

# The Secret of Seeing Charlie in the Dark

## *The Starlight Scope, Techno-anxiety, and the Spectral Mediation of the Enemy in the Vietnam War*

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### Abstract

The introduction of night vision technology during the Vietnam War transformed how U.S. military men and their communist enemies fought at night. The starlight scope's seemingly miraculous light-amplifying powers made hitherto unseen targets easier to see. And as sole possessor of this new technology, American soldiers had a profound tactical advantage operating at night. But they also paid a price for this new edge. Burdened by the scope's weight, untested technology, and extreme secrecy, these servicemen suffered. They endured physical, psychological, and emotional stress unforeseen by the military leaders who pushed for the scope's development during the Cold War. The new rifle-mounted scope figuratively transformed night into day, and, paradoxically, made it harder for many American soldiers to pull the trigger.

### Keywords

starlight scope – night-vision technology – Vietnam War – sniper – psychological effects

In 1965, the United States military committed its first combat troops to South Vietnam. It sent along with that first wave of American soldiers and marines a new technological marvel that allowed its troops to see their guerrilla enemy in the dark. The “starlight scope,” as it was soon christened, amplified ambient light, mostly from starlight, moonlight, and sky glow. Along with this heavy piece of machinery—one of the first models weighed more than forty pounds—the U.S. soldiers bore the anxiety of protecting a technology

that America's enemies had not yet acquired. Each soldier responsible for his squad's scope was expected to destroy it before allowing it to fall into the enemy's possession. And in the anxious bond that developed between the bearer and the top-secret technology, the Americans developed a view of the enemy mediated by the ghostly images that appeared to them through the scope's viewfinder. Their descriptions of the Viet Cong—in appearance and in essence—were a manifestation of the highly-pixilated forms of greens, grays, and blacks that the scope conjured in the jungle darkness. The scope played a significant role in furthering the popular characterization of the Vietnamese guerrillas as spectral beings who occupied an otherworldly realm. And it was also responsible for generating positive feelings, and even affection, for the enemy in some American soldiers.

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When Soviet tanks smashed their way into Budapest to put down the Hungarian Uprising of 1956, the profiles of the armored vehicles occupying the city presented a mystery to military analysts in the United States. Examining the photographs and footage of the Soviet intervention, the Americans were disconcerted to see empty sockets where the tanks should have been carrying high-powered turret-mounted searchlights. The analysts could not understand how the Soviet tank crews were able to find their way through the dark without artificial illumination. Their worry was that the Red Army might be in possession of a hitherto unknown night vision technology that would allow their crews to see in the dark from within their tanks (Schultz 1969). Such a breakthrough seemed possible in light of the Soviet capture of many of Nazi Germany's best scientists at the end of World War II. The Germans had been working on an improved nighttime sniperscope throughout the war. And by 1944, they had produced their own infrared scope, the Zielgerät 1229 (Bergstrom 2014). Small quantities of the ZG1229, known by its creepy code name, *Vampir* (Vampire), were distributed to German snipers in the final months of the war (Walter 2005, 239). In the anxious climate of the Cold War that followed, the Americans were apparently less willing to consider that the Red Army's tanks were merely poorly constructed, equipped, and maintained.

Alarmed by the possibility that their Communist bloc rivals had made a significant technological breakthrough, the Americans poured millions of dollars into various research projects at the Night Vision Laboratory at Fort Belvoir, Virginia. The thirty scientists then working at the lab saw human resources arrive with the money. By the mid-1960s, a team of 300 were working to create a portable device that would help soldiers turn night into day. The money and

expertise swiftly advanced the technologies being tested in the lab. Ultimately, the U.S. military spent \$20 million on the project (Schultz 1969). The result of this push was a family of night vision devices of varying sizes and powers. Their introduction into U.S. military units coincided almost precisely with the first dispatch of combat troops to South Vietnam in March 1965.

While the earliest and most portable of the devices carried the equipment designations AN/PVS -2 (for “Army-Navy Personal Vision Scope”), the American combat troops applied the term “starlight scope” for it and for all night vision devices that used the same ambient light-amplification technology. Training manuals published soon thereafter bore the term starlight scope in the title, thus giving official endorsement to the casual term. In the Southeast Asian theater of war in the late 1960s there were essentially three distinct starlight scopes. The most common weighed about six pounds and was designed to be mounted atop several personal weapons, including the M14 and M16 rifles (See Figure 1), the M60 machine gun, and the M79 grenade launcher (Dept. of the Army 1966). On nights with sufficient moonlight, the AN/PVS-2, which provided 4-to-1 magnification, allowed the bearer to see to a range of 300-meters. The “miniscope” (AN/PVS-3), a far smaller device introduced later in the war, was a handheld viewer that weighed only 3 lbs. 4 oz. but had roughly the same power



FIGURE 1 *U.S. cavalry soldier poses with a AN/PVS-2 starlight scope mounted on an M-16 rifle, 13 Jan. 1967.*

SOURCE: AP/JOHNER PHOTOGRAPH USED WITH PERMISSION.

of magnification of the heavier rifle-mounted scope. The largest starlight scope was the AN/TVS-4. It was a 38-pound crew-operated scope that rested on a pole or tripod. With a diameter of eight inches and a 44 mm imaging tube inside, this scope resembled a squat wastebasket. It was usually used to guide artillery.

Before the starlight scope, American soldiers were greatly limited in their ability to fight at night. Although the human eye will accommodate itself to nighttime viewing in about 30 minutes, its ability to perceive shapes and movement in the distance is quite limited. A soldier trained in nighttime reconnaissance and identification can only see about 50 meters away without the help of artificial illumination (Berry 1988). This physical limitation has curtailed nighttime operations throughout history. Military men have long dreamed of a device that would allow them to see the enemy in the dark, preferably without being seen by the enemy.

What can be characterized as the American search for modern night vision technology dates to World War I. In 1917 the United States Army Corps of Engineers sought to improve upon illumination flares by pointing giant searchlights at enemy positions or by bouncing them off clouds or natural features of the landscape. Private manufactures created various high-intensity searchlights that were tested out in the trenches in the final months of the war. The lights had advantages over the illumination flares used by both sides in their power and duration. But they also had severe limitations and vulnerabilities. Their considerable weight rendered them difficult to move into offensive positions. Their size made them easy targets on the frontlines. And the harsh environment and remoteness of the watery trenches easily damaged the delicate components. And worst of all, the indiscriminate blast of white light illuminated enemy and friendly forces equally. These vulnerabilities relegated the early searchlights to largely defensive operations, to be turned on when attacked at night ("Starlight Scope" 1984).

The U.S. military revived its interest in night vision on the eve of the Second World War. In the late 1930s, Army engineers drew upon the byproducts of research into early television transmitters pioneered by the Radio Corporation of America (RCA) to develop a night telescope known popularly as a "sniperscope." The Infrared Sniperscope M1 (a later model bore the designation M2) was a two-part system. The top was an infrared flood lamp that cast a beam on the target. The lower part was an image-enhancing optic tube capable of seeing the infrared spectrum and magnifying available light. The sniperscope was mounted upon a modified M1 T3 .30-caliber carbine bearing a front grip counter weight that also housed the power switch. The total weight was more than 30 pounds. On top of that, a six-volt battery pack and transformer unit capable of generating 20,000 volts to power the device was carried separately in a shoulder bag.

All the parts and extra weight had to be carried onto the battlefield by snipers accustomed to traveling light and moving quietly. It also had a considerably limited range, reported to be 300 yards but which was realistically effective to only about 75 yards, and only about 300 were distributed (Pengler 2007). Despite its promise, it enjoyed only limited success in night combat. In addition to its modest range, the infrared beam it emitted was easily detected by enemy units with similar infrared optical devices or even goggles with red-tinted lenses. The snipers who engaged the electronics of this active system made themselves vulnerable to opposing snipers. Its flaws notwithstanding, it was an improvement on searchlights—but just barely. A marine who used the sniperscope in the final year of World War II called it “greatly overrated,” preferring a steady stream of flares for illumination. Its shortcomings aside, U.S. Marine units were said to have used it to great effect defending themselves from nighttime raids on storied battlefields such as Iwo Jima and others (Pengler 2007).

Meanwhile, the U.S. military continued work throughout war on “passive” night vision systems that used ambient light. Its researchers had some successes, but the end products were ultimately unsatisfying in both performance and size. The most promising of these inventions combined binoculars with other devices such as anti-oscillating mounts to stifle vibrations and arrangements of mirrors to boost light. These devices, which looked like greatly oversized binoculars, helped pilots and sailors gain a clearer view of enemy vessels in the dark. But their size and fragility made them impractical for use by infantry units operating on rough terrain. After the war, further research in passive night vision technology greatly abated. American ground forces continued to rely on a modified version of the sniperscope in the Korean War and other conflicts into the early 1960s.

The Vietnam War has been called the “television war” because of the vivid and timely new reports viewed by the American public through the medium of the television. It is appropriate then to acknowledge the role that television played in the creation of this technology as well. In addition to RCA’s infrared breakthroughs that made the World War II-era sniperscope possible, its research into television technology during the early 1950s led to the creation of the passive light intensification system necessary for modern night vision devices. In fact, it was a television tube of sorts that became what one technology writer called “the heart of the starlight scope” (“Starlight Scope” 1984). In the early 1950s, television engineers developed a system by which one screen could capture low-light images and then transmit them to another screen where they would be analyzed, amplified, and arranged for viewing. Night vision technology in the late 1950s concentrated on using that method to transmit images from

the field of vision onto a screen at the eyepiece of the viewer via an “orthicon tube,” developed by RCA in the late 1930s and which supplanted a previous generation of television tubes in 1946.

The first scopes created by the Night Vision Laboratory had profound flaws. They were heavy and fragile, and required a lot of electricity. Aiming for efficiency, its creators had constructed a single optical tube that could perform the varied functions necessary for night vision: capturing light, amplifying it, and transmitting the image it created. Over time, researchers found that by breaking down these processes into separate stages that could be performed by multiple components within a cascade tube, they could more efficiently transmit the image using less electricity.

The resulting design was complex. Each model had three principal components: a multi-chambered intensifying tube, an optic system, and an electrical supply (Schultz 1969). As light struck an outer fiber-optic lens coated with a photo-emissive substance, an image entered the first chamber, releasing electrons. The scope used its 15,000-volt potential to force these released electrons through an anode cone. The cone and adjacent configuration were made of a specially machined aluminum that shaped images as the electrons sped through the cone’s aperture. The electrons struck an inner fiber-optic lens coated in phosphor that arranged the electrons into shapes for the viewer. This mediated image was now 40,000 times brighter than the actual image that had entered the device. The Night Vision Unit of Electro-Optical Systems Laboratory in Pomona, California produced the first scopes under tight security conditions. The lab belonged to Xerox, whose laboratory in nearby Pasadena had been developing laser-based technologies for the military throughout the early 1960s.

### Introduction into the Battlefield

The starlight scope turned the tables on the enemy. The People’s Liberation Armed Forces (PLAF), the southern communist-dominated insurgents known popularly throughout the war as the Viet Cong, had previously enjoyed great mobility and freedom to operate at night. GIs nicknamed their largely unseen guerrilla enemy “Charlie,” a shorthand derived from the NATO phonetic “Victor Charlie” for “VC.” The lack of progress against the guerrillas throughout the American advisory phase of the war from 1962–1965 had frustrated U.S. Army advisors working to train the Army of the Republic of Vietnam (ARVN), the armed forces of their ally South Vietnam. U.S. military planners hoped the

starlight scope and other recently developed technologies would mitigate the nighttime advantage held by the local guerrillas. As U.S. Army PFC Timothy Vail explained:

I think strategically, emotionally, and every way possible we knew that we owned the daytime and the Viet Cong and NVA [North Vietnamese Army] soldiers had more of an edge at night. That they were more likely to be successful maneuvering at night and that because of our overwhelming advantage during the day that they would try to do things at night. They would try to move, to infiltrate, to attack. So nighttime was a time of necessary vigilance. It was certainly no time to ever let your guard down. ... I went from day to day convincing myself, or reminding myself... to remain vigilant at night (Vail 2005).

Although Vail had a vague recollection of seeing a starlight scope carried by other units in South Vietnam, his firebase never had one of their own.

The scope did not fully neutralize the indigenous soldier's advantage of operating on familiar terrain and among a largely sympathetic civilian population. But it did give the Americans a new and unfamiliar edge when it came to operating in darkness. As more starlight scopes were produced and distributed in the early years of the war, the American military found ever more innovative uses for them. They put them into helicopters and fixed-wing aircraft. They distributed them to firebases to guide artillery. U.S. Navy sailors carried them aboard their riverine patrol boats. They became integral equipment for all nighttime ambushes. And they were a great boon to snipers. So revolutionary was the technology that one U.S. Marine sniper who experienced its introduction called it "the Holy Grail of sniper technology" (Nutting 2014). The surprising and deadly power that the starlight scope brought to night operations made a lasting impression on U.S. Army Lieutenant Bill Paris. On the first night that his squad used the new device he reported that their sniper,

spent the whole night knocking dinks off at about three hundred yards because they're walking around. ... So all night long this guy is up popping NVA because they're up walking around. Once it's dark, hell, they figure we can't see them and he must've killed ten, twelve guys that night (Paris 2003).

Official reports from the first three years of the starlight scope's use confirm Paris's anecdotal recollection. After-action reports from the U.S. Army, Navy, and Air Force units who used the scopes detailed their effectiveness in a variety

of innovative circumstances. Many analytical reports called for increasing their distribution and broadening their applications (Dept. of Army 1967). For example, U.S. Air Force crews using starlight scopes in the cockpit of their aircraft during nighttime bombing raids along the Ho Chi Minh Trail in southern Laos had far greater success locating and striking enemy convoys. One survey comparing two three-day periods from 1966 and 1967 showed that the starlight scope contributed to a tenfold increase in the number of trucks destroyed (Dept. of Army 1969).

Viet Cong and NVA soldiers did what they could to foil the starlight scope. No longer able to rely on darkness to give them an edge over the Americans, and not possessing a night vision device of their own, they tried simple adaptations in tactics to counter scope's power. Some guerrilla units used natural objects to camouflage themselves among the sparkling white and green flashes visible on a starlight scope. In November 1970, a Marine corporal told a visiting reporter from *Leatherneck* magazine about once such defensive tactic encountered along Highway 1 southeast of Danang:

[There was] no moon out, dark as a coal bin at midnight. Well, we got a lot of fireflies over here, you know. There's millions of 'em flying around. Anyway, we're looking through our "green light" [the starlight scope] and we spot this VC almost up to our bunker. He's got a firefly pinched between the thumb and forefinger of each hand, waving them around like they're flying while he's duck-walking up to our position. It would have worked too, if we didn't have that "green light" (Elliot 1970).

After several years of monitoring its use in Southeast Asia, the Pentagon officially revealed the starlight scope to the American public and the world in the spring of 1968. The publicity blitz that accompanied the new openness about the device appears to have been engineered to generate optimism in the wake of the surprise and concern generated by the siege at Khe Sanh, which began 21 January 1968, and the Tet Offensive that followed ten days later. The starlight scope itself was not strictly a secret prior to its unveiling, as foreign correspondents covering the war in Southeast Asia had been alluding to a classified night scope in their stories and reports for years. But the technology inside it and the specifications of its capabilities were presented to the press with the kind of fanfare more closely associated with the launch of a new car model or even a new NASA rocket. And the press ate it up.

Many military and technology reporters wrote about the scope's potential to hasten an American victory in Vietnam. The invention and deployment of this "miraculous" device was a rare good news story coming out of war that had



fewer and fewer of them with each passing month. The *Los Angeles Times*, for example, carried the story under a Pentagon quotation that called the scope the “Greatest Untold Story of the War” (Hartt 1968). Headlines in the *Star-News* of Pasadena, site of the scope’s manufacturer, announced “Pasadena Sight Saves GI Lives” (Swaim 1968). The *Dominion News* (Morgantown, New Jersey) declared, “New Starlight Scope Enables Army to See Viet Cong in the Dark” (Stevens 1968). And the Army’s own *Stars and Stripes* carried stories about the scope’s efficacy under headlines such as “Soldiers Use Scope to Clobber Reds” (1967). First-hand reports asserted that the starlight scope not only guided American sniper’s bullets, it also prevented the guerrillas from eating rice because they could no longer build fires at night for fear of detection (Anon. 1966b). Other stories pointed out that American soldiers could now carry less ammunition with them because the scope helped shorten the time it took for them to find the enemy (Hartt 1968). These stories suggested that this new technology was a literal manifestation of the figurative “light at the end of the tunnel” that General William S. Westmoreland, commander of Military Assistance Command–Vietnam (MACV), had proclaimed in Washington in November 1967. The starlight scope seemed to offer the edge the United States military needed to finally achieve victory over its night-shrouded and elusive enemy.

### Anxiety of the User

William M. McBride, a military historian specializing in technological innovation, has observed that “military opinions of technology often have relied more on prejudice than utility” (McBride 2002). McBride has catalogued examples of resistance to innovation based on biases generated by a “warrior ethos” that romanticizes the past while mistrusting new technologies that threaten to render formerly-popular weapons or standard methods obsolete. Often this resistance comes from war-planners whose youthful exploits with a weapon, platform, technology, or tactic make them reluctant to adopt improved forms after they have risen to command ranks or civilian leadership positions. In the case of the American military in the Vietnam War, however, this resistance came from the troops themselves.

Despite the praise being heaped upon the starlight scope in the United States, back in South Vietnam there was considerable ambivalence about the new device from the men who actually used it. At the same time, there appears to be no evidence that the U.S. commanders were aware of this ambivalence. While the American military leaders remained greatly enthusiastic about the scope’s ability to further the progress of the war, they failed to consider how this new and

classified technology was affecting the psychology, emotions, and perceptions of the men using it. The detailed operational manuals that eventually appeared with the scopes addressed all the technological specifications and methods of operation (Dept. of the Army 1966), but nowhere in these volumes are there even a few words about what the scope might do—physically or psychologically—to the operator.

As effective as this revolutionary night vision scope was, there were plenty of GIs who refused to use it. Some preferred their own night vision and the methods of spotting the enemy that they had learned in advance training programs such as Ranger School and they feared that the illuminated viewfinder would diminish their nighttime senses (Shippen 2006). Some soldiers who used the earliest models believed that it made them vulnerable because the viewfinder cast a green light on the face of the user that could be seen by an enemy at close range. Others avoided it because they had heard that the devices were prone to failure, which appears to be especially true for the first-generation starlight scopes. The weight of the scope was a problem for some (Vail 2005). Novelist Tim O'Brien lists it as "6.3 pounds with its aluminum carrying case" in the opening tally of men and gear that begins his celebrated novel *The Things They Carried* (O'Brien 1998). But for some tasked with carrying the scope on its inaugural operations, the added weight was unforgiveable. They refused to carry a six-pound piece of equipment that they did not know how to operate (Freund 1972). Some early users felt uneasy about using one because they had not been trained on it, and, in some cases, had never realized that such a device existed until it was presented to them (Oswald 2004). One Marine sniper first learned of the existence of the starlight scope on the same night he was ordered to use it (Roberts and Sasser 1989). But the principal reason that some soldiers avoided using starlight scopes was anxiety. The source of this anxiety was the secrecy surrounding the scope, which hindered its deployment and testing. Because the starlight scope was designated as classified material, its loss carried serious consequences and thus commanding officers were initially reluctant to employ the device ("Starlight Scope" 1984).

Those soldiers who were entrusted with the first starlight scopes bore weighty and potentially ruinous responsibility for them. Many feared the punishments promised to those who lost a starlight scope in the field. One Navy officer recalled quite succinctly: "If you lost one of these things, it was your ass" (Oswald 2004). Loss of a scope was a court martial offense (Atkins 2010), but there were even worse punishments. As one veteran explained:

Taking the starlight scope out into the field was a major responsibility. It came with the solemn understanding that if there was an imminent

threat of being captured or killed, the sniper team was to destroy the scope first, with the grenade. It was also understood there was no need to come back to Camp Carroll if, for some reason, you didn't have the starlight scope in your possession (Nutting 2014).

Nearly all of the soldiers who received the first-generation scopes carried a white phosphorous grenade with it. If they were in danger of being captured or required to leave their equipment behind, they were expected to use the incendiary grenade to burn up the scope (Nutting 2014). Often they would tape the grenade to the scope before going out on a mission to save time in the event of an emergency. Other soldiers recall being told to fire tracer rounds down the tube to burn up its internal workings (Carr 2012). Accounts of GIs dying while protecting the "still-secret device" on their rifle appeared in newspapers across the United States and beyond; and the recapture of a "stolen top-secret U.S. weapon" received special attention in American press stories from this period ("Marines Capture Viet Red Base" 1967). One front-page banner headline obituary for an American army casualty stressed that the dying soldier "managed to destroy a 'starlight scope'...so it wouldn't fall into enemy hands" (Anon. 1966a).

In addition to the disciplinary punishments meted out according to the guidelines of military justice, the American soldiers feared losing the device for other practical reasons. "That thing [cost] \$1,800," one sailor recalled, "which was a lot of money in 1968 for a guy making \$303 a month" (Oswald 2004). Other military personnel heard that the scope cost \$3,000. One soldier remembers a larger model costing "in the neighborhood of \$30,000" (Atkins 2010). Given the anxieties over money and courts martial, it is not surprising that the loss of a scope in the field set off a series of deceptions and crimes. In John Parker's memoir of his two tours in South Vietnam, the former U.S. Army lieutenant describes how the theft of a starlight scope by a group of ARVN soldiers embroiled two companies:

When you lose a starlight scope you had two options. The first option was to have your executive officer send you the old beat-up non-operating starlight scope hidden back at [the base.] That scope was then taken into the field as often as possible. The first time contact was made with the enemy the shooter would shoot a hole in it and declare it a combat loss. The second option was to stand up like a man and report the loss to the battalion commander (Parker 2007).

When a lieutenant responsible for the scope exercised the second option, his battalion colonel told him he would not be allowed to leave South Vietnam

until he had found it. When he relayed a similar threat to the driver who had actually lost the scope, that man exercised a third and less honorable option by stealing a scope from another company. That company, in turn, replaced their lost scope by pursuing the first option of deceptive substitution.

The American soldiers had a more immediate fear related to losing the starlight scope: they dreaded the tactical advantage transferred to their enemy if the Viet Cong were to acquire one. Stephen E. Atkins, a U.S. Army sniper in Long An Province in 1968, wrote “A starlight scope in the hands of an enemy sniper was a terrifying thought” (Atkins 2010). In *The Moving Trees: Diary of a Khe Sanh Marine*, James C. Oyster’s entry for 26 March 1968 captures this pressing fear:

3/26 lost the starlight scope. The word is it was captured, but I bet they just lost it. I’ll bet they were out on patrol someplace and whoever was in charge of it laid it down and when they moved out they left it there. I guess the battalion commander was really pissed about it. One of the advantages we had was being able to see the gooks at night when they couldn’t see us. Now if they have the starlight scope they are going to be able to see us at night too. It kind of pissed me off too. They could use the thing to look at Gray Alpha lines and shoot me right in the head (Oyster 2011).

Then there were what might be considered more personal reasons for not liking the starlight scope: the untested technology itself posed severe physical threats to the user. Prolonged use caused varying degrees of blindness. This was a consequence of the magnification properties of the scope. The earliest devices lacked light governors to protect the user from exposing their eyes to bursts of amplified light. An unintentional blast of light from a powerful source such as a spotlight or flare was magnified into harmful levels when amplified directly into the eye of the user. This consequence was exploited by nighttime smugglers, some who worked for the Viet Cong, who put bright lanterns on their sampans to obscure the view of the American military personnel watching them. The blindness and the uncertainty that resulted generated a moral dilemma for the American troops observing them. Were the boatmen Viet Cong who were trying to avoid detection or scrutiny by blinding their enemy observers? Or were they anxious civilians seeking to allay the anxious Americans by illuminating their craft as a way of demonstrating their innocence through an expression of openness? For the watcher on the other side of the scope, the lantern-bedecked boats sparked a torturous internal debate. “We couldn’t see what was on these boats,” explained Edwin “Larry” Oswald. “We had to make a shoot/no shoot decision based on [whether we thought] this is

a nice guy bringing his rice to market or [someone who] got a recoilless rifle and [is planning] to shoot us" (Oswald 2004).

The scope could also caused long-term vision damage. Long periods of staring into the scope would take away the night vision of the user. Those who stared into the starlight scope for a week or more of nights found that they had lost their eyes' natural night vision when they stopped using it. Right-eyed dominant users pressed their left eye to the scope to preserve night vision in their right eye (Oswald 2004). Emil Heugatter, a U.S. Army sniper who fought in South Vietnam in 1969, recalls, "[if] you looked through [a starlight scope] for a while, you'd get a terrible headache if you'd look a long time. It really feels like it pulls your eye out of your socket. It was very eye fatiguing to look through these things very long" (Heugatter 2001).

The murky composition of the images posed a problem. In the midst of fire-fight the black-green shadows that appeared in the viewfinder could not be positively identified as the enemy. Misidentifications were even more likely when Americans were fighting alongside allied ARVN troops. One American veteran remained haunted by the possibility that he might have shot an ARVN ranger in the aftermath of an ambush. "I was looking thru the starlight [and] I saw a figure approaching in our direction, so I pointed my M16, head high in that direction a fired," recalled Dave Schisler of that incident. "Later that evening several of the remaining [ARVN soldiers who] were attached to our squad were suggesting that someone in our squad shot him, and they believed that it was me." Although his squad mates maintained strong doubts about his culpability in the alleged friendly fire incident, the uncertainty generated by the unclear image has remained on his conscience more than four decades after the event ("Accounts of 10 July 1967 Ambush" 1967).

The scope's battery posed another technological problem. It was a specially constructed battery created exclusively for the equipment. When the battery died, soldiers were obliged to acquire a new one from the military supply system. They could not simply hook up a common battery as a power source. The batteries themselves therefore became as much a source of anxiety as the scope. American military personnel went to great lengths to preserve these precious power sources. Units often put the batteries in refrigerators when possible to prolong their lives. And while such care had its benefits, it also had consequences. Bringing a battery from a near-freezing environment out into the hot, humid air of South Vietnam generated condensation on the thick cardboard coating that encased it. Over time the water-soaked cases fell apart, and the surface water caused the device to short circuit (Oswald 2004).

And some soldiers just did not like what they saw through the scope. Others struggled to make sense of the stimulation presented to their eyes and

brain. For the viewer familiar with visual renderings in only color and black & white, images rendered through the starlight scope posed a challenge (Berry 1988). They required a mental adjustment to translate the odd shapes, palettes, and textures it produced into a recognizable and readable tableau (O'Kelley 2000). The tube generated a pale-green aura, bathing all that the viewer saw in a ghostly hue, while the principal shapes appeared as gray-black forms. Human beings viewed through the scope had glowing eyes. Perhaps tellingly, one Marine sniper took the starlight scope to a cemetery on the first night that he used it because "it seemed like a likely place to surprise a VC." This marine believed he struck a Viet Cong soldier with a three-round blast to the chest only to watch as the guerrilla rose from the field of tombstones and ran away. After one of his squad shot a parachute flare into the night sky, the bewildered marine watched through the starlight scope as the "ghostly shadows swept across the cemetery under the miniature sun" (Roberts and Sasser 1989). The marine's evocation of ghostly landscape was a common metaphor used by those who struggled to make sense of the world as seen by a starlight scope. Around them was an otherworldly storm of glittering electronic phantoms and fireflies, the green-grays sparkles of fluorescence generated by rotting vegetation and dew drops refracting faint bits of light. Soldiers who spent long nights peering into this strange electronic topographical arrangement began to see it not so much as an altered version of the landscape before them but as another world—a strange realm—that could only be accessed through the scope.

### Literary Insights

Vietnam War literature offers some of the best insights into what made soldiers uneasy about the starlight scope. More so than history, literature attempts to explain emotional turmoil, to make sense of wartime confusion; it seeks to impose understanding on bewildering experiences and moral dilemma. Novelists and poets explain this internal turmoil in evocative and memorable language. In his literary memoir *If I Die in a Combat Zone, Box Me Up and Ship Me Home*, novelist Tim O'Brien recalled the starlight scope as a kind of reverse telescope that seemed to reveal more the unseen peccadillos that lie buried in the psyches of the soldiers who gaze into it than it did about the enemy. Encountering it for the first time, a squad of soldiers in O'Brien's memoir initially treat the starlight scope with dread. The GI tasked with carrying the device, Barney, complains that it weighs "a ton." Irritated, he confesses that after a week of lugging the device on patrol he still does not know how it works or what it does. The best description he can offer is that the unfamiliar tool

is “a fucking kaleidoscope or something.” Barney passes the scope to another GI who grows curious about its purpose as night deepens around the squad. This soldier, Chip, asserts that he sees fine without the “science fiction” tool, but continues to assemble it as the night wears on. His first view into the eyepieces reveals a phantasmagoric scenscape of surreal images that is described in fragmentary amazement. Unable to look away, he struggles to make sense of the unfolding weirdness. As his squadmates pester him for a description, he tries to comprehend what quickly becomes a revelatory experience:

“Wow.”

“What’s out there?”

“A peep show,” he murmured. “Sweet, sweet stuff. Dancing soul sisters.” He giggled and stared through the starlight scope. “Star bright, star light.”

“Don’t hog it, man!”

“Dreamland!”

“Come on! What do you *see*?”

“All the secrets. I see ‘em all out there.”

“Hey—”

“Fairy-tale land,” Chip whispered. He was quiet for a time. He held the machine to his eye, scanning the night, clucking softly. “I *see*. Yeah, now I *see*.”

“Evil.”

“No, it’s sweet, real nice.” Chip giggled. “I see a circus. No shit. There is a circus out there. Charlie’s all dressed up in clown suits. Oh, yeah, a real circus” (O’Brien 1973).

The three soldiers wile away the night taking turns staring into the “strange, soft deadness” of the night as revealed by the starlight scope. Finally, one of them declares, “It’s not right ... Seeing at night. There is something evil about it,” and wonders aloud when “the Grim Reaper” will turn up in the viewfinder.

In his later book, the novel *Going After Cacciato*, O’Brien describes the visual vertigo that overcame many soldiers while looking through a starlight scope. In this case, it is more physical disorientation from the outer world that undermines a soldier’s equilibrium:

He put his eye to the peephole and flicked on the battery switch.

The night was moving.

A bright green shimmering dazzle, and it was all moving. The countryside moved. The beach, the sea, everything. But he did not look away.

He pressed his eye against the peephole and watched the moving night, turning the big plastic dial to full focus, high resolution, and watched Quang Ngai move.

It was a trick of the machine, he knew this. So he concentrated (O'Brien 1978).

In other intimate mythologies of the war, the eerie green landscape generated by the starlight scope was populated by ambiguous entities. Fatigue, stress, and fear exacerbated the tendency in some soldiers to misinterpret the images they saw through the scope. What sometimes appeared to be a guerrilla turned out to be a rat, a monkey, or some other jungle creature (Atkins 2010). Poisonous snakes magnified to unsettling closeness slithered amidst the phosphorescent flashes of light like mythological beasts upon a nightmare landscape. Even inanimate objects such as rocks and plants appeared to be enemy soldiers advancing forward on the viewer. Soldiers described “dragons” and other supernatural creatures appearing from within the writhing phosphorescent murk of a starlight scope landscape (Ely 1987). One former medic recalled using a starlight scope to monitor hundreds of dead enemy bodies after a particularly intense firefight only to discover in the morning that the corpses were a hallucination (Bennett 2004). Another soldier likened the explosion of moving light dots to a landscape that seemed to be always “snowing” (Warden and Radcliffe 2013). R.L. Schreadley, who as a U.S. Navy commander served as a staff historian for Commander Naval Forces Vietnam (COMNAVFORV) under Vice Admiral Elmo Zumwalt, Jr. in 1969, described just such an illusion while observing sailors doing reconnaissance aboard a PBR (Patrol Boat, River). “You take your turn on the starlight scope,” Schreadley writes, and “Viewed in its eerie green glow, everything on the bank seems to move. Bushes become animate” (Schreadley 1992, 192). The device transformed the nightscape into something akin to an LSD hallucination. In a telling anecdote included in his celebrated wartime study *Dispatches*, the journalist Michael Herr describes a Long Range Reconnaissance Patrol (LRRP) soldier who took drugs “by the fistful” so that the jungle at night would appear to him as if viewed through a starlight scope (Herr 1997).

The starlight scope most powerful function was to bring the elusive enemy to the American soldiers' eyes. The device gave spectral form to guerrillas who had previously seemed like invisible ghosts. In a sense it confirmed their phantom qualities by making them visible as otherworldly forms. Throughout the war, the Americans had referred to the Viet Cong as ghosts because they appeared at night and were not visible. Describing the Battle for the Horseshoe, which occurred in late August 1967 in the southern region of the so-called Iron



Triangle of Binh Duong province, one veteran wrote, “When they searched the bunkers they didn’t find a damn thing. No empty shells, no blood, and no evidence of any kind. It was like they had been fighting ghosts” (“Battle for the Horseshoe” n.d.). By rendering humans into ghosts, the process of dehumanizing the enemy is advanced and further complicated. The scope makes them appear as spirits by showing their form without the elements that would render them fully human, such as language, emotion, and three-dimensional form. They appear as spirits without souls.

Scott Ely’s *Starlight: A Novel* captures the profound uneasiness that overcame some soldiers who spent long periods looking at the enemy through starlight scopes. In his quasi-fantastical novel, Ely, a Vietnam War veteran himself, describes the exploits of a U.S. Army sniper appropriately (or uncannily) named Tom Light whose amazing ability to stay alive while tallying high numbers of enemy kills inspires anxiety and dread among his fellow soldiers. Over time Light’s comrades come to believe that the scope makes the sniper clairvoyant; they become convinced that Light can see who among them will die next. Rumors of Light’s strange powers reach the local Vietnamese who spread the word that the American man with starlight scope can raise the dead. Vietnamese families seek him out and beg him to reanimate their recently killed kin. Although the rumors swirling around Tom Light and his night vision device are inaccurate in their precise details, the starlight scope at the center of the plot does seem to give the sniper supernatural abilities. At different points in the novel, the starlight scope shows skeletons dancing, dead men moving about, and the face of the narrator’s girlfriend at her home in Birmingham, Alabama. In one passage Light attempts to explain to a fellow soldier the power of the AN/PVS-2 atop his M-16 to transform enemy soldiers into something spectral and mesmerizing. The fictional sniper describes the formerly invisible Viet Cong guerrillas as semi-transparent ghosts whose ethereal form is cast upon the undulating nightscape: “When you look at the dinks through the scope, they look like men shined up on a wall by a carbide lantern” (Ely 1987).

Light’s words suggest that the starlight scope acts as a kind of magic lantern, a device that used projected light and painted slides to cast ghostly images upon a screen made of a rippling fabric. As the technological precursor to the motion picture, magic lantern shows—often called phantasmagoria—were popular entertainments in Europe and North America throughout the nineteenth century. The most popular phantasmagoria, as the name suggests, involved stories about ghosts, demons, and other supernatural beings. According to historian and mythographer Marina Warner, those who first toyed with magic lanterns believed that the devices could project the interior thoughts

and fears of the observers along with the images created by the glass slides. They mimicked the mind's "affinity for interior phantasms." As the name suggests, magic lantern blurred the line between "revelation and illusion." She writes:

This device and other proto-cinematic machines actually brought into being models of interior thought, and conjured all kinds of things that do not and cannot exist except in that enchanted condition: the enigma of appearances (Warner 2006).

Phantasmagorias thrilled audiences by bringing them into close proximity with the entities—many only identifiable to themselves—they feared the most. Ely's fictional sniper indicates that the starlight scope is having a similar effect on him. He admires the ghostly forms he hunts and watches. And he begins to identify with them.

The character Tom Light, as his name suggests, is a human embodiment of the starlight scope. As the sole possessor of a starlight scope in a remote base on South Vietnam's northwestern border with Laos, he is attributed with the power of second sight because the figures who appear in his viewfinder are usually in the final minutes of their lives. He is believed to be able to raise the dead because his starlight scope prevents men from dying by spotting enemy snipers and sappers before they can carry out their attacks. Soldiers in his immediate proximity feel safe. But rather than value Tom Light for the protective powers he and his scope bring to the unit, the men at the firebase become afraid of him. They circulate apocryphal stories of past attacks on the firebase that killed everyone except Light. Light's taciturn and distracted demeanor make them uneasy. And they are unnerved by his apparent ability to kill enemy snipers deep in jungle territory controlled by enemy forces. The visions he is rumored to behold through the scope grow increasingly fantastic over the course of the novel. The novel's narrator describes Tom Light as smelling like "decaying leaves and damp earth," the natural vestments of the newly buried. Light struggles to disabuse his fellow soldiers of their superstitious beliefs, but to no avail.

Ely's novel also captures the ambivalence about killing the guerrillas that emerges within soldiers who watch the enemy through the starlight scope. The novel's fey sniper prefers spending time outside of the firebase to staying with his fellow soldiers. He seems to materialize and disappear like the ghost figures he stares at. He vanishes for long stretches of the novel to chase a North Vietnamese sniper nicknamed the Tiger who uses a stolen starlight

scope to shoot American soldiers from atop the trees. Later, he tracks a North Vietnamese mystical monk who, like Light himself, is reputed to have the power to bring dead soldiers back to life. Ely's novel conveys the power of the starlight scope to destabilize the psyches of American soldiers who spend long nights alone staring into what appears to be another world. Ely's real life counterparts passed long stretches of their tours psychologically separated from their squad mates, many of whom slept through these nights and may not have ever even looked through a night vision device. Some starlight scope users appear to have identified with the other denizens of the night. They seem to have developed sympathy for the silent, ghostly figures they observed through their viewfinders, which their fellow Americans never did.

### Sympathy for the Doomed

Perhaps the most profound change that the starlight scope brought about concerned the Americans' perception of their enemy. It changed the feelings that many soldiers and marines had toward the Viet Cong. The scope transformed the Americans' idea of the Viet Cong from an invisible and masterful opponent to a vulnerable and unaware victim. Its power to render the faces and bodies and movements of the formerly unseen insurgents humanized them. The Americans were now able not only to observe their erstwhile invisible foes, they could study them in what was often the guerrillas' last moments alive. They could consider the human pursuits, both military and mundane, of an anonymous and obscured enemy labeled collectively but familiarly as "Charlie." The viewers now had time to assign a more focused identity to the people they were about to annihilate. It certainly did not stop the Americans from killing the guerrillas; in practical terms it made the act easier. But in emotional and psychological terms it compelled the GIs to consider the act in more sympathetic terms. Their killing of an identifiable human being was now a potentially regrettable and even tragic act.

The best place to observe this transformation is again in literature. More so than memoir, literature allows veterans to express complex psychological reactions to war. And veterans writing about the enemy in fiction, poetry, and songs have illustrated the emotional conflicts that the starlight scope encouraged in its user. Significantly, as historians of the Vietnam War have noted, the young Americans who served in the Second Indochina War were the best educated and most literate soldiers that the United States had yet sent to war (Spector 1993). And having acquired secondary and post-secondary educations,

both before and after serving, they were more inclined to explore their experiences as fiction and poetry than non-fiction (Jason 1991).

In “Starlight Scope Myopia,” the American poet Yusef Komunyakaa describes the evolving opinions and emotions of an American soldier as he observes a squad of Viet Cong guerrillas through rifle-mounted starlight scope (Goldensohn 2006). The “myopia” in Komunyakaa’s title captures the paradox of the starlight scope’s introduction. The device shows the subject without the context. It draws the enemy into the shooter’s brain via the eye socket without conveying the social, cultural, and political circumstances that brought him or her to that point. The observer sees bodies and movements without telling much about the subtleties of human emotion. In the poem, the communist soldiers are moving provisions in the night, unaware that they are being observed and targeted. The poem traces the process of mental transformation of the watching soldier as he goes from describing the guerrillas as merely imprecise targets that have appeared in his viewfinder to something more human and thus worthy of sympathy:

Gray-blue shadows lift  
shadows onto an oxcart.

Making night work for us,  
the starlight scope brings  
men into killing range.

As the enemy soldiers acquire more precise definitions amidst the otherworldly hues of light-amplifying technology, the viewer is overcome by a sense of what will be enduring regret for killing the men he has been observing.

Lords over loneliness  
winding like coral vine through  
sandalwood & lotus,

inside our lowered heads  
years after this scene

ends,

Transfixed by the image of the enemy engaged in comradely interaction, he wonders about the topic of their present conversation, and begins to consider the composition of their internal lives and thought processes.

Caught in the infrared,  
what are they saying?

Are they talking about women  
or calling the Americans

*beaucoup dien cai dao* (very crazy)?

At the poem's conclusion, the viewer finds himself overcome by an impulse to warn the doomed men of the coming fusillade that will end their lives.

One of them is laughing.  
You want to place a finger

to his lips & say "shhhh."

And, captivated by the fragility of the men before him, the soldier considers the possibility of embracing one—an older and disfigured cadre—even as he points his rifle at him.

You try reading ghost talk

on their lips. They say  
"up-we go," lifting as one.  
This one old, bowlegged,

you feel you could reach out  
and take him into your arms.

You  
peer down the sights of your M-16,  
seeing the full moon  
loaded into an oxcart.

Komunyakaa's poem concludes, perhaps significantly, without a description of the American firing at the men whose images have transfixed him. With the watcher's emotional transformation complete, readers are left to wonder whether he is capable of gunning down the men who captivated him within the starlight scope.

The starlight scope serves as a similarly humanizing device for an enemy soldier in a song composed during the war by U.S. Army soldier Chip Dockery while he was stationed in South Vietnam. This time the enemy being viewed is a North Vietnamese logistical support crew member. The song *Sitting in the Cab of My Truck* describes an enemy driver chained to the steering wheel of the truck he is taking down the Ho Chi Minh Trail (Fish n.d.). The song, which American soldiers sung to the tune of Otis Redding's (*Sittin' On*) *The Dock of the Bay*, presents the trials and dangers that North Vietnamese teams faced as they brought war materiel to the south via mountain and jungle routes of the storied supply line. The song's protagonist endures exhaustion and nicotine withdrawal, and dreads the return of American bombers ("a sky-spot that finally came close") that could end his life. The song concludes with the stanza:

Here I sit having a nicotine fit,  
But, God, I'm too scared to get a cigarette lit.  
'Cause that might just blow my only hope,  
Of not showing up on a starlight scope.

Like Komunyakaa's poem, Dockery's song humanizes the spectral enemy. It renders his character and condition familiar to most GIs by vivifying his internal life and describing his emotions. It allows him the same fears and uncertainties that wrack his American counterparts with no mention of the political divisions or nationalistic fervor. It also includes an interesting ontological projection. The driver, as imagined by the American composer, understands that his survival depends on his ability to keep his image off of a starlight scope. The desperate northerner is able to mentally place himself into not only the visual sight of his American opponent but into the device that the GI will use to render him visible before killing him.

\* \* \*

The starlight scope did not merely transform nighttime warfare, it changed how humans carry out all activities previously complicated by the dark. So revolutionary was the device that militaries around the world—especially that of the United States' chief Cold War rival, the Soviet Union—rushed to duplicate the breakthrough American technology. But in the process of winning the race to develop and deploy this seemingly miraculous device, U.S. military labs did not take the time to test the physical and emotional effects of the starlight scope on those who would use it. They did not anticipate the consequences of

introducing secret technology in wartime, nor did they appear to realize that the same device that could expose a formerly invisible enemy also vivified hidden areas of the GIs' psyches.

Today, this technology that so unnerved the earliest adopters in the Vietnam War and devastated their opponents is commonplace in cameras, binoculars, car technology, and other common devices. A look back over the history of its wartime introduction indicates that this now protean technology inflicted complex physical, psychological, and practical dilemmas on the soldiers who first used them. As Dockery, Komunyakaa, O'Brien, and many memoirists have demonstrated, the starlight scope's light-amplifying powers were capable not only of making targets easier to see, it could also, paradoxically, make it harder for the American on the other side to pull the trigger. The scope complicated killing by providing a highly mediated image of the enemy that produced an engrossing-but-incomplete image of the human target. It also destabilized the user's understanding of the physical terrain he occupied. And the asymmetry of being sole possessor of this technology made some soldiers feel ambivalent about using it to kill the unsuspecting. Burdened by weight, untested technology, unfamiliarity, secrecy, and disconcerting personal revelations, soldiers using the starlight scope for the first time endured unforeseen problems. And it is for this reason that war-planners, weapons developers, and military personnel themselves can benefit from the figurative light shed by the murky early history of the starlight scope.

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