

11 Seconds in Dallas, Not Six

By Max Holland and Johann W. Rush

Within hours of John F. Kennedy's assassination on November 22, 1963, the Kodak film exposed by Abraham Zapruder became the most important home movie ever made. The 26 seconds-long moving picture, it was thought, captured in full the shooting and death of a president. Or as *Life* magazine (which purchased the rights to the Zapruder film) put it in 1966, "Of all the witnesses to the tragedy, the only unimpeachable one is the 8-mm movie camera of Abraham Zapruder, which recorded the assassination in sequence."[\[1\]](#)

The truth turns out to be more complicated. Yes, Zapruder filmed the death, but he did not capture the entire shooting sequence for posterity. It is fallacious to conflate the film with everything that happened, to believe that the rifle fire commenced only after the Dallas dressmaker decided to turn on his camera.

It is indisputable that the Zapruder film graphically depicts, in so-called "Z" frames that have become iconic, the second and third shots Lee Harvey Oswald fired from the sixth floor of the Texas School Book Depository. By frame Z 225, John Kennedy and Texas governor John Connally are reacting violently, and within milliseconds of one another, to being wounded by Oswald's second shot as the presidential limousine emerges from behind a sign that briefly obscured Zapruder's view.[\[2\]](#) About 4.9 seconds later, Z 313 captures, in all its gore, the third and fatal shot that opened up Kennedy's head as if a small stick of dynamite had been placed in his right ear.[\[3\]](#)

The majority of ear- and eyewitnesses in Dealey Plaza, however, heard three shots, and Dallas lawmen found three expended cartridge cases afterward in the assassin's perch. Accordingly, the Zapruder film has always been pored over, as if it were a Rosetta stone, by students of the assassination looking for equally persuasive visual evidence that would reveal the timing of the pesky first shot.[\[4\]](#) The presidential limousine was much closer to Oswald's rifle during the first shot, yet paradoxically, this bullet missed everything.

Estimates as to which Zapruder frame coincided with the first shot have gyrated over the decades. The moment the first shot occurred also dictates, of course, the total amount of time Oswald had to fire all three shots, and how much time elapsed between them. Now, after more than 43 years, there may finally be a rational explanation that squares with the most important and salient facts.

The first federal panel to investigate the assassination, the Warren Commission, actually chose not to hazard a guess about when the first shot occurred, emphasizing

instead that there had to be at least 2.3 seconds between shots.^[5] Ultimately, the Commission's cautious arithmetic from 1964 suggested the entire shooting might have taken as long as 8.3 seconds, or as little as 5.6 seconds.^[6]

Three years later, CBS News, after a year-long investigation, was much more confident about which shot missed. It was the first one, according to anchorman Walter Cronkite. And in its four-part documentary that aired on consecutive nights in June 1967, CBS suggested that the first shot had been fired at Zapruder frame 186, making the shooting sequence 6.9 seconds long.^[7]

Some 12 years later, however, the House Select Committee on Assassinations (HSCA), while concurring that Oswald's first shot was the errant one, estimated that it had been fired as early as Z 158. That lengthened the entire shooting sequence to approximately 8.5 seconds long.^[8] Subsequently, in what was considered by many to be the definitive account of the assassination, Gerald Posner, in his 1993 book *Case Closed*, posited that the errant first shot was fired at Z 160. That slightly shortened the shooting sequence to 8.4 seconds.^[9] In the 13 years since Posner's book, moreover, several highly respected students of the assassination have weighed in with reputable, but subtly different, analyses of the first shot's timing. Their estimates have led to total elapsed times of around 8.8, 8.4, and 8.6 seconds.

As the timing of the first shot wanders, the Zapruder film begins to resemble a Rorschach test rather than a Rosetta stone.^[10] More to the point, it turns out that all of these estimates, regardless of their underlying rationale, rest on a common and unexamined premise: that since the second and third shots were captured by the Zapruder film, the first one must have been, too.^[11]

We believe that is not the case.

Zapruder's 26-second movie actually has two distinct segments. Seven seconds or 132 frames after he began filming, Zapruder abruptly stopped because all he was recording was Dallas police "motor jockeys" driving by.^[12] He did not restart his Bell & Howell "Zoomatic" until what professional photographers call the "money shot," the president's limousine, was clearly in view. Thus, the first Zapruder frame to show the dark blue Lincoln was Z 133—a frame exposed several seconds after the limousine had completed the sharp, slow turn onto Elm Street from Houston, and, we contend, after the first shot had already been fired.^[13]

Any theory involving a first shot around Z 150 faces an insurmountable problem. It directly contradicts the ear-witness testimony of dozens of Dealey Plaza observers, including such notables as then-Dallas mayor Earle Cabell and then-US Senator Ralph Yarborough, both of whom were experienced hunters. "There was a longer pause between the first and second shots than there was between the second and third shots," testified Cabell.^[14] In an affidavit, Yarborough recalled, ". . . to me there seemed to be a long time between the first and second shots, a much shorter time between the second and third shots."^[15] All told, a sizable majority of ear-witnesses swore that the second and

third shots were bunched closer together than the first and second shots.^[16] Yet a shot at Z 150 (not to mention a later one) must ignore all this testimony, because Z 150 necessarily means that the interval between the first and second shots was appreciably shorter than the interval between the second and third.^[17] A shot that occurred before Zapruder started film again at Z 133, however, would neatly correspond with what so many ear-witnesses heard.

On top of what so many heard, one must consider what so many saw. A number of key eyewitnesses, including Howard Brennan, the Dallas construction worker who looked up and saw Oswald firing from the sixth floor, and James Jarman, Jr., a Book Depository employee who was looking down on the motorcade from the fifth floor, testified that the first shot occurred a short distance down Elm Street, just after the president's limousine turned left from Houston. "And after the president had passed my position," Brennan testified, "I really couldn't say how many feet or how far, a short distance I would say, I heard this crack that I positively thought was a backfire."^[18] Jarman recalled, "After the motorcade turned, going west on Elm, then there was a loud shot, or backfire, as I thought it was then."^[19] Both these accounts coincided with the testimony of Wesley Frazier, another Book Depository employee, who was standing on the steps at the entrance. ". . . just right after [the president] went by—he hadn't hardly got by—I heard a sound," Frazier said in sworn testimony.^[20]

Several agents in the Secret Service car tail-gating the presidential limousine made remarkably similar observations. "As we completed the left turn and on a short distance, there was a shot," recalled agent Samuel Kinney, driver of the follow-up Cadillac, in his written account.^[21] "Just prior to the shooting the presidential car turned left at the intersection and started down an incline After a very short distance I heard a loud report which sounded like a firecracker," wrote agent George Hickey.^[22] The "president's car and the follow-up car had just completed their turns and both were straightening out," wrote agent Paul Landis in his November 1963 report. "At this moment I heard what sounded like the report of a high-powered rifle from behind me, over my right shoulder."^[23]

Contacted just a few days ago, Paul Landis reiterated his clear recollection that the first shot occurred before the presidential limousine had traveled very far down Elm.^[24] No one's memory was more exacting, though, than that of T.E. Moore, a Dallas County clerk who was standing on Elm Street. As Moore recalled in Larry Sneed's outstanding book *No More Silence*, a 1998 compilation of oral histories about the assassination, "There was a *highway marker sign* [emphasis added] right in front of the Book Depository, and as the president got around to that, the first shot was fired."^[25]

If one discards the illusion that the Zapruder film depicted the assassination in full, it has the added virtue of resolving two bewildering puzzles that have always defied explanation. The first one is, why didn't Oswald shoot before Z 150, when the president was a closer target? The answer is that Oswald did. He fired the first bullet from his Mannlicher-Carcano within an instant of Kennedy's back becoming squarely visible, which occurred well before Z 133, the moment Zapruder turned his camera back on.

The second puzzle, which has been even more exasperating to resolve, is how did Oswald, who would promptly hit President Kennedy in the back at a distance of around 190 feet, and then in the head at a distance of 265 feet, manage to be so inaccurate on the first and closest of his shots? A first shot earlier than anyone has posited finally gives a plausible answer to that question, too.

Approximately 1.4 seconds before Zapruder restarted his camera at frame 133, a horizontal traffic mast extending over Elm Street momentarily obscured Oswald's head on his target.^[26] That traffic mast has never been examined for a dent or copper alloy residue by any of the official investigations into the assassination.^[27] Yet if the first shot inadvertently clipped this arching metal mast, it would certainly explain how Oswald missed not only JFK, but the entire limousine.^[28] Telling photos taken shortly after November 22 reveal that the "highway marker sign" cited by T.E. Moore was just a few feet west of the traffic light's vertical post (the marker sign has long since been removed).^[29]

One irony here is that the Warren Commission, early in its investigation, recognized that the first shot could well have taken place before Zapruder restarted his Zoomatic. Buried deep in the 26 supplementary volumes to the *Warren Report* is a reference to what the Commission staff labeled "Position A."^[30] It was defined as a moment that did not appear on the Zapruder film, but represented the "first point at which a person in the sixth floor window of the Book Building . . . could have gotten a shot at the president['s back] after the car had rounded the corner."^[31] According to our calculations, Oswald realized what the Warren Commission labeled "Position A," and squeezed off his first shot, just before the horizontal traffic mast fleetingly obscured the president's body at 1.4 seconds prior to Z 133.^[32] A first shot at this juncture means that Oswald fired three shots in an elapsed time of approximately 11.2 seconds, with intervals of around 6.3 seconds and 4.9 seconds between the shots.^[33] The Warren Commission might be faulted here, but only for failing to pursue an early insight to its logical conclusion and neglecting to mention "Position A" in its final report.^[34]

The traffic light still located on the northwest corner of Elm and Houston is, by all appearances, fundamentally identical to the post-and-mast combination that was there in 1963.^[35] (According to Alex Wong, an engineer with the Dallas Public Works and Transportation department, relevant maintenance records are kept for up to seven years only).^[36] If the mast extending over Elm is intact, it might not be too late for an expert inspection by a metallurgist. And even if the results are short of conclusive because of the passage of time, what transpired in Dealey Plaza has, at last, a truly plausible explanation.

Notwithstanding this belated correction to our understanding, the Zapruder film will undoubtedly remain the most scrutinized and saddest movie ever made. Upon viewing it, one will continue to hope that this time, somehow, the president makes it through Dealey Plaza unscathed. But Kennedy will still "die anew before our eyes every time," as the critic David Lubin once put it.^[37]

It is no small irony, then, that we can only sort out what happened when we overcome the spell cast by Abe Zapruder's film, and adopt a new paradigm.

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[1] David M. Lubin, *Shooting Kennedy: JFK and the Culture of Images* (Berkeley, CA: University of California Press, 2003), 171.

[2] [Zapruder frame 225](#)

[3] [Zapruder frame 313](#)

[4] Lubin, *Shooting Kennedy*, 172.

[5] The Warren Commission was not absolutely certain that the first shot missed, and also entertained the possibility that either second or third shot went awry. "The wide range of possibilities and the existence of conflicting testimony, when coupled with the impossibility of scientific verification, precludes [sic] a conclusive finding by the Commission as to which shot missed." President's Commission on the Assassination of President John F. Kennedy, *Final Report* (Washington, DC: U.S. Government Printing Office, 1964), [111](#), [117](#) (hereafter *Warren Report*).

[6] Without being explicit, the Commission suggested the first shot occurred circa Z 161, in its "if-the-first-shot-missed" scenario. It was the panel's next explanation, which tried to reconcile how a second shot might have been the errant one, that posited the notion of three shots in 5.6 seconds. *Warren Report*, [115](#), and [Commission Exhibit \(hereafter CE\) 888](#), 18 Warren Commission Hearings (hereafter WCH) 86. Subsequently, the widespread and still popular belief that the assassination occurred in six seconds was given credence by a 1967 book with a sibilant title. The author posited "four shots from three guns in six seconds." Josiah Thompson, *Six Seconds in Dallas: A Micro-Study of the Kennedy Assassination* (New York: Bernard Geis Associates, 1967), 195.

[7] CBS News Transcript, "The Warren Report—Part 1," 25 June 1967.

[8] U.S. House of Representatives, Select Committee on Assassinations (hereafter HSCA), *Report* (Washington, DC: U.S. Government Printing Office, 1979), [47](#), and [6 HSCA Hearings 29](#). The HSCA conclusions, while reliable in many respects, have to be used very carefully. The overall effort was irrevocably marred by a bogus finding of a fourth shot.

[9] Gerald Posner, *Case Closed: Lee Harvey Oswald and the Assassination of JFK* (New York: Random House, 1993), 321. A new, lengthy book by Vincent Bugliosi, due to be

published in May 2007 by W.W. Norton, might displace Posner's claim as the definitive work. Bugliosi's book, *Reclaiming History: The Assassination of President John F. Kennedy*, is reportedly 1,632 pages long.

[10] Lubin, *Shooting Kennedy*, 174.

[11] The basis for all guesses since CBS News weighed in has been either the "jiggle" theory (Zapruder's hands shook involuntarily in reaction to the percussive sound of the shots), or that abrupt movements by Kennedy and/or Connally, as detected in the Zapruder film, signaled a reaction to the first shot. On development of the jiggle theory over time, see Richard B. Trask, *National Nightmare on Six Feet of Film: Mr. Zapruder's Home Movie and the Murder of President Kennedy* (Danvers, MA: Yeoman Press, 2005), 185-187, 242-245.

[12] [Zapruder frame 132](#)

[13] [Zapruder frame 133](#)

[14] [7 WCH 478](#).

[15] [7 WCH 440](#).

[16] *Warren Report*, [115](#).

[17] The Zapruder film ran at 18.3 frames per second. A first shot at Z 150 would mean approximately 3.9 seconds between shots one and two (although the reaction is evident in frame 225, the shot had to occur one or two frames earlier), and around 4.9 seconds between shots two and three.

[18] [3 WCH 143](#). The Warren Commission asked Brennan in March 1964 to pose for a photograph in the exact spot where he was seated on November 22; the became CE 477, 17 WCH 197. The red lines in [CE 477](#), inserted by the authors, approximate the paths of the bullets fired by Oswald.

[19] [3 WCH 204](#).

[20] [2 WCH 234](#).

[21] [18 WCH 731](#).

[22] [18 WCH 762](#).

[23] [18 WCH 754](#).

[24] Interview with Paul Landis, 12 February 2007.

[25] Larry A. Sneed, *No More Silence: An Oral History of the Assassination of President Kennedy* (Dallas, TX: Three Forks Press, 1998), 91. For a photo of the highway marker sign, outlined within a rectangle placed by the authors, see [CE 2114](#), 24 WCH 544. The highway marker can also be seen in the left rectangle placed in [CE 477](#), 17 WCH 197.

[26] E-mail from Dale K. Myers, 4 February 2007. Myers won an Emmy for his computer-generated reconstruction of the motorcade, which was featured in a 2003 ABC News documentary, *The Kennedy Assassination, Beyond Conspiracy*. In *Case Closed*, Posner noted that the traffic light mast (which he erroneously identified as a “tall streetlamp”) temporarily blocked Oswald’s view. But then Posner dismissed the possibility that this mast had played any role. “. . . it is unlikely that the first shot hit it, since none of the witnesses recall the sound of a bullet striking metal.” Posner, *Case Closed*, 324.

[27] Oswald used military-type ammunition that was copper-jacketed. [7 HSCA Hearings 355](#).

[28] [CE 875](#), 17 WCH 880, is a still photo from the Secret Service’s December 1963 restaging of the motorcade route as seen from the sixth floor of the School Book Depository.

[29] The highway marker sign and traffic post are outlined within a rectangle placed by the authors in [CE 2114](#), 24 WCH 544.

[30] [CE 886](#), 18 WCH 85, showing “Position A,” is a picture from the Warren Commission’s restaging of the assassination in May 1964.

[31] [5 H 144-145](#).

[32] [CE 875](#), 17 WCH 880. The authors have drawn a rectangle around the highway marker sign.

[33] Assume, for the sake of argument, that Zapruder’s camera had been running all along. According to our calculations, “Position A” would have corresponded to a frame at Z 100, and the first shot would have been fired at approximately Z 107/108, when the distance between the rifle and the limousine was approximately 97 feet. Thus, the entire elapsed time for all three shots is about 205 frames, or 11.2 seconds at 18.3 frames per second.

[34] In its description of why the first shot may have been the errant one, the *Warren Report* stated, “. . . the assassin perhaps missed in an effort to fire a hurried shot before the president passed under an oak tree, or possibly he fired as the president passed under the tree and the tree obstructed his view. The bullet might have struck a portion of the tree and been completely deflected.” *Warren Report*, [111](#). There was no mention of “Position A,” and the possibility that it was the overhanging metal mast from the traffic light post that deflected the first shot.

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[35] [Traffic Light Post/Mast then and now](#)

[36] E-mail from Alex Wong, 8 March 2007.

[37] Lubin remarks at the Renwick Gallery, Smithsonian American Art Museum, Washington, DC, 7 October 2004.