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Combat Psychology: Learning to Kill in the U.S. Military, 1947-2012

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COMBAT PSYCHOLOGY: LEARNING TO KILL IN THE U.S. MILITARY, 1947-2012

A Thesis
Presented to the Faculty
Of the
College of Arts and Sciences
In Partial Fulfillment
Of the Requirements for the Degree
Of Master of Arts
In History
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By

Patrick M. McKinnie

Abstract

In his 1947 work *Men Against Fire: The Problem of Battle Command*, historian S. L. A. Marshall convinced the U.S. government and military of the critical need for improved techniques in combat psychology. However, his more fundamental assertion that soldiers needed to be trained to overcome an innate psychological resistance to killing would prompt some in the military as well as scholars and medical experts to examine the heart and mind of the soldier in combat. As a result, an emergent science called killology became a critical component in the U.S. military's quest to better train soldiers for the rigors of combat. This thesis will explore the development of sophisticated technology and training techniques used by the U.S. military to create soldiers that were more efficient at killing in combat.

Acknowledgments

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Introduction

As a young boy I was fascinated by the momentousness of war and the profound impact it has had on the course of history. At that time my perception of warfare was one of awe: I was fascinated by the resplendent heraldry of medieval knights, the aesthetic symmetry found in the Napoleonic Era line of battle, and the élan demonstrated by both the North and South during the American Civil War. As I grew older and more thoughtful, my fascination with human conflict took an entirely different path; I no longer viewed war through the lens of childhood naiveté. Instead, I became infatuated with the titanic scale and dizzying cost of industrialized total war. Leo Tolstoy most succinctly summarized my thoughts on this when he wrote, “War has always interested me; not war in the sense of maneuvers devised by great generals . . . but the reality of war, the actual killing. I was more interested to know in what way and under the influence of what feelings one soldier kills another than to know how the armies were arranged at Austerlitz and Borodino.” While I have come to appreciate the science of war, it was while I was researching the Eastern Front during World War II, that I began to fixate on how it must have been for the men of the doomed German 6th Army at Stalingrad in 1943. Close to a million men knew that misery and death was all that awaited them as the Red Army completed an encirclement of the city. However, in order to help myself wrestle with the magnitude of this tragedy, I needed to narrow my focus on the smallest basic unit of warfare – the individual soldier. This thesis examines the historical origins of

killology, its essential components, and its influence on the techniques currently used by the U.S. military to train men and women to overcome their natural aversion to killing. In a broader context, I examine combat psychology in the U.S. military and the myriad improvements in training programs, technology, and tactical organization of combat units that produce more lethal soldiers.

How does the U.S. combat soldier overcome the innate human discomfort towards violence, especially the kind of violence experienced during war? How does the same soldier perform once engaged in combat? What are the environmental, psychological, and technological factors that determine how this soldier will perform in a fight? What emotions does the soldier experience before, during, and after the battle? These are just a few of the questions that prompted my investigation into the various methods used by the U.S. military to train troops for battle. After starting my research into military training, I began encountering references in the literature to a new discipline that was being adopted by the U.S. Army and Marine Corps in an effort to make killing easier.

Killology, a term coined by scholar David Grossman, is described as the study of the psychological and physiological effects of killing and combat on the human psyche. Though scholars and medical doctors have examined this subject since antiquity, in recent decades the U.S. military has made a concerted effort to research, design, and apply training programs with the objective of helping soldiers overcome the psychological constraints associated with killing. A newspaper article from 2006,

titled “The Science of Creating Killers: Human Reluctance to Take a Life Can be Reversed Through Training in the Method Known as Killology,” caught my attention, and I began to explore the subject. I wanted to know the impact of psychological conditioning on U.S. soldiers, and how this is achieved. In most cases I examine the U.S. Army specifically, though the United States Marine Corps and Air Force are also discussed.

Chapter One identifies the problem; an unduly large proportion of soldiers in World War II were not firing their weapons at the enemy. While Marshall was assigned to the European and Pacific Theaters during World War II he observed many instances in which U.S. infantry and Marines failed to take part in combat. This was not due to cowardice, as he initially suspected; rather, deep psychological factors influenced the soldiers’ refusal to perform their duty in combat. Marshall called this the “ratio of fire,” and he determined only around 15% of soldiers in direct combat fire their weapons at the enemy. During World War II he helped record and improve training methods, and he is widely credited with making debriefings commonplace throughout the U.S. armed forces. His work with the U.S. military continued after World War II and took him to both Korea and Vietnam. Marshall’s research methods have been criticized in recent years; yet despite this, his influence on the development of combat psychology and enhanced fighting techniques is indisputable.

The second chapter examines Marshall's observations in Korea and the major reforms in the U.S. military that came as a reaction to the Cold War and shifting strategic defense obligations. The conflict in Korea pushed the U.S. Army to modernize; the result was significant structural changes to unit composition. The changes in unit structure in combination with technological advances in weaponry resulted in an improved ratio of fire. Some tentative steps toward enhanced psychological conditioning of troops also began in Korea, though nothing like that which occurred during the Vietnam Era.

Chapter Three follows Marshall to Vietnam, where he determined that enhanced training techniques in combination with improved fighting doctrine created a ratio of fire around 90%. An examination of the changes in training and technology during the Vietnam War revealed a startling finding. Though rates of fire had been significantly improved, what was the psychological cost? As it turns out, it was significant. The average human can be conditioned to kill, and in some cases may take some satisfaction in the act, but there is almost always a risk of significant psychological trauma. The consequences of operant conditioning without adequate post-event treatment created a generation of emotionally wounded veterans.

Finally, Chapter Four looks at the many ways the U.S. military integrated concepts based in killology with the modern training regimen of combat troops. On July 12, 2016, a pair of Apache attack helicopters killed a group of Iraqis, including two combat journalists. The incident may have remained hidden were it not for a

WikiLeaks release of a videotape of the event stored in the Apache's onboard computer. As horrific as the results of the attack were, the incident illustrated the power of technology in combination with psychological enablers that allowed people to kill in such a remorseless manner. A breakdown of combat psychology in action is followed by an examination of government documents that indicate killology had a significant influence on the development of modern military training. Lastly, I examine how unmanned vehicles and computer technology are transforming the nature of combat training and warfare. The potential psychological consequences of the use of drone and video game technology to train America's military is not yet entirely understood. However, the lethal results achieved by the use of this emergent technology for combat is indisputable.

Chapter One

World War II and the Ratio of Fire

War has always interested me; not war in the sense of maneuvers devised by great generals . . . but the reality of war, the actual killing. I was more interested to know in what way and under the influence of what feelings one soldier kills another than to know how the armies were arranged at Austerlitz and Borodino.

—Leo Tolstoy

“Who was the first man to fire at an enemy during the advance?” the bulldog-like lieutenant colonel asked the assembled men of Company B of the 184th Infantry Regiment who had gathered around a makeshift blackboard on the small Pacific atoll of Kwajalein. Acclimated to the oppressive tropical heat that had been a constant companion since the beginning of the Gilbert and Marshall Islands campaign in November of 1943, these veterans of the hellish fighting against the Japanese Empire were engrossed in the conversation. They listened and responded to the questions posed by the colonel and his assistants, despite some of them being injured.¹

A handful of men pointed to the individual responsible for opening fire. Obligated to stand up, he recounted his actions before his comrades who occasionally would add a corrective piece of information to the story. Furiously scribbling notes into a weather-beaten notebook the colonel conducting the investigation, Samuel

¹ Samuel Lyman Atwood Marshall, *Island Victory: The Battle of Kwajalein Atoll* (Lincoln: University of Nebraska Press, 2001), 2.

Lyman Atwood Marshall, or “SLAM” Marshall as he was fond of calling himself, was capturing the man’s story as part of his official duty as an officer in the recently established U.S. Historical Division of the General Staff.

“How much fire was coming against you at this time?” Marshall asked. A dozen or so men raised their hands to address the question. Lieutenant Allen E. Butler spoke up and identified the real tactical problem he noticed concerning the engagement in question “the two platoons, which were supposed to stay close abreast as they drove forward in the battle, split away from each other because of the ground.”²

Then Klatt and Kaplan, the lieutenants of the offending platoons, each recounted their own version of the situation. It became apparent that neither had a clear understanding of how the engagement was unfolding and ultimately their lack of *coup d’oeil* led to unnecessary casualties.³ The consequences of the fog of war, Clausewitz’s term for uncertainty in combat, prompted Marshall to later write “Commanders of units do not—cannot—see the whole action.” As banal as this statement may seem today, in 1943 the U.S. armed forces were just emerging as a professional army, and by revisiting practical lessons about battle tactics, Marshall hoped to save American lives.

² Ibid., 5.

³ Carl von Clausewitz, *On War* (London: N. Trubner, 1873), <http://www.gutenberg.org/files/1946/1946-h/1946-h.htm>. ii 25, 58-59.

The severely wounded company commander captain Charles A. White made it a point to sit in on this after-battle review hoping to make sense of the previous day's action. Marshall asked the captain "Were the tanks with you?" He answered; "No, they didn't get up in time and we jumped off on time without them. I don't know why they failed us."⁴ Again, scribbling in his notebook, Marshall concluded that this was a question that needed to be answered by battalion headquarters and the armor commanders. This back and forth continued until the battery of questions Marshall asked were answered to his satisfaction.

Two important discoveries made by Marshall and his team during their time with the 7th Infantry Division in the Marshall and Gilbert Island campaigns resulted in new possibilities for research in both academic and military circles. First was the conceptualization and implementation of after action report (AAR). The second, predicated upon information discovered during AARs, was the ratio-of-fire theory central to modern combat psychology.

Unbelievably, when the U.S. entered the Second World War in 1941, military theorists and tacticians had overlooked the immense value of a structured debriefing that allowed combatants to analyze, synthesize, and learn from the group's combined experience in battle. Marshall identified this shortcoming in military procedure as a missed opportunity to gather useful data about the nature of fighting in the Pacific and later in Europe. Through trial and error, he refined the group interview process

⁴ Marshall, *Island Victory*, 5.

further as he searched for more productive methods of teasing information out of participants.⁵ His genius was that he oriented this process towards dealing with the special kind of hell an infantryman experienced in combat. As the men took turns relating their thoughts and experiences, Marshall recorded their insights. He later compiled them into a database of oral history from that he used to identify which tactics were being successfully used by combat infantry and which were useless.

Prior to Marshall's arrival at Kwajalein, aviators of the U.S. Army Air Force had been using a somewhat similar procedure for debriefing airmen following a bombing run or fighter patrol, though the reason for this was fundamentally different than Marshall's sessions with the infantry. With the fliers, post-mission round-ups were oriented towards gathering the quantitative results of a bombing run or analyzing new intelligence from reconnaissance patrol missions. They were not designed to explicitly seek understanding of the mental rigors of battle the airmen faced and were in many cases solely concerned with metrics. This was because the needs of the different branches of service differed significantly.

The mental and emotional toll of killing with bombs or wing-mounted guns was arguably a less visceral horror than U.S. combat infantrymen were likely to encounter.⁶ The emotional and psychological differences between fighting in the air or on the ground determined the nature and value of the AAR to those who

⁵ Frederic Smoler, "The Secret Of The Soldiers Who Didn't Shoot," *American Heritage* 40, no. 2 (1989): 1-3.

⁶ David Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society* (New York: Back Bay Books, 1995), 97-98.

participated. The infantry at Makin or Kwajalein appeared especially to appreciate Marshall's system for its mixture of tactical review and therapeutic catharsis. The AAR's organized and refined by Marshall were officially adopted by the U.S. military in phases throughout the 1950s.⁷ Today the AAR is a debriefing technique used by all first-rate militaries around the globe and is considered indispensable as a tool for training the next generation of servicemen and women.

The second discovery made by Marshall concerned the individual soldier's experience in combat and was a direct result of the insight he had gained from the group interviews he recorded. In his most widely debated work, *Men Against Fire: The Problem of Battle Command in Future War*, Marshall put forth his most controversial and commonly cited observation: most soldiers in combat did not want to kill. As one might expect, this counterintuitive statement captured the attention of the military establishment. The investigation of this claim led to a reevaluation of U.S. infantry doctrine and combat training, but not before raising a host of new questions by psychologists, sociologists, and military historians looking to further understand how soldiers can be trained to kill more efficiently while at war.⁸ Marshall inadvertently stumbled upon a fundamental question about the psychological capacity of humans to kill one another in combat.

⁷ F. D. G. Williams and Susan Canedy, *SLAM : The Influence of S.L.A. Marshall on the United States Army* (Ft. Monroe: Office of the Command Historian, 1990), 69.

⁸ Paul Fussell, *Wartime: Understanding and Behavior in the Second World War* (New York: Oxford University Press, 1989), 7-9.

This sacrosanct topic, long considered taboo and unsuitable for general consumption, is at the heart of recent scholarship in the field of killology, or the study of killing as defined by its founder Lieutenant Colonel David Grossman. Grossman is a former professor of Psychology at West Point and is considered a foremost expert on human aggression and killing. He is currently directing The Warrior Science Group, an organization dedicated to researching violent crime, and the psychological cost of killing.

When Marshall and his associates recorded the personal experiences of men in battle they unwittingly created a database of narratives that have become integral to the work of scholars like Grossman. Perhaps more significant than the data they collected, their interviews pierced the veil of secrecy surrounding what is for many soldiers their most intimate experience in war—killing. This work examines the development of combat psychology in the U.S. military since World War II. This will include an examination of the works of S.L.A. Marshall, the ratio-of-fire, killology, emergent technology, and training doctrines used presently and in the past. By compiling and analyzing research directly associated with this subject, ideally this thesis will in some small measure contribute to further understanding of this uncomfortable and therefore often neglected topic.

Killing

...there man's courage is best decided, where the man who is a coward and the brave man show themselves clearly: the skin of the coward changes colour one

way and another, and the heart inside him has no control to make him sit steady, but he shifts his weight from one foot to another, then settles firmly on both feet, and the heart inside his chest pounds violent as he thinks of the death spirits, and his teeth chatter together: but the brave man's skin will not change colour, nor is he too much frightened, once he has taken his place in the hidden position, but his prayer is to close as soon as may be in bitter division...

—*The Iliad*

The earliest known archeological evidence of battle can be found near the Nile River on the border of what is today Egypt and Sudan, dating back 15,000 years. The Sumerians used carvings and paintings to depict organized warfare three millennia before the birth of Christ. In Laconia, the Spartans considered martial prowess the highest virtue and organized their entire society around warfare and warrior principles that are still used today in Western military doctrine.⁹ The heroic actions of King Leonidas at Thermopylae sparked the imagination of poets and bards who kept his memory alive throughout the ages, a tradition that is now maintained by Hollywood in the form of blockbuster movies.

Homer's *Iliad*, a war story in dactylic hexameter, has been adapted repeatedly by screenwriters and playwrights for modern consumption, demonstrating a lasting fascination with the wartime escapades of the ancient Greeks. Arguably, Homer's work remains relevant today not simply because of the heroics exhibited by the characters, but because the individuals he wrote about faced complicated and timeless emotional and spiritual dilemmas. Homer used them to reveal aspects of human

⁹ John Keegan, *A History of Warfare* (New York: Vintage Books, 1993), 242-43.

nature that are uncomfortable for many to consider, including the fear or thrill one feels before battle or the wrenching pain of losing a comrade. In choosing to write about this often unseen aspect of war, Homer added a layer of complexity and depth to his subjects in an effort to reveal the varied emotional and psychological dimensions of warfare. Hektor and Achilles are endearing characters in the *Iliad* precisely because they exhibit the full spectrum of emotions associated with killing and warfare, not in spite of it. The tears Achilles sheds over the slain Patroclus are no different than those shed by countless others in battle throughout history.

The Romans moved away from endemic warfare common to societies of the Classical period and instead forged an empire through total war. For two hundred years Roman expansion had meant the death or enslavement of thousands of people. The appearance of the *Aquila* of Rome portended doom for their military and civilian opponents. If not killed outright, their conquered foes were often sent to die on the blood-soaked sands of the Flavian Amphitheatre as tribute to the glory of Rome. The lust for death and violence permeated Roman society and was institutionally sanctioned as a means of reinforcing values important to the ruling class and the military.¹⁰ The citizenry reveled in the pageantry and sadism of gladiatorial events – fascinated by the spectacle of gruesome murder, blood, and mayhem.

Yet even in an environment of unfettered state-condoned violence, killing for the individual was still a traumatic affair for all involved. Take for example Seneca

¹⁰ Ibid., 146-47, 263-64.

the Younger's writing about a midday trip to the Colosseum in Rome and what he witnessed:

In the morning, men are thrown to lions and bears. At mid-day they are thrown to the spectators themselves. No sooner has a man killed, than they shout for him to kill another, or to be killed. The final victor is kept for some other slaughter. In the end, every fighter dies. And all this goes on while the arena is half empty.

You may object that the victims committed robbery or were murderers. So what? Even if they deserved to suffer, what's your compulsion to watch their sufferings? 'Kill him', they shout, 'Beat him, burn him'. *Why is he too timid to fight? Why is he so frightened to kill? Why so reluctant to die?* They have to whip him to make him accept his wounds.¹¹

Seneca observed that even when faced with imminent death and an opportunity for deliverance existed, butchering another human in cold blood was too much for many to bear. His description of individuals paralyzed with fear at the prospect of killing, regardless of the fact that doing so could mean saving their own lives, matches modern accounts of soldiers and law enforcement officers as we will see in Chapter Three.

The Romans and Greeks are just two examples of societies that embraced and reinforced martial prowess and killing at odds with the timidity displayed above, though many more such examples exist.¹² One could choose to examine Samurai society in Japan during the Sengoku period, the

¹¹ Lucius Annaeus Seneca, *Seneca: Letters From A Stoic*, trans. Robin Campbell (New York: Penguin Press, 1969), 41-43.

¹² Gwynne Dyer, *War* (New York: Crown Publishers, 1985), 26.

Mongolian war bands of the thirteenth century, or the Maori clans of New Zealand and find they shared many of the same cultural values associated with killing.^{13,14,15} The key point is that regardless of a fascination with warfare and culturally reinforced norms that advocated bloodshed as a virtue – plunging a sword into another human’s body was no easy thing.

During his time as a combat historian, Marshall rediscovered this truth about killing through his discussions with fighting men. By observing their behavior on the sun-bleached beaches of the Pacific and in the frozen windswept forests of the Ardennes, he prompted the American military establishment to reexamine and reflect upon its training doctrines. Ultimately this line of inquiry resulted in many of the programs and methods used today to train U.S. combat soldiers to overcome inherent resistance to taking life. Killology as a burgeoning field of study today would not exist if it were not for Marshall’s pioneering research on the behavior of men in combat.

“Slam”

Good God, you must be dumber than I thought. Your initials spell SLAM and you don't realize that's money in the bank? It's perfect for a sports editor. It's perfect for anything. Nobody can forget that name.

—Tad Dorgan

¹³ John Keegan and Richard Holmes, *Soldiers: A History of Men in Battle* (New York: Viking, 1986), 16-18, 50.

¹⁴ Stephen Turnbull, *The Samurai: A Military History* (New York: Routledge, 1977), 106-8.

¹⁵ Keith Sinclair, *The Origins of the Maori Wars* (Auckland: Auckland University Press, 2013), 113-16.

While never claiming to be a scholar of warfare, Samuel Lyman Atwood Marshall certainly was a participant. Born at the turn of the century in Catskill, New York and raised in El Paso, Texas he was the son of a brickmaker. He served in the First World War as a sergeant in the 315th Engineers of the 90th Division after leaving school to enlist at the age of seventeen. There he witnessed first-hand the terrible cost of war. During the Second World War Marshall reentered the U.S. Army in 1942 as a major in the Information Branch, Special Service Division of the War Department. By 1943 and now a lieutenant colonel, Marshall was assigned to the newly established Historical Division of the General Staff (G-2), which was mainly concerned with recording the operational and administrative histories of the armed services.

Under the auspices of President Roosevelt, this program was implemented to collect and record the wartime experiences of U.S. forces around the world something that was beyond the limited capabilities of the existing War College historical section.¹⁶ F.D.R. and top military advisors accurately believed that by producing a series of historical monographs that critically examined specific military operation, U.S. commanders and their men could potentially benefit from the analysis provided. Marshall was immediately tasked with writing a definitive analysis of the recently conducted Doolittle Raid on Tokyo.

¹⁶ John E. Jessup and Robert W. Coakley, *A Guide to the Study and Use of Military History* (Washington, D.C.: Center of Military History, 1979), 287-92.

Toward the end of 1943, Marshall and his team were attached to the 27th Infantry Division during the assault on Makin Atoll in the Gilbert Islands, and later as part of the 7th Infantry Division at Kwajalein Island. During these campaigns Marshall developed the methodology behind the AARs he used to investigate the experience of soldiers in combat.¹⁷ His methodology relied heavily upon group interviews and first-hand witnesses, leading some to challenge his methods, yet his conclusions were generally insightful. Following his work in the Pacific in June of 1944, he was sent on temporary assignment to the European Theater of Operations where he applied his AAR technique to veterans of the D-Day landings in Normandy and of the Ardennes campaign. He would remain in Europe until the end of the war, and in 1945 was promoted to theater historian. A year later he returned to the U.S. and continued his career as a journalist for the *The Detroit News*, his employer since 1927.

It is worth briefly mentioning Marshall's career as a journalist and editorial writer before and after the war, as this has been called a blessing and a curse by both his benefactors and detractors with regards to his contributions to reform in the U.S. military. Some historians and members of the military have argued that because Marshall spent the majority of his non-military life as a journalist, the tradecraft he learned working first for the *El Paso Herald* and then in Detroit, trained him to focus

¹⁷ Williams and Canedy, *SLAM*, 21-2.

on the crux of an issue. F.D.G. Williams, in his book *SLAM: The Influence of S.L.A. Marshall on the United States*, writes the following about the subject:

Marshall's hallmark was his keenness for detail and his eye for the dramatic. He was adept at telling a story full of color and excitement, a story which often focused on the activities of common people accomplishing uncommon things. Such stories found their way into volumes of articles and books which caught the interest of many and served as Marshall's vehicle for presenting his ideas and insights. The color and simplicity of his writing style assured him a strong following. Without this dramatic and yet simple style, he could not have contributed as much as he did to military affairs.¹⁸

This writing style endeared Marshall to many and aided him in his rise to prominence as a journalist-historian. This also serves to highlight the fact that Marshall was by training a journalist, and his efforts did not include scientific methodology as it is currently practiced in sociology, political science and psychology. For this reason he has been accused of being less scholar and more newsman, indulging in sensationalist writing associated with journalism of the time. But, beyond his scholarly and journalistic talent, Marshall's personality also won him many friends and allies among his colleagues, and when in the service, his superiors and subordinates.¹⁹

Marshall has been described as bold, flamboyant, gregarious, and ambitious –excellent traits for a newsman and a combat historian. Williams describes Marshall as “seemingly indomitable” and “He was what some

¹⁸ Ibid., 6-7.

¹⁹ Ibid.

people would call a character.” Both of these traits helped win him the respect of the men he interviewed and among his followers in academic and military circles.²⁰

Paradoxically, the same traits that propelled him to success were also the source of some trouble for him. Marshall was also described as arrogant, argumentative, and stubborn; like many polarizing figures throughout history, when meeting him one was either charmed or repulsed. The strong reactions he elicited are best summarized in the vicious personal attacks aimed at him by a former pupil and beneficiary of his patronage, David Hackworth.

In his critically acclaimed memoir *About Face: The Odyssey of an American Warrior*, Hackworth is especially vitriolic towards Marshall, accusing him of being a hustler, phony, and “less a military analyst than a military ambulance chaser, more a voyeur than a warrior.”²¹ This alone is not terribly startling, and can even be expected given Marshall’s polarizing personality. However as historian A. J. Bacevich points out in his review of *About Face*, “Whether Marshall, in fact, was a “power-rapt little man who threw his weight around shamelessly” matters not. That he may have been an intellectual fraud, as Hackworth devastatingly maintains, matters a great deal

²⁰ Smoler, “The Secret Of The Soldiers Who Didn’t Shoot,” 2.

²¹ David Hackworth and Julie Sherman, *About Face: The Odyssey of an American Warrior* (New York: Simon & Shuster, 1989), 568-69.

to those who turn to Marshall's writings for insights into the behavior of soldiers in battle."²²

Was Marshall a self-promoting sensationalist who was only looking for a story that had "juice", as Hackworth claims? Perhaps, but no more than his detractor and protégé in this case, Hackworth himself has been the target of accusations that he also played fast and loose with figures and facts.²³ Regardless of his propensity to exaggerate or highlight the more exciting elements of his military experiences through writing, Marshall was able to identify and analyze a previously unidentified problem in the front lines, drawing attention to issues that otherwise might have gone unnoticed. John Keegan, eminent military historian at the Royal Military Academy at Sandhurst, summarized Marshall's contributions eloquently when he wrote:

Marshall's ultimate purpose in writing was not merely to describe and analyze...but to persuade the American Army that it was fighting its wars the wrong way...His arguments were consonantly effective, so that he had the unusual experience for a historian of seeing his message not merely accepted in his own lifetime but translated into practice.²⁴

This was Marshall's most enduring legacy. Though he thought otherwise throughout the latter-half of his life, Marshall's writings and theory on the

²² A. J. Bacevich, "Saving Face: Hackworth's Troubling Odyssey," *Parameters* (1989): 15.

²³ *Ibid.*

²⁴ John Keegan, "Battle and the Historian," *International Security* (Winter 1978-79): 145.

nature of man in combat challenged established doctrine and prompted apparently corrective measures in training.

Having made a good reputation for himself through his publications, the U.S. Army called upon him again for a data-gathering operation in Korea from 1950 to 1951 as part of the Army's Operations Research Office, and for a second time in 1953 as a war correspondent attached to the 7th Infantry Division. He collected numerous combat interviews through his AARs which he analyzed and submitted to senior officials detailing proposals to increase U.S. infantry and weapon effectiveness.²⁵ During this second visit to Korea, he witnessed the infamous Battle of Pork Chop Hill, where Chinese Communists threatened to overrun U.S. positions in an effort to test the resolve of the United Nations while peace negotiations were taking place.²⁶ Later, Marshall published a book about the battle and sold the rights to Hollywood for a 1959 film adaptation of the battle starring Gregory Peck, Rip Torn, and George Peppard. His opinion about the future of warfare based on his time in Korea cemented his view that new technology would not replace conventional arms. He was hesitant to embrace the trend in military thinking during the 1950s that increasingly argued that nuclear weaponry and advanced

²⁵ Samuel Lyman Atwood Marshall, *Commentary on Infantry and Weapons in Korea: Winter 1950–51* (Fort Leavenworth: Nafziger Collection, 2002), 78-91. The U.S. Army decided to classify some of Marshall's findings as restricted information. Later they were incorporated into training doctrine to increase combat infantry efficiency in the field.

²⁶ John Whiteclay Chambers II, "S. L. A. Marshall's Men Against Fire: New Evidence Regarding Fire Ratios," *Parameters* (2003): 113-21.

aviation technology would be a panacea for future wars.²⁷ In typical fashion, Marshall went against the grain and vociferously asserted that the common infantryman was still the deciding factor in any war.

Marshall officially retired from the Army Reserve in 1960 with the rank of brigadier general, but was asked to serve as an un-official instructor in Vietnam from 1966 to 1967. Charged with educating junior officers and non-commissioned officers in his AAR techniques, Marshall worked intimately with Hackworth, who at the time, not surprisingly, wrote very fondly of Marshall. Hackworth credited Marshall as co-author of his 2003 publication *The Vietnam Primer*, a critique of counterinsurgency methods during the war. In 1977 Marshall died at his home in El Paso, and was buried with full military honors. He was survived by his third wife Catherine and four children.

Aside from participating in the four American wars, Marshall also witnessed the Sinai War of 1956 after Israelis smuggled him into the country, and later the Six-Day War of 1967.²⁸ He also observed the crisis in Lebanon in 1958, the civil war in the Congo in 1961, and the unrest in Southwest Africa in 1965. During his life Marshall had also maintained a thirty-year correspondence with the brilliant British mechanized-war theorists Basil Liddell Hart and J.F.C. Fuller that began in the early 1930's. Marshall spent

²⁷ Samuel Lyman Atwood Marshall, *Men Against Fire: The Problem of Battle Command* (Norman: University of Oklahoma Press, 1947), 29-33.

²⁸ Williams and Canedy, *SLAM*, 68, 85-87.

time with iconic U.S. leaders such as Omar Bradley, General George C. Marshall, George Patton, Dwight Eisenhower, F.D.R., and William Westmoreland, all of whom had a favorable opinion of his efforts to improve the U.S. military.²⁹

In his long career as a journalist, soldier, and military commentator, Marshall wrote more than thirty books. He produced dozens of journal articles, countless newspaper, radio, and television pieces and delivered hundreds of speeches at civic-clubs, universities, war colleges, and on military bases and around the world. Some of his more well-known works include *The Soldier's Load and The Mobility of a Nation* (1950); *The River and the Gauntlet* (1953); *Pork Chop Hill: The American Fighting Man in Action, Korea, Spring, 1953* (1956); and *Night Drop: The American Airborne Invasion of Normandy* (1962). Ironically, when considering the prolific rate at which Marshall published material, relatively little has been written about the man himself. Marshall wrote an autobiography in 1979 titled *Bringing up the Rear*, and countless personal tales exist from those who interacted with him; yet his full story remains elusive, waiting for future scholars to paint a more complete picture of his life. To date, historians Thomas F. Burdett, F.D.G. Williams, and Roger Spiller have lead this effort—contributing immensely to my own efforts in this work.

²⁹ Ibid.

Men Against Fire and the Ratio of Fire

The art of leading, in operations large or small, is the art of dealing with humanity, of working diligently on behalf of men, of being sympathetic with them, but equally, of insisting that they make a square facing toward their own problems.

—S. L. A. Marshall, *Men Against Fire*, 1947

Marshall's 1947 publication, *Men Against Fire* deserves special consideration, since it is central to the origin of killology and is therefore essential to this thesis. Considered his most controversial work and arguably one of his greatest contributions to military history, it generated the most intense criticism of his research methods, leading many experts decry him as a fraud in recent decades. But, for the academic and military community this was a serendipitous event. As an unintended consequence of his polarizing statements, the U.S. Army Training and Doctrine Command (TRADOC) and military scholars around the country began seriously assessing training protocol with an eye towards reform. Created on July 1st, 1973 under General William E. DePuy, who had worked closely with Marshall during World War II and throughout his career, TRADOC is today the branch of the U.S. Army concerned with developing new methods of training officers and enlisted men for the future of warfare.

Contained within its pages is a detailed analysis of infantry tactics used in World War II by the U.S. Army. Issues such as troop load-bearing

capabilities, unit cohesion, terrain, and the problems a field commander is likely to encounter are discussed based upon Marshall's first-hand experiences. He also sets a chapter aside to describe the likely nature of war in the future, stating emphatically, "The final act will always be an act of the battlefield, whether the ground forces which achieve it move by overland transport or by sea or by air," and, "Air power is essential to national survival. But air power unsupported by the forces of the battlefield is a military means without an end."³⁰ This warning has repeatedly fallen on deaf ears in Washington, despite Marshall's admonition from many decades past. Finally, throughout this book Marshall reasserts his opinion about the continuing primacy of infantry in warfare, contrary to what some were predicting based upon the rapidity of technological innovation.

The chapter titled, "Ratio of Fire" garnered the most excitement and criticism due to the figures he presented within regarding combatant participation of U.S. infantrymen in World War II. His conclusion shocked senior officers and challenged the orthodoxy of existing training doctrines when he claimed:

The proportions varied little from situation to situation. In an average experienced infantry company in an average stern day's action, the number engaging with any and all weapons was approximately 15 per cent of total strength. In the most aggressive infantry companies, under

³⁰ Marshall, *Men Against Fire*, 35.

the most intense local pressure, the figure rarely rose above 25 per cent of total strength from the opening to the close of action.³¹

At first, and perhaps inevitably, Marshall's discovery was not well received. Williams suggests the reason behind the initially poor reception of Marshall's ratio-of-fire concept was because "many misunderstood Marshall to be saying that the American soldier was a coward."³² If examined as a singular argument, the misinterpretation of what Marshall was proposing is understandable. But if examined within the context of the greater work it is clear that Marshall is arguing a larger point. What Marshall was also arguing is that on the battlefield, the most decisive and critical point in any war, a small handful of men do the killing necessary for victory. Reasons for why this is are varied. Some men may be carrying ammunition, some are paralyzed with fear, and some are suppressed by enemy fire or trapped in unfavorable terrain. Others, such as NCOs might be directing the shooting, medics may be patching up wounded comrades, and yet others may be firing in the general direction of the enemy without actually aiming their weapon or pretending to fire altogether.

Not surprisingly, Marshall's assertion raised serious questions and invited scholars from various disciplines to evaluate his work in relation to their respective fields. Psychologists were interested in the physiological impact of killing and why it came more readily to some combatants over others. Sociologists and philosophers

³¹ Ibid., 56.

³² Williams and Canedy, *SLAM*, 72-73.

were interested in the socio-cultural implications of such an observation, what it might mean about the human capacity for violence, and the role of society in influencing such behavior. Most importantly, however, the military establishment and military scientists were alarmed about the dangerous implication such a statistic offered. If only a small fraction of front line troops actually fired their weapons at the enemy with the intent to injure or kill, as Marshall claimed, then the U.S. military was doing something terribly wrong when it came to preparing its troops for battle. Or were they?

Much like the man who proposed the ratio of fire theory, it had a divisive quality about it. Once the academic and military community had taken time to digest his thesis, attack and praise were heaped on Marshall in fairly equal measure. Initially, his findings filled a void in tactical military doctrine which he believed had been overlooked. “But as I said in the beginning, it is an aspect of infantry combat which goes unheeded. So far as the records show, the question has never been raised by anyone: During engagement, what ratio of fire can be expected from a normal body of well-trained infantry under average conditions of combat?”³³ Though this is not necessarily true, as we shall see in Chapter Two, Marshall was correct if his statement is applied only to American records of fire-ratios. The militaries of European countries had previously visited the subject, such as the Prussians and

³³ Marshall, *Men Against Fire*, 50-51.

French, but their findings were from the eighteenth and nineteenth centuries and were subsequently thought obsolete or of no real value.

The ratio-of-fire figure presented in *Men Against Fire* ultimately became the hallmark of the book, and was the single most disputed fact ever penned by Marshall. For example, in 1988, Professor Roger J. Spiller of the Combat Studies Institute in Fort Leavenworth Kansas offered one of the better known critiques of Marshall's methodology and conclusions in an article published in the Royal United Services Institute Journal entitled "S.L.A. Marshall and the Ratio of Fire". Spiller's article says of Marshall:

That he had seen a great deal of soldiers going about their deadly work was no empty boast, however. This mantle of experience, acquired in several guises, protected him throughout his long and prolific career as a military writer, and his aggressive style intimidated those who would doubt his arguments. Perhaps inevitably, his readers would mistake his certitude for authority.³⁴

More problematic are the charges levied against him by Spiller that his methodology was flawed. The following conclusion is reached after working out the math surrounding the number of units Marshall claims to have interviewed, the time he claimed to have spent with each, and how long he was actually in the vicinity to perform the AARs:

Opportunity aplenty existed in Europe: more than 1200 rifle companies did their work between June 1944 and V-E day, 10 months

³⁴ Roger J. Spiller, "S.L.A. Marshall and the Ratio of Fire.," *The RUSI Journal* 133, no. 4 (1988): 64-65.

later. But Marshall required by his own standard two and sometimes three days with a company to examine one day's combat. By the most generous calculation, Marshall would have finished "approximately" 400 interviews sometime in October or November 1946, or at about the time he was writing *Men Against Fire*.

Marshall's own personal correspondence leaves no hint that he was ever collecting statistics. His surviving field notebooks show no signs of statistical compilations that would have been necessary to deduce a ratio as precise as Marshall reported later in *Men Against Fire*. The "systematic collection of data" that made Marshall's ratio of fire so authoritative appears to have been an invention.³⁵

This is a harsh indictment indeed; Spiller accuses Marshall of intellectual dishonesty, which is the death knell for any scholar. Why then should any serious military historian, sociologist, or psychologist bother with Marshall's supposed works of fiction? Surprisingly, Spiller provides the best argument himself in the same article:

The axiom upon which so much of his reputation has been built overshadows his real contribution. Marshall's insistence that modern warfare is best understood through the medium of those who actually do the fighting stands as a challenge to the disembodied, mechanistic approaches that all too often are the mainstay of military theorists and historians alike.³⁶

Marshall's contribution to the larger field of infantry tactics and combat psychology created substantive improvements in infantry combat training. *Men Against Fire* was so highly regarded for its combat analysis aside from the disputed ratio of fire, that

³⁵ Ibid., 66.

³⁶ Ibid. 70-71.

the Israeli military had distributed the entire book among their armed forces in the early 1950s.³⁷ Though a violation of copyright, this was a remarkable stamp of approval; the Israelis were virtually fighting on all fronts against numerically superior enemies using large numbers of citizen-soldiers. Marshall's insight into the psychological and tactical difficulties of delivering effective fire and of the problems faced by command in battle was disseminated at all levels. Israel's fighting men and women referred to this work during some of their most difficult conflicts, perhaps the indicator of its worth.

The same year that Spiller published his scathing assessment of *Men Against Fire*, the highly-regarded Israeli combat psychologist Ben Shalit published *The Psychology of Conflict and Combat*. In it, Shalit viewed Marshall's work from a psychological perspective, drawing upon the combat experiences of the Israeli Defense Force for comparison.³⁸ Though Shalit also finds the ratio of fire problematic, he acknowledges the overarching premise of the book that men in combat must overcome psychological inhibitions against killing other humans. He asserts that when soldiers overcome resistance to homicide, they are able to deliver more effective fire support at critical moments in an engagement.³⁹

³⁷Williams and Canedy, *SLAM*, 68. Following the outbreak of the Second Arab-Israeli War in 1956, the Israelis smuggled Marshall into their country despite the U.S. prohibiting Americans from travelling to Israel during the conflict.

³⁸ Chambers, "S. L. A. Marshall's Men Against Fire," 113-14.

³⁹ Ben Shalit, *The Psychology of Conflict and Combat* (New York: Praeger Publishing, 1988), 141.

Shalit claims specifically that in his experience “nearly 100 percent fired, when told to do so or when circumstances demanded.” He continues, “my very strong impression (as well as my own experience) is that firing is a very effective method of relieving tension and fear, and is often engaged in even when there is no need for it.”⁴⁰ This statement appears to refute Marshall’s claim, but while it is true that the ratio of fire has, as a rule, increased, this was not unforeseen by Marshall. Additionally, simply firing a weapon as therapy for jittery nerves as opposed to aiming it at a human with an intent to kill, still fits within a larger narrative of intrinsic human resistance to killing as proposed by Grossman and others.

By the time of his death, Marshall had amended his original ratio upward in response to the new technological and tactical methods being employed in Korea and Vietnam. In Korea, U.S. infantry platoons were increasingly issued larger numbers of machine guns and other crew-manned weapons, significantly increasing their ratio of fire. Marshall revised his estimate on the number of frontline combatants participating in shooting at the enemy at around fifty percent.⁴¹ Likewise, in Vietnam the common grunt possessed more lethal fire capability in his M-16 than an entire squad of Germans armed with bolt-action Mauser rifles possessed in World War II. He also accurately understood that as the communication capability of field officers and NCO’s expanded through the use of increasingly portable radio technology, the

⁴⁰ Ibid.,

⁴¹ Kelly C. Jordan, “Right for the Wrong Reasons: S.L.A. Marshall and the Ratio of Fire in Korea,” *The Journal of Military History* 66, no. 1 (January, 2002):137.

direct control necessary for increased rates of fire among infantrymen, would improve.⁴² He was convinced that corrective measures applied to combat training techniques in the U.S. military would improve the volume of fire produced by U.S. soldiers, and by extension lead to more tactical success. This has largely proven to be true.

As a final thought on the debate about the accuracy of Marshall's ratio of fire theory and whether or not it is an indictment against all his work, Kelly C. Jordan submits:

While surprising enough on their own, Marshall's findings have become even more controversial over the last decade, when other veterans and scholars have investigated Marshall's methodology and found his figures based largely on unsubstantiated or nonexistent data. Despite his flawed historical methods, Marshall was a keen observer of human beings in battle, having watched soldiers fighting in at least five different wars across the globe. His studies comprise, with few exceptions, the entire body of work regarding the participation of soldiers in combat. If for no other reason, this suggests that they perhaps contain some information of value.⁴³

Why is this important? Based on the poignant questions raised about the quality and usefulness of *Men Against Fire*, one can conclude that the truth about the ratio of fire lies somewhere in the middle as is often the case with spectacular claims. The previous examples are used to demonstrate both sides of the argument surrounding the ratio of fire, and the heated discourse that continues today. That

⁴² Marshall, *Men Against Fire*, 86.

⁴³ Jordan, "Right for the Wrong Reasons," 138-39.

Marshall's claim is incredibly contentious is critical to understanding the nature of the arguments that surround the discipline of killology.

Marshall's cardinal sin was that he provided little evidence to support his ratio-of-fire figure. Instead, he probably used a combination of experience, intuition, and imagination to arrive at a number sensational enough to warrant attention, yet believable enough to pass inspection.⁴⁴ By the end of his time in Vietnam, his estimate of the ratio of fire had grown to eighty percent, which only served to sharpen his critic's accusations of shoddy methodology. Marshall countered by arguing that improved weapon technology, tactical training, and leadership techniques formed the basis for the dramatic increase. It is also possible that Marshall's new figures were emblematic of his desire to mitigate criticism, and further bolster his claim that the AAR procedure was leading to progress in the field. For this he was excoriated by some members of academia and the military community who claimed that he was a total fraud. However, regardless of the veracity of such claims, it is undoubtedly true that he also moved the discussion of how people behave in combat into new arenas and in new directions. He unwittingly bridged an interdisciplinary gap by bringing elements of psychology, sociology, and military science together in an effort to improve the tactics of the U.S. army.

Researching history over the years has revealed the occasionally uncomfortable truth that regardless of an individual's greatness or achievements—

⁴⁴ Robert Engen, *Canadians Under Fire: Infantry Effectiveness in the Second World War* (McGill-Queen's Press, 2009), 149.

every man has feet of clay. Marshall was no exception. But it is also true that on balance, *Men Against Fire* promoted Marshall's belief that when all is said and done, the man in the foxhole or in the trench is the one responsible for winning wars. Military historian Russell W. Glenn echoes this thought when he wrote "In 1947, nuclear weapons dominated the thinking of many United States military leaders. Marshall recognized what so many failed to see: despite the unprecedented power of these weapons, man is still the fundamental element in war."⁴⁵ Clearly this is a tribute to his basic grasp of the reality of war, something that he felt was beginning to be forgotten by many policymakers caught up in the heady days of innovation and scientific advances following World War II.

Technology can improve our methods of delivering death and carnage to fellow humans, but without the lowly private to capitalize on this killing power, it is of limited value. Vietnam, Iraq, and Afghanistan have proven that technology alone is not enough. Drones and high-altitude bombing have never, and likely never will, replace the role of infantry in war. The newsman from Texas understood this during a time when air power, armor, and nuclear technology were increasingly seen as the defining weapons of future wars. Predictably, he went against the prevailing winds in search of the real story, as was his custom.

⁴⁵ Russell W. Glenn, introduction to *Men Against Fire: The Problem of Battle Command* by Samuel Lyman Atwood Marshall (Norman: University of Oklahoma Press, 1947), 7-8.

Chapter Two

Korea and Reform: Changing the Equation

*They wrote in the old days that it is sweet and fitting to die for one's country.
But in modern war, there is nothing sweet nor fitting in your dying. You will die like a
dog for no good reason.*

In 1942 the Red Army was in a desperate contest for survival against the Wehrmacht. The Axis forces had penetrated deep into the Soviet Union since Operation Barbarossa opened the war on the Eastern Front in June of 1941. During the life-and-death struggle that characterized the slaughter in the east, desperate measures were commonly employed by both sides. The Soviets, true to form, drew upon all available resources in an effort to resist the German onslaught. Included among the war material available was a legion of 50,000 dogs—a footnote generally overlooked by historians writing about the war.⁴⁶

This omission is understandable given the degree of suffering and loss of life around the world; the butcher's bill for the Second World War is estimated at between 50 and 60 million total dead, though some estimates are much lower.⁴⁷ Yet, regardless of the total dead, there is a unique lesson to be learned through closer scrutiny of the anti-tank dogs the Soviets employed against German armor. The lesson was not about the merits of the *hundeminen*, or dog-mines; rather it was the method by which their handlers trained them to carry out their macabre task that intrigued both medical professionals and the U.S. military alike.

⁴⁶ Steven Zaloga, *The Red Army of the Great Patriotic War 1941-45* (Oxford: Osprey Publishing, 1989), 42-44.

⁴⁷ Donald Sommerville, *World War II: Day by Day* (New York: Barnes & Noble Books, 1989), 5. Estimates on the total number dead have been adjusted in recent decades. Some now suggest the true numbers are closer to 80 million, even 90 million in one case.

Ivan Pavlov's concept of conditional reflex, popularly known as classical conditioning, was a key ingredient in the behavioral therapy applied to the Red Army dogs. Pavlov who had received the 1904 Nobel Prize for his work, proved that physiological responses to stimuli could be predicted, trained, and reinforced. The most famous example of this process was the increased salivation by dogs when presented with a stimulus previously associated with food, such as ringing a bell. Armed with this basic understanding of psychological conditioning, Stalin's dog handlers buried food underneath stationary Soviet tanks before releasing half-starved dogs collected from all throughout Russia to claim their prize. The dogs would then belly-crawl under the tank's front glacis in an effort to retrieve the reward. Ideally during this activity a vertical lever jutting above the dog's shoulders would trigger an explosive package attached to the dog's harness leading to a detonation that would destroy or immobilize the tank.⁴⁸ This ambitious foray into weaponizing animals through modern conditioning techniques was a spectacular failure.

The rudimentary explosive devices failed frequently enough that the ingenious Soviet handlers decided to remotely detonate the mines strapped to the dog or use a timer device just prior to attacking. Unfortunately for both the dogs and their handlers, the rudimentary training did not account for various elements common to the battlefield; stimuli that could not be overcome through conditioning, such as the strange smells and sounds of German armor on the attack, sent the dogs fleeing back

⁴⁸ Zaloga, *The Red Army of the Great Patriotic War 1941-45*, 42-44.

to their terrified masters with live explosives! Ultimately the program was scrapped in favor of rescue and recovery training for the remaining Soviet dogs, which became scarce as the Wehrmacht policy was to kill all dogs encountered in occupied territory as a preventative measure.⁴⁹

The discovery of conditional reflex and the tenets associated with classical conditioning created new avenues of research in behaviorism, but it was the American B. F. Skinner and his work with pigeons and rats that built upon this knowledge to develop new techniques for use in conditioning animals. In 1938 Skinner coined the term operant conditioning, building upon Edward Thorndike's *Law of Effect* which concerned learning in animals.⁵⁰ By introducing reinforcers alongside operants already established in behaviorism such as punishment, Skinner trained animals to predictably select the correct trigger to gain a reward.⁵¹ Operant conditioning for the purposes of this work can be generally understood as organisms, including humans, moving through their environments rather haphazardly until they encounter a reinforcing stimulus. The experience of that stimulus becomes associated in memory with the behavior that immediately preceded it.

The medical community began searching for possible ways to apply this new understanding about motivation and behavior hoping to unlock a successful formula

⁴⁹ Ibid., 45.

⁵⁰ B. F. Skinner, *About Behaviorism* (New York: Knopf Doubleday, 2011), 53-56. Many books have been published on the topic of behaviorism since Skinner's initial findings. Generally his arguments are accepted, though some points unrelated to this work are contended.

⁵¹ Ibid., 61-67.

for human psychological conditioning. Not surprisingly, a guaranteed method for manipulating humans to the degree possible in the carefully regulated environment of a laboratory was impossible. Nonetheless, the practical application of lessons gleaned from advances in psychological-conditioning was of great interest to the U.S. military.

The U.S. Army saw potential for enhanced training techniques using Skinner's formula. By the opening of hostilities in Korea in June of 1950 it had begun tentatively integrating the latest psychological discoveries made during the post-war period in an effort to address the alarmingly low ratio of fire Marshall reported. Though it is inaccurate to say Marshall bears sole responsibility for the new concepts applied to basic and field training, it is clear his after-action reviews and alarmist tendencies got the proverbial ball rolling in the right direction.⁵² The momentum he created to find more effective means of training soldiers to kill, acknowledged by the military establishment, was complemented by the work of Pavlov, Thorndike, and Skinner.

Prior to Korea and Vietnam, combat training in the U.S. Army since its formation in 1775 was largely concerned with practical military exercises and managing and maintaining equipment. Repetition played an inordinate role in this process, where recruits used rote memorization to complete the manual of arms, marching, responding to the various drum cadences, and above all—following orders

⁵² John Whiteclay Chambers II, "S. L. A. Marshall's Men Against Fire: New Evidence Regarding Fire Ratios," *Parameters* (2003): 119-20.

without question. This methodology was successful in terms of preparing ill-trained farmers and shopkeepers for war; it was also successfully used in training the conscripts and volunteers of the American Civil War. Grossman writes, “The concept of drill had its roots in the harsh lessons of military success on battlefields dating back to the Greek phalanx. Such drill was perfected by the Romans. Then, as firing drill, it was turned into a science by Frederick the Great and then mass-produced by Napoleon.” Prussia’s warrior-king Frederick II, or as he is more popularly known Frederick the Great, conducted experiments designed to measure the shooting accuracy and training of his army during the eighteenth century. What he discovered was startling.⁵³

In their work *Soldiers: A History of Men in Battle*, John Keegan and Richard Holmes explain that “Old Fritz” ordered a one-hundred foot wide by six-foot tall piece of canvass attached to wood uprights to roughly represent the size of an opposing regiment of the line (200-1000 men). At 225 yards the Prussian regiment armed with smoothbore muskets scored a hit rate of 25%. At 150 yards it increased to 40%, and at 75 yards 60% percent of the infantrymen found their mark. It would then stand to reason, that a 200-man regiment firing at an opponent 75 yards away would reduce their number by around 120 in the first volley.⁵⁴ However, when similar line regiments fought in real battles, the number killed in the first volley was far less.

⁵³ David Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society* (New York: Back Bay Books, 1995), 60.

⁵⁴ John Keegan and Richard Holmes, *Soldiers: A History of Men in Battle* (New York: Viking, 1986), 66.

Napoleonic and American Civil War expert and historian Paddy Griffith estimated that on average only one or two men were struck down per minute during the black-powder battles of the nineteenth century. This number is amazing considering the Prussian hit rates of 60%. What's more, the equipment of Napoleon's *Grande Armée* and that used by the Americans during the Civil War—was far superior to that available to the Prussians of Frederick's time. What was happening was that the soldiers were either non-firers, or purposely missing.⁵⁵

Despite rigorous drilling and rote memorization of battle procedures, the Prussians, Americans, and French were still failing to kill their opponents in numbers equal to the capability of their equipment and training. That is not to say that the soldiers were not butchering each other, rather, they were not butchering each other as quickly as their commanders and the hard math predicted. There were certainly instances of high casualties being inflicted in short order, but this was the exception to the rule. More often the horrendous casualties associated with battles such as Cold Harbor and Leipzig were the result of prolonged fighting which allowed casualties to accumulate. The Battle of the Nations in 1813, for example, was a four-day event which saw high casualties only after the assembled armies slugged it out for some time. Other factors impacted the number of casualties, such as artillery and poor leadership, but two regiments of the line in good order could be expected to inflict only small numbers of casualties on each other under ordinary circumstances.⁵⁶

⁵⁵ Paddy Griffith, *Battle Tactics of the Civil War* (New Haven: Yale University Press, 1987), 57.

⁵⁶ H.W. Koch, *History of Warfare* (New York: Gallery Books, 1981), 351-3.

Something was missing. How was it that up until the Korea War, technology aside, the ratio of fire was so low? Why did the Prussians perform so well in target practice, yet never came remotely close to replicating those hit percentages in battle? What was lacking was a concrete way of dealing with the mental strain placed upon soldiers in battle, and a means by which they could be taught to kill another human more easily. Pavlov's dogs and Skinner's rats that provided some of the answers, or rather the lessons gleaned from their experiments that created the foundation of military conditioning. The psychological edge that breakthroughs in behaviorism granted the U.S. military combined with rapid technological advances—changed the killing equation. The application of psychological principles to the training regimen of U.S. soldiers after World War II, restructuring of U.S. military units, and new weapons of war resulted in an improved ratio-of-fire and less resistance to killing.⁵⁷

Korea

So our guns fired steadily all night, the barrels got red hot and we were throwing water on them to try and cool them down. So we fired right through until dawn, until the Chinese withdrew. The Chinese were bundling up their dead and rolling them down the hill. They wrapped them in wire and rolled them down the hill and took their wounded out.

—Francis Bayne, Canadian Artillery

Korea is a special case in the march towards understanding killology and how the U.S. military began to overcome the resistance to killing inherent to most humans

⁵⁷ Grossman, *On Killing*, 252, 256-257.

after Marshall exposed the problem. Called the “Forgotten War,” Korea is exceptional because it is a transitional war in terms of emergent technology and tactical reform. In the beginning, the Korean War was fought with antiquated equipment, mostly 'leftover' items from World War II due to demobilization and size reductions. By 1953 the weaponry available to the average U.S. combat regiment in Korea was significantly improved over that of their World War II era counterparts. The resulting increase in firepower capability contributed exponentially to increased firing rates as reflected in AARs collected by Marshall and others.⁵⁸ The increased availability of automatic and crew-served weapon systems is occasionally overlooked by military historians in accounting for dramatic victories in Korea where a single machine-gun emplacement often meant the difference between being overrun and holding the line for another night. Instead, the less glamorous weaponry of the grunt is overshadowed by flashy advances in aircraft technology which unarguably altered the entire flow of the Korean War. Because the U.S. and United Nation air-forces were able to achieve superiority in the skies over Korea, the Democratic People’s Republic of Korea (DPRK) was obliged to conduct operational and tactical military operations at night for instance.⁵⁹⁶⁰

⁵⁸ Samuel Lyman Atwood Marshall, *Pork Chop Hill* (New York: William Morrow & Company, 1956), 16-17.

⁵⁹ Terrence J. Gough. *U.S. Army Mobilization and Logistics in the Korean War: A Research Approach* (Center of Military History United States Army: Washington D.C., 1987), 57.

⁶⁰ Marshall, *Pork Chop Hill*, 100.

The technological transition to more automated weapon systems undoubtedly contributed to increased fire-ratios, but so did the less well-known combat unit reforms in the U.S. Army that occurred during the Korean War. Fortunately, by the start of hostilities Marshall's observations from World War II had sufficiently influenced the upper echelons of the U.S. military to begin searching for a remedy to the abysmally low ratio-of-fire while at the same time hurriedly restructuring obsolete infantry brigades and companies to meet the challenges of a dynamic battlefield.⁶¹ The response was that members of G-1 and G-3 consulted with field commanders about how best to modernize line regiments, and by extension increase the percentage of soldiers who actively fired their weapons with the intention to kill. However, throughout 1950 and early 1951 the U.S. and their allies scrambled to replace service units holding the line in Korea with better-trained combat troops from outside the Korean Theater. Since the general drawdown after the surrender of Japan had been largely completed, General Douglas MacArthur, overall commander of East Asian operations was left a paltry force of four under-strength infantry divisions to work with.⁶²

Marshall erroneously believed that a new training doctrine that integrated minor conditioning tweaks, such as using human silhouette targets instead of a

⁶¹ Kelly C. Jordan, "Right for the Wrong Reasons: S.L.A. Marshall and the Ratio of Fire in Korea," *The Journal of Military History* 66, no. 1 (January, 2002): 138.

⁶² Donald W. Boose, *U.S. Army Forces in the Korean War, 1950-53* (New York: Osprey Publishing, 2005) 63-64. Task Force Smith exemplified the deterioration of combat readiness common to the U.S. Army at the outset of the Korean War. Task Force Smith was both under-equipped and under-supplied, especially in terms of anti-tank capability. Smith was eventually forced to retreat in disarray after a rearguard holding action.

“bullseye” during basic training, could significantly overcome the non-firing instinct displayed by soldiers during World War II. Instead, during the Korean War the reorganization and rearming of U.S. and Republic of Korea (ROK) units from the division down to the squad contributed the most to changing the fire ratio.⁶³ The addition of artillery, recoilless-rifles, anti-tank systems, and especially machine guns to battalions and platoons did more than the U.S. Army’s proto-conditioning programs of the 1950s.⁶⁴ Not until the 1960s and Vietnam was operant conditioning in basic training anywhere near the levels required to encourage killing among the typical soldier. Evidence collected by Marshall himself suggested that the addition of machine-gun teams and artillery companies to combat regiments between 1945 and 1953 was a significant advantage in altering the ratio-of-fire, despite clinging to the belief that improved training techniques were an equally viable solution. When the Korean War ended in July of 1953 the firing rate among U.S. soldiers increased to 55% according to Marshall’s estimates.⁶⁵

Technological Innovation

The first time I ever saw a jet, I shot it down.

—Chuck Yeager, USAF, describing his first confrontation with a Me262

⁶³ Kenneth Earl Hamburger, *Leadership in the Crucible: The Korean War Battles of Twin Tunnels & Chipyeong-ni* (Texas A&M University Press: College Station, 2003), 16-17.

⁶⁴ Jordan, “Right for the Wrong Reasons,” 136-37.

⁶⁵ Samuel Lyman Atwood Marshall, *Commentary on Infantry Operations and Weapons Usage in Korea, Winter 1950-51*, 2nd ed. (Chevy Chase: John Hopkins University, 1951), 4-5.

<http://cgsc.contentdm.oclc.org/cdm/ref/collection/p4013coll11/id/1350> accessed February 13, 2016.

Technological innovation in warfighting had increased exponentially throughout World War II and continued unabated through the end of Vietnam, followed by a second explosion in military technological innovation during the Information Age that is still ongoing. The breakthroughs in jet propulsion by the Nazis in 1944 allowed them to field the Messerschmitt 262 *Schwalbe* (Storm Bird), the world's first operational fighter jet. Though the Me262's were too few in number and too late to enter the war to be decisive, the writing was on the wall. Jet-powered aircraft were the future, and air superiority was critical.

As propeller-driven aircraft gave way to F-80 Shooting Stars and Soviet MiG-15s, the war in the skies was forever changed. In 1950 the first recorded jet-to-jet kill was scored by Lieutenant Russel J. Brown against a MiG-15 while piloting an F-80. Indicative of the rate of technological change, the swept-wing design of the MiG-15 at the time of its downing had already made the straight-wing P-80 design obsolete; meanwhile the USAF had already begun producing the swept-wing F-86 Sabre as a counter.

However, jet fighters were not the only stars of the Korean sky. The Bell H-13 helicopter, designated the "Sioux" by the U.S. Army, which began the ongoing tradition of naming helicopters after Native American tribes, also made its grand appearance and forever changed the nature of combined-arms warfare. As the first large-scale helicopter procurement by the U.S. military, the H-13s were largely limited to scouting and medical transport duty in Korea, though the full potential of

the helicopter was not yet realized. The foundation for air-assault and mobile operations like those of the 1st Cavalry Division (Airmobile) during the Vietnam War were being laid.

On the ground, advances in vehicle and weapon design were not as drastic as in the sky. Though some designs did stand out, such as the British Centurion Mk 3 tank, which proved exceptionally effective from its combat debut during the 1950 Pusan landing until the end of the war. The American M41 155mm howitzer motor carriage provided unprecedented mobile artillery support and was so successful that an updated variant designated the M44 was phased in at the end of the war. Many other improvements to World War II era self-propelled guns, support weapons, and mobility were made during the early 1950s, but their availability was the transitional element most significant to increasing the ratio of fire in Korea.

Unit Reform

In the usual procedure, a flash fire was delivered with maximum power for three minutes, the howitzers then cutting back from twelve to six rounds per tube per minute while maintaining the fire six minutes. In the Arsenal-Erie action, the 48th Field fired the maximum rate for four minutes, then suspended briefly.

—S. L.A. Marshall, *Pork Chop Hill*

The advances to weaponry and vehicles made during the Korean War were impressive. It might be tempting to accept them as the major factor responsible for the improved ratio-of-fire Marshall reported. Digging a bit deeper, however, reveals that restructuring of U.S. Army and United States Marine Corps combat units

probably played a larger role in the increased killing efficiency exhibited. All of the firepower in the world is useless unless it can be brought to bear in an effective and efficient manner.

Take for instance an incident recounted by Marshall in which concentrated howitzer fire support, called “flash fire”, was used to effectively blunt a DPRK attack on a U.S. position:

It was maintained for four minutes. Differing little from the curtain barrage of World War I days, the "flash fire" of Korean operations was an on-call, tightly sown artillery (plus 4.2 mortar) barrage, usually horseshoe-shaped and so dropped that it would close around the front and sides of an outpost ridge. The main idea of a flash fire was to freeze enemy infantry movement, blocking out the enemy force on the low ground while locking in such skirmishers as had gained the heights. In effect, one battery fired on each concentration, 120 rounds per minute, two shells breaking into the ground every second. High explosive and proximity fuse shells were both used in this blast, the balance varying according to terrain conditions. While a flash fire lasted, infantrymen stayed in their fighting positions.⁶⁶

This tactical response to a dynamic situation was only possible because more artillery had been attached to infantry and combat teams during the reforms of the late 1940s and early 1950s.

Over sixty different United States artillery battalions served on the Korean Peninsula. Regular Army, Marine Corps, and National Guard battalions all played a role in the fighting.⁶⁷ The U.S. 8th Army, which had overall responsibility for the

⁶⁶ Marshall, *Pork Chop Hill*, 46-48.

⁶⁷ Mark A Olinger, “U.S. Army Mobilization During the Korean War and Its Aftermath,” *The Institute of Land Warfare* 70 (2008): 2.

combat zone, wanted to have existing stocks of artillery divided among the three corps under its jurisdiction. U.S. I, IX, and X Corps all received roughly equal amounts of artillery support because of restructuring. By 1953 each of the six U.S. divisions in Korea had been assigned four artillery battalions each, usually consisting of three 105mm units for direct support of each regiment, and a 155mm unit for heavier general divisional support. Outside of divisional battalions were the U.S. Corps artillery battalions which were for general support of each corps front and had enough mobility to relocate as the situation determined. In addition to increasing artillery support for combat units, something which proved pivotal to their survival in Korea, the U.S. Army began reorganizing the heart of its organization—the infantry.

In 1946 a conference was held at the Infantry School at Fort Benning Georgia in an effort to assess the strengths and weaknesses of U.S. Army unit structure. American combat infantry leaders reviewed tactics, doctrine, leadership, weapons, personnel policies, training and organization at this conference. The conclusions and recommendations reached at the Infantry School formed the basis for future U.S. Army unit organization, equipment, and general doctrines well into the 1950s.⁶⁸ The increased ratio-of-fire that Marshall observed in Korea was the result of restructuring infantry units, especially the smallest organizational elements.⁶⁹ At the platoon and squad level changes to size and composition occurred, namely the reduction in size of

⁶⁸ Paul E. Melody, *The Infantry Rifle Squad: Size Is Not the Only Problem* (Fort Leavenworth: School of Advanced Military Studies United States Army Command and General Staff College, 1990) 4.

⁶⁹ Jordan, "Right for the Wrong Reasons," 137.

the combat infantry squad from twelve to nine members. This was felt to be a size more easily commanded and maneuvered. Though at face value this appears to be a disadvantage, the strength of reduced-size platoons and squads was offset by increased numbers of machine guns and other support weapons. Whereas in World War II a rifle platoon had a single Browning Automatic Rifle assigned to it, towards the middle and latter stages of the Korean War an infantry squad was assigned at least one, sometimes two. Furthermore, at the platoon level, a reformed unit had an effective strength of thirty-six men with five crew-served weapons as opposed to only three in World War II.

Arguably the greatest change to the Table of Organization and Equipment (TOE) by the U.S. Army when examining combat infantry performance was the addition of crew-served weapons at the platoon level. Generally speaking, during World War II the heavier machine-guns, mortars, and anti-vehicle weapon platforms were assigned to regiments and companies which in turn distributed them to their platoons as needed. In Korea, individual platoons were assigned crew-served weapons directly. In practice this meant that a smaller combat team could lay down an inordinate amount of firepower, not reliant on whatever was available at the company level. U.S. infantry tactics also evolved to incorporate these changes by adopting some doctrine from the Wehrmacht's playbook. Specifically, squads would be organized around the light machine gun much like the Germans with their superb

MG 34s in World War II.⁷⁰ Small unit tactics going forward emphasized the light machine gun as the squad's most important piece of weaponry. Marshall reiterated the importance of the BAR to a squad's performance in his official submission of observations in Korea. Entitled, "Commentary on Infantry Operations and Weapons Usage in Korea, Winter 1950-51," where he states:

In infantry operations in Korea, it is conspicuous that rifle fire builds up strongly around the BAR. It is therefore reasonable to believe that an increase in ratio of BARs to rifles would stimulate stronger fire within the squad unit. In every engagement there are pivotal influences—fire builds up because one man is doing a particular thing with his weapons and others move to support him. BAR action is most frequently the moving force because of the high mobility of the weapon and its solid fire effects.⁷¹

During the long nights in Korea, an operational .30 or .50 caliber heavy machine gun often meant the difference between seeing the morning and being overrun. Numerous first-hand accounts of Korean veterans extolling the importance of keeping the machine guns firing exist. Take, for example, Sergeant Earnest Baker Jr. who served in the 7th Infantry Regiment of the 3rd Infantry Division. His firsthand experience was that the antiquated quad-.50 caliber heavy machine gun he manned was crucial to supporting defensive and offensive operations. He explained that it was mounted to a half-track that was often stationary in a hull-down posture, ready to throw serious amounts of lead into onrushing human wave attacks by the Chinese and North Koreans. He says:

⁷⁰ The Wehrmacht incorporated the machine gun into their *Auftragstaktik* or "Mission-Tactics" system of small-unit battle. Beyond the MG34, the MG42 heavy machine gun was used.

⁷¹ Marshall, *Commentary on Infantry Operations and Weapons Usage in Korea*, 54-55.

It's an old World War II vehicle, and you would dig it in. And then you had -- this gun would fire, and this gun would fire, and this gun would fire, and this gun would fire. They would crossfire, and every fifth round was a tracer. And if you wanted to light up a hillside, you just fired into the hills and set it on fire, and you could tell where they was at. You could get a good location of where they was at.⁷²

When asking if he was involved in defending against human wave attacks employed by the enemy Baker says: “Indirectly, I was. I was -- You know, we would fire weapons and everything, our machine guns and everything, just for our support. But, you know, as far as hand-to-hand or something like that, no, I wasn't.” Finally, Baker answers questions regarding what exactly they fired at with their support weapons, whether they went for mass-ground coverage or individual targets:

Well, at times it would be massive ground, and other times you'd have individuals. The same way with the tanks, you know, you had an individual target, or we would just follow ahead or behind giving support. They would just come by -- thousands of them, you know, and it was like a herd of cattle, and they would overrun your hill. You would be back here, and they would be up -- I mean, you know, they just went like something wild.⁷³

Bakers' statements illustrate the important role machine-guns and heavy support weapons played in resisting waves of enemy combatants, similar to the fighting in France during WWI. However, the Chinese and DPRK faced much more powerful weapons than could be found in the trenches of WWI, while still using archaic infantry tactics. The end result was exceedingly high

⁷² Earnest Baker, Jr. Collection (AFC 2001/001/10142), Veterans History Project Collection, American Folklife Center, Library of Congress.

⁷³ Ibid.

casualties for the DPRK and Chinese. The Americans and their U.N. allies suffered mightily too, but the post-war reforms mitigated the losses they would have suffered without the addition of artillery and crew-served weapons to most combat units.

The Psychology Behind It

It seems strange . . . that a company of men can fire volley after volley at a like number of men at not over a distance of fifteen steps and not cause a single casualty. Yet such was the facts in this instance.

—Benjamin McIntyre, Vicksburg 1863

For the study of killology, Korea was a transitional war. Marshall's findings influenced the U.S. Army enough to begin moving towards a more scientific approach to combat training with the goal of increasing fighting performance. Though this shift would not become fully evident until the Vietnam War, the conditions necessary for fundamental changes in U.S. training doctrine were in place. The U.S. military was becoming a modern organization, receptive to discoveries made in scientific and academic fields—especially psychology. Intangible psychological factors combined with unit reform most influenced the increase of firing rates in Korea. What then, does the founder of killology believe are the specific factors that increased the ratio-of-fire in Korea? The answer is found by examining the merger of psychology, sociology, and weaponry.

Experience has shown that when soldiers operate a crew-served weapon, they are more likely to participate in battle. By increasing the number of crew-served weapons in numerically smaller platoons and squads, the ratio of those participating in battle increased, which in turn increased the ratio-of-fire. Grossman argues that fear of letting one's comrades down, and consequently being shunned from the in-group, encouraged soldiers to fight; therefore, having soldiers organized around operating crew-served weapons fostered an environment that promoted engagement. Jordan supports this assertion by writing, "These changes gave these units additional machine guns, whose operators appeared to fire in almost every engagement; significantly increased the proportion of crew-served weapons to riflemen; and allowed these units to tap into powerful small-unit sociological forces by transforming the squad into a more effective "primary group."⁷⁴

The increased availability of crew-served weapons meant that squad-sized units became more cohesive both mentally and physically. Physical proximity to fellow soldiers is also a decisive factor in promoting combat participation. When individual riflemen are isolated they tend not to engage as often or with as much vigor as they might when under the watchful eye of their comrades.⁷⁵ For example, a typical machine gun crew might require anywhere between two and four men, which in a squad of nine was a significant portion. Because the firepower of the machine-gun was instrumental to survival in Korea its continuing operation during a battle was

⁷⁴ Jordan, "Right for the Wrong Reasons," 137.

⁷⁵ Grossman, *On Killing*, 144-145.

a priority in most cases. This system insured that the gun crew was in immediate physical proximity to one another, while the remaining rifleman would disperse in relation to its position. By keeping the squad within generally close proximity, authority could be more easily established by commanders, while at the same time the influence of peer pressure and mutual surveillance was applied.

Second to the increased rates of fire due to the addition of crew-served weapons, artillery played a crucial role in Korea. Artillery is unique on the battlefield since it allows widespread killing without the emotional strain associated with other combat branches; the closest similarity to any branch of the armed services would be to that of bomber aircraft. In both cases, the physical proximity from the target removes the individual from the turmoil caused by the inner resistance to killing. The bombardier and the 155mm howitzer crew both are absolved from seeing the product of their handiwork, unlike their comrades in the infantry. In their minds, the enemy was nothing more than grids on a map, and when viewed in such a manner, it is easy to kill alarmingly large numbers of people without adverse psychological trauma. Napoleon understood this and made sure he had more artillery than his opponents whenever possible. He realized that they did the preponderance of killing in battle, especially when loaded with grapeshot.⁷⁶

Further illustrating this point is the experience of John Phillips, an artilleryman with the 780th Field Artillery Battalion attached to X Corps in Korea. He

⁷⁶ Ibid., 27.

described the terrible killing capability of artillery, detailing the use of air-burst timed shells for maximum anti-personnel effect:

We had eight-inch guns. The shells had a bursting radius of 450 yards, and we often shot various kinds of shells. But for people we'd always shoot shell VT which was a variable time. It would go off when it hit the ground if it didn't go off 60 yards, 60 feet above their head. So we had personnel. We'd try to shoot, shoot VT, the fuse VT so that it would go off. And with a 450-yard bursting radius from above, think of all the people you could injure.⁷⁷

Phillips clearly realized he had killed many of the enemy during his time with the 780th. However from his battery's position three miles behind the front-line, he was emotionally and psychologically insulated from trauma. Phillips continued explaining the carnage he had wrought on the DPRK through indirect fire:

But anyhow, this runner came back with the information, and we shot. And we shot quite a few shells in there. Major Munzell let us shoot a lot of ammo up that night, and we blanketed that, that whole valley and everything where they were coming through. When it was over the next morning, they went in, and the South Koreans said that there were still 300 dead laying on the ground, and there was a Russian military officer with them in full dress uniform. We, we got them that night, but, but we didn't just kill 300. You see, when the North Koreans lose dead, they went out there and picked up everybody they could find and carry them away so we never knew how many we killed.⁷⁸

The scene in the valley the following morning must have been horrific, but as Phillips said himself—the ROK troops reported the casualties to him. He never had to see the

⁷⁷ John Elmer Phillips Collection (AFC 2001/001/10259), Veterans History Project Collection, American Folklife Center, Library of Congress.

⁷⁸ Ibid.

product of his handiwork, and therefore was free to kill, only abstractly aware of the carnage.

As a corollary to the fact that artillery caused the most enemy casualties during the Korean War, the difference between indirect fire and direct fire is worth examining.⁷⁹ Artillerymen were successful at avoiding the emotional cost of killing and war in general because they did not kill anyone directly, and no one was specifically trying to kill them. As Dyer points out:

There has never been a similar problem with getting artillerymen or bomber crews or naval personnel to kill. Partly it is the same pressure that keeps machine-gun crews—they are being observed by their fellows—but even more important is the intervention of distance and machinery between them and the enemy; they can simply pretend they are not killing human beings.⁸⁰

But, as the Prussians had learned centuries earlier, killing your opponent at close to mid-range was an entirely different prospect. Using direct fire at these ranges, while the screams and cries of the enemy are clearly heard, and the indescribable images clearly seen, adding to potential mental trauma.

Despite this, the direct fire of the machine guns contributed significantly to enemy casualties in Korea. Though not as efficient as a well-placed artillery bombardment the gun crews swept the field with fully-automatic fire, sometime simply aiming at nothing more than shadowy figures at night. Lee Young Ho of 3rd Battalion, ROK Marine Corps described a night attack like this:

⁷⁹ Grossman, *On Killing*, 27.

⁸⁰ Gwynne Dyer, *War* (New York: Crown Publishers Inc, 1985), 119.

Under constant flares I could clearly see unfolding a human wave of Chinese soldiers approaching our lines. “You bitches!” I cursed them unconsciously and pulled my heavy machine gun’s trigger. The area was nothing short of pure hell. All sorts of weapons were discharging their deadly bullets and shells at hellish rates.⁸¹

This further reinforces Dyer’s and Grossman’s argument that distance and plausible deniability were helpful in overcoming the negative aspects associated with killing. Ho had no idea which of his rounds found their target or even what he was specifically firing at besides the “human wave” before him. Regardless, Ho dutifully carried out his job, operating his machine gun until he was knocked unconscious by a grenade blast.

The Korean War unveiled new technology and new insight into the nature of killing and how best to exploit it. Jet aircraft and helicopters were on the verge of irrevocably changing warfare, though it would be another decade before their true combat potential was realized in the skies and on the battlefields of Vietnam. As in World War II before, during the Korean War airpower was an essential element of victory both tactically and strategically. U.S. and U.N. control of the skies created significant advantages, namely forcing the enemy to operate under the cloak of darkness, always wary of the jets and bombers overhead. But, it was also still true that like World War II, the infantryman was the one who, at the end of the day, got the job done. Air power has limitations that only the grunt and his weapon could solve.

⁸¹ Richard Peters and Xiaobing Li, *Voices from the Korean War: Personal Stories of American, Korean, and Chinese Soldiers* (Lexington: The University Press of Kentucky, 2004) 196-97.

Marshall's alarmism resulted in a serious effort to restructure the U.S. Army for future conflicts. His observations informed those responsible for the restructuring initiative in 1946 that by 1953 had ultimately created a force resembling the modern combat organization system that emphasizes regimental combat teams (RCT), and fire-support elements. By adding artillery, machine guns, and anti-tank weaponry to the TOE, the average soldier was empowered by the responsibility that came with operating or supporting the team's efforts. The support weapons became a rally point of sorts—the piece of equipment that had to be kept firing at all costs.

The mechanized nature of killing with machine guns helped overcome resistance to killing, though it would be disingenuous to claim it was a panacea to non-firing. In order to further understand killology, and how it is being utilized today, we must examine the changes to training and psychological conditioning that occurred after Korea and through the 1960s. More specifically, operant conditioning would begin to play a larger role in combat readiness and the capacity of U.S. soldiers to kill the enemy. This will be discussed in greater detail in the following chapters.

The unit reforms during and preceding the Korean War necessarily lead to increased firing rates and enemy casualties as squads, platoons, and companies had more access to crew-served weapons. The tactical lessons learned in Korea were scrutinized heavily by all levels of the U.S. military and across all branches. The conclusion they reached was that sociological group dynamics and the availability of crew-served weapons were essential to increased fighting performance. This trend continued until the Vietnam War when the M-60 light machine-gun became

indispensable to infantry platoons; additionally the infantry serving in Vietnam were armed with fully automatic M-16 rifles capable of firing 700 rounds per minute. This technological advance in small arms along with new training doctrines organized around psychological conditioning led to the 90% ratio-of-fire reported by Marshall and others observing combat soldiers in Vietnam.

Chapter Three

Vietnam: Perfecting the Math

We seem bent upon saving the Vietnamese from Ho Chi Minh, even if we have to kill them and demolish their country to do it. I do not intend to remain silent in the face of what I regard as a policy of madness which, sooner or later, will envelop my son and American youth by the millions for years to come.

—Senator George McGovern on the Senate floor on April 25, 1967

“Do you remember the first time you killed someone?” The interviewer with the United States Department of Veterans Affairs asked Lonnie, a balding man with glasses in his sixties and a Vietnam War combat veteran with deep lines etched into his face. Lonnie, with a wistful look simply answered “Yeah,” his head bobbing in agreement, seemingly to reassure himself of his participation in this act of violence. Visibly disturbed by the recollection of these events Lonnie continues, “I was the only one up there that wasn’t hurt and scared to death.” Emphatically he repeats “scared to death” several more times while staring off-camera. “Somebody get up here and help me! I’m alone!” Lonnie recalls his paralyzing fear, “and then, two little heads...I was down and all I could see was his head and shoulders...he had a hardhat on, and then I saw the red emblem.” Lonnie, his hands now gesticulating wildly, begins recounting the painful event “and then, when his, when I could see a silhouette” Lonnie freezes and stares vacantly as the interview room falls deafeningly

silent. “I blasted ‘em. Silhouettes. They’re not real people, there are just targets!” he blurts out. The interviewer waits for Lonnie to regain his composure and follows up with “Is that how you kinda saw it? Would you try to disconnect them as people?” Lonnie calmly replies, “That was what we were taught to do...those weren’t people, those are silhouettes.”

Daniel, also a Vietnam combat veteran, agreed to be interviewed as part of the same project and further illustrates the impact of killing in wartime. Like Lonnie, Daniel was also significantly impacted by his experiences during the fighting in Vietnam. Daniel tells the interviewer a story about a young Vietnamese soldier who was mortally maimed by the directed blast of a claymore mine. Though Daniel struggles through his tale he makes it a point to mention that “It was strange you know, you could disassociate when you’re shooting at spots in the jungle, but this guy was right there, and I felt very compassionate and I was thinking about his girlfriend, his family, whatever. And it was a moment I went through that I think it affected me a lot.” Seemingly to convince himself as much as the interviewer, he continues, “I didn’t feel any personal guilt, I felt sorry for him. My mind at the time was don’t let it bother you, don’t think about it, just do it.”⁸²

The U.S. combat troops arriving in South Vietnam in March of 1965 were the inheritors of advances made in combat training. As such, the ratio of fire during the

⁸² “On Killing,” *Cut Video*, last modified November 1, 2015, <https://www.youtube.com/watch?v=BsfbO9oz0GI>, accessed August 3, 2015.

Vietnam War for U.S. combatants was around 80-90%.⁸³ Marshall wrote an analysis of the changing ratio of fire during Vietnam and concluded:

According to the data basis, the U.S. infantry line in Vietnam requires no stimulation whatever to its employment of organic weapons when engaged. The fire rate among patrols in heavy, if brief, contact is not infrequently 100 percent. Within the rifle company, during engagement prolonged for several hours, the rate will run 80 percent or more and the only nonfirers will be the rearward administrative element or the more critical cases among the early wounded. It is not unusual for one man to engage with three or more weapons during the course of a two-hour fight.⁸⁴

These results were the culmination of a process that began with Marshall's alarmism at the poor firing rates he observed in World War II, followed by subsequent reforms to the tactical composition of combat units and their tables of equipment in Korea. The reorganization of combat units around crew-served weapons, combined with increased availability of ranged killing power through artillery and air support, began moving the ratio in the desired direction. By the start of the ground war in Vietnam military, psychologists and TRADOC had managed to tap into primal psychological and sociological forces—fundamentally altering the capacity of U.S. combatants to kill.⁸⁵ The American soldiers in Vietnam were the most psychologically conditioned troops in the history of the United States armed forces; they had access to weapons

⁸³ David Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society* (New York: Back Bay Books, 1995), 250.

⁸⁴ S. L. A. Marshall and David H Hackworth, *Vietnam Primer: Lessons Learned* (Washington.: Government Printing Office, 1966), 11, <http://www.lzcenter.com/Documents/12891741-Army-Vietnam-Primer-Pamphlet.pdf>.

⁸⁵ Kelly C. Jordan, "Right for the Wrong Reasons: S.L.A. Marshall and the Ratio of Fire in Korea," *The Journal of Military History* 66, no. 1 (January, 2002): 137-38.

and training that allowed them to overcome their inherent resistance to killing, though perhaps not the necessary safeguards to prevent psychological trauma associated with combat.⁸⁶ The equation for killing was close to solved, it seemed, but at what cost?

The True Cost

You will kill ten of us, we will kill one of you, but in the end, you will tire of it first.

—Ho Chi Minh, September 1946, during negotiations with the French

At the strategic and operational level, the Vietnam War cost the United States and its allies a tremendous amount of blood and treasure. Roughly 60,000 Americans were killed in action (KIA) between 1964 and the fall of Saigon in April of 1975, with formal ground operations beginning in 1965 and ending by 1973.⁸⁷ In terms of participation, over half a million personnel were in country during the peak of U.S. involvement in 1969, and approximately three million service men and women would eventually serve in Vietnam and southeast Asia throughout the conflict.⁸⁸ The Army of the Republic of Vietnam (ARVN) suffered around 250,000 recorded deaths between 1960 and 1974, though more recent estimates put the number closer to

⁸⁶ Ibid., 250-51, 258-59.

⁸⁷ John Keegan, trans., *The Book of War* (New York: Penguin, 1999), 457.

⁸⁸ Nick Turse, *Kill Anything That Moves: The Real American War in Vietnam* (New York: Picador, 2013), 9.

300,000 deaths.⁸⁹ Under U.S. guidance and support, ARVN forces swelled to over one million. The economic cost of the war to the U.S. according to the Department of Defense was \$173 billion (over a trillion in 2016 dollars), not including costs associated with veteran's benefits and interest accrued.⁹⁰

As North Vietnamese leader Ho Chi Minh had predicted, the North Vietnamese Army (NVA) and their Viet Cong allies in the South paid a terrible price in the number of lives lost, but the lives were not sacrificed in vain. By outlasting the U.S. and South Vietnamese both militarily and politically, ultimately the North Vietnamese dual strategic war aims of unification and independence became a reality. As of 1995, the Vietnamese government officially claims over one million NVA and Viet Cong were KIA, with some estimates as high as 1.7 million casualties. The U.S. Department of Defense estimated 950,000 communist combatants were KIA, seemingly in line with the general consensus of historians and military experts.⁹¹

Beyond the horrifying combat casualties during the period of U.S. involvement, likely the civilian population suffered even more. In 1995 the Vietnamese government released an official report stating that 2 million civilians had been killed.⁹² Though incomplete, the government report was further bolstered by a

⁸⁹ Jeffrey J. Clarke, *United States Army in Vietnam: Advice and Support: The Final Years, 1965–1973* (Washington D.C: Center of Military History United States Army, 1988), 275.

⁹⁰ Alan Rohn, "How Much Did the Vietnam War Cost," *The Vietnam War*, last modified April 5, 2016, <http://thevietnamwar.info/how-much-vietnam-war-cost/>, accessed September 12, 2016.

⁹¹ Turse, *Kill Anything That Moves*, 11-12.

⁹² Philip Shenon, "20 Years After Victory, Vietnamese Communists Ponder How to Celebrate," *New York Times*, April 3, 1995, <http://www.nytimes.com/1995/04/23/world/20-years-after-victory-vietnamese-communists-ponder-how-to-celebrate.html> (accessed August 25, 2016).

2008 Harvard study that lends credence to the number reported.⁹³ Regardless of the exact number of civilians killed or injured, it is clear that the nature of war during Vietnam allowed for indiscriminate slaughter both from the air, as indicated by the 65,000 North Vietnamese civilians killed by air strikes, and on the ground, as demonstrated at the infamous My Lai massacre. Ironically, though experts estimated that Vietnam is the most bombed country in history, the lion's share of the bombs landed in South Vietnam.⁹⁴ Brian Wilson, a captain in the Air Force, recalls an instance of bomb-damage assessment in the Mekong Delta in which "It was the epitome of immorality...One of the times I counted bodies after an air strike—which always ended with two napalm bombs which would just fry everything that was left—I counted sixty-two bodies. In my report I described them as so many women between fifteen and twenty-five and so many children—usually in their mothers' arms or very close to them—and so many old people."⁹⁵ Airstrikes accounted for the majority of civilian casualties, though how many exactly may never be known.

Although this chapter specifically examines killing from the perspective of the soldier, the efficacy of airpower and artillery in Vietnam remained undiminished since the Korean War, if for no other reason than increased tonnage of munitions used. Indeed, the U.S. military by 1965 had incorporated artillery batteries into most combat formations, and used a fire base system that allowed artillery coverage of U.S.

⁹³ Ibid., 13.

⁹⁴ Turse, *Kill Anything*, 79-80.

⁹⁵ Ibid., 212.

and ARVN operations.⁹⁶ The preponderance of killing during Vietnam was still done through bombs, artillery, and crew-serviced weapons—which now included the excellent belt-fed M60 light machine gun which had proved itself repeatedly in battle.⁹⁷ Also, the capacity to kill that comes from having greater physical proximity to the enemy was still incredibly important, though ground troops in the particularly harsh terrain of Vietnam on occasion would shed their heavier crew-serviced weapons such as the 107mm and 81mm mortars in exchange for mobility, or adjust fire support tactics as needed.⁹⁸ The helicopter also came into its own during the Vietnam War, and by virtue of mobility, altered the nature of modern warfare irrevocably. The ability to bring large volumes of firepower to a fight quickly, or deliver fresh troops while removing the wounded from a hot landing zone, was of inestimable value.⁹⁹ Helicopters became integral to the day-to-day operations of U.S. and allied forces in Vietnam while also adding a complex vertical dimension to combat operations which is being further refined today above proving grounds such as Iraq and Afghanistan.¹⁰⁰ Finally, it is worth noting that the number of rounds expended by an infantryman from an M-16 for one enemy killed in Vietnam was

⁹⁶ Julian J. Ewell, and Ira A. Hunt, *Sharpening the Combat Edge: The Use of Analysis to Reinforce Military Judgement* (Washington D.C.: Department of the Army, 1995), 108-09.

⁹⁷ U.S. Department of Defense, *Combat Intelligence Lessons: 1969* (Washington: Government Printing Office, 1968), 27, <https://catalog.archives.gov/id/20738833>.

⁹⁸ *Ibid.*, 92.

⁹⁹ Allan R. Millett, Peter Maslowski, and William B. Feis, *For the Common Defense: A Military History of the United States from 1607 to 2012* (New York: Free Press, 2012), 555.

¹⁰⁰ U.S. Department of the Army, *Operations of Army Forces in the Field* (Washington: Government Printing Office, 1968), 22-30.

approximately 50,000.¹⁰¹ This volume of fire per enemy KIA should not be surprising given the large number of combat troops that were engaging the enemy, the capacity for high rates of fire from U.S. small arms, the nature of the terrain, and an urgency to engage quickly before the enemy could disengage. Clearly, however, U.S. troops were using their weapons to the utmost, and had no compunction about expending copious amounts of ammunition, even if only for fire suppression.

The considerable cost in lives and money associated with the U.S. involvement in Vietnam is inescapable, yet there is another cost less often discussed in military analysis of the war's outcome—the emotional and psychological toll. The psychological damage suffered by tens of thousands of U.S. veterans is a very real cost that is harder to quantify, and for that reason less is often detailed in publications about the war.¹⁰² This was especially true during the war, when high morale was paramount and propaganda was liberally applied throughout training.¹⁰³ Despite a general avoidance of the topic in technical and theoretical military courses during the conflict and in the decades that followed, the psychological damage to U.S. combatants in Vietnam was directly related to the startling kill rates achieved by the same men.¹⁰⁴

¹⁰¹ Rod Powers, "Army Sniper School," *The Balance*, September 8, 2016, <https://www.thebalance.com/army-sniper-school-3345043>, accessed September 22, 2016.

¹⁰² *Ibid.*, 22.

¹⁰³ Grossman, *On Killing*, 251.

¹⁰⁴ *Ibid.*, 266-67.

In his book *Kill Anything that Moves: The Real American War in Vietnam*, Nick Turse discusses the degree to which U.S. troops willingly committed atrocities in an effort to produce results for their commanders, who in turn were urged on by the Pentagon.¹⁰⁵ Due to the nature of the fighting, and under immense psychological strain, U.S. and allied forces committed atrocities against civilians with seemingly no constraint in some instances.¹⁰⁶ Though the My Lai massacre is the most well-known instance of organized murder, many other massacres of varying size occurred during the period of U.S. involvement in Vietnam. It is far beyond the scope of this thesis to mention every incident, however the key point to understand is that the psychological inhibitions U.S. soldiers had prior to Vietnam, such as simply firing their weapon, were no longer in place.¹⁰⁷ It appears that quite the opposite was the case, since not only did U.S. soldiers in combat fire their weapons more frequently, they were also more commonly involved in ruthless pacification exercises that frequently resulted in killing. The U.S. military determined that enemy body counts would be the standard metric by which to determine an operation's success.¹⁰⁸ This mentality ultimately resulted in a bloodthirsty attitude by field commanders and their subordinates to increase the "elimination ratio".¹⁰⁹

¹⁰⁵ Turse, *Kill Anything*, 6.

¹⁰⁶ *Ibid.*, 60-61.

¹⁰⁷ *Ibid.*, 222-23.

¹⁰⁸ Millett, Maslowski, and Feis, *For the Common Defense*, 534.

¹⁰⁹ Turse, *Kill Anything That Moves*, 207.

Emblematic of the desire for a high body count, Operation Speedy Express is a clear example of the indiscriminate killing of civilians and enemy combatants in an effort to get results. The 9th Infantry Division under command of General Julian Ewell, with the full support of Washington, would lead the operation that was slated to begin in December of 1968 and last until May 1969. Speedy Express was centered in the densely populated Mekong Delta and was particularly active in the provinces of Kien Hoa and Dinh Tuong.¹¹⁰ Hackworth describes Ewell as easily angered, demanding, and forever looking to “jack up the body count” according to David Hackworth, then a battalion commander.¹¹¹ Operations by the 9th Infantry Division under Ewell resulted in extraordinary elimination ratios that were proudly displayed in a tactical analysis titled *Sharpening the Combat Edge: The Use of Analysis to Reinforce Military Judgement*, written by Ewell and co-authored by his then chief of staff Ira Hunt. It states that just before Speedy Express began the kill ratio for the 9th Infantry was 14:1. By the end of first month after operations began, the ratio was up to 24:1, and later escalated to a mind boggling 134:1 in April.¹¹² Turse emphatically states, “Just as Ewell wanted, Vietnamese were dying all over the Delta. They just weren’t, in many cases, enemy troops.”¹¹³ To further illustrate the operational situation on the ground, John Paul Vann, the third highest-ranking American in

¹¹⁰ Ibid., 208.

¹¹¹ David Hackworth and Eilhys England, *Steel My Soldiers’ Hearts* (New York: Rugged Land, 2002), 98-99.

¹¹² Ewell and Hunt, *Sharpening the Combat Edge*, 133-134.

¹¹³ Turse, *Kill Anything that Moves*, 209.

Vietnam, succinctly summarized operations by IV Corps in the Mekong Delta as “many My Lais.”¹¹⁴

The brutality of the fighting on the ground in operations such as Speedy Express and others around South Vietnam was proof enough that psychological restraints had been lifted in many instances, and the ratio of fire, operant conditioning, and a few other significant factors were at play.¹¹⁵ This development further strengthened the argument that psychology could be used in conjunction with better technology and training to produce an efficient killing machine out of the average infantryman.¹¹⁶ Yet, many first-hand accounts by Vietnam combat veterans, indicate that those who had killed other humans were still impacted by the ordeal despite the psychological conditioning they received which allowed them to kill in the first place. To outline this point, consider Grossman’s analysis of what was happening:

In Vietnam the nonfiring rate was close to 5 percent. The ability to increase this firing rate though, comes with a hidden cost. Severe psychological trauma becomes a distinct possibility when psychological safeguards of such magnitude are overridden. Psychological conditioning was applied en masse to a body of soldiers, who, in previous wars, were shown to be unwilling or unable to engage in killing activities. When these soldiers, already inwardly shaken by their inner killing experiences, returned to be condemned and attacked by their own nation, the result was often further psychological trauma and long-term psychic damage.¹¹⁷

¹¹⁴ Ibid., 251.

¹¹⁵ Grossman, *On Killing*, 269.

¹¹⁶ U.S. Department of the Army, *Military Leadership* (Washington: Government Printing Office, 1965), 9-13.

¹¹⁷ Ibid., 250.

In fact, the percentage of U.S. service personnel who suffered negative psychological consequences associated with participation in combat, such as Post Traumatic Stress Disorder (PTSD), is at one in three according to the most recent U.S. Department of Veterans Affairs study.¹¹⁸ When adding significant substance abuse, anxiety, and severe depression, the percentage rises yet further. Interestingly, though not surprising, those veterans who had participated in more frontline combat were disproportionately represented as having significant readjustment issues.¹¹⁹ Why were American combat troops not only achieving a high ratio-of-fire, but also seemingly more capable of killing and committing acts of cruelty towards both civilians and enemy alike? What had changed in the production of a combat infantryman during Vietnam?

The Program

It's easier if you catch them young. You can train older men to be soldiers; it's done in every major war. But you can never get them to believe that they like it, which is the major reason armies try to get their recruits before they are twenty. There are other reasons too, of course, like the physical fitness, lack of dependents, and economic dispensability of teenagers, that make armies prefer them, but the most important qualities teenagers bring to basic training are enthusiasm and naivete. . . . The armed forces of every country can take almost any young male civilian and turn him into a soldier with all the right reflexes and attitudes in only a few weeks. Their

¹¹⁸ Jennifer L. Price, "Findings from the National Vietnam Veterans' Readjustment Study," *U.S. Department of Veterans Affairs: National Center for PTSD*, last modified February 23, 2016, <http://www.ptsd.va.gov/professional/research-bio/research/vietnam-vets-study.asp>. The National Vietnam Veterans' Readjustment Study (NVVRS) was conducted in response to a congressional mandate in 1983 for an investigation of Posttraumatic Stress Disorder (PTSD) and other postwar psychological problems among Vietnam Veterans.

¹¹⁹ *Ibid.*,

recruits usually have no more than twenty years' experience of the world, most of it as children, while the armies have had all of history to practice and perfect their technique.

— Gwynne Dyer, *War*

To understand why U.S. combat soldiers in Vietnam had such a high ratio of fire, as well as why in many instances killing was “easier” for them compared to their World War II counterparts, an examination of three core psychological concepts is necessary. Using these three principles during training was the crucial difference psychologically between Korea and Vietnam in terms of the capacity of an average recruit to kill another human, and in some cases even take pleasure in the act.¹²⁰ Specifically, the methods used to ensure this result are desensitization, conditioning, and denial defense mechanisms.¹²¹ Grossman believes this triad is the deciding psychological factor in enhancing combat performance.¹²² He explains:

And thus, since World War II, a new era has quietly dawned in modern warfare: an era of psychological warfare—psychological warfare conducted not upon the enemy, but on one’s own troops. Propaganda and various other crude forms of psychological enabling have always been present in warfare, but in the second half of this century psychology has had an impact as great as that of technology on the modern battlefield.¹²³

¹²⁰ John Keegan and Richard Holmes, *Soldiers: A History of Men in Battle* (New York: Viking, 1986), 267.

¹²¹ Roy W. Menninger, John C. Nemiah, eds., *American Psychiatry After World War II, 1944-1994* (Washington D.C.: American Psychiatric Press, 2000), 9-10.

¹²² Grossman, *On Killing*, 251.

¹²³ *Ibid.*, 251.

What is the purpose and impact of these methods the founder of killology has placed such importance on? A general overview is adequate for each of the three concepts as they relate to killology, and specifically Vietnam. However, much more can be said about the role each method plays in preparing recruits for battle.

Desensitization during military training is not a new phenomenon. Humans have always used mechanisms to define their enemies as different. For instance, primitive tribes have frequently taken names that when translated mean “man” or “human”, by definition making non-members less than human or “others.”¹²⁴ Another obvious example is the names U.S. combatants have used for their enemies over the decades: Huns, Krauts, Japs, gooks, slopes, dinks, Commies, and so on.¹²⁵ Dyer bolsters this assertion by writing:

Most of the language used in Parris Island to describe the joys of killing people is bloodthirsty but meaningless hyperbole, and the recruits realize that even as they enjoy it. Nevertheless, it does help to desensitize them to the suffering of an “enemy,” and at the same time they are being indoctrinated in the most explicit fashion (as previous generations were not) with the notion that their purpose is not just to be brave or to fight well; it is to kill people.¹²⁶

Authors such as Dyer, Grossman, and Holmes have studied the celebration of killing in training, and have largely determined that bloodthirsty rhetoric aimed at desensitizing recruits was virtually unheard of in World War I, rare during World

¹²⁴ Ibid., 252.

¹²⁵ U.S. Department of Defense, *Know Your Enemy: The Viet Cong* (Washington: Government Printing Office, 1966), 16-17.

¹²⁶ Dyer, *War*, 121.

War II, more prevalent by Korea, and pervasive in Vietnam.¹²⁷ This was especially useful in overcoming the social-cultural indoctrination the average U.S. recruit may have regarding the morality of killing.¹²⁸

Turse provides a further example of the desensitization process in action when he describes the prevailing sentiment of high-ranking commanders to enlisted men concerning the Vietnamese people:

The notion that Vietnam's inhabitants were something less than human was often spoken of as the "mere-gook-rule," or, in the acronym-mad military, the MGR. This held that all Vietnamese—northern and southern, adults and children, armed enemy and innocent civilian—were little more than animals, who could be abused or killed at will. The MGR enabled soldiers to abuse children for amusement; it allowed officers sitting in judgement at courts-martial to let off murderers with little or no punishment; and it paved the way for commanders to willfully ignore rampant abuses by their troops while racking up "kills" to win favor at the Pentagon.¹²⁹

The emotional distance created by labelling the enemy as part of the outside-group made maiming or killing them easier. This dehumanization of the enemy is instrumental in not simply training soldiers to be brave, but to also be effective killers.

In most cases the desensitization process during Vietnam was applied early in a young recruit's career as a soldier. They are told that killing the enemy is

¹²⁷ Grossman, *On Killing*, 106-07, 252.

¹²⁸ Dyer, *War*, 114-15.

¹²⁹ Turse, *Kill Anything that Moves*, 50.

appropriate and good, and that the enemy is not fully human. Often training videos and lectures are full of gory-details that celebrate the mutilation of the enemies through claymores or headshots, while the drill instructors praise them for honing their aggression.¹³⁰ Through the use of psychological techniques with varying degrees of intensity during training, recruits can be desensitized sufficiently that inherent resistance to killing is largely overcome. As Dyer notes, “In basic training establishments, however, the malleability is all one way: in the direction of submission to military authority and the internalization of military values. What a place like Parris Island produces when it is successful, as it usually is, is a soldier who will kill because that is his job.”¹³¹

To civilians and military personnel, conditioning is perhaps the most well-known concept in the triad. During the Vietnam War, psychological conditioning was a staple of basic training, much like today’s U.S. military training programs. The techniques of applied psychology to training were built upon lessons learned in Korea as well as upon the copious amounts of psychological research further examining Skinner’s findings on operant conditioning.¹³² Soldiers were trained to react to external stimuli without thinking.¹³³ During marksmanship courses in World War II, recruits often took prescribed positions, such as a prone firing posture, while calmly

¹³⁰ Dyer, *War*, 120-21.

¹³¹ *Ibid.*, 125.

¹³² S. A. McLeod, “Skinner - Operant Conditioning,” *Simply Psychology*, last modified 2015, www.simplypsychology.org/operant-conditioning.html, accessed August 7, 2016.

¹³³ U.S. Department of the Army, *Technique of Fire of the Rifle Squad and Tactical Application* (Washington D.C.: Government Printing Office, 1963), 52-53.

shooting at stationary bullseye-targets. A similar course during Vietnam had recruits standing in foxholes while wearing a full load of battle gear. The recruits then waited anxiously for a moving target to pop up at random, which allows the recruit only a few moments to squeeze off a couple of rounds. If the recruit's aim was true, a satisfying sound from the bullet's impact is heard, followed by the human-like target collapsing backwards, just as a real human might. As Grossman points out, "The method used to train today's – and the Vietnam era's – U.S. Army and USMC soldiers is nothing more than an application of conditioning techniques to develop a reflexive "quick shoot" ability."¹³⁴

Though marksmanship is being learned in this type of training, the recruit is also learning the ability to shoot reflexively as well. Instantaneous action and precision are taught, but more importantly the recruit is mimicking the precise action of killing on a modern battlefield. The human-shaped moving targets appearing in the field of fire is the "conditioned stimulus," the immediate engagement of the target by the recruit is "target behavior," and a successful hit is rewarded by immediate feedback (the sound or collapsing of the target).¹³⁵ This "positive reinforcement" can also take the form of a token economy where badges, ribbons, medals, and weekend

¹³⁴ Grossman, *On Killing*, 253. Grossman also states that in his two decades of service, he has never heard an enlisted man, NCO, officer, or official document stating that conditioning is what was occurring during marksmanship training, though that is exactly what is being achieved. At the time of his writing this was probably true, however, a fair amount of studies and research on conditioning in the military has surfaced in the first decade of the twenty-first century.

¹³⁵ U.S. Department of the Army, *Techniques of Military Instruction* (Washington D.C.: Government Printing Office, 1967), 41-43.

passes may be rewards for aggressively and accurately engaging the enemy (target), or the recruit may receive praise, public recognition, or similar rewards.¹³⁶

The effort to make combat scenarios even more visceral has resulted in ingenious devices that mimic killing. Uniforms filled with balloons that float across the field and collapse once hit, jugs filled with red paint that explode on impact, raw meat strewn about exercise courses, and oranges taped to sparring-dummies to replicate the sensation of gouging eyes out, are only a few examples of many. Carlos Hathcock, perhaps the most famous U.S. sniper in Vietnam with over 93 confirmed kills, used conditioning techniques in training other snipers. Instead of using a standard target during sniper practice, Hathcock taped a life-size picture of a man's face to the target and told his recruits to "Put three rounds inside the inside corner of the right eye of the bad guy."¹³⁷ Certainly, realism, reaction, and repetition have a significant impact on the psychology of a recruit, and during training conditioned responses to certain situations were ingrained into the soldier's minds. How to immediately react during an ambush is but one example. Though recruits often scoffed at simplistic pre-determined reactions, when in the field, often these conditioned responses saved the soldiers life.¹³⁸

Fort Polk, the "Home of the Infantry Soldier," provides a good example of realistic training combat infantry training during Vietnam. An infantry recruit spent

¹³⁶ Ibid., 253-54.

¹³⁷ Ibid., 254.

¹³⁸ Dyer, *War*, 115-16.

eight weeks in basic training where they learned the fundamentals of marching, the manual of arms, physical training, military customs, ranks, and procedures. After the initial eight weeks, recruits were then sent on to another eight weeks of occupational training. To assist in this, by 1963 the U.S. Army began using drill instructors and committees to further enhance training. Drill instructors, experienced soldiers who had proven accomplishments in the field, acted as mentors to the recruits, teaching them what they could expect in battle.¹³⁹ Committees, or specialty instructors, would train recruits in the specifics of infiltration, basic rifle marksmanship, night fighting, close combat, and other general subjects such as first aid. Advanced Infantry Training (AIT) had already been incorporated into U.S. combat training programs by the end of the Korean War as a subsequent eight-week training course. After the initial eight weeks at Fort Polk, it meant training at Tiger Land and Tiger Ridge. Tiger Ridge was the location of a mock Vietnamese thatched-hut village, complete with livestock and villagers (NCOs in costume). The recruits participated in simulated patrols, search and destroy missions, confiscations, and intelligence gathering that used Tiger Ridge as a realistic setting for what they could expect in Vietnam.¹⁴⁰

The world's best armies understand the importance of realistic training, and modern infantry commanders generally understand the importance of immediate

¹³⁹ U.S. Army Basic Combat Training Museum, "The Evolution of Training," Fort Jackson. <http://jackson.armylive.dodlive.mil/files/2014/03/museum.pdf>.

¹⁴⁰ Rickey Robertson, "Vietnam War Training at Tiger Ridge," *Stephen F. Austin State University*, last modified March, 2013. <http://www.sfasu.edu/heritagecenter/7068.asp>, accessed August 29, 2016.

feedback for recruits, yet Grossman does not feel the drill instructors or leaders necessarily understand “why” these training techniques are working and certainly not what any long-term psychological consequences might be. He observed that many in the U.S. military concerned with combat training do not care for the specifics of conditioning, only that the methods used simply work.¹⁴¹ Fundamentally, what allows this type of training process to work is the same as what caused Pavlov’s dogs to salivate at the sound of a bell, or Skinner’s rats to press a lever. Grossman believes that the military has tapped into “The single most powerful and reliable behavior modification process yet discovered by the field of psychology, and now applied to the field of warfare: operant conditioning.”¹⁴²

Denial defense mechanisms are the last component of Grossman’s conditioning-process triad. A rough definition of denial and defense mechanisms is that they are unconscious methods for dealing with traumatic experiences.¹⁴³ A simplified example can be observed in a soldier’s ability to disassociate with enemies he has killed as something other than humans. Through careful repetition of the killing process, a soldier is able to deny that he actually has killed another human being, even if only suspending that belief temporarily. Rather, because of constantly and carefully mimicking the act of killing, such as by shooting at E-type (man-shaped target), the soldier is able to convince himself he has merely engaged a target. This

¹⁴¹ Ibid., 255.

¹⁴² Ibid.,

¹⁴³ S. A. McLeod, “Defense Mechanisms,” *Simply Psychology*, last modified 2015, www.simplypsychology.org/operant-conditioning.html, accessed August 7, 2016.

subconsciously manufactured deniability when combined with conditioning is critical in overcoming the disinclination to kill.¹⁴⁴

To further illustrate denial defense mechanisms Grossman presents statements from an interview with Bill Jordan a law-enforcement expert and veteran of numerous gunfights. Jordan combines desensitization with denial defense when advising new law-enforcement officers:

[There is] a natural disinclination to pull the trigger . . . when your weapon is pointed at a human. Even though their own life was at stake, most officers report having this trouble in their first fight. To aid in overcoming this resistance it is helpful if you can will yourself to think of your opponent as a mere target and not as a human being. In this connection you should go further and pick a spot on the target. This will allow better concentration and further remove the human element from your thinking. If this works for you, try to continue this thought in allowing yourself no remorse. A man who will resist an officer with weapons has no respect for the rules by which decent people are governed. He is an outlaw who has no place in world society. His removal is completely justified, and should be accomplished dispassionately and without regret.¹⁴⁵

Jordan is describing some key psychological concepts directly related to the triad, and ultimately killology. First, he describes this thinking as manufactured contempt, and as Grossman points out, “the combination of denial of, and contempt for, the victim’s role in society (desensitization), along with the psychological denial of, and contempt for, the victim’s humanity (developing a denial defense mechanism), is a mental

¹⁴⁴ Bret A. Moore, Jeffrey E. Barnett, eds., *Military Psychologists' Desk Reference* (New York: Oxford University Press, 2013), 261.

¹⁴⁵ Grossman, *On Killing*, 256.

process that is tied in and reinforced every time the officer fires a round at the target.”¹⁴⁶

The combination of desensitization, operant conditioning and denial defense mechanisms created a potent elixir of combat psychology through which it is clear, soldiers in Vietnam were able to psychologically overcome most resistances to killing. The kill ratio throughout the war, driven by a desire for body counts, is evidence of a willingness to kill unleashed, even if considering the lowest reliable averages. It is important to remember that ultimately only a small number of men saw direct combat, and even fewer actually killed. It is likely that less than 30% of those who served in Vietnam saw combat of any sort, and engagements were often short, intense affairs where U.S. soldiers attempted to maximize casualties before the enemy withdrew¹⁴⁷. However, improved training (especially, psychological conditioning), technology, and tactics, meant that soldiers during Vietnam that made direct contact with the enemy tended to fire their weapons, and had less inhibition about killing than previous generations of U.S. soldiers.¹⁴⁸

¹⁴⁶ Moore and Barnett, *Psychologists'*, 262.

¹⁴⁷ U.S. Department of Defense, *Operations Reports-Lessons Learned, 01/1968-03/1968* (Washington D.C.: Government Printing Office, 1968), 3, <https://catalog.archives.gov/id/39054726>.

¹⁴⁸ Michael Kelley, “Myths & Misconceptions: Vietnam War Folklore,” *The Vietnam Conflict*, last modified 1998. http://www.deanza.edu/faculty/swensson/essays_mikekelley_myths.html#Myth#1, accessed August 11, 2016. Kelley states: “The ratio of combat to support troops varied over time, as a general rule there where approximately 10 troops supporting every soldier carrying a rifle in the field. At the height of the war in 1969, there were roughly 540,000 troops in Vietnam. Of that total, only perhaps 60,000 were-rifle carrying, front-line soldiers. At any given point, perhaps less than 40,000 of that 60,000 were actually in the field, at risk and seeking contact with the enemy.”

Results

There are three kinds of people who kill, from what I can discern in combat. For some people, that first kill makes them almost sick. Physically ill. They really can't deal with it. At the other extreme, there are those people who get that rush. It's the supreme power act. It almost gives them a god complex. Some guys, when they do it, they like it. They get hooked on killing just like they got hooked on heroin, and they figure out a way to spend the rest of their life doing it. They may stay in the military and become lifers. They may get out and become professional killers. Or they may become killers for hire. But they got that rush, and it's addictive. In the middle, there are guys who get that rush but fight with the moral conflict. When you're raised all your life in the church, you go to Sunday school, you learn the Ten Commandments, and 'Thou Shall Not Kill' is drilled into you. Then you're in the military, where your job is now to kill.

—Washington Booker III, USMC Sniper

The training programs implemented by the U.S. military in the 1950s and 1960s were undoubtedly effective at preparing soldiers to enter into combat and kill. Kill ratios, even when revised down for inflated body counts, remain at roughly a three-to-two ratio of enemy combat deaths to U.S. and allied combat deaths (including ARVN), and is evidence of the efficacy of modern technology, tactics, and training in the U.S. military.¹⁴⁹ The effectiveness of conditioning when applied through modern training techniques is evident in testimony from the soldiers themselves, such as when Lonny finally declared during his video interview, “I blasted ‘em. Silhouettes. They’re not real people, there are just targets!” When a

¹⁴⁹ Charles Hirschman, Samuel Preston, and Vu Manh Loi, "Vietnamese Casualties During the American War: A New Estimate," *Population and Development Review* 21, no. 4 (1995) : 789-90.

U.S. colonel explained to Grossman his experience with killing in Vietnam, he said in certain terms, “Two shots. Bam-Bam. Just like we had been trained in ‘quick kill.’ When I killed, I did it just like that. Just like I’d been trained. Without even thinking.”¹⁵⁰ Other Vietnam veterans have described the killing sequence as automatic or programmed—the result of modern training techniques. Further examples of the efficacy of psychological conditioning can be found in the lopsided kill ratios between the British and Argentinian rifleman during the Falklands War, or between U.S. and Panamanian forces during the 1989 invasion of Panama.¹⁵¹ In both instances, the superior training of infantrymen conditioned through modern techniques prevailed. A more recent example of superior combat infantry training is available when looking at the Battle of Mogadishu in October, 1993. Elite U.S. troops during Operation Gothic Serpent were ambushed in the capital of Somalia while trying to apprehend the criminal warlord Mohammed Aidid, which resulted in a prolonged close-combat battle. No artillery strikes, air strikes, armor, or heavy weapons were available, rather it was a close-combat infantry duel. The poorly trained and equipped Somali fighters were soundly defeated by the U.S. forces, losing approximately 364, while the Americans suffered 18 KIA.¹⁵²

The success of conditioning, desensitization, and denial defense mechanisms is clear: All other things being equal, when U.S. troops engage enemies that have not

¹⁵⁰ Grossman, *On Killing*, 257.

¹⁵¹ “Key Facts: The Falklands War,” *BBC News*, <http://news.bbc.co.uk/2/shared/spl/hi/guides/457000/457033/html/#>, accessed September 13, 2016.

¹⁵² Grossman, *On Killing*, 258.

been subject to similar modern combat training, the result is victory. However, the increased ratio of fire and disabling of psychological safeguards against killing ostensibly comes with a hidden cost.¹⁵³ Turse might point to evidence of atrocities committed against Vietnamese civilians as evidence of the danger associated with removing mental constraints against killing. Grossman also warns about this specifically:

During the Vietnam era millions of American adolescents were conditioned to engage in an act against which they had a powerful resistance. This conditioning is a necessary part of allowing a soldier to succeed and survive in the environment where society has placed him. If we accept that we need an army, then we must accept that it has to be as capable of surviving as we can make it. But if society prepares a soldier to overcome his resistance to killing and places him in an environment in which he will kill, then that society has an obligation to deal forthrightly, intelligently, and morally with the psychological repercussions upon the soldier and the society. Largely through an ignorance of the processes and implications involved, this did not happen for Vietnam veterans—a mistake we risk making again as the war in Iraq becomes increasingly deadly and unpopular.¹⁵⁴

With this in mind, there are two distinct lessons that can be drawn from killology regarding Vietnam. First, the psychological triad of modern combat training works. Second, there is a significant risk of psychological damage to recruits who are subject to modern combat training techniques. Grossman continues:

The ability to increase the firing rate, though, comes with a hidden cost. Severe psychological trauma becomes a distinct possibility when military training overrides safeguards against killing: In a war when 95

¹⁵³ Moore and Barnett, *Psychologists'*, 261-62.

¹⁵⁴ Dave Grossman, "Hope on the Battlefield," *Greater Good*, last modified June 1, 2007, http://greatergood.berkeley.edu/article/item/hope_on_the_battlefield, accessed October 20, 2016.

percent of soldiers fired their weapons at the enemy, it should come as no surprise that between 18 and 54 percent of the 2.8 million military personnel who served in Vietnam suffer from post-traumatic stress disorder—far higher than in previous wars.¹⁵⁵

Historian Richard Gabriel asserts that Vietnam produced more psychiatric casualties than any other war in U.S. history, pointing out, “The result was that at least 500,000 — perhaps as many as 1,500,000 — returning Viet Nam veterans suffered some degree of psychiatric debilitation, called Post-Traumatic Stress Disorder, an illness which has become associated in the public mind with an entire generation of soldiers sent to war in Vietnam.”¹⁵⁶

As dire a warning as Gabriel, Grossman, and others sharing their beliefs have given regarding the potential for psychological damage, it was virtually inevitable that the U.S. military continued to use and improve upon psychological conditioning for enhancing combat performance. Though the U.S. military is now more aware of the potential consequences of conditioning, especially with veterans who have seen combat, it remains to be seen if re-sensitization methods will be effective in dealing with PTSD and other consequences of combat. Veterans of Operation Desert Storm and the campaigns in Iraq and Afghanistan as part of the global war on terror were

¹⁵⁵ Ibid.,

¹⁵⁶ Richard A. Gabriel, *No More Heroes: Madness and Psychiatry in War* (New York: MacMillan, 1987), 157.

and are trained using the same psychological-triad principles as recruits during the Vietnam War, though the methods employed have simply become more advanced.

Chapter Four

Modern Combat: Infinite Possibilities

Now it was a matter of waiting for Bravo Company's soldiers to arrive on the scene, and here they came, in Humvees and on foot, swarming across a thoroughly ruined landscape. The battlefield was theirs now, from the main pile of bodies, to the trash pile with Noor-Eldeen, to the shot-up houses and buildings, to the van--inside of which, among the bodies, they discovered someone alive.

—David Finkel, *The Good Soldiers*

At a White House press briefing in April, 2010, seated in the front of the room with a score of journalists, CNN reporter Jake Tapper calmly raised his hand. When called upon by White House Press Secretary Robert Gibbs, Tapper asked about

events surrounding an incident that had occurred in a suburb of Baghdad on July 12, 2007. The incident in question involved the death of a dozen Iraqi civilians, including two Reuters war correspondents, Saeed Chmagh and Namir Noor-Eldeen, and two children. The U.S. military claimed they did not know what happened and repeatedly denied requests from Reuters for information about the engagement. The truth about the incident might have remained buried, as had happened with other incidents in Iraq in which U.S. combatants with only a murky understanding of the Rules of Engagement (ROE) targeted civilians in error.¹⁵⁷ However, Bradley Manning, the U. S. Army intelligence analyst turned whistleblower, revealed the full horror of the incident to the world.¹⁵⁸

Among the classified documents released by Manning to WikiLeaks before his arrest was audio-video footage from a pair of AH-64 Apache helicopters responsible for the death of the two Reuters journalists. The graphic nature of the night vision video shocked the American public as it made news headlines across the world. Much of the outrage pointed at the U.S. military was based on the poor ROE protocol that allowed the pilots, ground teams, and commanders to misidentify the civilians as enemy combatants, though there is still some dispute over whether the group had been completely unarmed. While the failure to properly identify targets

¹⁵⁷ U.S. Library of Congress, Congressional Research Service, *Iraq Casualties: U.S. Military Forces and Iraqi Civilians, Police, and Security Forces*, by Hannah Fischer, R40824 (2010).

¹⁵⁸ Charlie Savage and Emmerie Huettelman, "Manning Sentenced to 35 Years for a Pivotal Leak of U.S. Files," *New York Times*, August 21, 2013, <http://www.nytimes.com/2013/08/22/us/manning-sentenced-for-leaking-government-secrets.html>, accessed September 29, 2016.

before engaging is disturbing, it is not an uncommon occurrence in warfare. Mistakes happen, and innocents pay the price. Beyond the graphic images, what appalled many in the United States and across the world was the audio recording of the massacre, which provided a brief glimpse into the cruel reality of killing in modern war.¹⁵⁹

The electronic image intensification sensors on the Apaches showed a cluster of civilians in the middle of a road, ostensibly conversing and smoking cigarettes. The black and white imaging of the weapon sensors added a sense of dread to the video as it unfolded. “Just fuckin’ once you get on ‘em, just open ‘em up,” the lead Apache pilot excitedly blurted out. “All right,” the gunner meekly replied. “You’re clear!” the pilot shouted, his excitement evident in his voice. At this point the video showed the electronic crosshairs of a 30mm cannon locked onto the group of men conversing in the street.¹⁶⁰

Though the imagery the weapon-systems operator saw was detailed, there was just enough digitization to add a surreal quality to the video; the humans about to die might have been characters in a video game. “All right, firing,” the gunner announced enthusiastically. A muted popping sound could be heard as the 30mm cannons fired in an extended burst. A few seconds later, the group of men who had

¹⁵⁹ Neal Conan, “Leaked Video Depicts Civilian Deaths in Iraq,” *Talk of the Nation*, National Public Radio, April 5, 2010. <http://www.npr.org/templates/story/story.php?storyId=125630795>, accessed October 13, 2016.

¹⁶⁰ “Collateral Murder,” *WikiLeaks.org*, last modified July 6, 2010, <https://collateralmurder.wikileaks.org/en/index.html>, accessed October 10, 2016.

been conversing seemed to explode in a ball of dust as the rounds impacted. “Keep shooting. Keep shooting. Keep shoot. Keep shoot.” the pilot screamed as he urged on his gunner in words similar to the mantras that appeared in Army and United States Marine Corps training programs during the Vietnam War.¹⁶¹

A horrific scene emerged as the dust cleared from the initial strike. The carnage wrought by the 30mm cannon left most of the men torn apart, with a few severely wounded and still writhing in agony on the street. “All right, we just engaged all eight individuals,” the pilot reported to the ground forces near the scene. “Oops, I’m sorry, what was going on?” the gunner sardonically states. “God damn it Kyle” the pilot shouted jokingly, making a reference to a character’s signature phrase from a popular cartoon called South Park. The gunner laughed, “All right, I hit ‘em. I’m just trying to find targets again.”¹⁶²

The dismounted infantry and the Apache pilots were not certain of the presence of weapons among the civilians, though they claimed numerous AK-47 rifles and rocket propelled grenades were present. The escalation from identification to engagement took two minutes. After the killing the military claimed weapons were found among the civilians and were present in the videos. Further examination of the video after its release showed what might have been a few rifles among the civilians. However, what initially alerted Bushmaster-Six (the dismounted infantry) was the tri-

¹⁶¹ Gwynne Dyer, *War* (New York: Crown Publishers, 1985), 121.

¹⁶² “Collateral Murder,” *WikiLeaks.org*.

pod and video equipment carried by Saeed Chmagh and Namir Noor-Eldeen. Terribly wounded, Chmagh is then seen crawling away from the site of impact for roughly a minute before a van pulls up to him and stops. The van belonged to Saleh Mutashar, who had been driving his children Sajad and Doaha to their uncle's home before coming across Chmagh. In the video, Saleh can be seen rushing to Chmagh's aid in an effort to drag him into his vehicle before being killed alongside him a few moments later. The van was also targeted by the lead Apache and riddled with 30mm shells.¹⁶³

Individuals familiar with the principles of killology were likely aghast at the graphic carnage wrought by the 30mm cannons, yet underlying this was something perhaps more unsettling. An observant student of combat psychology might have noticed that the exchange between the Apache crew members exhibited some key elements of killology being applied on the modern battlefield. Specifically, one might observe that psychological conditions were created that facilitated the attack and allowed the crew to kill in such a seemingly callous or even joyful manner. To highlight these principles at work, a simple deconstruction of the sequence of events can be done.

¹⁶³ U.S. Department of the Army, 2nd Brigade Combat Team, 2nd Infantry Division, *Army Investigation Into Civilian Casualties Resulting From An Engagement on 12 July 2007 in the New Baghdad District of Baghdad, Iraq*, July 17, 2007 , <http://i2.cdn.turner.com/cnn/2010/images/04/06/62nd.brigade.combat.team.15-6.investigation.pdf>, accessed October 12, 2016.

The Apache weapons system was effectively an aerial crew-serviced weapon. The weapons systems on board the helicopters are designed with ground support in mind, and if the main weapons are not firing, the Apache is nothing more than a hovering, multimillion dollar target. The armaments of attack vehicles have trended towards replacing the less mobile crew-serviced weapons of the past. In World War II, a competent heavy machine-gun crew could inflict devastating casualties, but it was limited by a relative lack of mobility. Armored personnel carriers, Bradley fighting vehicles, and a wide array of attack helicopters fulfill the same role while providing superior firepower and mobility. The Apache guns were expected to fire because Bushmaster-Six depended on this tactical asset as another facet of U.S. combined arms doctrine.¹⁶⁴

Expectations were also present in the form of sociological and psychological influences. S.L.A. Marshall, David Hackworth, and other professional soldiers have observed that the desire to avoid failing one's comrades is what motivates most soldiers to fight. Psychologists and sociologists have determined that humans in many instances want to be valued as a useful member of their in-group. To satisfy this need, soldiers are pressured to perform their duty under the watchful eye of their fellow soldiers. Both the Apache pilot encouraging his gunner to fire and the dismounted infantry were depending on his taking action. Not wanting to fail his

¹⁶⁴ Robert M. Citino, *Blitzkrieg to Desert Storm: The Evolution of Operational Warfare* (Lawrence: University of Kansas Press, 2004) 290.

comrades and peer pressure helped facilitate the gunner's capacity to pull the trigger of his weapon. He subsequently rose to the challenge and met expectations.¹⁶⁵

Proximity was a deciding factor for two reasons. First, the pilot of the Apache (the ranking crewman) was situated physically near the gunner. Sociologists, psychologists, and the U.S. military have determined that such an arrangement reinforces authority, an important component that enables killing.¹⁶⁶ Sitting behind and slightly elevated to the gunner, one can imagine the feeling of being under such close physical observation while being yelled at to shoot. Physical proximity to the target also played a key role during this attack. As Dave Grossman and others have suggested, it is easier to kill at significant range because the target is less discernable, and therefore less human.¹⁶⁷ Because the Apache crew was physically distant from the targets, they were mostly insulated from the worst sensory aspects of the carnage. The smells, sounds, and gore were not present, making the killing process easier.

Eerily glowing white against the darkened urban backdrop, the humans were merely silhouettes when portrayed through the modern weapons sensors designed by Lockheed Martin.¹⁶⁸ Just as many Vietnam combat veterans were conditioned

¹⁶⁵ Joseph W. Ryan, *Samuel Stouffer and the GI Survey: Sociologists and Soldiers during the Second World War* (Knoxville: University of Tennessee, 2013), 145.

¹⁶⁶ S.A. McCleod, "The Milgram Experiment," *Simple Psychology*, last modified 2007, <http://www.simplypsychology.org/milgram.html>, accessed August 7, 2016.

¹⁶⁷ David Grossman, *On Killing: The Psychological Cost of Learning to Kill in War and Society* (New York: Back Bay Books, 1995), 234.

¹⁶⁸ "M-TADS/PNVS: The Eyes of the Apache," *Lockheed Martin*, accessed September 23, 2016, <http://www.lockheedmartin.com/us/products/Arrowhead.html>.

through training to view the enemy as nothing more than silhouette targets, the gunner of the Apache had technological assistance to achieve this same effect. The gunner viewed the targets through the additional medium of computerized imagery, making makes killing easier still. The electronic “filter” between the gunner and his targets provided psychological “cover” that enabled him to more easily disassociate his victims from flesh-and-blood humans, since he saw them as digital proxies from the controlled environment of a helicopter cockpit. The effect was a technological version of dehumanization. A similar situation occurs during an execution when a hood is placed over the target’s head. This simultaneously spares the executioners the emotional trauma caused by seeing the victim’s face, making it easier to kill the nondescript individual who is now seemingly less human.¹⁶⁹ U.S. soldiers during both Gulf Wars and in Afghanistan also used racialized terms for their opponents, just as they had in previous wars. This created a further emotional distance from the enemy. Terms such as “raghead” or “hajji” replaced “gook” and “kraut” in the language of U.S. soldiers and their Western allies during the Gulf Wars and in Afghanistan as a method to make them part of the out-group and therefore easier to kill. The digitized medium of weapon sensors achieved a similar effect.¹⁷⁰

¹⁶⁹ David Livingstone Smith, *Less Than Human: Why We Demean, Enslave, and Exterminate Others* (New York: St. Martin’s Press, 2011), 237-38.

¹⁷⁰ Christopher S. DeRosa, *Political Indoctrination in the U.S. Army: From World War II to the Vietnam War* (Lincoln: University of Nebraska Press, 2006), 62-63.

Unfortunately for the infantry first on the scene after the attack, the tragedy could not have been more real. Inside the wreckage of Saleh's van, both his children were severely injured. Ethan McCord was the first infantryman to notice the injured children, acted swiftly in removing them from the van. McCord carried their broken bodies one by one to a nearby Bradley fighting vehicle for medical attention, despite being yelled at by an NCO to secure the perimeter. After learning about the injured children, the crew of the Apache responsible responded with "Ah damn. Oh well." followed by, "Well, it's their fault for bringing kids into a battle."¹⁷¹ The chilling response to the tragedy only fueled the social and political condemnation faced by the U.S. Army and the White House. Manning was arrested, convicted, and is currently serving time at the Marine Corps Brig in Quantico, Virginia for his role in the leak, but none of the Apache pilots or ground forces involved faced disciplinary charges of any kind. The U.S. Army did release two reports on the incident, but ultimately decided not to reopen the investigation, despite criticism from some in the media and government.¹⁷²

After that day, McCord claimed he became traumatized by the scene, stating, "The first thing I thought of ...was my children at home."¹⁷³ He asked for medical treatment for his psychological trauma, but instead was ridiculed by his NCO. He

¹⁷¹ Tony Jones, "Former US Soldier Speaks," *Australian Broadcasting Corporation*, April 29, 2010, <http://www.abc.net.au/lateline/content/2010/s2886439.htm>, accessed September 3, 2016.

¹⁷² "Leaked U.S. Video Shows Deaths of Reuters' Iraqi Staffers," *Reuters*, April 5, 2010, <http://www.reuters.com/article/us-iraq-usa-journalists-idUSTRE6344FW20100406>, accessed October 13, 2016.

¹⁷³ Jones, "Former US Soldier Speaks," 2016.

suffered from severe post-traumatic stress as a result and is currently on a long road to recovery. This was perhaps the final principle of killology to be observed from the July 12 incident. Though the carnage wrought seemed to have minimal impact on the Apache pilots, the aftermath of the slaughter significantly impacted those who had a front row seat to the horror. Without mitigating factors such as increased physical proximity and digitally enhanced dehumanization, even those not directly responsible for the act of killing faced potential mental and emotional consequences as witnesses.¹⁷⁴

Killology and the Modern U.S. Army

Warrior Ethos refers to the professional attitudes and beliefs that will characterize you. Developed through discipline, commitment to Army Values and knowledge of the Army's proud heritage, Warrior Ethos notes military service as much more than just a "job" — it is a profession with the enduring purpose to win wars and destroy our nation's enemies.

—FM 3-21.8, *The Infantry Rifle Platoon and Squad*

The Apache attack on July 12, 2007 would have looked completely different only decade earlier. The fire control system, armaments, and electronics suite would have been inferior on all points, as was proven by a government field test in which a small group of modern prototypes (AH-64D) handily defeated a numerically superior

¹⁷⁴ Robert T. Muller, "Death Becomes Us: The Psychological Trauma of Killing," *Psychology Today*, last modified February 21, 2014, <https://www.psychologytoday.com/blog/talking-about-trauma/201402/death-becomes-us-the-psychological-trauma-killing>, accessed August 10, 2016.

force of the older models (AH-64A).¹⁷⁵ The imbalance in combat power between the helicopter variants was the result of advances in emergent technology during the Information Age. Starting in the 1990s, the blossoming of advanced computer technology meant that military vehicles such as the modern Apache variants could carry a more sophisticated targeting system, more intuitive electronics, and a more powerful damage control system. The computer and a myriad of other technologies have irrevocably changed the nature of combat and redefined modern warfare. This chapter defines modern warfare as the period from 1990 to present and primarily examines the backbone of America's ground forces, the U.S. Army.

Since the end of the Vietnam War, the integration of killology principles into modern combat training programs has been an organic process more than a deliberate one. It is likely that Grossman himself would be hard pressed to identify any one significant act that had the effect of revolutionizing the U.S. military's ability to train violence-averse soldiers to kill. This same process occurred after World War II when the U.S. Army began restructuring units, providing better equipment, better training programs, and better instruction. This multifaceted approach took twenty years but ultimately resulted in a 90% ratio of fire by U.S. soldiers in combat during the Vietnam War.¹⁷⁶ Since the 1970s, this type of organic process has continued to reshape and refine the U.S. military into its current form, albeit with some notable

¹⁷⁵ David Donald, *Modern Battlefield Warplanes* (Norwalk: AIRtime, 2005), 156-158.

¹⁷⁶ Army, *The Infantry Rifle Platoon and Squad*, 2007.

exceptions. For example, the formal establishment of an all-volunteer military in 1973 marked a significant development towards enhancing combat effectiveness, because volunteers almost uniformly perform better in combat than conscripts.^{177,178} The move to an all-volunteer force also meant that personnel could not be wasted on menial tasks like peeling potatoes, like it had been during the elevated troop levels during the era of the draft. Instead civilian contractors were beginning to be used to fill the more menial roles, a situation that is even more prevalent today.¹⁷⁹ The U.S. Army Training and Doctrine Command (TRADOC) was also formed during this period in an effort to redefine the Army's mission, improve organization, and as a proactive means of creating better methods of instruction. TRADOC also led the development of the Army's new doctrine known as AirLand Battle, a concept that focused on combined arms maneuver warfare and flexibility in order to meet the shifting political challenges of the Cold War and beyond.¹⁸⁰

Though not as flashy as a new doctrine like AirLand Battle, the field manuals produced by TRADOC since 1973 leave a trail of clues about the adaptive nature of the U.S. Army and a willingness to embrace new ideas. These new field manuals

¹⁷⁷ U.S. Department of the Army, Directorate of Personnel Studies and Research, *PROVIDE: Project Volunteer in Defense of the Nation* (Washington D.C.: Government Printing Office, 1969).

¹⁷⁸ Robert K. Griffith, *The U.S. Army's Transition to the All-Volunteer Force 1968-1974* (Washington D.C.: Government Printing Office, 1997), 21-26.

¹⁷⁹ Cooper, Richard N, *Military Manpower and the All-Volunteer Force* (Santa Monica: RAND Corporation, 1977), 116-121. <http://www.rand.org/pubs/reports/R1450.htm>, accessed September 2, 2016.

¹⁸⁰ Richard W. Stewart, ed. *American Military History: The United States Army in a Global Era, 1917-2003*, vol. 2, *Army Historical Series* (Washington D.C.: Government Printing Office, 2005), 370-78.

illustrate small changes that have been made over time in response to shifting battlefield conditions, and they appear to be tied to some concepts presented in killology. Seemingly minor changes to the manuals over the last few decades provide some evidence of the adaptive and organic nature of military tactical planning, specifically when examining the infantry.

Field Manuel 7-8 (FM 7-8), *The Infantry Rifle Platoon and Squad Leader*, jokingly referred to as “the Bible” by infantrymen, was approved and released by the Department of the Army in 1992. Section 1 is titled “Mission” and describes the basic role of combat infantry:

The mission of the infantry is to close with the enemy by means of fire and maneuver to defeat or capture him, or to repel his assault by fire, close combat, and counterattack. . . . Despite any technological advantages that our armed forces might have over an enemy, only close combat between ground forces gains the decision in battle. Infantry rifle forces (infantry, airborne, air assault, light, and ranger) have a key role in close combat situations.¹⁸¹

In 2007, TRADOC issued a significantly revised version of FM 7-8 titled FM 3-21.8. FM 3-21.8 was a response to the rapidly changing technological and battlefield conditions U.S. soldiers faced in the Global War on Terror (GWOT), and it was grounded in lessons learned during the early stages of the wars in Afghanistan

¹⁸¹ U.S. Department of the Army, *FM 7-8: The Infantry Rifle Platoon and Squad* (Washington D.C.: Government Printing Office, 1992), 1-4.

and Iraq. Some interesting changes pertaining to the role of the individual soldier are immediately noticeable:

The Infantry's primary role is close combat, which may occur in any type of mission, in any theater, or environment. Characterized by extreme violence and physiological shock, close combat is callous and unforgiving. Its dimensions are measured in minutes and meters, and its consequences are final. Close combat stresses every aspect of the physical, mental, and spiritual features of the human dimension. . . . Infantry are particularly susceptible to the harsh conditions of combat, the effects of direct and indirect fire, the physical environment, and moral factors.¹⁸²

The description of the infantry mission in FM 3-2.8 specifically acknowledges that soldiers will be faced with situations that are filled with “extreme violence,” and “physiological shock.” Close combat is described as “callous and unforgiving.” The last sentence in particular indicates that U.S. Army tactical planners had embraced the most fundamental concept of killology: humans, especially infantry, are extremely susceptible to the horrors of combat. There is no mention of what conditions a soldier will likely face in combat in the equivalent section of FM 7-8. Though hardly conclusive, seemingly insignificant changes in how the U.S. Army perceives the rigors of battle are noteworthy.

The U.S. Army showed that it had begun to integrate more sophisticated elements of combat psychology into its modern instruction as well. Realism has been a major component in effective training during and since the Vietnam War, as Fort

¹⁸² U.S. Army, *The Infantry Rifle Platoon and Squad*, 1.

Polk's Tiger Land and Tiger Ridge infantry training courses demonstrated. Realistic training was more effective.¹⁸³ FM 25-100, entitled *Training the Force*, was issued in 1988, and it contained instructions that definitively stated that realism in training was essential to good combat performance. This is clearly seen a section entitled, "Train as You Fight":

The goal of combat-level training is to achieve combat-level standards. Every effort must be made to attain this difficult goal. Within the confines of safety and common sense, leaders must be willing to accept less than perfect results initially and demand realism in training. They must integrate such realistic conditions as smoke, noise, simulated NBC, battlefield debris, loss of key leaders, and cold weather.¹⁸⁴

FM 25-100 undoubtedly encouraged the use of realism in combat training and changed the way the Army trained. Smoke, noise, debris, command disruption, and the weather were all recommended props that helped achieve a high level of combat simulation. The same principal in killology that suggested human silhouette pop-up targets are superior for training to that of unrealistic bulls-eye targets.^{185,186}

¹⁸³ Rickey Robertson, "Vietnam War Training at Tiger Ridge," last modified March, 2013.

<http://www.sfasu.edu/heritagecenter/7068.asp>, (see discussion in Chapter Three).

¹⁸⁴ U.S. Department of the Army, *FM100-25: Training the Force* (Washington D.C.: Government Printing Office, 1988), 3.

¹⁸⁵ Dave Grossman and Loren W. Christianson, *On Combat: The Psychology and Physiology of Deadly Conflict in War and in Peace* (Millstadt: Warrior Science Publications, 2008), 22-33.

¹⁸⁶ Eric K. Shinseki, introduction to *FM 7-0: Training for Full Spectrum Operations* (Washington D.C.: Government Printing Office, 2008), i.

In 2008, FM 7-0 *Training for Full Spectrum Operations* was released as an update of the aging FM 25-100. FM 7-0 was the U.S. Army's standardized training doctrine, and was applicable throughout the force until 2016. It provided authoritative foundations for individual, leadership, and unit training, and contained language familiar to students of combat psychology. In section 2-32, entitled "Make Training Performance Oriented, Realistic, and Mission Focused," not only does the manual recommend realism, but it encouraged the use of physical and psychological props or "enablers" during training to create as authentic an experience as possible:

Effective training incorporates conditions that allow execution of both core capability and general mission-essential tasks using lethal and nonlethal actions to adapt to different situations. . . . As operational environments become more complex and resources (such as time, money, land, and airspace) become scarcer, the value of live, virtual, constructive, and gaming training enablers increases. These enablers enhance training effectiveness by replicating the conditions of an actual operational environment. Leaders are responsible for integrating and effectively using training aids, devices, simulators, and simulations (TADSS) to enhance realism.¹⁸⁷

Clearly the U.S. Army had embraced some key concepts of combat psychology as shown in the training literature and field manuals. The most recent edition of FM 7-0, entitled *Train to Win in a Complex World*, released in 2016, builds upon the foundations of the training methods prescribed in the 2008 edition. In addition, it more fully integrates digital training methods into

¹⁸⁷ U.S. Department of the Army, *FM 7-0: Training for Full Spectrum Operations* (Washington D.C.: Government Printing Office, 2008), 15.

the normal training regimen, stating, “Commanders leverage available resources, to include the mix of live, virtual, and constructive (LVC) training enablers.”¹⁸⁸ The use of technology throughout the FM 7-0 is emphasized much more than in previous versions and it frequently references many available programs that make substantial use of digital, laser, satellite, and computer systems. Still, the question of what might have encouraged this shift towards a more comprehensive understanding of combat must be addressed. What influenced the change in combat theory and training?

By 2007, David Grossman’s *On Killing: The Psychological Cost of Learning to Kill in War and Society* had become an accepted part of modern military combat training. Cadets at West Point were required to read Grossman’s work, and it was also selected by the Commandant of the Marine Corps as mandatory reading for Marines. It is likely that Grossman’s effort towards understanding killing played a significant role in the creation of FM 3-21.8, if only for the amount of attention he brought to the matter. Of course, Grossman alone is not responsible for the shifting theories on killing in combat, but his ideas were specifically utilized and taught at various levels of the U.S. military.

¹⁸⁸ U.S. Department of the Army, FM 7-0: *Train to Win in a Complex World* (Washington D.C.: Government Printing Office, 2016), 11.

A 2007 interview with the commanders of the Observer Trainer Mentor (OTM) Leadership Training Program demonstrates the significance combat veterans placed on killology in preparing untested soldiers for battle. The OTM was designed to to teach leaders *how* to think, not *what* to think. In 2006, over 2,600 officers and NCOs passed through the program, which is taught by both combat veterans and soldiers who have not seen combat. A course on killology is taught on the first morning of OTM, but this one is always taught by a veteran with a combat patch. This is the only course in this training program with such a requirement. An interview with the ranking officer and NCO was conducted by the Combat Studies Institute as part of a report on the GWOT. Both Lieutenant Colonel Chuck Olsen, and First Sergeant David Atkins speak highly of the killology course:

The killology class is to get everybody in the right mindset. I talk about what happened to me during the Iron Claw mission, and I can tell you that as you're preparing for the mission and as you go out of the wire, shit happens. Your adrenaline goes up and down. When you're over there and go through a mission and you lose a buddy or somebody in the squad, there are a lot of assets for the soldiers to tap into to get help, but there's still something missing. Sometimes you can't get the right answers from the stress management group or from the chaplains group that comes down and works with the unit. I lost soldiers when I was in theater and I never had anything like this, so when it happened to me there were so many other things happening, everything was pretty crazy, and all my guys were going through these different phases. I knew why it happened but I never really understood why.¹⁸⁹

¹⁸⁹ U.S. Department of the Army, Combat Studies Institute, *Operational Leadership Experiences Project* (Washington D.C.: Government Printing Office, 2007),13.
<http://cgsc.cdmhost.com/cdm/ref/collection/p4013coll13/id/390>, accessed September 28, 2016.

The OTM also included a program known as Operation Warrior Trainer for mobilized National Guard members who come back from theater and who continued to train other soldiers deploying to theater. The “Warriors” were the seasoned combat veterans providing instruction. Notably, the term “warrior” started becoming more prevalent in the Army’s training and recruitment literature. Grossman briefly discussed the warrior’s frame of mind in *On Killing*, and it was a prominent theme in his 2008 publication *On Combat: The Psychology and Physiology of Deadly Conflict in War and in Peace*. Grossman believes that a protector-archtype is the preferable role of fighting men who are sworn to defend their people and their state.¹⁹⁰ The warrior ethos is an important part of psychologically preparing people for the both trials of combat and its aftermath.¹⁹¹

Not long after the publication of *On Killing*, the warrior ethos became a central component of the modern Army’s training program. A section added to FM 3-21.8 that had not been included in FM 7-8 was entitled “Warrior Ethos and Army Values.” It stressed the importance of professionalism, defining the soldier’s role as something more elevated than a mere job. Instead, being a soldier in the U.S. Army was more of a calling. To illustrate this new concept, the Soldier’s Creed was included as an outline of core Army beliefs:

¹⁹⁰ Grossman, *On Combat*, 254-263.

¹⁹¹ Grossman, *On Killing*, 236.

I am an American Soldier. I am a warrior and a member of a team. I serve the people of the United States, and live the Army Values. I will always place the mission first. I will never accept defeat. I will never quit. I will never leave a fallen comrade. I am disciplined, physically and mentally tough, trained and proficient in my warrior tasks and drills. . . . I am a guardian of freedom and the American way of life. I am an American Soldier.¹⁹²

The Soldier's Creed was approved in 2003, and by the release of FM 3-21.8 was already widely used throughout the U.S. Army in training.¹⁹³ Though the warrior-archetype is common to many societies throughout history, the crystallization of this mindset into formal training material is new. The observance of key "warrior virtues" by the U.S. Army were fundamental to ingraining concrete ideas of duty and sacrifice, both traits that enable killing. The continued effort to improve combat performance meant the U.S. Army was always searching for knowledge that further professionalized its modern force, and appeared to have embraced key concepts that were developed by military scientists, psychologists, and veterans.

The TRADOC archives, the Combined Arms Research Library, and the Combat Studies Institute each contain thousands of documents about training and combat efficiency. When viewed chronologically, these field manuals, training programs, and other documents provide a trail of clues. Like any other organization that learns as it goes, the U.S. Army is susceptible to the zeitgeist of modern war,

¹⁹² U.S. Army, *The Infantry Rifle Platoon and Squad*, 9-10.

¹⁹³ U.S. Department of the Army, *FM 7-0: Training the Force* (Washington D.C.: Government Printing Office, 2002), 3.

which more than ever relies upon science and technology to achieve objectives. In this context, the Army's interest in the principles outlined in killology is clear.

Grossman and others like him who share a similar mission to improve human understanding of combat and killing have successfully contributed to the Army's development of better training methods. Unfortunately, there is a psychological price paid by the soldiers who endure training techniques that improve lethality. Modern military training is not an unalloyed positive.

New Frontiers

The aim of the missions was to track, and when the conditions were deemed right, kill suspected insurgents. That's not how they put it, though. They would talk about "cutting the grass before it grows out of control", or "pulling the weeds before they overrun the lawn". And then there were the children. The airmen would be flying the Predators over a village in the tribal areas of Pakistan, say, when a series of smaller black shadows would appear across their screens – telling them that kids were at the scene. They called them "fun-sized terrorists."

—Michael Haas, Drone Operator, U.S. Air Force

The 2007 video of the Apache attack was horrific for its visceral quality, yet just as chilling to some was the video-game like quality of the weapons systems operated by the Apache gunner. The feeling that the gunner was in a hyper-realistic virtual reality game is understandable, because that is exactly how the modern U.S. military is training many of its members. Powerful computers and sophisticated electronics are the byproducts of the information age, and military forces around the globe benefitted from enhanced technological capabilities. The U.S. Army and Air

Force both moved quickly to upgrade their forces, something that was particularly evident in the adoption of virtual training, and drone combat technology.

Killology stresses both a realistic training environment and the use of operant conditioning to promote a reflexive fighting response to external threats in soldiers. Modern combat simulators and other technology-based training equipment filled this role well, and the Army encouraged the use of these types of resources when possible. The 2008 publication of FM 7-0 provides some indication of the future direction of Army combat training. A section on training resources summarizes many methods of more effective training that were not available even a decade earlier:

A combination of live, virtual, constructive, and gaming training enablers can help replicate an actual operational environment. Based on resources available—such as time, fuel, funds, and training areas—commanders determine the right mix of live, virtual, constructive, and gaming training enablers to effectively and efficiently train for a mission or rehearse an operation.¹⁹⁴

The U.S. military made good use of combat training centers (CTCs) and other facilities in which the latest in simulation technology was included in training. The field manuals and training courses reflect a shift towards computer enhanced training and VR. The Close Combat Tactical Trainer (CCTT) is a computer based VR program that aids vehicle formations equipped with the Reconfigurable Vehicle Simulator (RVS) and Reconfigurable Vehicle

¹⁹⁴ U.S. Army, *Training the Force*, 16.

Tactical Trainer (RVTT). These provide realistic vehicle cabs, communications equipment, and weapons in a virtual training environment. In short, computers and VR are used to replicate an armored infantry column one day and a mounted infantry battalion the next. All of this training involves high degree of realism; it also promotes conditioned responses while maintaining a high degree of realism and intensity.¹⁹⁵

The type of training offered by VR programs and other computer-based training modules meets the need for realism in effective combat training. However, a more controversial aspect of combat simulations can be found in claims from medical and psychological professionals that using a video game environment in psychological conditioning lowers humans' normal resistance to acts of violence. A twenty-year study conducted by the American Psychological Association found that violent video games and violent behavior are linked:

The research demonstrates a consistent relation between violent video game use and increases in aggressive behavior, aggressive cognitions and aggressive affect, and decreases in prosocial behavior, empathy and sensitivity to aggression. . . Scientists have investigated the use of violent video games for more than two decades but to date, there is very limited research addressing whether violent video games cause people to commit acts of criminal violence. . . However, the link

¹⁹⁵ "Virtual Training Benefits Teams to Battalions," *Stand-To*, May 20, 2010, <https://www.army.mil/standto/archive/2010/05/20/>, accessed October 21, 2016.

between violence in video games and increased aggression in players is one of the most studied and best established in the field¹⁹⁶

The use of advanced technology in wargame and battle simulators had a direct impact on aggression, and as Grossman has argued, facilitated killing.¹⁹⁷ In an effort to hone skills, the U.S.M.C. adapted a popular first-person shooter video game called *Doom* almost immediately after such software became available. This game allowed trainees to improve reaction time in a realistic and changing environment. The Army followed suit in 2002 when it took the extraordinary measure of developing its own video game, called *America's Army*.¹⁹⁸ *America's Army* was a success in civilian markets, and various applications have been developed by the U.S. Army for specialized training using the game as a platform. Simulation software is used by the U.S. military in many aspects of training because the psychological conditions that allow an individual to more easily overcome resistance to killing are met by elements of VR and video games.¹⁹⁹ Yet, perhaps the ultimate example of the

¹⁹⁶ "APA Review Confirms Link Between Playing Violent Video Games and Aggression," *American Psychological Association*, August 13, 2015 <http://www.apa.org/news/press/releases/2015/08/violent-video-games.aspx>, accessed October 12, 2016.

¹⁹⁷ Dave Grossman, interviewed by Lou Dobbs "Dave Grossman on Violent Video Games and Media," *YouTube* video, December 12, 2012, <https://www.youtube.com/watch?v=SMsEuR7dhj4>, accessed October 24, 2016.

¹⁹⁸ U.S. Department of the Army, *America's Army PC Game: Vision and Realization* (Monterey: The Wecker Group, 2004), <http://gamepipe.usc.edu/~zyda/resources/pubs/YerbaBuenaAABooklet2004.pdf>, accessed September 2, 2016.

¹⁹⁹ Corey Mead, *War Play: Video Games and the Future of Armed Conflict* (New York: Houghton Mifflin Harcourt, 2013), 51-56.

intersectionality between video games, psychological conditioning, and advanced technology, can be found by examining unmanned aerial vehicle (UAV) programs in the U.S. Air Force, otherwise known as drone programs.^{200,201}

Ultra-modern, incredibly sophisticated, accurate within reason, and effective, drones represented a pinnacle of killing technology when viewed in the context of combat psychology. The attraction of drones and robots for military scientists is their capacity to destroy targets remotely. Currently the Pentagon has around 7,000 UAVs compared with fewer than 50 a decade ago.²⁰² “Ever step on ants and never give it another thought? That’s what you are made to think of the targets – as just black blobs on a screen. You start to do these psychological gymnastics to make it easier to do what you have to do – they deserved it, they chose their side. You had to kill part of your conscience to keep doing your job every day – and ignore those voices telling you this wasn’t right.”²⁰³ This is how Michael Haas, former Air Force drone operator described his experience delivering drone payloads onto targets.

²⁰⁰ P.W. Singer, *Wired For War* (New York: Penguin, 2009), 120-21.

²⁰¹ Peter Warren Singer, “The Future of War will be Robotic,” CNN, February 23, 2015.

²⁰² Dan Gettinger, “Drones in the Defense Budget,” Center for the Study of the Drone at Bard College, February 4, 2015, <http://dronecenter.bard.edu/drones-in-the-defense-budget/>, accessed September 28, 2016.

²⁰³ Ed Pilkington, “Life as a Drone Operator: 'Ever step on ants and never give it another thought?'” *The Guardian*, Last modified Thursday, November 19, 2015, <https://www.theguardian.com/world/2015/nov/18/life-as-a-drone-pilot-creech-air-force-base-nevada>, accessed October 25, 2016.

Haas described other euphemisms for killing in the drone program, such as “cutting the grass before it grows out of control,” and “pulling weeds before they overrun the lawn.”²⁰⁴ Dehumanizing the enemy is a vital component of combat psychology and the drone program encouraged “manufactured contempt.”²⁰⁵ The difference between drone operators and ground units directly involved in combat is that the drone operators never have to smell, see, or hear the results of their handiwork.²⁰⁶

Grossman calls violent shooter video games “murder simulators” and believed them to be a significant factor in conditioning and desensitizing humans in order to kill. The operation of drones is not unlike a video game, there is a monitor with a crosshair, the targets are seen through a digital medium, and the UAV is controlled with a joystick. Fundamentally, the psychological enablers that allowed the Apache crew to kill with no outward signs of remorse are exemplified in drone combat, and most indications point toward an even greater use of remote controlled weapon systems that provide significant potential to override human resistance to killing. The increasing use of weapons systems that harness the psychological conditions needed to make killing easier appear to have solved the problem faced by infantrymen throughout history. It is no longer necessary to thrust a sword into an

²⁰⁴ Ibid.,

²⁰⁵ Grossman, *On Killing*, 256.

²⁰⁶ Ed Pilkington, “Life as a Drone Operator,” 2015.

opponent's gut or level a musket at a line of soldiers twenty yards away.

Technological innovation seems to have solved the fundamental problem with killing—the human element.

Or has it? The most encouraging news for those concerned about the ethical and moral implications of the U.S. military using advanced weapons technology coupled with conditioning techniques to create hardened killers comes from those presumably most insulated from the visceral reality of war: the drone operators themselves. A study released in 2013 by the Armed Forces Health Surveillance Branch found that pilots of drone aircraft experience mental health problems like depression, anxiety and post-traumatic stress at the same rate as pilots of manned aircraft who are deployed to Iraq or Afghanistan.²⁰⁷ The operators were not as insulated from the psychological impact of killing as had been thought. The irony is that despite providing ideal psychological conditions, generally people still abhor killing other people.

What had started with Marshall's controversial observation that men in combat were generally unwilling to fire their weapons at another human being prompted a seventy-year investigation by military scientists and psychologists into understanding the psychology of killing. The burgeoning science of

²⁰⁷ J. L. Otto and, B. J. Webber, "Mental Health Diagnoses and Counseling Among Pilots of Remotely Piloted Aircraft in the United States Air Force," *Medical Surveillance Monthly Report*, 20, 2013, 3-8.

killology has carried the flame in this endeavor. Grossman's serious attempt at explaining the physiological and emotional impact of killing is not a perfect one, but it makes strides toward understanding how humans can overcome an inherent aversion to killing. The myriad changes in military doctrine, tactics, and training since World War II reveal a serious effort to incorporate many concepts put forth in killology in pursuit of creating efficient soldiers.²⁰⁸ Ironically, for an organization like the U.S. Army that has worked diligently towards preparing soldiers to kill, the 2016 release of FM 7-0 *Train to Win in a Complex World* does not mention the word killing once.²⁰⁹ Ultimately, science and technology have gone far towards understanding and overcoming killing, yet UAVs and Apaches will never win wars on their own. In the near future the role of the ground troops will likely remain unchanged; they will still be asked by their country to give their lives as necessity or circumstances dictate, just as they will be asked to take lives as their training and conscience allows. The latter of these realities can be most troubling for those who have taken life.

²⁰⁸ Thomas E. Ricks, *The Generals: American Military Command from World War II to Today* (New York: Penguin, 2012), 450.

²⁰⁹ Army, *Train to Win in a Complex World*, 2016, 1-47.

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