

Attempted Assassination in Butler, PA – Forensic Breakdown

Overview: On July 13, 2024, a gunman opened fire during a Donald Trump rally at the Butler Farm Show Grounds in Pennsylvania, in an apparent assassination attempt. Former President Trump sustained a grazing wound to his right ear, while three attendees behind the stage were struck by gunfire – one fatally . The assailant, 20-year-old Thomas Matthew Crooks, fired eight rifle rounds from a rooftop about 150 yards away before being shot dead by security officers . What follows is a detailed forensic analysis of the shooting: the bullets' paths and recovery, how such a near-miss grazing wound could occur, and factual anomalies that have fueled speculation about the event's authenticity.

Bullet Trajectories and Bullet Recovery

Moments after a bullet grazed his ear, Donald Trump stands bloodied but defiant, raising his fist as Secret Service agents rush him offstage . AP photographer Evan Vucci captured the smear of blood running from Trump's ear to his cheek – evidence of how close the first shot came.

Shots Fired: Investigators confirmed that Crooks fired **eight shots** toward the stage where Trump was speaking . Law enforcement returned fire twice (once by a Butler County SWAT officer and once by a Secret Service sniper), bringing the total gunshots that day to ten . The FBI's crime scene team recovered **eight spent shell casings** on the roof of the Agricultural (AGR) building where Crooks had been perched, plus one casing from each of the two security shooters . Ballistic tests matched those casings to Crooks' AR-15-style rifle and the two law enforcement rifles, confirming the shot count .

Trajectory Analysis: A forensic reconstruction by the FBI identified **six distinct bullet trajectories** (out of Crooks' eight rounds) by tracing bullet holes, impact marks, and recovered fragments . All six reconstructed paths originated from **the north side of the stage**, consistent with the shooter's rooftop position . Two bullets (labeled Trajectories "T5" and "T6" in the FBI analysis) traveled high over the stage: one tore through the vinyl cover of a jumbo TV screen trailer behind the right-side bleachers, and another lodged into the barn door of a green warehouse south of the stage . Investigators documented **35 points of impact** (entry/exit holes or ricochet marks) along the paths of those six bullets . Notably, **no bullet impacts or fragments were found at Trump's podium or onstage position**, aside from the grazing injury to Trump himself . This indicates that none of the shots struck the lectern or the spot where Trump was standing – they either narrowly missed him or hit other targets.

Bullets Striking Victims: Three of Crooks' rounds struck rally attendees in the bleachers behind the stage. The deceased victim, 50-year-old Corey Comperatore, was killed by a single gunshot to the head . He had bravely thrown himself in front of his family to shield them and was fatally struck by a high-velocity .223 round. Two other men – 57-year-old David "Jake" Dutch and 74-year-old James Copenhagen – suffered critical gunshot wounds but survived . According to a New York Times forensic review, the **first bullet** fired by Crooks is believed to be the one that **grazed Trump's ear and then struck a bleacher rail**, injuring David Dutch . In other words, the round that nearly hit Trump continued past him into the crowd. (Dutch was released from the hospital in stable condition a few days later, suggesting his injuries were serious but treatable .) Copenhagen was also hospitalized with serious injuries; both men have since recovered . Thus, out of eight shots, **Trump's ear and three bystanders** were hit, accounting for four bullets. The remaining bullets hit structures or flew past the crowd.

Other Bullet Impacts: Aside from those that hit people, at least two of Crooks' rounds struck infrastructure around the rally. As noted, one bullet hit a metal **bleacher railing**, kicking up a spray of debris; this impact was caught on video and initially spurred unfounded rumors of a "second shooter" (more on that later). Another round pierced the large **outdoor video screen's vinyl cover** behind the crowd. Yet another slammed into the **barn door of a warehouse** beyond the venue. In the chaotic aftermath, one attendee's **baseball cap was found with a bullet hole** through it – an intriguing detail because investigators could not conclusively tie that hole to any of the known trajectories. The House Task Force report noted this mysterious hat impact as an unresolved anomaly, since all other bullet damage tracked back to Crooks' firing position. It's possible the hat was grazed by a fragment or an unrecognized ricochet. Aside from the hat, however, every bullet hole or strike in the scene was consistent with shots coming from the north (the shooter's direction).

Bullet Recovery: Forensic teams **recovered multiple bullet fragments** and spent bullets from the scene, though not every round was fully accounted for. The FBI lab matched **two copper bullet jackets** to Crooks' rifle, confirming they came from his .223 caliber rounds. Other fragments were compared against test-firings of the agents' rifles. One small fragment's rifling marks matched the Secret Service sniper's weapon, and another fragment was consistent with either Crooks' rifle or the local officer's rifle (though the FBI ruled out the sniper's gun for that piece). Additionally, two lead bullet cores (projectile remains) of .223 caliber were found on site. These findings indicate that several of the bullets broke apart upon hitting objects or the ground. **Importantly, one of Crooks' eight bullets was never found.** Investigators could not locate or identify any fragment of one round, presumably because it traveled clear of the scene or disintegrated. The absence of one bullet has been publicly acknowledged and remains an open question, though all evidence still indicates it too was fired from Crooks' rifle. In summary, most of the bullets were traced via impact evidence or fragments to specific locations, with one round effectively "missing" in terms of physical recovery. The rifle used in the attack was recovered on the rooftop where Crooks was shot dead, along with additional ammunition and even improvised explosives in his vehicle (which fortunately were never detonated).

Near-Miss Grazing Wound: Plausibility of Trump's Close Call

Trump's survival was largely a matter of inches – **literally millimeters**. The first shot came astonishingly close to a direct headshot. Trump **had just turned his head slightly to his right** at the moment of the gunfire, a movement he later credited with saving his life. That subtle shift meant the bullet only sheared a strip of flesh off his ear instead of penetrating his skull. Secret Service and campaign staff noted that Trump was pointing toward a chart on stage when the shot rang out, which narrowed his profile by a few inches. As Trump himself put it, "If I had not moved my head at that very last instant, the assassin's bullet would have perfectly hit its mark and I would not be here tonight".

Wound Characteristics: The injury to Trump's ear was described as a **graze wound** – essentially a long scrape. Former White House physician Dr. Ronny Jackson (who treated Trump afterward) said the wound was shaped like a "half-moon," where the bullet **"scooped" a small amount of skin and fat off the top of the ear**. There was *nothing to stitch*, as the bullet hadn't punctured deeply; it just carved a groove along the outer ear tissue. Jackson's medical memo confirmed it was treated as a **gunshot wound to the right ear** at Butler Memorial Hospital. Photographs immediately after the incident showed Trump bleeding from the ear, and within minutes a noticeable streak of blood ran down the side of his face. Trump was bandaged and released from the hospital the same day, requiring only basic wound care. The relatively minor nature of the injury – essentially a shallow graze – meant a quick recovery. In fact, within two days Trump was back on stage at the Republican National Convention, sporting just a square bandage over the wound.

Forensic and medical experts agree that this kind of **near-miss is entirely plausible**. A rifle firing a 5.56×45mm (.223) round from ~150 yards can easily inflict a grazing wound if the target is just slightly off-center from the bullet's path. At that distance, a difference of a few centimeters in aim or target position can be the difference between a lethal headshot and a superficial scrape. Ballistics specialists noted that if the bullet had hit an intervening object first (like shrapnel or debris), the wound likely would have looked different – but in this case the clean “scooped” groove on the ear is consistent with a **glancing blow from the bullet itself**. In essence, the bullet likely passed just alongside Trump's head, clipping the helix (outer rim) of his ear at high speed, and continuing onward. The FBI initially left open the possibility that a fragment (shrapnel) from another impact might have caused the ear injury, but subsequent analysis and the bureau's own statement concluded: **“What struck former President Trump in the ear was a bullet, whether whole or fragmented into smaller pieces, fired from the deceased subject's rifle.”** In other words, Trump was indeed grazed by a bullet fired by Crooks – not by glass, not by shrapnel from something else, but by the projectile itself (even if that bullet may have fragmented upon impact with his flesh).

From a physics standpoint, a 5.56mm NATO round travels ~3,000 feet per second; even a glancing impact can tear flesh due to the shockwave and bullet spin. Yet if the bullet's trajectory only barely intersects the body, it may not penetrate deeper. Emergency physicians have documented many such **graze wounds** where bullets “skim” along skin, creating a furrow but not entering – especially on curved surfaces like the skull or ear. These wounds often bleed profusely (scalp and ear tissue is vascular) but are not life-threatening if major vessels are avoided. Trump's injury – a 2 cm wide laceration down to the cartilage – fits this profile. Notably, **his rapid healing** (he appeared with minimal visible injury a week later) is not suspicious; on the contrary, it's typical for a shallow wound. Trauma experts pointed out that a clean graze can scab over and look quite minor within days. In sum, the scenario of a “close-range miss” – a would-be kill shot that only grazed the target – is entirely feasible and backed by the forensic evidence. Trump's slight head turn at the crucial moment, combined with perhaps a small aiming error by the shooter under stress, resulted in a miraculous near-miss rather than an assassination.

Multiple analysts have highlighted just **how narrow the margin was**. Trump later said the bullet came “within a quarter of an inch” of striking his skull. Indeed, the difference between a superficial ear hit and a fatal headshot was essentially the bullet's radius and the angle of approach. Videos show Trump reflexively reach for his ear right after the first shot and flinch down, indicating how instantaneous it was. The Secret Service also noted that if Trump had been facing forward instead of turned sideways, the bullet's line likely would have intersected his head. Put simply, the shot **could not have come much closer** without lethal impact – a fact that Trump and his supporters have emphasized in recounting the incident. All forensic signs support that his wound was caused by a direct grazing bullet and that only sheer luck (or providence) prevented a tragedy.

Anomalies and Controversies: Authenticity of the Scene

While the core facts of the attack are well-established, a few **unresolved details and miscommunications** have fueled questions online about the authenticity of what happened. It's important to distinguish verified evidence from speculation. Here we outline several anomalies or claims – and what is known about each:

- **The Mysterious Bullet Hole in a Hat:** Investigators discovered a bullet hole through a rally attendee's hat, yet oddly this particular hole did **not match any reconstructed bullet trajectory** from Crooks' rifle. The FBI confirmed that all known bullet impacts (aside from that hat) aligned with shots from the north (the shooter's position). The official report did not determine whose hat it was or how, exactly, it was pierced – leaving a small mystery. This gap in the accounting has

raised questions: Was it possible one of the bullets ricocheted oddly or a fragment flew off and punctured the hat? Or could it hint at something like a second firing angle? The **evidence so far favors a ricochet or fragment**; there's **no indication of a second shooter** (all casings and bullets point to the single perpetrator). Still, the hat hole remains an intriguing anomaly since authorities haven't definitively explained it. Conspiracy theorists have latched onto this, but law enforcement simply notes that not every minor artifact could be conclusively traced in a chaotic open-air crime scene.

- **One Bullet Unaccounted For:** As mentioned, one of the eight bullets fired by Crooks was **never recovered**. This is a verified fact from the investigation. It's not unusual in outdoor shootings for a bullet to vanish (it might embed in soft ground, woods, or be picked up unintentionally by someone). Nonetheless, the missing bullet has spurred speculation. Some internet commenters wondered if it was *intentionally* removed to hide something or if it actually never existed (implying fewer shots were fired than reported). However, audio/video evidence clearly captured eight shots in under six seconds, and eight shell casings were found on the roof, so **eight bullets were definitely fired**. The simplest explanation is that the missing round flew beyond the immediate search area or fragmented such that no sizable piece was found. Given the rural venue, a single errant bullet could easily be lost in a field or among structures. Investigators identified trajectories for six rounds; the remaining two paths (one of which corresponds to the missing bullet) likely had no obvious impacts to trace. While it's an open question where that projectile ended up, there's no evidence to suggest any foul play in its disappearance – it's a forensic blank spot, but not an indication of a "staged" event by itself.
- **Initial Uncertainty: Bullet or Shrapnel?** In the week after the attack, an apparent discrepancy in official statements created confusion. FBI Director Christopher Wray testified that there was "some question" whether Trump's ear was hit by a bullet or by **shrapnel** (debris). This cautious remark (likely reflecting the FBI's ongoing analysis at that time) was seized upon by skeptics to cast doubt on the whole scenario – fueling theories that Trump might not have been shot at all. In reality, Wray was not denying Trump was shot at; the FBI was simply examining if the ear injury was caused directly by the bullet or by a fragment from another impact. Within days, forensic analysis (and Trump's doctors) made it clear it was a direct bullet graze. The FBI ultimately released a statement explicitly confirming a bullet hit Trump's ear. Dr. Jackson vehemently criticized Wray's hesitation, insisting "there is absolutely no evidence that it was anything other than a bullet" and calling Wray "wrong" to suggest otherwise. This episode was less a sign of any cover-up and more a result of bureaucratic carefulness versus Trump's camp wanting immediate validation. Unfortunately, the mixed messaging gave rise to rumors that the injury might have been faked (with phrases like "ear shrapnel" becoming conspiracy chatter). The **verified fact** is that medical and forensic experts all concur it was a bullet graze – the FBI's own lab tests found metal fragments consistent with Crooks' bullet in Trump's wound. The transient uncertainty has since been resolved, but it shows how early ambiguity can breed theories.
- **Online "Staging" Theories:** Almost immediately after the shooting, **conspiracy theories claiming the incident was staged** flooded social media. Posts from both fringes of the political spectrum posited that the Trump campaign might have orchestrated a fake assassination attempt – either to boost his support through a "heroic survivor" narrative or to justify security crackdowns. These claims often pointed to the light ear injury as "proof" it was all theater (e.g. "if someone *REALLY* wanted to take him out, they wouldn't just graze him"). Some went so far as to suggest Trump had a "blood capsule" or "**blood pill**" to simulate the bleeding. It must be emphasized that **no credible evidence supports these allegations** – in fact, they are directly contradicted by the abundant real evidence of the attack. Independent fact-checkers quickly rated the "staged shooting" claims as false. The reasons are clear: **thousands of eyewitnesses** saw and heard the shots, **multiple**

people were genuinely wounded, and the assailant was killed at the scene by law enforcement . A would-be hoax of that magnitude would require an impossible level of coordination (and willingness to sacrifice innocent lives). Additionally, law enforcement recovered Crooks's **AR-15 rifle on the roof**, along with spent shells and even pipe bombs in his car – none of which suggests a benign setup . Even Trump's detractors and the Biden administration treated it as a real assassination attempt, underscoring that this was not a partisan "wag the dog" scenario but a genuine security failure and crime . In short, the **staging theories have been debunked** by all available facts. The blood on Trump's ear was real (no, he did not sneakily splash fake blood on himself in front of an audience), and the danger to life was real.

- **"Second Shooter" Rumors:** Another thread of conspiracy emerged from a video clip that went viral, showing a man in the bleachers collapsing after a bullet hit the railing nearby. Some on social media wrongly speculated this indicated a second shooter from a different angle (since the man fell opposite the known shooter's line of fire) . However, a closer analysis of the footage and eyewitness accounts clarified what happened: one of Crooks' bullets struck the bleacher rail on the right side of the stage (sending up a puff of debris), and a man a few feet away **ducked and stumbled** in reaction, but he was **not actually shot at all** . Reuters journalists confirmed the man was unharmed afterward and that **no additional gunmen** were present . All gunfire originated from the single rooftop shooter. The "second shooter" theory likely gained traction simply because the visual of the man falling looked dramatic, but it has been firmly refuted by the lack of any bullet injury to him and the unified trajectories of all recovered bullets. The FBI and Pennsylvania State Police have consistently maintained there is **zero evidence of any accomplice or second shooter**, and every forensic indicator (casings, bullet paths, witness reports) aligns with a lone attacker.

In conclusion, while the Butler rally shooting has spawned plenty of **talk and speculation**, the forensic record supports a straightforward narrative: a single assailant fired eight shots from an elevated position, nearly killing Donald Trump, and wounding three others. **Bullet trajectories** have been mapped to show how those rounds traveled and where they ended up (with minor gaps acknowledged). The **close-range miss** that spared Trump's life is well explained by his momentary movement and the nature of a grazing gunshot wound. And although conspiratorial claims circulated (as they often do after high-profile incidents), the **verified evidence** – from crime scene ballistics to medical reports – overwhelmingly indicates that this was a genuine assassination attempt, not any kind of staged drama . Authorities, including the FBI and a bipartisan Congressional task force, have treated it with utmost seriousness, citing it as one of the most significant security failures since the 1981 Reagan shooting . The focus in the aftermath has been on improving protective measures (e.g. introducing bulletproof glass at rallies) and understanding how the shooter slipped through security – not on any imagined hoax.

Sources: Official FBI and Pennsylvania State Police statements; House Task Force report findings ; Associated Press, Reuters, and BBC on-scene reporting ; New York Times forensic analysis (summarized via Times of India) ; Congressional testimony and Politico reporting on the bullet vs. shrapnel debate ; and multiple reputable news outlets debunking misinformation . Each claim above is supported by documented evidence, as cited, to distinguish proven facts from conjecture. The forensic picture, as detailed, reinforces the reality that Donald Trump survived by a hair's breadth and that the scene – however politically dramatic – was authentically perilous.