

~~JFK~~
MP 1

April 23, 1964

MEMORANDUM FOR THE RECORD

FROM: Melvin A. Eisenberg

Over the last several months, we have held conferences in an attempt to determine the frames in the Nix, Zapruder and Muchmore films which portray the impact at which the third shot struck the President. Present at all these conferences were Inspector Leo Gauthier and Mr. Lyndal L. Shaneyfelt of the FBI, John Joe Howlett of the Secret Service and Messrs. Redlich and Eisenberg of the Commission staff. Also present at most or many of these conferences were Messrs. Specter and Belin, several unidentified assistants of Inspector Gauthier, Inspector Kelley of the Secret Service and Inspector Malley of the FBI.

The consensus which emerged from these conferences is that the impact of the third shot is portrayed in frame 313 of the Zapruder film, frame 24 of the Nix film, and frame 42 of the Muchmore film. (In each case, frames are counted from the first frame in the continuous sequence which culminates in the portrayal of the third shot, rather than from the beginning of the films.)

cc: Mr. Rankin
Mr. Willens ✓
Mr. Redlich ..
Mr. Ball
Mr. Belin
Mr. Specter
Mr. Eisenberg

JFK

MPI

✓
~~Conrad, J. J.~~
April 24, 1964

MEMORANDUM

TO: Messrs. Redlich, Specter, Belin
FROM: Melvin A. Eisenberg
SUBJECT: Determination of the Trajectories
of the Three Shots.

1. My memos of the conferences of April 14, 1964, and April 21, 1964, designate the frames in the Zapruder film which portray or may portray the impact of the first and second bullets. My memo of earlier conferences designates the frames in the Zapruder, Nix, and Muchmore films which portray the impact of the third shot. In order to translate these determinations into actual distances, it appears to me to be necessary to go to Dallas.

2. The first step to take in Dallas is to place viewfinders on the spots at which Zapruder, Nix, and Muchmore were standing, and place a replica car, ^{1/} bearing six occupants, on Elm Street. The replica car should then be positioned so that, viewed through the viewfinders, the relationship between the replica car and the surrounding landmarks is the same as the relationship between the actual car and the landmarks on November 22, as shown in the designated frames.

3. Pictures should be made showing the car (positioned under paragraph 2) from the following vantage points: (a) the spots at

^{1/} Preferably, the actual car.

which the photographers were standing; (b) a point in the TSBED approximating the point at which the muzzle of the rifle was located; and (c) several points on the overpass. Still pictures, and moving pictures taken through the cameras actually used by Zapruder, Nix, and Muchmore should be taken from vantage point (a). Two sets of still pictures, one through a 4X telescopic sight, should be taken from vantage points (b) and (c).

4. Tapes should then be laid on Elm Street over the points or ranges at which the President and Governor were located when the three shots struck. Each tape should be marked to show every designated frame, and the first tape should also be marked at the point where the President first became visible from vantage point (b) after emerging from behind the tree. On-the-street measurements should then be taken of the distances (i) from the marked points on each tape to the marked points on every other tape and (ii) from the marked points on each tape to the mid-point of a line connecting the southeast and southwest curbs of Elm Street.

5. The position of the tapes and all marked points thereon should then be mapped on a survey, and the lengths of the various possible trajectories should be measured by the surveyor on a trigonometric basis, measuring from the point at which the muzzle was probably located to the beginning, end, and marked points of each tape. The surveyor should also determine the angle each trajectory makes with the horizontal. Copies of the surveyor's work-sheets and calculations should be sent to us.

6. The steps outlined herein are not to be deemed as exclusive. In particular, an attempt should be made to photograph various

relative positions of the persons simulating the President and Governor Connally with a view to determining whether the first bullet probably did or did not hit the Governor as well as the President.

MP

BELL TELEPHONE LABORATORIES

INCORPORATED

MURRAY HILL, NEW JERSEY

TELEPHONE
AREA CODE 201
582-3000

July 17, 1964

Mr. J. Lee Rankin
General Counsel
200 Maryland Ave. N.E.
Washington, D.C. 20002

Dear Mr. Rankin:

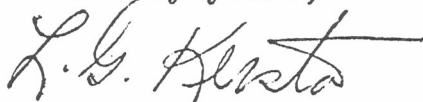
At your request we have examined the tape relating to President Kennedy's assassination. We made spectrograms for a period of 7.79 seconds and found no evidence of non voiced noise before the occurrence of event #1 shown on figures 4A and 4B. If this event, which appears as a short duration spike, is a gun shot, it is followed by three other non voiced noises with different acoustic characteristics. The other noises occur .86 second, 1.035 seconds and 1.385 seconds after event #1.

Events #2, #3, and #4 are of longer duration showing three resonance bands which appear to be harmonically related. These events possibly are reverberation noises generated by event #1. Events #5 and #6 may or may not be related to the preceding events. If not, we cannot account for them.

We continued the tape analysis for 5.04 seconds after event #6 with finding any non voiced noises.

If we can be of further help, we will be pleased to try.

Sincerely yours,



L. G. Kersta
Acoustics and Speech
Research Laboratory

MH-1232- LGK/jeg

Enclosure

Tape

AS:mln
29 June 1964

mp ~~HE~~
JUN 30 1964

Dr. L. G. Karsta
Bell Laboratories
Murray Hill, New Jersey

Dear Dr. Karsta:

With this letter we are enclosing what purports to be a transcript of an on-the-scene radio broadcast at the time of the assassination of President Kennedy on November 22, 1963, in Dallas, Texas.

We have listened to this tape and have heard two noises which came in rapid succession immediately before the announcer says: "It appears as though something has happened in the motorcade route." We would very much appreciate it if you would analyze this transcription and determine if at all possible whether there are any other noises, which may be gunshot sounds, which precede the two noises which we have been able to detect. It is our expectation that any such noises would occur within a few seconds preceding the noises which we detected. It may be that such noises occur at the same time that the announcer is speaking so those sounds will have to be sorted out through whatever scientific means you have at your disposal.

We would appreciate a report from you on this at your earliest convenience. This tape belongs to Glaxo Sound Studios, Inc., so we would appreciate it if you would conduct your analysis with care so that it may be returned in its current condition.

Thank you very much for your consideration.

Sincerely yours,

SIGNED

J. Lee Rankin
General Counsel

Enclosure

K.P.
Dillard, Tom

1
DL 100-10461
RPG:vm

By letter dated July 7, 1964, the President's Commission requested additional investigation concerning an alleged mark on the curb in the vicinity of the Texas School Book Depository (TSBD), Dallas, Texas, which had been photographed by JAMES UNDERWOOD, a Newsman with KRLD-TV, Dallas, Texas. In connection with this request, the President's Commission letter made available a photograph of the curb made by TOM DILLARD of "The Dallas Morning News" which had been forwarded to the President's Commission by MARTHA JOE STROUD, Assistant United States Attorney, Dallas, Texas.

FEDERAL BUREAU OF INVESTIGATION

1Date 7/15/64

JAMES UNDERWOOD, residence, 9751 Parkford Drive, Dallas, Texas, a Newsman for KRID-TV, Dallas, was shown two photographs. One of these photographs is of a mark on the curb on the south side of Main Street near the triple underpass and shows a hand shielding the light from this mark. The second photograph was taken looking across Main Street and up Elm Street towards the Texas School Book Depository (TSBD) Building. Mr. UNDERWOOD identified these photographs as frames taken from a 16 mm movie film, which film was taken by him on the morning of November 23, 1963. Mr. UNDERWOOD advised he had been told by a Deputy Sheriff, whose name he could not recall, that there was a mark on the curb on the south side of Main Street near the underpass, which was possibly made by a ricocheting bullet. The photograph of the hand shielding the mark on the curb was made by UNDERWOOD squatting down in the gutter to get a close-up view of the mark, and the picture of the TSBD Building was taken by placing the handle attached to the underneath side of UNDERWOOD's movie camera on the curb near the mark and pointing the camera back towards the TSBD Building, in order to get a low-level shot.

Mr. UNDERWOOD repeated what he had told Bureau Agents on June 11, 1964, that he could not be positive the mark was made by a ricocheting bullet, but appeared to him that it could have been, based on knowledge acquired by him while in the military service. He further stated it was definitely a mark on the curb and not a nick in the curb. He repeated that the concrete was not broken and that the mark appeared to have possibly been made recently, but he could not judge how much time had passed since the mark was made when he took the photographs of it.

Mr. UNDERWOOD stated that, prior to taking the photographs, he met TOM DILLARD, a Photographer for "The Dallas Morning News," near the entrance to the Dallas County Jail, and had told DILLARD about the information he had received from the Deputy Sheriff about the mark on the curb. DILLARD indicated he would possibly also take a still photograph of this mark.

30

on 7/15/64 at Dallas, Texas File # DL 100-10461

by Special Agents ROBERT M. BARRETT & IVAN D. LEE Date dictated 7/15/64

eah

This document contains neither recommendations nor conclusions of the FBI. It is the property of the FBI and is loaned to your agency; it and its contents are not to be distributed outside your agency.

FEDERAL BUREAU OF INVESTIGATION

Date 7/15/641

TOM C. DILLARD, residence, 7022 Merrilee Lane, Dallas, Texas, a Photographer for "The Dallas Morning News," advised that on the morning of November 23, 1963, while at the Dallas County Jail entrance, he had received information from JAMES UNDERWOOD, a Newsman for KRIS-TV, to the effect there was a mark on the curb on the south side of Main Street near the triple underpass. UNDERWOOD had told DILLARD that the mark was possibly made by a bullet. Later during the afternoon of November 23, 1963, DILLARD, using a Mamiyaflex 120 Camera, took a picture of a mark on the curb on the south side of Main Street about twenty feet east of the triple underpass. DILLARD stated he was of the opinion the mark very possibly could have been made by a ricocheting bullet and that it had been recently made.

Mr. DILLARD was shown a photograph of a mark on the curb with a hand holding a pencil pointing towards the mark. He identified this photograph as a copy of the one he had taken on the afternoon of November 23, 1963.

Mr. DILLARD stated he definitely recalls it was a mark on the curb, rather than a nick in the curb, and the concrete was not broken or chipped.

on 7/15/64 at Dallas, Texas 31 File # DL 100-10461

by Special Agents ROBERT M. BARRETT & IVAN D. LEE Date dictated 7/15/64
gah

This document contains neither recommendations nor conclusions of the FBI. It is the property of the FBI and is loaned to your agency; it and its contents are not to be distributed outside your agency.

FEDERAL BUREAU OF INVESTIGATION

Date 7/15/64

1

Special Agents ROBERT M. BARRITT and IVAN D. LEE, of the Federal Bureau of Investigation, accompanied by TOM C. DILLARD, a Photographer for "The Dallas Morning News," and JAMES UNDERWOOD, a Newsmen for KRLD-TV, went to the area approximately twenty feet east of the triple underpass and on the south side of Main Street. Through the use of the same camera used by Mr. UNDERWOOD on November 23, 1963, and by aligning three reference points in a photograph of the Texas School Book Depository (TSBD) Building taken by Mr. UNDERWOOD on November 23, 1963, from this same area, it was ascertained the mark observed and photographed by Mr. UNDERWOOD and Mr. DILLARD had been at a point on the curb twenty-one feet and eleven and one-half inches east of a point where Main Street passes under the triple underpass. This same point where the mark had been observed by Mr. UNDERWOOD and Mr. DILLARD was seventy-three feet and five inches west of the first lamp post on the south side of Main Street, which lamp post is the first one located east from the triple underpass on Main Street.

The area on the curb from this point for a distance of ten feet in either direction was carefully checked and it was ascertained there was no nick in the curb in the checked area, nor was any mark observed.

Reference points in the photograph taken by Mr. UNDERWOOD used to locate this point were a lamp post located in the right of the photograph, which appears to be midway between two buildings, a lamp post located on the north side of Elm Street, which is in line with the third row of windows from the southwest corner of the TSBD Building, and which face south, and a traffic sign located on the left side of the photograph, which is to the west of the TSBD Building.

It should be noted that no nick or break in the concrete was observed, in the area checked, nor was there any mark similar to the one in the photographs taken by UNDERWOOD and DILLARD observed in the area checked either by Special Agents

32

on 7/15/64 at Dallas, Texas File # DL 100-10461

by Special Agents ROBERT M. BARRITT & IVAN D. LEE Date dictated 7/15/64
eah

This document contains neither recommendations nor conclusions of the FBI. It is the property of the FBI and is loaned to your agency; it and its contents are not to be distributed outside your agency.