

# Chapter 1

## Who Killed President Kennedy?

This short book is not going to give you the answer, but it will try to illustrate the best way to think about the question.

Much of the evidence in the JFK assassination is inconclusive and open to a variety of interpretations. There are, however, some basic, indisputable, uncontroversial facts. These facts suggest only two realistic solutions, both of which revolve around the role of Lee Harvey Oswald: either Oswald killed Kennedy, with or without associates, or he was set up in advance to take the blame.

On 22 November 1963, President John F. Kennedy was a passenger in a motorcade through the centre of Dallas, Texas. At about 12:30pm, the motorcade was in Dealey Plaza, just outside the downtown area, when several gunshots were fired.<sup>1</sup> Altogether, three people were injured. President Kennedy was wounded in the back and the throat, and, fatally, in the head.<sup>2</sup> The governor of Texas, John Connally, who was sitting directly in front of Kennedy, sustained three wounds: one bullet hit him in the back, destroyed four inches of one rib, punctured his right lung, and came out of the right side of his chest; his right wrist was shattered; and a fragment of a bullet was embedded in his left thigh.<sup>3</sup> James Tague, a spectator standing on Commerce Street, close to the railway bridge known as the Triple Underpass, received a slight cut on the cheek from the impact of a bullet to the concrete curb near his feet.<sup>4</sup>

At the time of the shooting, the presidential limousine was heading west on Elm Street, and had just passed the Texas School Book Depository, which contained publishers' offices and a book warehouse. A window was half open at the eastern end of the sixth floor of the building.<sup>5</sup> Three empty bullet shells were discovered just inside this window. Elsewhere on the sixth floor, a rifle was

discovered. Tests showed that those bullet shells had been fired from that rifle.<sup>6</sup>

The rifle had been purchased several months earlier by mail order. The name on the mail order coupon was a pseudonym known to have been used elsewhere by a man named Lee Harvey Oswald. The handwriting on the coupon matched Oswald's. The supplier had sent the rifle to a post office box rented by Oswald. Oswald worked in the Texas School Book Depository, and had legitimate access to the sixth floor. He claimed to have been elsewhere at the time of the shooting, but there were no eye-witnesses to support his alibi.<sup>7</sup>

On the face of it, this is an open-and-shut case: Oswald did it. The only realistic alternative is that Oswald had been carefully framed in advance. The other, purely theoretical, solution, that another lone nut stumbled across Oswald's rifle and decided to take a few pot shots at the president, is too unlikely to be worth considering. Either Oswald did it, or he was set up.

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## Notes

1. The basic, uncontested facts of the JFK assassination can be found in the [Warren Report](#), pp.1–5. [[BACK](#)]
2. Lack of agreement about the exact location and nature of the president's wounds is the main reason why the assassination remains controversial. President Kennedy's autopsy was carried out poorly: his back and throat wounds were not dissected, and none of his wounds was measured or photographed with adequate precision; see [Appendix A, The Medical Evidence](#). [[BACK](#)]
3. For Governor Connally's chest wound, see [WCHE, vol.4, p.104](#). For his wrist wound, see [ibid., pp.118–120](#). [[BACK](#)]
4. James Tague's wound: [WR, p.116](#). [[BACK](#)]
5. This is the American definition of 'sixth floor'; in the UK it would be the fifth floor. All such references will use the American definition. [[BACK](#)]
6. For the discovery of the bullet shells and the rifle, see e.g. [WCHE, vol.6, pp.300–301](#). The bullet shells were matched to the rifle by Robert Frazier of the FBI: [WCHE, vol.3, pp.421–428](#). [[BACK](#)]
7. A photograph of the envelope and mail order coupon for the rifle: [WCHE, vol.19, p.275](#). Identification of the handwriting as Oswald's: [CE 2145, p.1 \(WCHE, vol.24, p.759\)](#). For Oswald's use of post office boxes, see [WCHE, vol.20, p.177](#). For Oswald's use of 'A. Hidell' as an alias, see [Chapter 9, The Career of Lee Harvey Oswald](#) below. For Oswald's alibi, see [Chapter 3, The Case Against Oswald](#) below. The man now universally known as Lee Harvey Oswald rarely used his middle name except in official documents; he usually called himself either Lee Oswald or, in the American fashion, Lee H. Oswald. [[BACK](#)]

# Chapter 2

## Investigating the Crime

The rifle and bullet shells found at the scene of the crime suggested very strongly that Lee Harvey Oswald had fired three shots at President Kennedy. Other evidence quickly emerged which indicated that he had not been the only gunman.

The Texas School Book Depository was behind Kennedy at the time of the shooting, but many of the closest eye-witnesses described one or more shots coming from the opposite direction. The earliest newspaper accounts mentioned several witnesses who claimed that shots originated from the western end of Dealey Plaza. Charles Brehm, who was standing very close to President Kennedy, “seemed to think the shots came from in front of or beside the President,” according to the *Dallas Times Herald* on the evening of 22 November. The *Dallas Morning News* on 23 November reported that Ochus Campbell, the vice-president of the Texas School Book Depository Company, “says he ran toward a grassy knoll to the west of the building, where he thought the sniper had hidden.” Mary Woodward, a journalist on the *Dallas Morning News*, was standing on the north side of Elm Street, about halfway between the TSBD and the knoll. She wrote in the next day’s edition that “suddenly there was a horrible, ear-shattering noise coming from behind us and a little to the right.” Altogether, around forty witnesses claimed to have heard shots from the general direction of the grassy knoll.<sup>1</sup>

The medical staff who gave emergency treatment to Kennedy considered his throat wound to be one of entrance, not exit, and described a substantial exit wound extending to the back of his head. In a press conference given shortly after the president’s death, Dr Malcolm Perry stated that “the wound appeared to be an entrance wound in the front of the throat; yes, that is correct.”<sup>2</sup> The rear head wound is described in several of the accounts made by the medical staff immediately after the treatment. For example, Dr William Kemp Clark, professor of neurosurgery and the most senior doctor

present, described “a large wound in the right occipital–parietal region.” The parietal bones are on the sides of the skull; the occipital bone is at the back of the skull.<sup>3</sup>

This evidence of gunfire from the front was reported by newspapers, radio and television very soon after the assassination. Although governmental and media opinion settled on Lee Harvey Oswald as the only assassin, the early news reports caused a great deal of public scepticism of the lone–gunman explanation, both in the USA and abroad. Suspicion increased when Oswald was himself murdered two days later, while in police custody, by another lone gunman, a man with connections to organised crime.<sup>4</sup>

Public scepticism of the lone–gunman account was expressed as public distrust of the governmental and media institutions which promoted that account. A letter to J. Edgar Hoover, the director of the FBI, typified the response of many upstanding citizens to the two assassinations:

Like most of the people in the nation, my mother and I are shocked, appalled, angered and hurt by the assassination of President Kennedy. After seeing the television presentation of the killing of his suspected murderer, we are convinced more than ever that President Kennedy was the victim of a horrible conspiracy. ... May we suggest that you start with the Dallas police force who seem to have been extraordinarily lax in their protection of Oswald, who might eventually have talked. The presence of Rubenstein [Jack Ruby] and his apparent role of ‘fall guy’ appear too pat to go unnoticed.<sup>5</sup>

Within hours of Oswald’s murder, Hoover identified the need to restore public confidence in the institutions of law and order and government, and discussed a possible solution:

The thing I am concerned about, and so is Mr Katzenbach [the deputy Attorney General], is having something issued so that we can convince the public that Oswald is the real assassin. Mr Katzenbach thinks that the President might

appoint a Presidential Commission of three outstanding citizens to make a determination.<sup>6</sup>

In a memo written later that day, Nicholas Katzenbach made the case for establishing what became the Warren Commission:

The public must be satisfied that Oswald was the assassin; that he did not have confederates who are still at large; and that the evidence was such that he would have been convicted at trial. Speculation about Oswald's motivation ought to be cut off, and we should have some basis for rebutting thought that this was a Communist conspiracy or (as the Iron Curtain press is saying) a right-wing conspiracy to blame it on the Communists. Unfortunately the facts on Oswald seem about too pat — too obvious (Marxist, Cuba, Russian wife, etc.). The Dallas police have put out statements on the Communist conspiracy theory, and it was they who were in charge when he was shot and thus silenced.<sup>7</sup>

Discussions had been held with other Washington insiders. Joe Alsop, a newspaper columnist, telephoned President Johnson on the morning of President Kennedy's funeral and mentioned that he had recently spoken about this subject with several influential people, including: Katzenbach; Dean Acheson, the former Secretary of State; Fred Friendly, the president of CBS; and Bill Moyers, an assistant to Johnson. Alsop encouraged Johnson to establish a commission, pointing out that "what I'm really honestly giving you is public relation[s] advice."<sup>8</sup>

One week after the assassination, President Johnson created the Warren Commission, which had the explicit purpose of convincing the general public that Oswald alone had killed President Kennedy. The Commission's report endorsed and expanded an earlier FBI report, and presented more evidence against Oswald to add to the bullet shells and rifle found in the Texas School Book Depository. Photographs were discovered of Oswald holding what appeared to be the same rifle. His wife admitted that he had owned the rifle, and that he had planned to kill the former vice-president, Richard

Nixon. In addition to the shooting in Dealey Plaza, Oswald was held to have shot dead a policeman in a suburb of Dallas about forty minutes later, and to have attempted to assassinate a retired general in Dallas several months earlier.<sup>9</sup>

The *Warren Report* was issued in one volume in September 1964, and was immediately and widely praised in the print and broadcast media. More informed and disinterested voices, however, found it less convincing. The philosopher, Bertrand Russell, pointed out a fundamental problem with the Commission's approach:

At the outset the Commission appointed six panels through which it would conduct its enquiry. They considered: What did Oswald do on November 22, 1963? What was Oswald's background? What did Oswald do in the U.S. Marine Corps, and in the Soviet Union? How did Ruby kill Oswald? What is Ruby's background? What efforts were taken to protect the President on November 22? This raises my fourth question: Why did the Warren Commission not establish a panel to deal with the question of who killed President Kennedy?<sup>10</sup>

Two months later, once the reviews had appeared, the report's twenty-six volumes of hearings and exhibits were published. Although hundreds of thousands of copies of the *Warren Report* were issued in paperback to coincide with the publication of the official edition, public access to the documentary evidence was carefully rationed. Only 5000 copies of the complete supplementary volumes were printed, all in expensive hardback format. Much of the background material was not published at all, but placed in the National Archives. Other material was deemed to be dangerous to national security, and was ordered to be kept secret for 75 years. A series of law suits under the Freedom of Information Act enabled some of this material, such as the transcripts of the Commission's executive sessions, to be made public.

A number of citizens took the trouble to examine the supplementary volumes. They discovered that not only were most of the *Report's* conclusions not strongly supported by the evidence it cited, but that in several instances its conclusions were actively

contradicted by the evidence it cited. Although the earliest critical books were not widely or sympathetically reviewed in the press, they influenced the general public's growing scepticism of the lone-assassin explanation.<sup>11</sup>

Also unconvinced about the *Warren Report*'s conclusions were three of the seven Commissioners. The most vociferous objector, Senator Richard Russell, called a special meeting of the Commission just as the *Warren Report* was about to be sent to the printers. He set out his objections to the central part of the case against Oswald, and supplied two written statements to be added to the record. The need for the appearance of unanimity among the Commissioners ensured that Russell's objections were mentioned only obliquely in the final version of the *Warren Report*: "Governor Connally's testimony and certain other factors have given rise to some difference of opinion ... but there is no question in the mind of any member of the Commission that all the shots which caused the President's and Governor Connally's wounds were fired from the sixth floor window of the Texas School Book Depository."<sup>12</sup> Later that day, Russell explained to President Johnson that "I couldn't sign it. And I said that Governor Connally testified directly to the contrary, and I'm not going to approve of that. ... I tried my best to get in a dissent, but they'd come round and trade me out of it."<sup>13</sup> Senator Russell was displeased when a researcher informed him several years later that no record of his objections had been preserved; the official minutes of the Warren Commission's final meeting, at which a stenographer was present, contained neither the usual *verbatim* transcript nor Russell's two written statements.<sup>14</sup>

Over time, as more research was undertaken, and as more and more previously classified documents became available to researchers, public trust in the Warren Commission's conclusions and objectivity diminished even further. In response to the increasing number of critical books and films, an internal CIA memo of 1967 pointed out that "46% of the American public did not think that Oswald acted alone," and regretted that "this trend of opinion is a matter of concern to the US government, including our organization. ... Efforts to impugn [the Warren Commissioners'] rectitude and wisdom tend to cast doubt on the whole leadership of



American society.” The document went on to propose that the CIA ought to “discuss the publicity problem with liaison and friendly elite contact (especially politicians and editors) ... employ propaganda assets to ... refute the attacks of the critics. Book reviews and feature articles are particularly appropriate for this purpose.”<sup>15</sup> If there was a deliberate attempt to change or control public opinion, it has not been entirely successful. Although the public continues to tolerate established political institutions, only a small minority has been convinced by the news media’s promotion of the lone–assassin hypothesis. Since the 1970s, polls have consistently claimed that around three–quarters of the US population suspect that the JFK assassination was the result of a conspiracy of one sort or another. The figure has rarely gone below 70%, and in 1976 and 2001 no fewer than 81% of those surveyed rejected the Warren Commission’s verdict.<sup>16</sup>

Altogether, nine official bodies have looked into various aspects of the JFK assassination. Two of these investigations coincided with the activities of the Warren Commission. Shortly after the formation of the Commission, the FBI produced a lengthy but very superficial report, which failed to mention all of the wounds and spent only one page on the details of the assassination. On 25 November, the attorney general of Texas had set up a court of inquiry. Activity behind the scenes in Washington ensured that the Texan inquiry was in effect closed down and absorbed into the Warren Commission. The court of inquiry produced a token 20–page report in October 1964 which repeated the Commission’s conclusions.

Four years later, the Attorney General, Ramsey Clark, assembled a group of four doctors to deal with some of the troublesome aspects of the medical evidence, such as the observation by the pathologists at the autopsy that President Kennedy’s skull contained an entry wound that was too low to have been the result of a shot fired from the sixth floor of the TSBD. The Clark Panel, none of whose members had examined the corpse, moved the entrance wound up by four inches or ten centimetres, thereby allowing a hypothetical lone gunman to have fired the fatal shot from the sixth floor. At around the same time, a criminal investigation was begun into a New Orleans businessman, Clay Shaw, who was accused of

participation in the assassination. He stood trial in 1969, and was rapidly acquitted.

The Rockefeller Commission, which was set up in 1975 to investigate the activities of the CIA within the US, touched on the assassination. The television broadcast that year of the Zapruder film had forced the Rockefeller Commission to make the first official acknowledgement that Kennedy's head had moved sharply backwards as a result of the fatal shot, a fact which the *Warren Report* had for some reason neglected to mention. The following year, the Church Committee reported on the illegal gathering of information by the CIA and the FBI, and was very critical of the role of both agencies in withholding information from the Warren Commission.

The House Select Committee on Assassinations in 1977–78 also criticised the CIA and the FBI, as well as the Secret Service and the Warren Commission itself, and concluded that “President John F. Kennedy was probably killed as a result of a conspiracy.”<sup>17</sup>

The Assassination Records Review Board, which operated between 1992 and 1998, did not investigate the facts of the assassination, but did interview several interested parties. It was set up to enable the release to the public of the huge numbers of secret records relating to the assassination, including those on which the HSCA's conclusions were based. Perhaps the ARRB's most important achievements were the belated publication of the HSCA's *Lopez Report*, which dealt with the activities of Lee Oswald in Mexico City a few weeks before the assassination, and the revelation that George Joannides, the CIA officer who acted as a liaison between the Agency and the HSCA, had been personally involved in 1963 with a CIA-funded anti-Castro organisation that had interacted with Oswald in New Orleans and had helped him to create a political persona that would be used against him after the assassination.

Three other official investigations were proposed but did not come into existence. Shortly after the assassination, members of each House suggested setting up their own investigations. Both groups were persuaded that the Warren Commission's investigation would be more authoritative if it had no competitors. In 1967,

Theodore Kupferman, a Republican Congressman, responded to the increasing public criticisms of the Warren Commission by proposing that a committee should review the work of the Commission. His proposal too was unsuccessful.<sup>18</sup>

The most prominent of these later investigations was that of the House Select Committee on Assassinations, although neither the public nor the media, for differing reasons, fully accepted its interpretation of the assassination: that Oswald had been the assassin, and that an unidentified person had also fired a shot, which missed. A recording had come to light of a police radio broadcast that appeared to contain evidence of a fourth gunshot. Acoustic tests indicated that the evidence was credible and that the fourth shot was fired from the infamous grassy knoll at the north-west corner of Dealey Plaza. The HSCA was unable to dispose of this evidence before its report was due to be published, and so was obliged to suggest the existence of a third, albeit unsuccessful, lone nut in addition to Oswald and Ruby. The acoustical evidence is technical, and its interpretation is disputed. In what may count as a tenth official inquiry into aspects of the assassination, the Department of Justice sponsored the National Research Council to produce a report questioning the HSCA's interpretation of the acoustical evidence.<sup>19</sup>

The HSCA's case against Oswald largely followed that of the Warren Commission. Although the Commission had successfully refuted one or two of the earliest and more improbable conspiracy theories, neither it nor the Select Committee was able to provide a convincing account of exactly how Lee Harvey Oswald killed President Kennedy.

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## Notes

1. See [Appendix C, Grassy Knoll Witnesses](#). [[BACK](#)]
2. [ARRB Medical Document 41, p.6](#). [[BACK](#)]
3. [CE 392 \(WCHE, vol.17, pp.1–22\)](#). Dr Clark’s comment is on p.3. [[BACK](#)]
4. Jack Ruby’s links to organised crime were glossed over by the Warren Commission but acknowledged by the HSCA in a 1000–page report: [HSCA Appendix, vol.9, pp.125–1117](#). [[BACK](#)]
5. [FBI HQ JFK Assassination File, 62–109060–15](#). [[BACK](#)]
6. [HSCA Appendix, vol.3, p.472](#). For more about the political necessity of the lone–gunman explanation and the creation of the Warren Commission, see [Chapter 7, “A Little Incident in Mexico City”](#). [[BACK](#)]
7. [FBI HQ JFK Assassination File, 62–109060–18](#). [[BACK](#)]
8. [Joe Alsop to Lyndon Johnson, White House Telephone Transcripts, 25 November 1963, 10:40am, LBJ Library, Austin, Texas.](#) [[BACK](#)]
9. Photographs of Oswald with a rifle: [WR, p.126](#). Marina Oswald described the weapon found on the sixth floor of the Texas School Book Depository as “the fateful rifle of Lee Oswald”: [WCHE, vol.1, p.119](#). Oswald’s intention to kill Richard Nixon: [WR, pp.187–189](#). The killing of J.D. Tippit: [WR, pp.156–175](#). The attempted assassination of General Edwin Walker: [WR, pp.183–188](#). [[BACK](#)]
10. Bertrand Russell, ‘16 Questions on the Assassination,’ *Minority of One*, 6 September 1964, pp.6–8. [[BACK](#)]
11. The most influential of the early works criticising the *Warren Report* were: Harold Weisberg, *Whitewash: the Report on the Warren Report*, Weisberg, 1965; Sylvia Meagher, *Accessories After the Fact: the Warren Commission, the Authorities, and the Report*, Bobbs–Merrill, 1967; and Josiah Thompson, *Six Seconds in Dallas: A Micro–Study of the Kennedy Assassination*, Bernard Geis Associates, 1967. [[BACK](#)]

12. [WR, p.19](#). [[BACK](#)]
13. Lyndon Johnson to Richard Russell, White House Telephone Transcripts, 18 September 1964, LBJ Library, Austin, Texas. [[BACK](#)]
14. [Minutes of Warren Commission Executive Session, 18 September 1964](#). For a full treatment of Richard Russell's objections, see Gerald D. McKnight, *Breach of Trust: How the Warren Commission Failed the Nation and Why*, University Press of Kansas, 2005, pp.282–297. [[BACK](#)]
15. [CIA document 1035–960](#) at the National Archives: NARA RIF no. 104–10009–10022. [[BACK](#)]
16. Sheldon Appleton, 'The Mystery of the Kennedy Assassination: What the American Public Believes,' *The Public Perspective*, October/November 1998, pp.13–17, available at <http://www.ropercenter.uconn.edu/public-perspective/ppscan/96/96013.pdf> (PDF: 7.2 MB). For the 2001 opinion poll, see Darren K. Carlson, 'Most Americans Believe Oswald Conspired With Others to Kill JFK,' at <http://www.gallup.com/poll/1813/most-americans-believe-oswald-conspired-others-kill-jfk.aspx>. [[BACK](#)]
17. [HSCA Report, p.3](#). [[BACK](#)]
18. For Rep. Kupferman's official correspondence regarding his proposal, see Thompson, *op. cit.*, pp.285–291. [[BACK](#)]
19. National Research Council, *Report of the Committee on Ballistic Acoustics*, report no. PB83–218461, 1982; available at [http://www.nap.edu/catalog.php?record\\_id=10264](http://www.nap.edu/catalog.php?record_id=10264) (PDF: 3.1 MB). The HSCA's treatment of the acoustical evidence is in [HSCA Appendix, vol.8](#). For the case in favour of a shot from the grassy knoll, see D.B. Thomas, '[Echo Correlation Analysis and the Acoustic Evidence in the Kennedy Assassination Revisited](#),' *Science & Justice*, vol.41 no.1 (January 2001), pp.21–32. For the case against, see R. Linsker, R.L. Garwin, H. Chernoff, P. Horowitz, and N.F. Ramsey, '[Synchronization of the Acoustic Evidence in the Assassination of President Kennedy](#),' *Science & Justice*, vol.45 no.4 (October 2005), pp.207–226. For a detailed account, see Donald B. Thomas, *Hear No Evil: Social*

*Constructivism and the Forensic Evidence in the Kennedy Assassination*, Mary Ferrell Foundation Press, 2010, pp.559–690; Thomas found acoustical evidence for five shots. For a readable overview, see G. Paul Chambers, *Head Shot: The Science Behind the JFK Assassination*, Prometheus Books, 2010, pp.116–144. [[BACK](#)]

# Chapter 3

## The Case Against Oswald

Although the bullet shells and the rifle implicated Lee Oswald in the assassination, a substantial proportion of the general public either remained unconvinced that he had acted alone, or doubted that he had been involved at all. In order to help the media to “convince the public that Oswald is the real assassin,”<sup>1</sup> the Warren Commission was obliged to describe in detail how Oswald, without assistance, was able to kill one man and injure two others.

The Commission’s case involved three essential claims:

- that all of the shooting came from the easternmost south-facing window on the sixth floor of the Texas School Book Depository;
- that Lee Harvey Oswald had brought the rifle to work, and was at the sixth floor window with the rifle at the time of the shooting;
- and that it was physically possible for a lone gunman to have caused all the known injuries with only three shots.

As well as the presence of the rifle and the empty bullet shells, there was other strong evidence that at least some of the shooting had come from the TSBD. Many eye-witnesses heard one or more shots from the building. Geneva Hine, for example, was watching the motorcade from her office on the second floor: “[the shots] came from inside the building ... the building vibrated from the result of the explosion.” Patricia Lawrence was standing outside the TSBD: “I thought the shots had come from right over my head.” Four witnesses in Dealey Plaza saw a gunman on one of the upper floors. Howard Brennan “looked up at the building. I then saw this man I have described in the window and he was taking aim with a high powered rifle. I could see all of the barrel of the gun.” Arnold Rowland “saw what I thought was a man standing back about 15 feet from the windows and was holding in his arms what appeared to be a hi powered rifle because it looked as though it had a scope on it.” Carolyn Walther “looked back toward the TSBD Building

and saw a man ... [who] was holding a rifle with the barrel pointed downward.” Amos Euins “looked up in the red brick building. I saw a man in a window with a gun and I saw him shoot twice. He then stepped back behind some boxes. I could tell the gun was a rifle and it sounded like an automatic rifle the way he was shooting. I just saw a little bit of the barrel, and some of the trigger housing.”<sup>2</sup>

The idea that every gunshot originated from the building’s south–easternmost sixth–floor window was, however, merely the Warren Commission’s working assumption. The idea had no explicit evidence in its favour, and was contradicted by several types of evidence, including the forty or so witnesses who thought that gunfire came from in front of the motorcade. Among them were two Secret Service agents. Paul Landis, who was in the car immediately behind Kennedy’s, wrote that “the [fatal] shot came from somewhere towards the front.” Forrest Sorrels, in the car just ahead of Kennedy’s, “looked towards the top of the terrace to my right as the sound of the shots seemed to come from that direction.”<sup>3</sup>

The location of President Kennedy’s head injuries suggests that at least one shot came from somewhere other than the sixth floor. The autopsy pathologists consistently claimed that there was an entry wound low down on the back of President Kennedy’s skull. There was also a large wound, the location of which was variously described as toward the top, right and rear of the skull. All of these locations of the supposed exit wound are higher than the entry wound, and are incompatible with a shot coming from above and behind at an angle of about 15° to the horizontal, given the inclination of Kennedy’s head at the moment of the fatal shot or shots, which is shown on frames 312 and 313 of the Zapruder film. The Warren Commission’s interpretation of the head wounds is shown in CE 388, a drawing in which the angle of the head at the instant of the fatal shot does not correspond to that shown in the Zapruder film. The Clark Panel in 1968, followed by the House Select Committee on Assassinations in 1977–78, felt obliged to move the entry wound four inches or ten centimetres higher, so that it might plausibly appear to be in line with the sixth–floor window and the larger wound. Dr James Humes, the pathologist in charge of President Kennedy’s autopsy, gave his opinion of the revised entry



wound when it was indicated to him on a photograph of Kennedy's head: "I can assure you that as we reflected the scalp to get to this point, there was no defect corresponding to this in the skull at any point. I don't know what that is. It could be to me clotted blood. I don't, I just don't know what it is, but it certainly was not any wound of entrance."<sup>4</sup>

The size of the large head wound, and the presence within the skull of dozens of tiny particles of metal, suggest that the majority of the damage to the head was caused by a soft-nosed bullet, a type designed to break apart on impact. All the non-fatal wounds to Kennedy and Connally were caused by one or more metal-jacketed bullets, which were designed to remain intact. The shells found on the sixth floor of the TSBD were all from the same batch, and must have contained the same type of bullet. The implication is that either the soft-nosed bullet was fired from elsewhere, or it was fired from the sixth floor by a second gunman, a conclusion equally unhelpful to the notion of Oswald as the lone assassin.<sup>5</sup>

Perhaps the best-known evidence of shooting from somewhere other than the TSBD is the motion of President Kennedy's head in reaction to the fatal shot. The sharp back-and-to-the-left movement became widely known when bootleg copies of the Zapruder film began to circulate a few years after the assassination.<sup>6</sup>

Other objections were made to the Commission's claim that Oswald had brought a rifle to work on the day of the assassination, that he had been on the sixth floor at the time of the shooting, and that he had fired the rifle from the sixth floor.

Only three witnesses had seen Oswald prior to and during his arrival at work on 22 November 1963. All three testified that he had not carried a rifle. Buell Wesley Frazier, who had driven Oswald to work, and his sister, Linnie Mae Randle, at whose house Oswald had met Frazier that morning, both claimed that Oswald had been carrying a paper bag, but that the bag was much too short to have held the Mannlicher Carcano rifle that was discovered on the sixth floor of the TSBD. Jack Dougherty, a colleague of Oswald's who saw him enter the TSBD, was adamant that he did not see anything in Oswald's hands. In interviews with the FBI, Randle and Frazier both claimed that the bag they saw was 27 inches (69 cm) long. The

rifle, however, was 34.8 inches (88 cm) long when disassembled and 40.2 inches (102 cm) long when intact.<sup>7</sup> Oswald said that he had brought a sandwich and an apple to work, a claim corroborated by his wife, so Dougherty must have been mistaken about having seen nothing in Oswald's hands.<sup>8</sup> Overlooking a small lunch bag is perhaps understandable; overlooking a bag containing a long rifle, on the other hand, is not. The Warren Commission overcame the problem by claiming that all three witnesses were mistaken, which would have been a reasonable assumption had it been supported by strong independent evidence of Oswald's guilt.<sup>9</sup> Because the rifle can only have been stored at the house in which Oswald's family was living, and because Oswald only stayed there the night before the assassination, the only date on which Oswald plausibly could have brought the rifle to work was the day of the assassination. If, as the evidence strongly suggests, he did not do so, either Oswald had an accomplice or the rifle was taken into the building without his knowledge.

The Dallas police claimed to have discovered on the sixth floor a paper bag that was long enough to have contained the rifle. The police's fingerprint officers dusted the bag for prints; Carl Day found "no legible prints," and Robert Studebaker found "just smudges." The bag was later examined by the FBI's Sebastian Latona, who discovered a partial right palmprint and a partial left index fingerprint that could be matched to Oswald.<sup>10</sup>

Although the bag, or at least the paper that was used to make the bag, had come into contact with Oswald's hands at some point, it may not have done so while it contained the sixth-floor rifle. Frazier and Randle each claimed that the bag they were shown was substantially longer than the one they had seen, and that Oswald had carried the bag by cupping and gripping the ends of it in his right hand, a manner inconsistent with the location of the two faint prints. Nor did the bag show creases or oil stains consistent with it having held the disassembled rifle. James Cadigan, of the FBI laboratory, testified that "I was also requested ... to examine the bag to determine if there were any significant markings or scratches or abrasions or anything by which it could be associated with the rifle,

Commission Exhibit 139, that is, could I find any markings that I could tie to that rifle. ... And I couldn't find any such markings.”<sup>11</sup>

There are good reasons to be sceptical of the claim that the bag that was produced in evidence was found at the scene of the crime. The police officers who first came across the alleged sniper's nest gave confused testimony about whether there was a paper bag nearby, and none of the crime scene photographs showed the bag *in situ*. Roger Craig and Gerald Hill denied seeing a bag. Richard M. Sims saw what he described as “some wrappings,” “a brown wrapping,” “some loose paper” and “a wrapper.” Marvin Johnson did see a paper bag: “L.D. Montgomery, my partner, picked it up off the floor, and it was folded up, and he unfolded it .... It was folded and then refolded. It was a fairly small package .... The sack was folded up here and it was east of the pipes in the corner. To the best of my memory, that is where my partner picked it up. I was standing there when he picked it up.” Montgomery also saw a bag but denied picking it up. J.B. Hicks, of the Dallas police crime laboratory, did not recall a paper bag among the items of evidence taken from the TSBD.<sup>12</sup> The nearest thing to a photograph of the paper bag at the crime scene was CE 1302, a photograph showing the sniper's nest with a printed outline of the supposed location of the bag. The earliest known photographs of the bag were taken on the front steps of the TSBD shortly before 4pm, perhaps as much as three hours after the police had entered the building.<sup>13</sup>

It is highly unlikely that Oswald could have assembled the bag. Although the bag had been constructed from wrapping paper and tape used at the depository, it could only have been assembled at the building's wrapping table, to which Oswald did not have access. The paper and the tape both contained markings from one particular tape dispensing machine at the TSBD. The machine was too sturdy to have been removed from the premises, and was under constant supervision. Troy West testified that he spent his entire working day at the wrapping table, and that Oswald never had a chance to manufacture the bag. James Cadigan of the FBI laboratory testified that the paper and tape of the bag possessed “identical” physical characteristics to samples of wrapping paper and tape taken by the Dallas police on the afternoon of 22 November. The TSBD used

approximately one roll of paper every three working days, and for each consignment of 58 rolls of paper, the company ordered a consignment of 500 rolls of tape, the equivalent of using one roll of tape roughly every three working hours, which suggests that the paper bag supposedly found on the sixth floor was constructed after Oswald's arrival at the TSBD that morning and within a short time of the samples being taken by the police.<sup>14</sup>

The first sighting of Oswald after the shooting was by two witnesses, a policeman and the building supervisor, who encountered him in the lunch room on the second floor of the TSBD a little more than one minute after they heard gunshots. The timing of the incident alone casts serious doubt on the claim that Oswald had been on the sixth floor during the assassination. The Commission re-enacted the movements of the two witnesses, who had come up from the first floor, and of Oswald, who in theory had come down from the sixth floor after laboriously hiding the rifle. The re-enactments were only able to get Oswald to the second floor in time to meet the witnesses by artificially quickening his descent and slowing their ascent.<sup>15</sup>

The Commission brushed aside evidence from other people within the TSBD who would have seen or heard anyone dashing down the stairs, but who failed to do so. On each floor, the enclosed wooden staircase opened onto a landing, which anyone using the stairs was obliged to cross. Several employees were on or close to the stairs and could be expected to have seen or heard Oswald on his journey to the second floor, but none did. Jack Dougherty was working on the fifth floor close to the stairs; he heard a shot from the floor above him, but did not report any sound or movement from the stairs. Nor did he or the other three workers on the fifth floor hear anyone shifting cartons of books, which would have been necessary in order to hide the rifle. Victoria Adams and Sandra Styles were with two colleagues on the fourth floor at the time of the shooting. Adams and Styles immediately ran to the stairway. Adams was asked specifically if she had seen or heard anyone else on the stairs, and replied that she had not. Styles and her other two colleagues were not questioned. One of the other two colleagues did, however, make a signed statement in which she claimed that

she saw Adams and Styles descend and the policeman and supervisor ascend, and that she did not see Oswald. The known facts of the encounter with the policeman and the supervisor are entirely consistent with Oswald having ascended from the first floor by a more direct route than that taken by the witnesses.<sup>16</sup>

Descriptions of the gunman's physical features and clothing are contradictory and inconclusive. Four people are known to have seen a man with a rifle on the sixth floor of the TSBD, but only one of them, Howard Brennan, provided a detailed identification that came close to matching Oswald's appearance. In a statement on the day of the assassination, Brennan claimed that the gunman was "a white man in his early 30's, slender, nice looking, slender and would weigh about 165 to 175 pounds." In his Warren Commission testimony, Brennan gave the man's height as five feet ten inches. Arnold Rowland, who also saw a gunman, and Ronald Fischer, who did not notice a gun, both described the man they saw as "slender," and Fischer added that "he looked to be 22 or 24 years old." Lee Harvey Oswald was white, slender, and 24 years old. Official documents give his adult height as either five feet nine inches (175 cm) or five feet ten inches. On the day of his arrest, he weighed 131 pounds (59 kg). All three descriptions could reasonably have applied to Oswald, but could also have applied to any number of young white men.<sup>17</sup>

Brennan, however, turned out to be unreliable and unhelpful. He claimed that the gunman had been standing up when firing, although the half-open window required any gunman to have crouched or kneeled. He claimed to have seen the gunman's trousers, which would not have been visible from Brennan's viewpoint on the street 60 feet or 18 metres below. When asked whether he had actually seen the firing of the rifle, he replied, "No." He claimed that on hearing the first shot, "I looked up at the building. I then saw this man I have described in the window and he was taking aim with a high powered rifle. I could see all of the barrel of the gun." Brennan's reaction to the first shot is visible on the Zapruder film: standing directly opposite the sixth-floor window, he watches Kennedy's car go past him to his left, then from about frame 204 he in fact turns his head sharply to his right, away from the TSBD,

rather than up toward the sixth floor. He attended a line-up on the day of the assassination, but “said he was unable to make a positive identification,” despite already having seen Oswald’s picture on television. A few weeks later, his memory improved and he informed the FBI that he could identify Oswald. The next month, he changed his mind again and “appeared to revert to his earlier inability to make a positive identification.” In the absence of any other plausible candidates, the Commission nominated Brennan as the source of the Dallas police radio despatcher’s description of the gunman, but his limited credibility as a witness raises uncomfortable questions about the actual source. The House Select Committee on Assassinations declined to use Howard Brennan’s testimony.<sup>18</sup>

Arnold Rowland claimed that the gunman had “dark hair ... it was dark, probably black.” Amos Euins stated that “I seen a bald spot on this man’s head, trying to look out the window. He had a bald spot on his head. I was looking at the bald spot.” Oswald’s hair was light brown; it was receding slightly at the temples, but he did not have a bald spot. Two other witnesses, however, described the colour of the man’s hair in a way that did apply to Oswald: Robert Edwards claimed that it was “light brown,” and Carolyn Walther remembered “blond or light brown hair.”<sup>19</sup>

Five of the six witnesses who saw a man on the sixth floor of the TSBD were able to describe his clothing. All five said that he was wearing light-coloured clothes. Howard Brennan: “He had on light colored clothing”; “Light colored clothes, more of a khaki color.” Arnold Rowland: “He had on a light shirt, a very light-colored shirt, white or a light blue or a color such as that. This was open at the collar. I think it was unbuttoned about halfway, and then he had a regular T-shirt, a polo shirt under this.” Carolyn Walther: “a white shirt.” Ronald Fischer: the shirt was “light in color; probably white ... it was open-neck and light in color.” Robert Edwards: “light colored shirt, short sleeve and open neck.”<sup>20</sup> Oswald did not wear a light-coloured shirt with an open neck on the day of the assassination. At the time of his arrest, he was wearing a brown shirt over a white T-shirt, and dark trousers. Oswald claimed to have changed out of a “reddish colored, long sleeved, shirt with a button–

down collar” between the assassination and his arrest. He had certainly been wearing a dark shirt that morning; Linnie Mae Randle stated that “I remember some sort of brown or tan shirt.” Marrion Baker, the policeman who encountered Oswald on the second floor immediately after the shooting, said that Oswald was wearing “a brown-type shirt” that was perhaps “a little bit darker” than the one the suspect wore after his arrest. Jerald Reid, on the other hand, who saw Oswald shortly after his encounter with Baker, claimed that he was wearing “a white T shirt” with no shirt or jacket.<sup>21</sup> Howard Brennan pointed out that Oswald at the police station “was not dressed in the same clothes that I saw the man in the window ... he just didn’t have the same clothes on.” The Commission reacted to Brennan’s unexpected information by abruptly dismissing him:

**Mr Brennan:** ... he just didn't have the same clothes on.

**Mr Belin:** All right.

**Mr Brennan:** I don’t know whether you have that in the record or not. I am sure you do.

**Mr Dulles:** Any further questions? I guess there are no more questions, Mr Belin.

**Mr Belin:** Well, sir, we want to thank you for your cooperation with the Commission.<sup>22</sup>

The Warren Commission recognised that if Oswald were the lone assassin, he must have been on the sixth floor for some time before the assassination, assembling his rifle and his sniper’s nest. The Commission supported its case that Oswald had been hiding on the sixth floor by claiming that “Charles Givens ... was the last known employee to see Oswald inside the building prior to the assassination,” on the sixth floor shortly after 11:45am.<sup>23</sup> Givens’ testimony may not be reliable, however. It contradicts a statement he had made to the FBI on the day after the assassination, in which he claimed that his sighting of Oswald at 11:50 occurred on the first floor “in the domino room where the employees eat lunch.” A few weeks before Givens testified before the Warren Commission, an



FBI memo had pointed out that a Dallas police inspector “stated that GIVENS had been previously handled by the Special Services Bureau on a marijuana charge and he believes that GIVENS would change his story for money.”<sup>24</sup>

If Oswald had indeed been on the sixth floor shortly before mid-day, he did not stay long. A colleague of his, Bonnie Ray Williams, spent about 10 minutes on the sixth floor from around 12:00, and claimed that he was the only person present on that floor.<sup>25</sup> It is quite possible that Oswald had not set foot on the sixth floor for an hour or more before the assassination. Although he had visited the sixth floor that morning, he had been working on the fifth floor immediately before beginning his lunch break at about 11:45.<sup>26</sup>

Charles Givens was not in fact “the last known employee to see Oswald inside the building prior to the assassination.” Three other employees saw Oswald on either the first or second floor during the thirty minutes or so immediately before the assassination. Two of Oswald’s colleagues, William Shelley and Eddie Piper, corroborated Givens’ original statement, testifying that Oswald had been on the first floor at around mid-day.<sup>27</sup> Another TSBD employee, Carolyn Arnold, stated in interviews with the FBI that she saw Oswald on either the first or second floor at either 12:15 or 12:25.<sup>28</sup> She clarified the time and place in later interviews: “she saw Oswald in the 2nd-floor lunchroom as she was on her way out of the depository to watch the presidential motorcade.... She left the building at 12:25pm.”<sup>29</sup> “About a quarter of an hour before the assassination, I went into the lunchroom on the second floor,” where she saw Oswald.<sup>30</sup> At the same time as Oswald was seen on the second floor, however, a gunman was already in place on the sixth floor. Arnold Rowland, standing outside the building, told the FBI that “Between 12:10 p.m. and 12:15 p.m., ... I observed the two rectangular windows at the extreme west end of the Texas School Book Depository next to the top floor were open. I saw what I believed to be a man standing about 12 to 15 feet back from the window on the right. He ... appeared to [be] holding a rifle with scope attached, in a ready position or in military terminology, port arms.”<sup>31</sup> The Commission ignored Carolyn Arnold’s FBI



statements; it did not call her to testify; it did not call any of her colleagues who could have corroborated or refuted her account; and it claimed on spurious grounds that Rowland was unreliable. Dismissing the evidence of Arnold Rowland served another purpose. He was one of two witnesses who saw the gunman standing next to another man on the sixth floor. The second witness, Carolyn Walther, was not called to give testimony.<sup>32</sup>

It is curious that none of the surviving documents contains an account by the accused assassin of his precise location at the precise time of the shooting. During the two days between his arrest and his murder while in police custody, Oswald was questioned for a total of about twelve hours by officials from the Dallas police, the FBI, the Secret Service and even the Post Office. Some, but not all, of those who questioned Oswald later put down their memories on paper. The existing notes and memos cover only a small part of Oswald's questioning.<sup>33</sup>

In 1963, the Dallas Police Department was not in the habit of using a tape recorder when questioning suspects,<sup>34</sup> a policy unlikely to have been motivated purely by budgetary constraints. In recent years, DNA analysis has brought to light a spate of wrongful convictions in Dallas County. Most of them were perpetrated by the regime that was in office at the time of the JFK assassination, as a *Dallas Morning News* article points out: "Police officers used suggestive lineup procedures, sometimes pressured victims to pick their suspect and then cleared the case once an identification was made. ... All but five of the wrongful convictions occurred under the late District Attorney Henry Wade."<sup>35</sup> Improper police procedures were certainly used against Oswald. In particular, at least one witness was required to sign a statement identifying Oswald before he had attended a line-up.<sup>36</sup> Neither the gravity of the crime nor the attention of the world's press appear to have provided the Dallas police with sufficient motivation to change their policy of not recording interviews. Several shorthand secretaries worked in the Dallas police headquarters, but none seems to have been called upon to transcribe the defendant's replies to his questioning. It is unlikely

that any recordings or transcripts were made of Oswald's twelve hours of interrogation.

According to a report by FBI agents who interviewed the suspect, "OSWALD claimed to be on the first floor when President JOHN F. KENNEDY passed this building."<sup>37</sup> The most detailed account of Oswald's alibi is in a report by Captain J.W. Fritz of the Dallas police: "I asked him what part of the building he was in at the time the president was shot, and he said that he was having his lunch about that time on the first floor."<sup>38</sup> It is inconceivable that even the Dallas police would have been satisfied with an account of what their only suspect was doing at "about" the time of the assassination. Because no mention is made of Oswald refusing to provide a precise alibi, one might reasonably suspect that a precise alibi was given, and that it contained information that could have been, and perhaps was, checked for corroboration.

Oswald does have an alibi for the few minutes before the assassination. An FBI agent who interviewed him wrote that "Oswald stated that ... he had eaten lunch in the lunch room at the Texas School Book Depository, alone, but recalled possibly two Negro employees walking through the room during this period. He stated possibly one of these employees was called 'Junior' and the other was a short individual."<sup>39</sup> The notes of Captain Fritz corroborate this: "say[s] two negr came in. One Jr. + short negro."<sup>40</sup> Two black employees matched these descriptions: James Jarman was known as 'Junior', and Harold Norman was short.

Both men had been standing outside the TSBD, waiting to see the president. When they heard that the motorcade had reached Main Street, they decided to go back into the building to obtain a better view. Because of the crowd standing on the front steps of the TSBD, they used one of the building's rear entrances. Their route around the north-east corner of the building took them right past the windows of the first-floor lunch room, known as the domino room, the location where Charles Givens originally stated that he had seen Oswald reading a newspaper shortly before mid-day. They would have entered the building very close to the door of the domino room. Oswald could hardly have known about their presence in this part of the TSBD unless he too had been on the first floor at the

time. According to police logs, the motorcade was on Main Street from about 12:23pm until 12:29pm, which places Oswald on the first floor just a few minutes before the shooting. Jarman narrows the time further: he was standing outside “until about 12:20, between 12:20 and 12:25.”<sup>41</sup> A second-hand version of Oswald’s alibi has him claiming to have eaten lunch with ‘Junior’ Jarman, which Jarman denied. This denial allowed the *Warren Report* to dismiss without argument Oswald’s claim that he was on the first floor five or ten minutes before the assassination, at a time when an assassin would surely have been in place on the sixth floor.<sup>42</sup>

There are many reasons to doubt that all the shots had been fired from the sixth floor of the TSBD, that Lee Harvey Oswald had brought a rifle into the building, and that Oswald had been on the sixth floor during the shooting. The final, and perhaps the most important, element of the case against Oswald required the three bullet shells to be matched to the wounds. Several facts soon emerged which greatly constrained any explanation of how a lone gunman, in the time available, could fire one particular rifle from one particular location and cause one particular set of wounds.

The first constraint is that if Oswald’s rifle fired all the shots, there must have been a minimum of 2.3 seconds between each shot. The rifle discovered on the sixth floor was examined and tested by the US Army and the FBI, who found that it was in a much poorer condition than most rifles of its type. It could not be aimed accurately, and so it was tested mainly for the speed with which it could fire a sequence of shots. In a series of tests by skilled marksmen, the fastest time taken to operate the bolt and the trigger pull, without aiming the rifle, was 2.3 seconds. A gunman firing that particular rifle at a moving target from 60 feet above, and scoring two hits out of three, would need to be particularly skillful to take just 2.3 seconds per shot. The army’s experts, having adjusted the sixth-floor rifle to improve its accuracy, fired seven groups of three shots at stationary targets from 30 feet above. Their times were: 4.45, 4.6, 5.15, 6.45, 6.75, 7, and 8.25 seconds. Of the 21 shots, 20 missed the heads and shoulders of the silhouettes on the targets.<sup>43</sup>

The second constraint is that if Oswald’s rifle were the only weapon used, all the injuries had to have been caused by no more

than three bullets. Three empty rifle bullet shells were found on the sixth floor of the Texas School Book Depository, all of them close to the window in the south-eastern corner. One unfired bullet was found in the rifle. No other rifle bullets or bullet shells were discovered in the building, or on Oswald's person, or among his belongings.

The third constraint is that if every shot was fired by Oswald from the easternmost sixth-floor window, all the shooting must have taken place within six seconds. Abraham Zapruder's famous home movie of the shooting allowed the timing of Kennedy's progress along the road to be accurately determined. As Kennedy's car passed the TSBD, it was hidden at first from the sixth-floor window by an oak tree. There was a period of just under six seconds between the car becoming visible to anyone in the easternmost sixth-floor window, which occurred at frame 210 of the Zapruder film, and the moment of the fatal head shot, which occurred immediately after frame 312. At 18.3 frames per second, Zapruder's camera took 103 frames in just under six seconds. The *Warren Report* pointed out that the time might increase to eight seconds or more if either the first or the final shot had missed, but the Commission recognised that this was highly unlikely: the first shot could not plausibly have been fired from the sixth floor while President Kennedy was hidden behind the tree, and there is no reason to suppose that the final shot was not the one which hit Kennedy in the head. The sighting of Oswald by witnesses on the second floor shortly after the shooting requires him to have left the sixth floor as soon as possible after the head shot.<sup>44</sup>

For Oswald to have been the lone gunman, all of the following constraints had to apply: there were at least 2.3 seconds between each shot; no more than three bullets caused all of the wounds; and the whole shooting took no longer than six seconds. If any of these statements were contradicted by the balance of the evidence, Oswald could not have committed the crime alone. The Warren Commission attempted to deal with these constraints by devising what became known as the single-bullet theory.

[\[Skip the notes and go to Chapter 4\]](#)

## Notes

1. The essential purpose of what became the Warren Commission, in the words of J. Edgar Hoover: [HSCA Appendix, vol.3, p.472](#). [[BACK](#)]
2. Geneva Hine: [WCHE, vol.6, p.395](#). Patricia Lawrence: [CE 1381 \(WCHE, vol.22, p.660\)](#). Howard Brennan: [WCHE, vol.19, p.470](#). Arnold Rowland: [CE 357 \(WCHE, vol.16, p.953\)](#). Carolyn Walther: [CE 2086 \(WCHE, vol.24, p.522\)](#). Amos Euins: [CE 367 \(WCHE, vol.16, p.963\)](#). [[BACK](#)]
3. Paul Landis: [CE 1024 \(WCHE, vol.18, p.759\)](#). Forrest Sorrels: [WCHE, vol.21, p.548](#). For other examples, see [Appendix C, Grassy Knoll Witnesses](#). [[BACK](#)]
4. CE 388: [WCHE, vol.16, p.984](#). The FBI calculated the angle of a shot from the sixth floor to be between 17° and 18° a few seconds before the instant of the head shot, at which point the angle would have become slightly less acute: [WR, p.106](#). Dr Humes: [HSCA Appendix, vol.7, p.254](#). Individual frames of the Zapruder film can be found at <http://www.assassinationresearch.com/zfilm/>. For more about the medical aspects of the case, see [Appendix A, Medical Evidence](#). [[BACK](#)]
5. For the ballistics aspects of the case, see: Donald B. Thomas, *Hear No Evil: Social Constructivism and the Forensic Evidence in the Kennedy Assassination*, Mary Ferrell Foundation Press, 2010, pp.297–450; G. Paul Chambers, *Head Shot: The Science Behind the JFK Assassination*, Prometheus Books, 2010, pp.195–221; and Bonar Menninger, *Mortal Error: The Shot That Killed JFK*, St. Martin's Press, 1992, pp.238–255. Menninger's treatment of the ballistics evidence is credible, although his main conclusion, that the fatal shot was fired accidentally by a Secret Service agent, is contradicted by Charles Bronson's home movie; see [Chapter 10, JFK Assassination Conspiracy Theories](#). [[BACK](#)]
6. The phrase “back and to the left” was popularised by Oliver Stone's film, *JFK*, and later by the TV show, *Seinfeld*, and the

comedian, Bill Hicks. A Nobel Prize–winning physicist, Luis Alvarez, attempted to demonstrate that the motion was not in fact inconsistent with a shot from the sixth–floor window, which was almost directly behind the president; see Luis A. Alvarez, ‘A Physicist Examines the Kennedy Assassination Film’, *American Journal of Physics*, vol.44 no.9 (September 1976), pp.813–27, reproduced at [HSCA Appendix, vol.1, pp.428–441](#). Against Alvarez, see e.g. Chambers, *op. cit.*, pp.163–170. It was pointed out that Alvarez’s experimental method, which involved shooting at melons on a fence post, hardly resembled the conditions it was supposed to replicate. Against other aspects of Alvarez’s analysis, see Michael A. Stroschio, ‘[More Physical Insight into the Assassination of President Kennedy](#)’, *Physics and Society*, vol.25 no.4 (October 1996), pp.7–8. Alvarez’s motivation and objectivity came under suspicion when it was later revealed that his research in this area had been funded by the US government, and that in 1949 he had testified against the dissident physicist Robert Oppenheimer to the House Un–American Activities Committee. For more information, see the sources mentioned in [Appendix A, The Medical Evidence](#). [[BACK](#)]

7. Frazier’s testimony: [WCHE, vol.2, pp.239–43](#); his FBI interview: [CE 2009 \(WCHE, vol.24, p.409\)](#). Randle’s testimony: [WCHE, vol.2, pp.248–50](#); her FBI interview: [CE 2009 \(WCHE, vol.24, p.408\)](#). Dougherty’s testimony: [WCHE, vol.6, pp.376–377](#). The length of the rifle: [WCHE, vol.3, p.395](#). [[BACK](#)]
8. Oswald’s lunch: [WR, p.622](#). Marina Oswald: [WCHE, vol.1, p.73](#). [[BACK](#)]
9. “The Commission ... has concluded that Frazier and Randle are mistaken as to the length of the bag”: [WR, p.134](#). [[BACK](#)]
10. Carl Day: [WCHE, vol.4, p.267](#). Robert Studebaker: [WCHE, vol.7, p.144](#). Sebastian Latona: [WCHE, vol.4, pp.6–9](#). Photograph of the right palmprint: [CE 632 \(WCHE, vol.17, p.286\)](#). Photograph of the left fingerprint: [CE 633 \(WCHE, vol.17, p.287\)](#). [[BACK](#)]
11. James Cadigan: [WCHE, vol.4, p.97](#). CE 139: [WCHE, vol.16, p.512](#). [[BACK](#)]



12. Roger Craig: [WCHE, vol.6, p.268](#). Gerald Hill: [WCHE, vol.7, p.46](#). Richard M. Sims: [WCHE, vol.7, p.161](#). Marvin Johnson: [WCHE, vol.7, pp.103–104](#). L.D. Montgomery: [WCHE, vol.7, p.98](#). J.B. Hicks: [WCHE, vol.7, p.289](#) [[BACK](#)]
13. CE 1302: [WCHE, vol.22, p.479](#). For a photograph of the bag by William Allen of the *Dallas Times Herald*, see Richard Trask, *Pictures of the Pain: Photography and the Assassination of President Kennedy*, Yeoman Press, 1994, p.552. The bag was brought out between about 2:30pm, when three tramps were photographed in Dealey Plaza, and “four o’clock ... probably later,” when the photographers were let into the TSBD: [WCHE, vol.13, p.105](#). [[BACK](#)]
14. The markings on the paper: [WCHE, vol.4, pp.90–93](#). Troy West: [WCHE, vol.6, pp.360–362](#). James Cadigan: [WCHE, vol.4, p.93](#). The TSBD’s use of paper: [WCHE, vol.4, p.96](#). Its use of tape: [CD 897, p.163](#). For detailed accounts of the paper bag, see Ian Griggs, ‘[The Paper Bag that Never Was, part 1](#),’ *Dealey Plaza Echo*, vol.1, no.1, July 1996, pp.30–36; Ian Griggs, ‘[The Paper Bag that Never Was, part 2](#),’ *Dealey Plaza Echo*, vol.1, no.2, November 1996, pp.30–38; and Sylvia Meagher, *Accessories After the Fact: the Warren Commission, the Authorities, and the Report*, Vintage, 1992, pp.45–64. [[BACK](#)]
15. The Warren Commission’s account of Oswald’s descent to the second floor: [WR, pp.149–153](#). For the problems with this account, see David Wrone, *The Zapruder Film: Reframing JFK’s Assassination*, University Press of Kansas, 2003, pp.170–171, and Howard Roffman, *Presumed Guilty: How and Why the Warren Commission Framed Lee Harvey Oswald*, Fairleigh Dickinson University Press, 1975, pp.108–112 (available online at <http://www.ratical.org/ratville/JFK/PG/PGchp8.html>). [[BACK](#)]
16. Jack Dougherty: [WCHE, vol.6, pp.380–381](#). The other three workers on the fifth floor were Bonnie Ray Williams ([WCHE, vol.3, pp.161–184](#)), Harold Norman ([WCHE, vol.3, pp.186–198](#)), and James Jarman ([WCHE, vol.3, pp.198–211](#)). Victoria Adams: [WCHE, vol.6, pp.388–390](#). For the statement by Dorothy Garner, see Barry Ernest, *The Girl on the Stairs: My*

*Search for a Missing Witness to the Assassination of John F. Kennedy*, Createspace, 2011. [[BACK](#)]

17. Howard Brennan's testimony: [WCHE, vol.3, pp.142–158](#). His statement to the Dallas Sheriff's office on the afternoon of the assassination, in which he describes the gunman: [WCHE, vol.19, p.470](#). Arnold Rowland: [CE 358 \(WCHE, vol.16, p.954\)](#) and [WCHE, vol.2, p.169](#). Ronald Fischer: [WCHE, vol.6, p.194](#). For Oswald's height, see his autopsy report: [CE 3002 \(WCHE, vol.26, p.521\)](#). For Oswald's weight, see his arrest form: [CE 630 \(WCHE, vol.17, p.285\)](#). [[BACK](#)]
18. Brennan: [WCHE, vol.3, p.143](#). "Unable to make a positive identification": [WR, p.145](#). Attribution of police description to Brennan: [WR, p.144](#). [[BACK](#)]
19. Arnold Rowland: [WCHE, vol.2, p.171](#). Amos Euins: [WCHE, vol.2, p.204](#). Robert Edwards: [WCHE, vol.6, p.203](#). Carolyn Walther: [CE 2086 \(WCHE, vol.24, p.522\)](#). [[BACK](#)]
20. Howard Brennan: [WCHE, vol.3, p.145](#). Arnold Rowland: [WCHE, vol.2, p.171](#). Carolyn Walther: [CE 2086 \(WCHE, vol.24, p.522\)](#). Ronald Fischer: [WCHE, vol.6, p.194](#). Robert Edwards: [WCHE, vol.6, p.203](#). [[BACK](#)]
21. Oswald's shirt: [WR, p.622](#); see also [Handwritten notes of Captain J.W. Fritz's interview of Oswald, p.7](#). Linnie Mae Randle: [WCHE, vol.2, p.250](#). Marrion Baker: [WCHE, vol.3, p.257](#). Jeraldean Reid, whose first name is given elsewhere as Geraldean, and who is referred to here as Mrs Robert Reid: [WCHE, vol.3, p.276](#). [[BACK](#)]
22. Howard Brennan: [WCHE, vol.3, p.161](#). [[BACK](#)]
23. [WR, p.143](#). [[BACK](#)]
24. Charles Givens' testimony, on 8 April 1964: [WCHE, vol.6, p.352](#). His original statement, dated 23 November 1963: [CD 5, p.329](#). The FBI memo, dated 13 February 1964: [CD 735, p.295](#). For a detailed discussion of this unsavoury episode, see Sylvia Meagher, 'The Curious Testimony of Mr Givens,' *Texas Observer*, 13 August 1971. [[BACK](#)]
25. Bonnie Ray Williams: [WCHE, vol.3, pp.169–170](#). [[BACK](#)]



26. Oswald on the fifth floor: [WCHE, vol.3, p.168](#). [[BACK](#)]
27. William Shelley: [WCHE, vol.6, p.328](#). Eddie Piper: [WCHE, vol.19, p.499](#). [[BACK](#)]
28. Carolyn Arnold: [CD 5, p.41](#); [CD 706, p.7](#). [[BACK](#)]
29. Earl Golz, ‘Was Oswald in Window?,’ *Dallas Morning News*, 26 November 1978, p.13A. [[BACK](#)]
30. Anthony Summers, *Not in Your Lifetime: The Assassination of JFK*, Headline, 2013, p.92. [[BACK](#)]
31. Arnold Rowland: [CE 358 \(WCHE, vol.16, p.954\)](#). Rowland repeated his claim to the Warren Commission: [WCHE, vol.2, p.169](#). [[BACK](#)]
32. Rowland saw a second man: [WCHE, vol.2, pp.174–175](#). Carolyn Walther: [CE 2086 \(WCHE, vol.24, p.522\)](#). [[BACK](#)]
33. Records of Oswald’s interrogation: [WR, pp.598–636](#). [[BACK](#)]
34. The Dallas police were not alone in this; see Thomas P. Sullivan, ‘Police Experiences with Recording Custodial Interrogations,’ *Judicature*, vol.88 no.3 (November–December 2004), pp.132–136. [[BACK](#)]
35. Steve McGonigle and Jennifer Emily, ‘[18 Dallas County Cases Overturned by DNA Relied Heavily on Eyewitness Testimony](#),’ *Dallas Morning News*, 12 October 2008. [[BACK](#)]
36. William Whaley: [WCHE, vol.6, p.430](#). The detective involved, James Leavelle, implied that the same procedure was used with two other witnesses: [WCHE, vol.7, p.264](#). For an example of “suggestive lineup procedures,” see [WCHE, vol.2, pp.260–261](#). [[BACK](#)]
37. FBI agents James Hosty and James Bookhout: [WR, p.613](#). For speculation about which part of the first floor Oswald was on, see [Appendix E, Was Oswald Standing in the Doorway?](#). [[BACK](#)]
38. Captain Fritz: [WR, p.600](#). [[BACK](#)]
39. Bookhout: [WR, p.622](#). [[BACK](#)]
40. Fritz: [Handwritten notes of Captain J.W. Fritz’s interview of Oswald, p.1](#). [[BACK](#)]

41. The Dallas Police radio log states that at 12:22pm the motorcade was on Harwood Street and “just about to cross Live Oak [Street]” ([WCHE, vol.17, p.461](#)). Main Street was about one minute further on. James Jarman: [WCHE, vol.3, pp.201–202](#). Harold Norman: [WCHE, vol.3, pp.189–190](#). For a plan of the first (i.e. ground) floor, see [WR, p.148 \(CE 1061\)](#). A more detailed plan is available at Baylor University, Poage Library, Robert Cutler Collection; online at <http://digitalcollections.baylor.edu/cdm/ref/collection/po-jfkgkgaz/id/1263> (requires JavaScript). The domino room was in the north–east corner, overlooking the loading bay. [CD 81 and CD 496](#) contain photographs of the domino room. [[BACK](#)]
42. [WR, p.182](#). [[BACK](#)]
43. “At least 2.3 seconds were required between shots”: [WR, p.97](#). The army’s test times: [WCHE, vol.3, p.446](#). The FBI’s test times: [WCHE, vol.3, pp.403–410](#). [[BACK](#)]
44. The time available for all the shots: [WR, p.117](#). [[BACK](#)]