

## Factors in the Death of President Kennedy

Had it not been for a pair of remarkable coincidences, the assassin Lee Harvey Oswald would not have been able to kill President John F. Kennedy, despite Oswald's elaborate and skillful advance preparations. For a place from which to shoot, Oswald had selected a window with a low windowsill, so that he might steady his forward hand both on boxes on the sill and on the lateral wall of the window frame, if necessary, for both horizontal and lateral stability. He had selected for a seat, a box just high enough so that he could sit on it, rest an elbow on each knee, and further steady his rifle along the two boxes of books which he piled in front of the window and a third box which he placed directly upon the low windowsill. He also steadied his rifle with a homemade sling, fashioned from a carrying-case strap, and had piled a wall of other boxes of books so that his fellow workmen could not see his preparations.<sup>1(p138)</sup> Although he was firing downhill, from his position on the sixth floor of the Texas School Book Depository Building, he had selected a place where the President's car would also be going downhill away from him, since the roadway slanted downward toward a railroad underpass. Thus, during the time of his most effective shots, the President's back would be moving almost directly away from his line of fire, and it would not be necessary to aim the rifle much higher as the car moved farther away.

However, repeated careful tests of Oswald's rifle, made by the FBI after the assassination, revealed that the telescopic sight was pointed incorrectly, causing the rifle to fire all of its shots about 4 inches to the right of the target point and a little high.<sup>1(p194)</sup> Unfortunately, the President's automobile was pursuing a course which curved slightly to the right and was moving slightly upward in Oswald's field of fire. Thus the defect in Oswald's telescopic sight was exactly compensated for by the turn and pitch of the roadway, causing two of Oswald's three bullets to strike home with remarkable effectiveness. If the telescopic sight had not been incorrectly pointed, so as to cause the bullets to strike to the right of the aiming point, Mrs. Kennedy might very well have been hit by the fatal bullet which struck her husband in the head.

It is, of course, conceivable that the very slight defect in the adjustment

of the telescope came about when Oswald put the rifle down between some boxes of books at another location on the sixth floor of the building, before descending the stairs toward the lunchroom and his escape. If we assume that the telescope was accurately pointed at the time of the shooting, we would then have to assume, however, that Mr. Oswald "led" his target by exactly the correct amount to allow for the curving of the road at distances of between 200 and 300 feet. The descriptions and detailed photographs of the rifle and the telescope, given by the FBI in the report and hearings of the Warren Commission, gave no indication that the telescope was battered in a way to suggest that it had received a forceful blow, as from being dropped. The rifle weighed 7 or 8 lb, and it seems probable that Oswald laid it down carefully and quietly so that there would be no loud clatter which might have attracted the attention of the police. The police actually did intercept him while he was still in the building, but, at that time, they had no evidence to connect him with the fatal rifle.<sup>1(pp161-162)</sup>

It therefore seems unlikely that the rifle was dropped and the telescope jarred out of adjustment after the shooting.

Still another possibility is that Oswald carefully adjusted his telescope in advance, to fire 4 inches to the right and high, in anticipation of the curving path of the automobile. This also seems unlikely because the path of a car on the roadway immediately under Oswald's window curved first slightly to the left and later slightly to the right, so that it would seem improbable that Oswald would have made this adjustment in advance. Furthermore, there was no evidence that Oswald conducted extensive firing tests with his rifle and telescope, so as to be able to adjust it with the delicacy and dependability needed for this very slight deviation at these distances. Thus we have the first coincidence: the curvature of the path of the automobile appears to have exactly compensated for the defective adjustment in Oswald's telescopic sight.

The next coincidental circumstance came into play after Oswald's first bullet had struck. This first bullet entered President Kennedy's back, just below the juncture of his neck and his thorax, about 4 cm to the right of the midline, 14 cm below the tip of the

right mastoid process, and 14 cm from the tip of the right acromion process. It missed both the bodies and the transverse processes of the vertebrae, traversed the strap muscles and soft tissues of the neck, traveled through the esophagus and then through the trachea, and exited in the midline at the level of the third and fourth tracheal rings, causing a nick in the knot of the President's necktie.<sup>2(pp30-46)</sup> Since it was a fully jacketed, military-type bullet of the long slender 6.5-mm caliber, and since it did not strike any bone, this first bullet did not expand or deform and left only a tiny perforation at its point of exit on the front of the neck. It then appeared to have gone on through Governor Connally's chest, tangentially, entering just lateral to the right scapula, shattering 10 cm of the anterolateral portion of the fifth rib. Fragments of the rib lacerated and almost bisected the middle lobe of his right lung. The bullet exited through a narrow wound, 5 cm in length, below the right nipple. It then traversed his right wrist, entering on the dorsum and shattering the distal one-fourth of the right radius. The bullet then partially entered the soft tissues of the inner surface of the midleft thigh of Governor Connally, from which location it apparently became dislodged and was found later on the stretcher on which Governor Connally had been lying. One tiny fragment was left imbedded in his femur.<sup>2(pp16-20)</sup>

The fact that bullets of this caliber do not distort readily was well known to the military surgeons who treated patients struck by Japanese bullets of this caliber during World War II.<sup>3</sup> The fact that the exit wound in the President's neck was just as small as the wound of entrance and that the wound of exit was later used as a portal through which to insert a tracheostomy tube (after transverse surgical enlargement of the hole) led to the erroneous reports which were rampant immediately after the shooting, that one of the shots must have come from in front of the President rather than from the rear. It was only after the autopsy findings were revealed some months later that the truth became generally known. Because the President's body was removed immediately to Washington by federal officials, before an autopsy could be performed in Dallas, as would ordinarily have been done, the doctors in Dallas were prevented from

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having an opportunity to do a more complete examination.

While there was any hope that electrical cardiac activity could be revived or respiratory function stimulated, the Dallas physicians had been frantically busy and preoccupied with the massive bleeding from the head wound which commenced as soon as the circulation was stimulated. When bubbles began appearing alongside the tracheotomy tube, it was feared that the pleura had also been opened, and bilateral thoracotomy tubes were installed. As soon as it became obvious that the President could not be saved, no one had the heart to turn his body over to search for other wounds. It was realized that an autopsy would be performed, and it was assumed that this would be done within the next few hours in the same hospital, with the same physicians present, as in the normal course of events. The fact that the body was removed to Washington, and that none of the physicians who had operated upon his neck were present at the autopsy, brought about some delay, while telephone conversations were held to clarify the events which had taken place. The autopsy satisfactorily indicated the course of the first bullet through the soft tissues of the neck, grazing the pleura on the right side, and causing a hematoma with some ecchymosis of the pleura, but no perforation of it. There was apparently not even any extensive blood loss from this wound. These findings indicated that the wound from the first bullet would not have been fatal by itself.

Because of his persistently painful back condition, which had been treated by operative fusion of the lumbar spine,<sup>2(p35)</sup> and subsequently had necessitated numerous injections of medications into the painful areas of his back, President Kennedy was wearing a back brace at the time of the shooting. The brace consisted of the customary canvas corset with metal stays, which was laced tightly around the President's waist at the lumbar level, giving some rigidity to his spine. In addition to this, however, he had immobilized himself further by wrapping a knitted elastic bandage around the lower portion of his body and the lower portion of the frame in a "figure-eight" arrangement, between his legs and around the brace in such a way as to give his back added rigidity and support.

The unfortunate consequence of this arrangement, which caused his spine and body to be more rigidly supported than usual, was that after he was struck by the first bullet, he did not topple or crumple forward or laterally where he would have been out of sight behind the rear-seat cushion. Instead, he could only tilt stiffly and slightly to his left, towards Mrs. Kennedy, with the back of his head still exposed to Oswald's tele-

scopic rifle sight. It was while he was in this position that he was struck by a second bullet from Oswald's rifle, which entered the back of his head 2.5 cm to the right of the midline and slightly above the external occipital protuberance, and shattered into several fragments upon striking the skull. Some of these tiny fragments proceeded through the brain and lodged above the right eye, whereas the large fragments exited, making a large wound in the center of the right parietal area, tearing away an area of scalp and skull approximately 13 cm in diameter. The right side of the skull was severely shattered into myriad fragments, with fractures extending in stellate fashion, even into both orbits. Three pieces of the skull were found later in Dallas, the aggregate of which accounted for the missing area of skull. Fragments of cerebral tissue were splattered through the front portion of the Presidential car, and large chunks of cerebral matter were present on the seat of the car and upon the stretcher. A fairly large fragment of the base of what was assumed to be the same bullet was found on the front seat of the car and there was a dent in the frame of the windshield of the automobile, which may have been caused by this fragment. The fate of the third bullet fired by Oswald is unknown, and it appears to have missed the automobile completely. It is not known which of the three bullets missed, but it seems most likely that the first bullet missed, since a small tree came directly into the line of fire, at a point and time which might well have coincided with the first shot fired by Oswald. High-speed rifle bullets of this type are easily deflected, even by tiny twigs, and a complete miss might well have resulted. A mark caused by a leaden fragment was found on the curb farther down the roadway, but contained no traces of copper as would have resulted had the intact bullet, with its copper jacket, struck the curb primarily, without first striking some other object. This lends credence to the possibility that a twig or other object was struck first, disrupting the bullet, and that a fragment of the lead core of the bullet might have gone on and caused the mark on the curb as recorded.<sup>1(p116)</sup>

Thus another coincidence, in that President Kennedy was wearing a stiffer back brace than ordinary, may have been a factor in his death.

Much has been written about the President's reported adrenal insufficiency, and indeed, the anesthesiologist who instituted the efforts at resuscitation remembered this and gave President Kennedy hydrocortisone sodium succinate (Solu-Cortef), 300 mg intravenously, in an effort to compensate for any such insufficiency, if it did exist.<sup>2(p5)</sup>

Since the autopsy record, as published, does not include any mention

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of the adrenal glands, either gross or microscopic (although the kidneys are well described), it is impossible to judge whether or not he had a deficiency of the adrenal glands until such information is released. In any case, President Kennedy's cerebral wound was so severe that whether he had adrenal insufficiency or not had no bearing upon his death. It is obvious that he would have died in any case, from the severity of the head wound. Any adrenal crisis which the neck wound might have caused, would have been easily treated had that been the only wound.

### Similarities to the Assassination of President Lincoln

It is interesting that the assassination of President Lincoln was also attended by confusion as to the direction from which the bullet was fired, since Booth approached from Lincoln's right, but the bullet hole was in the left side of Lincoln's head. This discrepancy was resolved later by a spectator who happened to be watching intently at the moment the bullet was fired, and saw Lincoln twist his head sharply to his left, sufficiently to receive the bullet in the left side of the back of his head.<sup>4</sup> In Lincoln's case, there was also a remarkable coincidence which made it possible for Booth to do his evil deed. General Grant and Mrs. Grant were to attend the theater with President and Mrs. Lincoln that night, and an announcement had been made in the newspapers to this effect. Late in the day, however, Mrs. Grant, who disliked Mrs. Lincoln, persuaded General Grant, with the urging of Secretary of War Stanton, to renege on the theater invitation and to leave Washington early to visit their children in New Jersey, whom they had not seen in some time. As a consequence of the Grants not accompanying the Lincolns, the large military bodyguard, which always accompanied General Grant, was not present in the theater. Had they been present, Booth would never have had a chance to get near either Grant or Lincoln, and his elaborate preparations, made earlier on the day of the shooting, of arranging a bar with which he could block the door of the box once he was inside, and a hole drilled through the door of the box so that he could determine the precise location of his victim in advance of showing himself in the theater box where he would fire his shot, would have all gone for naught. Unfortunately, in both the Lincoln and Kennedy instances, fate worked to the advantage of each of these fanatical enemy sympathizers, and permitted their murderous deeds to succeed.

### Summary

President Kennedy apparently sustained his second and fatal bullet wound in the back of the right side of his head, only because of a pair of unusual coincidences which made it

possible for Oswald's lethal bullet to hit him. The first was the fact that the telescopic sight of Oswald's rifle was aimed defectively, so that the bullets struck approximately 4 inches to the right of the aiming point and a little high. Coincidentally, however, the presidential automobile was following a course which curved to the right just enough to compensate for this error in the telescope, making it possible for Oswald to hit the President with two bullets in the course of some eight seconds. Otherwise the fatal bullet might have struck Mrs. Kennedy.

The second coincidence lay in the fact that President Kennedy was wearing not only a rigid metal and canvas back brace, but he had further reinforced its rigid support for the lower portion of his body by binding the brace to himself with an elastic knit bandage. The first bullet inflicted a nonfatal wound in the soft tissues of the neck and was deformed by these tissues so little that the wound of exit resembled a wound of entrance, leading to confusion as to the direction from which the shot had been fired. This confusion was resolved when the complete information from the autopsy became known. As a result of the unusual rigidity of his body, his torso did not crumple or topple over out of sight, as it might have done if he had not been wearing an extraordinarily rigid support. Instead, his stiffened body merely tilted slightly sideways, leaving the back of his head exposed to Oswald's rifle with its telescopic sight.

It is of interest that in the assassination of President Lincoln there was also temporary confusion as to the direction from which the fatal shot was fired, and that this too was cleared up when all the information was reported. In the case of President Lincoln there was also the coincidence that General and Mrs. Grant reneged on their agreement to accompany the Lincolns to the theater, and Grant's military bodyguard therefore was not present to protect Grant and the President. Had this coincidence not occurred, the presence of the bodyguard would have prevented Booth from coming near President Lincoln that night.

Last, both Lee Harvey Oswald and John Wilkes Booth prepared the settings for their shootings, earlier in the day, with great attention to detail. Even so, had they not been assisted by multiple coincidences, their evil deeds could not have succeeded.

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1. *Report of the President's Commission on the Assassination of President Kennedy*, US Government Printing Office, 1964.

2. *Hearings Before the President's Commission on the Assassination of President Kennedy*, US Government Printing Office, 1964, vol 17.

3. *Wound Ballistics in World War II*, US Army Medical Service, 1962, p 97.

4. Lattimer, J.K.: The Wound That Killed Lincoln, *JAMA* 187:480-489 (Feb 15) 1964.