

the Texas School Book Depository building, the sixth floor.

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The man is standing in that direct straight line between the assassination window and the mark on the curb, and the photograph then shows where the President in the Presidential limosine, ^{have been on} would ~~be in~~ Elm Street as related to the Zapruder films if a bullet going from the sixth floor window to the mark on the curb went directly over the President's head.

Mr. Redlich. Are you able to tell us the frame in Zapruder's sequence which would correspond to the position of the man standing on Elm Street in Chaneyfelt Exhibit No. 33?

Mr. Chaneyfelt. Yes. This would correspond to frame No. 410 in the Zapruder films. Of course, this, as stated, is based on the assumption that a bullet going from the window to the mark on the curbing went directly over the President's head. It would have occurred at approximately frame 410.

In relating this to other previously determined facts regarding the Zapruder films, this would be 97 frames after the frame 313, which is the frame of the Zapruder films that shows the shot that struck the President in the head. At 18.3 frames per second, this ~~was~~, 97 frames would, represent a lapse of time of 5.3 seconds between the shot to the President's head at frame 313, and any shot that would have occurred at frame 410, if such did occur.

Mr. Redlich. Now, with further reference to the relationship of this location to the Zapruder films, the Commission previously requested ~~that you~~ that the Bureau, advise us as to when Special

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Agent Hill of the Secret Service reaches the Presidential car. Can you tell us now the results of that investigation.

Mr. Chaneyfelt. Yes. I examined the Zapruder film and determined that Agent Hill first places his hand on the Presidential car at frame 343. This is approximately 1.6 seconds after the President is hit in the head at frame 313.

Special Agent Hill placed one foot on the bumper of the car at frame 368, which is approximately 3 seconds after frame 313. Agent Hill had both feet on the car at frame 381, which is approximately 3.7 seconds after frame 313.

Mr. Redlich. Going back now to frame 410 on the Zapruder film, which is the frame that would correspond to the location of a man appearing on Elm Street in Chaneyfelt Exhibit No. 33, can you tell us the location of Special Agent Hill and Mrs. Kennedy at frame 410.

Mr. Chaneyfelt. At frame 410 in the Zapruder films, Mrs. Kennedy has returned to the seat beside the President after having climbed out on the back deck ^{or} ~~at~~ the truck lid, and Secret Service Agent Hill is in the process of climbing from the bumper into the back seat of the car and is about midway from the back bumper to the President, crawling across the truck lid.

Mr. Redlich. Is it correct to say, Mr. Chaneyfelt, that at frame 410 the principal target on the back of the Presidential limosine would have been Special Agent Hill and not any of the other occupants of the rear seat of the car?

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Mr. Shaneyfelt. I do not have an opinion on that, except my recollection of the frame, as I recall it, the Connallys are down in the car, and the President is down in the car to a point where he ~~probably could not~~, may not, be visible from the sixth floor window. Mrs. Kennedy would still be visible, and Agent Hill; Mrs. Kennedy and Agent Hill, as I recall, are the only ones readily visible or that are visible.

Mr. Redlich. Turning now, Mr. Shaneyfelt, to the curb mark itself, you have brought with you today the actual piece of curbing which contains the mark referred to in your testimony, is that correct?

Mr. Shaneyfelt. That is correct.

Mr. Redlich. That piece of curbing has been designated as Shaneyfelt Exhibit No. 34.

(The article referred to was marked Shaneyfelt Exhibit No. 34 for identification.)

Mr. Redlich. Were you present at the time this curbing was removed?

Mr. Shaneyfelt. Yes. It was removed under my supervision.

Mr. Redlich. Can you then describe the subsequent investigation that was conducted in connection with this curbing.

Mr. Shaneyfelt. Yes. The ^{section} ~~second~~ of curbing, Shaneyfelt Exhibit 34, was cut out from the curbing along the south side of Main Street in the assassination area. ~~It was~~ ^{The} a mark on the curb having been located 23 feet, four inches from the abutment

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of the triple underpass. It was cut out under my supervision, and I personally returned it to the FBI laboratory. In the FBI laboratory it was examined for the presence of any foreign material.

Mr. Redlich. For the record, the results of this investigation have been summarized in a communication from Director Hoover to Mr. Rankin, dated August 12, 1964, and designated now as the Shaneyfelt Exhibit No. 27, is that correct, Mr. Shaneyfelt?

Mr. Shaneyfelt. That is correct.

Examination of the mark on the curbing in the laboratory resulted in the finding of foreign metal smears adhering to the curbing section within the area of the mark. These metal smears were spectographically determined to be essentially lead with a trace of antimony. No copper was found.

The lead could have originated from the lead core of a mutilated metal-jacketed bullet such as the type of bullet loaded into the 6.5 millimeter Mannlicher Carcano cartridges, or from some other source having the same composition.

The absence of copper precludes the possibility that the mark on the curbing section was made by an unutilated military full metal-jacketed bullet such as the bullet from Governor Connally's stretcher.

The damage to the curbing would have been much more extensive if a rifle bullet had struck the curbing without first having struck some other object. Therefore, this mark could not have been made by the first impact of a high velocity rifle bullet.

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Mr. Redlich. Based on your examination of the mark on the curb, can you tell us whether the mark which we have been referring to is a nick on the curb, that is, has a piece of the curb been chipped away, or is it instead a simple marking of lead?

Mr. Shaneyfelt. Yes, It is not a chip. There is no indication of any of the curbing having been removed, but rather it is a deposit of lead on the surface of the curbing that has given the appearance of a mark.

It was also established from a microscopic study of the curbing that the lead object that struck the curbing, that caused the mark, was moving in a general direction away from the Texas School Book Depository building.

Mr. Redlich. In connection with this investigation into the microscopic characteristics of the mark, a photograph was prepared which is designated as Shaneyfelt Exhibit No. 35. Will you describe that photograph?

(The photograph referred to was marked Shaneyfelt Exhibit No. 35 for identification.)

Mr. Shaneyfelt. Yes. Shaneyfelt Exhibit No. 35 is a color photograph that I made of the mark on the curbing, which is Shaneyfelt Exhibit No. 34. This is magnified about five times, and shows only the marked area. There is a red area in the lower left corner marked A which designates the point of initial impact, and the lead deposit is then sprayed out in a fan-like direction from that arrow.

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ed13 Mr. Redlich. Does point A in Shaneyfelt Exhibit No. 35 refer to or correspond to the portion of the marking which is visible in Shaneyfelt Exhibit No. 34?

Mr. Shaneyfelt. It refers to the lower right hand portion of that mark on Shaneyfelt Exhibit No. 34. It is this area here, and this area here. (indicating)

Mr. Redlich. Was Shaneyfelt Exhibit No. 35 the photograph on the basis of which the direction of the bullet fragment was determined?

Mr. Shaneyfelt. No. The direction was determined from an actual examination of the curbing itself rather than from the photograph. ~~Photograph Exhibit No. 35~~, Shaneyfelt Exhibit No. 35, was made primarily to show this lead deposit more clearly than Exhibit 34 shows it.

Mr. Redlich. I realize, Mr. Shaneyfelt, that the next question may be out of your area of specialization, and you may not be able to answer it. But are you able to tell us whether, if there had been copper deposits indicating a fully jacketed bullet, whether in the intervening period of time between the assassination and the time the curb stone was examined these copper deposits might have been removed by rain or erosion or any other natural causes?

Mr. Shaneyfelt. It is my understanding that there is no more reason for the copper to be removed than the lead to be removed, and it is my observation of the mark itself, the lead deposits,

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that the effect of time on it was to add a layer of dirt and film over it which covered ^{it} ~~rather than to~~ -- more an adding on of dirt and other matter which covered it rather than a wearing away.

So based on ^{this} ~~this~~, although it is not possible to state whether or not copper was there initially and eroded away or washed away or wore away, it seems logical that copper would have no more reason to become worn away than lead.

Mr. Redlich. Previous investigation, Mr. Chaneyfelt, as well as the results of the re-enactment in Dallas, have led, as you know, to a tentative conclusion that if three shots were fired during the assassination sequence, that one of these three shots missed the occupants of the car.

Assuming that tentative conclusion to be a definite finding of fact for purposes of this question, are you able to tell us whether in your opinion, the location, the presence, of the lead marking on the curb, which has been designated as Chaneyfelt Exhibit No. 34, provides any basis for determining which of the three shots fired by the assassin missed the Presidential limosine?

Mr. Chaneyfelt. Based on the assumptions as stated, it is my opinion that the examination of the mark on the curb has furnished only limited further information in this regard because it is not possible to establish whether or not this mark on the curb could have been made from a fragment of the shot that hit the President in the head or a fragment of another shot that missed

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The very fact ~~is~~ it can be considered a ~~case~~ of the possibilities *a possibility of a third shot that missed.*
may suggest ~~some additional advantages~~

Mr. Redlich. How far from the President's position at frame 313 was the mark on the curb?

Mr. Shaneyfelt. I don't have that figure here at the present time. To the best of my recollection, it was approximately 260 feet from where the President would have been at frame 313 to the mark on the south side of Main Street which has been designated as Shaneyfelt Exhibit No. 34.

Mr. Redlich. I would like to designate at this time a number, Shaneyfelt Exhibit No. 36, which we will apply to a communication which I asked you to furnish to the Commission giving us the exact distance between the President's location *at* frame 313

~~Mr. Shaneyfelt. Right.~~

~~Mr. Redlich.~~ and the mark on the *curb* curve, Shaneyfelt Exhibit No. 34.

Mr. Shaneyfelt. ~~Right.~~ *Alright.*

(The article referred to was marked Shaneyfelt Exhibit No. 36 for identification.)

Mr. Redlich. Have you completed your answer to my question with regard to whether this information offers any basis upon which one can conclude which of the three shots missed?

Mr. Shaneyfelt. Yes, I believe I have. I have very little opinion regarding that.

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Mr. Redlich. Mr. Shaneyfelt, prior to our deposition you and I discussed the matters concerning which you were going to testify, and during the course of this deposition there were a few conversations which were not transcribed; is that correct?

Mr. Shaneyfelt. That is correct.

Mr. Redlich. Is all of your testimony which has been transcribed completely consistent with any information which you have provided in the off-the-record conversations?

Mr. Shaneyfelt. Yes.

Mr. Redlich. Is there any relevant material which you provided in any off-the-record conversations which has not been covered in the course of our record deposition?

Mr. Shaneyfelt. No.

Mr. Redlich. Is there anything concerning the matters to which you testified that you would like to add at the present time?

Mr. Shaneyfelt. No, I believe not.

Mr. Redlich. A copy of this deposition will be available for your review.

(Whereupon, at 1:10 o'clock p.m., the deposition was concluded)