifically for the original AR-15 (Lach, 2010). It had either a 20 or 24-inch barrel, and came fitted with 5-round magazines. Over the decades, Colt made many different types of AR-15 rifles and carbine models, including the AR-15, AR-15A2, AR-15A3, AR-15A4. In 1977 Colt’s patents expired. Many other manufacturers began to copy the design and a whole new generation of “AR-15-style” rifles was born, the civilian descendants of Stoner’s military design (Zimba, 2014).

The Firing Mechanism of the AR-15

Earlier breech-loading rifles sported a single receiver, which housed both the trigger and the reloading mechanism (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). However, the newly designed AR-15 had a modular construction and this feature simplified substitution of parts, consequently avoiding the need for arsenal facilities for most repairs (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). As originally conceived, this distinctive two-part receiver was used by both the military and civilian AR-15-style rifles. The serial number is exposed on the lower receiver, and because of where it is engraved, it has been legally defined as a firearm under United States law (Zimba, 2014). Because the lower receiver is visually distinguished by the trigger guard ahead of the detachable pistol grip, the AR-15 is capable of holding detachable magazines (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). Additionally, the AR-15, with its lower receiver, actually holds the trigger assembly including the hammer, the attachment point for the buttstock (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). The lower

receiver is attached to the upper receiver by two removable pins (Blanchard, May 21, 2018). If the AR-15 is to be cleaned, it would require disassembly for cleaning or repair of malfunctions and removal of these pins is therefore necessary (Bocetta, 2018; Zimba, 2014; Bartocci, 2012).

With the original AR-15 for ArmaLite, the bolt carrier acted as a movable cylinder and the bolt itself acted as a stationary piston. When the trigger is pressed and the AR-15 is fired, gas is tapped from the barrel as the bullet moves past a gas port located above the rifle’s front sight base. At this point, gas expands into the port and down a gas tube located above the barrel that runs from the front sight base into the AR-15’s upper receiver. A further mechanism now allows the gas tube to protrude into a “gas key” (bolt carrier key), which accepts the gas and funnels it into the bolt carrier (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). This gas impingement system is why the gun feels hot to touch after firing (Blanchard, 2018). At this point, the bolt is locked into the barrel extension by locking lugs, so the expanding gas forces the bolt carrier backward a short distance toward the butt of the gun, the bolt cam pin, riding in a slot on the bolt carrier, forces the bolt to rotate and thus unlocks it from the barrel extension (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). Once the bolt is fully unlocked it begins its rearward movement along with the bolt carrier. The bolt’s rearward motion extracts the empty cartridge case from the chamber. As soon as the neck of the case clears the barrel extension, the bolt’s spring-loaded ejector forces it out of the ejection port in the side of the upper receiver (Bocetta, 2018; Zimba, 2014; Bartocci, 2012).

With the AR-15, behind the bolt carrier is a plastic or metal buffer, which rests in line with a return spring. The firing mechanism acts when the buffer spring begins to push the bolt carrier and bolt back toward the chamber once it is compressed sufficiently (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). At this point, a groove machined into the upper receiver guides the bolt cam pin and prevents it and the bolt from rotating into a closed position (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). Next, the bolt’s locking lugs push a fresh round from the magazine as the bolt moves forward (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). Thus, the round is guided by feed ramps into the chamber. As the bolt’s locking lugs move past the barrel extension, the cam pin twists into a pocket milled into the upper receiver (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). It is this twisting action that follows the groove cut into the carrier that forces the bolt to twist and “lock” into the barrel extension ready to fire another round (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). The self-loading AR-15 performs all of these functions automatically with no manual assistance from the operator besides pressing the trigger (Hopkins, 2010).

The AR-15: A Multitude of Deadly Injuries

Healthcare professionals, including nurses, need to understand the firing mechanism of the AR-15 and how it works in order to understand the massive destruction it does to the human body. When the AR-15 is fired, a multitude of factors determine the severity of a wound. These include a bullet’s mass, velocity, and composition, as well





as where it strikes. The AR-15, like the M4 and the M16 rifles issued for military use, shoots lightweight, high-velocity bullets that can cause grievous bone and soft tissue wounds, in part by turning sideways, or “yawing,” when they hit a person (Kolata & Chivers, 2018). It is believed that the .223’s small caliber, combined with a larger load of propellant and the AR-15’s 20-inch barrel work simultaneously to move the bullet along at ultrafast speeds. What this means is that the bullet travels in excess of 3,200 feet per second or almost three times the speed of sound (Kolata & Chivers, 2018).

Dr. Jeremy Cannon, from the University of Pennsylvania’s Perelman School of Medicine, reflected on the wounds he has seen from the AR-15, and noted that in almost every instance the tissue destruction is almost unimaginable (Kolata & Chivers, 2018). According to Cannon, bones are exploded and soft tissue is absolutely destroyed. The injuries to the chest or abdomen appear as though a bomb had gone off. Cannon further reflects that if a bullet hits an arm or a leg, more often than not, that limb hangs at an unnatural angle. Cannon surmised that such victims could need a dozen surgeries over months, if not eventually an amputation, because from then on, the limb is dysfunctional and painful (Kolata & Chivers, 2018).

Dr. Heather Sher, a radiologist at the Broward Health Medical Center, was working her shift the day of the Parkland shooting. When she saw the CT scan of one of the victims of the shooting, their organ looked like an over-ripe melon that had been smashed by a sledgehammer (Sher, 2017). Routine handgun wounds leave entrance and exit wounds about the size of the bullet. Because it is traveling at such a high velocity, and turning once it hits a body, the bullet from an AR-15 leaves an enormous exit wound (about the size of a Coke can) extending inches from its path and causing catastrophic damage (Sher, 2017).

Use of the AR-15

There are estimates that put the number of AR-15-style rifles made in the United States and not exported between 1986 and 2012 at between 3.3 million and 3.5 million (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). Today, the number of AR-15s available in the market place is some 5-10 million rifles per year (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). Since 2012, AR-15-style rifles have been used in nine of America’s worst mass killings (Dickinson, 2018). To increase the deadliness of the AR-15, civilians can also buy soft-nosed or hollow-point ammunition for hunting; such ammunition lacks a full metal jacket and can expand and fragment on impact, thus causing even more expansive injury (Zimba, 2014). Such bullets, which can cause wider wound channels, are proscribed in military use for maximum effect during wartime (Bocetta, 2018; Zimba, 2014; Bartocci, 2012). However, the prevailing opinion that such guns are used for maximum effect when hunting appears to fall on its face. An animal shot with an AR-15 would be ruined from the destruction caused by the bullet. But even more disheartening is the fact that humans wounded by the AR-15, if they survive, would have limbs and other body parts destroyed by this weapon (Kolata & Chivers, 2018).

We Demand a Change

The AR-15 is a weapon that was designed for combat; to kill the most people in the shortest amount of time. The NRA calls it “America’s Rifle” because it has become so popular, with about 90% of civilian assault-rifle owners having at least one. The AR-15 has also become the mass shooter’s weapon of choice and has absolutely no place in civilized society (Dickinson, 2018).

We demand a ban on the AR-15-style rifles. Colleagues, we must rise up and scream this demand to anyone who will listen. If we unite with one voice, perhaps we can force those who will not listen to hear our cry. We demand that our children be kept safe in our schools, in our movie theaters, in the malls, and in our churches. We cannot imagine that a weapon that is so extremely lethal and that is used to gun our citizens down should be permitted to be sold. We have a right to expect that this country’s main responsibility is to keep our children and each one of us safe. We do not know about you colleagues, but we shall keep on writing and demanding an end to such weapons of mass destruction because *We Ain’t No Ways Tired*.

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