

TESTIMONY OF ROBERT A. FRAZIER -- RESUMED

Mr. Specter. Would you state your full name for the record, please?

Mr. Frazier. Robert A. Frazier.

Mr. Specter. Mr. ^{Frazier} Frazier, you have appeared before to testify, but will you at this juncture again give us the outline of your occupation and experience?

Mr. Frazier. Yes. I am a Special Agent of the Federal Bureau of Investigation assigned to the FBI Laboratory, Washington, D. C.

I work in the firearms identification unit in the laboratory, making examinations of firearms, bullets, the effects of bullets, trajectories, firing tests, powder pattern tests and various other types of examinations.

(At this point Sen. Cooper left the hearing room.)

Mr. Specter. Have you appeared heretofore before the Commission to testify about examinations which you have conducted of the clothing worn by President Kennedy, the clothing worn by Governor Connally, the examination of the Presidential limousine and certain ballistics information?

Mr. Frazier. Yes, I have.

Mr. Specter. Did you participate in the on-site tests at Dallas on May 24, 1964?

Mr. Frazier. Yes.

Mr. Specter. What was your position during most of the

time of those on-site tests?

Mr. Frazier. I was stationed at the window on the 6th floor of the Texas School Book Depository Building at the southeast corner of the building.

Mr. Specter. How far was that window open at the time the tests were being conducted?

Mr. Frazier. I estimated it as approximately one third. It was somewhat less than halfway open.

Mr. Specter. Is the distance depicted on Commission Exhibit 492 which has heretofore been marked ~~identify~~ ^{and} introduced in evidence? --

Mr. Frazier. Yes, sir.

Mr. Specter. The distance open on that window about the same as that which you had it open at the time these tests were run?

Mr. Frazier. Yes. I would say that this is very close.

~~It was~~ The window was placed according to information already furnished to the Commission as to how much it had been opened at that time.

Mr. Specter. Did you handle the Mannlicher-Carcano rifle during the course of the on-site tests?

Mr. Frazier. Yes, sir.

Mr. Specter. The rifle previously identified as Commission Exhibit 139?

Mr. Frazier. Yes, sir, I did.

Mr. Specter. At what position, what was the basis for your positioning of that rifle during those tests?

Mr. Frazier. To position the rifle we selected boxes of the same size and contour as boxes shown in a photograph or rather in two photographs, ^{reportedly} ~~allegedly~~ taken by the Police Department at Dallas shortly after the assassination.

We placed these boxes in their relative position in front of the window, spacing them from left to right according to the photographs which were furnished to us and also placing them up against the window ^{with} ~~and~~ one of them resting on the window ledge as it was shown in the photographs.

Mr. Specter. In addition to the placement of the ^{boxes} ~~boxes~~ were there any other guides which you had for reconstructing the position of the rifle to the way which you believed it to have been held on November 22, 1963?

Mr. Frazier. Yes, sir. There was one physical obstruction in the building which could not be moved consisting of two vertical pipes located just at the left side of the 6th floor window. These prevented me or anyone who was shooting from that window from moving any ^a farther to the left.

The position of the rifle, of course, had to be such that it could be ^{sighted} ~~seen~~ out through the window, using the telescopic ^{sight} ~~side~~, high enough above the window ledge so that the muzzle of the weapon would clear the window ledge, and low enough in position so that the bottom of the window, which was only partially raised

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would not interfere with a view through the telescopic ^{sight} ~~scope~~, which is approximately two inches higher than the actual bore of the weapon.

Mr. Specter. Did you position the rifle further, based on information provided to you concerning the testimony of certain eye witnesses at the assassination scene concerning what they observed?

Mr. Frazier. Yes, sir. We attempted to put the muzzle of the weapon sufficiently far out the window so it would have been visible from below.

Mr. Specter. Mr. Frazier, referring to Commission Exhibit 886, did you view through the sight as that depicted in photograph through rifle scope on the positioning of the Presidential limousine or the car to simulate the limousine at position A?

Mr. Frazier. Yes, sir. This would be the first position that an individual in that 6th floor window could sight at the car due to the ^tinterference of the window ledge of the building and the fact that the angle downward is limited by the partially lowered window.

Mr. Specter. I now hand you Commission Exhibit 888 and ask you if you had the view depicted on the photograph through the rifle scope shown on that exhibit?

Mr. Frazier. Yes, sir. This 888 is frame 161, and is the position at which I had the car stopped just before the spot, and indicating the entrance wound on the back of the President's

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stand-in, pass into the foliage of the tree.

Mr. Specter. I now hand you Exhibits 889, 890 and 891 and ask you if you had the view on each of those depicted in the photograph through rifle scope?

Mr. Frazier. Yes, sir.

Commission ⁸⁸⁹ ~~899~~ represented by frame 166 is the adjusted position to account for the fact that the Presidential stand-in on May 24 was actually ten inches higher in the air above the street than the President would have been in the Presidential limousine.

Mr. Dulles. Would you explain to us simply how you made those adjustments?

Mr. Frazier. Yes, sir.

Mr. Dulles. I mean how did you get him down ten inches as a practical matter.

Mr. Frazier. They had marked on the back of the President's coat the location of the wound, according to the distance from the top of his head down to the hole in his back as shown ^{by} in the autopsy figures. They then held a ruler, a tape measure up against that, both the back of the ~~President and the back~~ ~~on~~ ~~case no.~~ the Presidential stand-in and the back of the Governor's stand-in, and looking through the scope you could estimate the ten-inch distance down on the automobile.

You could not actually see it on the President's back. But could locate that ten-inch distance as a point which we

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marked with tape on the automobile itself, both for the Presidential and the Governor's stand-in.

Mr. Dulles. Thank you.

Mr. Frazier. Continuing with Commission Exhibit 890, represented by frame --

Mr. McCloy. Hold that around so I can see it.

Mr. Frazier. -- represented by frame 185, this is the first or rather the only position through the foliage of the tree at which a person from the 6th floor could get a clear shot at the back of the President, and I had the car stopped at this position and then we determined that this was frame 185 from the Zapruder films.

Mr. Dulles. There are no heavy limbs in there of any kind, are there --

Mr. Frazier. No, sir.

Mr. Dulles. -- that would obstruct a bullet?

Mr. Frazier. No, sir.

The tree, it is a live oak tree which retains its leaves all year around, and the limbs at that point are relatively small.

Mr. Dulles. All right.

Mr. Specter. Did you compare the appearance of the foliage on the pictures taken by the Secret Service about which inspector Kelley earlier testified with the appearance of the foliage on May 24?

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Mr. Frazier. Yes, I did.

Mr. Specter. What was that comparison?

Mr. Frazier. They are so nearly identical that you could not really pick out any difference between the foliage and the photograph taken previously in November.

In Commission No. 891, which is marked frame 186, this is the adjusted position to which the car was moved to accommodate the ten-inch distance at which the actual wound in the President would have been located had the car been the actual Presidential limousine rather than the stand-in car.

Mr. Specter. Were you standing, seated or kneeling at the times when these photographs were taken and the ^{sighting} ~~sighting~~ of the rifle was made by you.

Mr. Frazier. I was actually sitting on a carton with my left elbow resting on the boxes stacked in front of the window.

Mr. Specter. Did that position represent to you the most likely position which the rifleman assumed on November 22, 1963, based upon the positioning of the various boxes?

Mr. Frazier. Yes, sir.

Mr. Specter. And the eye witness accounts as to how far the rifle protruded?

Mr. Frazier. Yes, sir, it was.

Mr. Specter. Now, in all of the frames that you have described up to now, did you position the automobile on the street or give instructions over the radio as to where the automobile ought to

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be stopped for those various sightings?

Mr. Frazier. Yes, Sir.

Mr. Specter. I now hand you Commission Exhibits 892 and 893, and ask you if you observed the views depicted in the photographs through ^{the} rifle scope on each of those exhibits?

Mr. Frazier. On Commission Exhibit 892, also marked frame No. 207, the car was moved forward under the tree to the point where the spot on the Presidential stand-in's back just became visible beyond the foliage of the tree. I had the car stopped at that point so that this photograph could be made, there.

On Commission Exhibit 893, also marked frame 210, we have the photographs made at the adjusted position to accommodate the ten-inch difference in height between the stand-in and the actual position of the wound above the street and on the President's body.

Mr. Specter. What was the alignment of President Kennedy's stand-in with Governor Connally's stand-in at frames 207 and 210?

Mr. Frazier. They both are in direct alignment with the telescopic sight at the window. The Governor is immediately behind the President in the field of view. Was that your question?

Mr. Specter. Yes.

Mr. Frazier. Alignment of people?

Mr. Specter. Yes, sir.

Mr. Frazier. Yes, sir.

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Mr. Specter. Could Governor Connally have taken a shot in the range of 207 to 210 which would have traversed his body with the entry and exit points being approximately what they were shown to be through the medical records?

Preliminarily let me ask you if for the record you had seen or had made available to you rather the contents of the medical records showing the point of entry on the back of the Governor and the point of exit on the front side of his chest?

Mr. Frazier. No, sir, I don't recall having seen the medical testimony. However, information has been furnished to me by Commission members as to the relative positions on the back and the front of the Governor.

Mr. Specter. Have you in addition had an opportunity to examine personally the clothing worn by the Governor consisting of his jacket and shirt?

Mr. Frazier. Yes, I have.

Mr. Specter. Based on the Governor's position then in frames 207 and 210, was he lined up so that a bullet fired from the 6th floor would have passed through his body in about the way that the entry and exit holes were described to you?

Mr. Frazier. Yes. I would say that this could have happened at these two frames.

However, this would assume that the path of the bullet through the Governor's body was the same as the path of the bullet before it struck, that is, there was no appreciable deflec-

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tion in the body itself. Since I have no actual technical evidence available to me that there was no deflection, I can only say that it is a possibility under the circumstances as set up in these photographs.

Mr. Specter. You would state that then as a possibility based upon the observations you observed and the factors provided to you?

Mr. Frazier. Yes, sir.

Mr. Specter. All right.

I now hand you Commission Exhibit 894 and 895 and ask you if you saw the photograph-as depicted on the photograph through the rifle sight on those exhibits?

Mr. Frazier. Yes, sir.

Commission Exhibit No. 894 is marked frame 222, and the photograph through the scope is the same field which I saw looking through the telescope on May 24, 1964.

This is similarly true of Commission Exhibit 895, 895 being frame number 225.

Mr. Specter. I now show you exhibits 896 and 897 and ask you if the picture shown on photograph through rifle scope is that which you observed at the times those pictures were taken.

Mr. Frazier. Yes, sir. This exhibit 896 is also marked frame number 231, and represents the relative positions of the President's and Governor's stand-in on May 24.

Commission Exhibit 897, which is marked frame 235, also

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represents the positions of the President and Governor's stand-in as I saw it from the 6th floor on that date.

Mr. Specter. I now hand you Exhibits 899, 898 and 901 and ask if you saw the pictures or if your view was the ~~same~~ ^{same} as photograph through rifle scope depicted on those exhibits?

Mr. Frazier. Yes, they are. In each case Commission 898, which is marked frame 240, Commission 899 which is also marked frame No. 249, and Commission 901 which is also marked frame 255.

In the photographs, through the scope, the individuals representing the President and the Governor are as they were positioned on May 24.

Mr. Specter. Now, assuming certain factors, Mr. Frazier, to wit, that the President and Governor Connally were seated in an open automobile in the approximate positions taken by the President's stand-in and the Governor's stand-in during the on-site tests, that a bullet passed through President Kennedy ^{entering} ~~entering~~ at a velocity of 1900 feet per second striking 14 centimeters below the mastoid process and 14 centimeters to the left of the right acromion process which is the tip of the right shoulder, that the bullet passed through a fascia channel, hitting no bones, and proceeded in a straight line, exiting through the lower one-third of his neck, passing out of his shirt at the position which you observed personally from your inspection of the President's shirt, nicking the knot on the President's

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tie in the way you observed from your examination of that tie, do you have an opinion as to whether it is probably based on the facts which I have asked you to assume, that a bullet could have gone through the President and missed the interior of the limousine and all of its occupants between frames 207 and 225?

Mr. Frazier. I can give you my opinion based on this reconstruction, as I understand your question.

All of these things refer to the reconstruction and assuming particularly that the path of the projectile to the President was also the same path, the same angle as it went through his body and then on, and in that connection, yes.

In my opinion the bullet had to strike in the car, either the car itself or an occupant of the car.

Mr. Specter. And is that a probable opinion of yourself based on what you saw during the tests and the facts I have asked you to assume?

Mr. Frazier. Yes, it is, and in fact, I think it is rather -- it is obvious when you look at the photographs themselves that the crosshair of the telescopic site actually would give you the point of impact of the bullet if the weapon is sighted in and if there is no change in the line of sight, the bullet had to strike the car shown in each of these photographs which is 225 on this end of this series, and 207 on the other end of the series.

It shows that there would be no chance for the bullet to

miss the car at if it had no deviation i. its, -if it had no deflection in its path.

Mr. Specter. Did you have an opportunity to examine the car shortly after the assassination?

Mr. Frazier. Yes, I did, on the early morning of November 23, 1963.

Mr. Specter. The record will show you have testified about it heretofore, but will you again state at this juncture whether or not you found any indication within the car that the interior of the car was struck by a missile proceeding at a high velocity at 1775 feet per second?

Mr. Frazier. No, sir, we found none.

We examined in particular the passenger's section, the rear seat area, of the back of the automobile clear up to the back of the rear seat, the rear seat itself, the floor boards and the back of the front seat, the backs, primarily, of the jump seats, and other areas in the front of the car, the windshield and the chrome and the front hood and fenders and sides of the automobile and we found no evidence of a bullet impact having those characteristics you mentioned.

Mr. Specter. Did you also examine the windshield of the car, interior and exterior?

Mr. Frazier. Yes, sir.

Mr. Specter. And the chrome of the car on the interior and the exterior?

Mr. Frazier. Yes, sir.

Mr. Specter. Did you also examine the front portion of the Presidential limousine?

Mr. Frazier. Yes, we did. That portion, the dashboard below the windshield and the dashboard in the area immediately under that, were particularly examined, because the rest of it would have been shielded from a shot due to the height of the dashboard and the height of the back of the front seat.

Mr. Specter. Was any of the area examined then -- did any of that area examined disclose any impact of such a missile?

Mr. Frazier. No, sir, not of a high velocity. Only the lead area smeared on the inside of the windshield from a relatively light object which struck the inside, and did not even break the inside surface of the glass, and then there was a possible bullet impact area at the top of the chrome to the right of the rear view mirror. This was made by a projectile not having the weight or velocity of a whole bullet moving at -- in the range of a thousand to 1500 feet per second or more.

Mr. Specter. Based on the position of Governor Connally as depicted in the Zapruder slides at frames 222 and 225, could he have taken a shot, assuming the firing point to have been the 6th floor of the Texas School Book Depository Building, which entered and exited from his body in accordance with the known medical evidence?

Mr. Frazier. I have not made a very thorough study of the

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Zapruder film which I understand you mentioned in this particular question. With reference to the Zapruder film itself--

Mr. Specter. We will take it with reference to the reconstructed positions of Governor Connally in 222 and 225, which you have testified you did observe at the time the measurements and photographs were taken.

Mr. Frazier. I would say, yes, under the conditions that I mentioned previously, that the reconstruction would represent the Governor as ~~he~~^{HE} was in November, then he could have been struck anywhere in that frame area, ~~of~~ from 207 to 225.

Mr. Specter. How about the same question in frames 231, 235, 240 and thereafter?

Mr. Frazier. There is only one ^{LOCATION} ~~condition~~ beyond frame 225 at which the Governor could have been struck, according to the information furnished to me and from my examination of his clothing, ~~that~~ he was struck near the right sleeve seam and ~~that~~ the bullet came out through the inside pocket of his jacket.

At frame 231 the Governor is, as I saw it from the window on that date, turned to the front to such an extent that he could not have been hit at that particular frame.

Mr. Specter. Why not, Mr. Frazier?

Mr. Frazier. The angle through his body, as I measured it on the coat is approximately 20 degrees from the right towards the left. On May 24 in our reconstruction I found that the Governor had turned ^{FURTHER} to the front from a position slightly facing

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the right ~~that~~ he was in at frame 225. He had turned back to the front so that a shot which struck him in this shoulder in the back.

Mr. Specter. Indicating the right shoulder?

Mr. Frazier. Indicating the right shoulder near the seam would have come out much further to his right than the actual exit hole described to me as being just under the right nipple.

Mr. Specter. How would the bullet have passed through his body based on his position as shown in frame 235?

Mr. Frazier. In 235, which is Commission Exhibit 897, the Governor in our reconstruction, according to the Zapruder film, was also facing too far, too much towards the front. The angle of the bullet through his body, assuming no deflection, would not have corresponded to the angle through his clothing or to according to the information furnished from the medical examiners.

Mr. Specter. How about the Governor's position in frame 240?

Mr. Frazier. In frame 240 the Governor again could not have been shot, assuming no deflection of the bullet prior to its striking his body from the window on the 6th floor because he is turned in this case too far to the right.

Now, this obviously indicates that the Governor in between frame 235 and frame 240 has turned from facing completely forward in the car around to the right to the point that a bullet entering his back on the right shoulder area would have exited

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in my opinion somewhere from his left chest area rather than from his right chest area.

Mr. Specter. How about the Governor's position at frame 249?

Mr. Frazier. In frame 249 a similar situation exists in that the Governor, as represented by his stand-in in our reconstruction, has turned too far to the right, even further than frame 240, so that in frame 249 represented by Commission Exhibit 899, he again could not have been hit by a bullet which came from the window on the 6th floor, ~~and~~ struck him in an undeflected fashion and passed through his body undeflected.

Mr. Specter. How about frame 255?

Mr. Frazier. On frame 255 which is in Commission Exhibit 901 the Governor is turned again too far to the right, and the same situation would hold true as to what we saw in 249.

The bullet would have exited too far ^{ON} from his left, on his left side provided there was no deflection between the window and the point of exit from the Governor's body.

Mr. Specter. Mr. Frazier, based on the angles and distances, and speeds of the car and bullet in this situation, what lead would a marksman have to give to strike the moving target, allowing for all of those factors?

Mr. Frazier. The lead would be approximately the same for all of these positions represented by your frame or rather your Commission numbers 888, which is frame 161, all the way up to

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frame 313 which I don't have, the Commission's exhibit is No. 902 on frame 313, a load of six inches above the point of impact would be sufficient to account for the movement of the car during the flight of the bullet.

The fact that the same lead would be necessary at each place is because at the closer frame numbers, the lower frame numbers, 161, 166, 185 and so forth, there is a ~~very~~ relatively steep downward angle beginning at 40 degrees, whereas the last shot, the downward angle is approximately 17 degrees or 20 degrees, in that neighborhood.

Just one thing more, it would require less apparent elevation of the crosshair over the point of impact at the distant target to allow for a further movement of the car of approximately two feet at the point where the head shot occurred.

So the lead would be constant between 5.9 ~~feet~~

Mr. Specter. Inches or feet?

Mr. Frazier. Excuse me, 5.9 inches above the point of impact to 6.3 inches above the point of impact.

Mr. Dulles. Have you asked the witness, I was studying these frame pictures, at about what frame he thinks the body of Governor Connally would have been in a position to receive a bullet that would go through the body with this trajectory?

Mr. Specter. Yes, I believe I did.

Mr. Dulles. I wasn't quite clear.

Mr. Frazier. I testified that it would have been in position

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from anywhere from frame 207 to 225.

However, I cannot limit it to 207 because at that point the car goes back under the foliage and you can't actually see ~~it~~ ^{there} clearly enough.

Mr. Dulles. Between frames 207 and 225?

Mr. Frazier. Yes, sir.

Approximately 207 to approximately 225.

Mr. Dulles. Thank you.

Mr. Specter. Looking at Exhibit 902 on, frame 313, on the view shown on the photograph through rifle scope, is that the way you saw it at the time of the reconstruction when the car was in that position as shown in that exhibit?

Mr. Frazier. Yes, it is.

Mr. Specter. At this time I move for the admission into evidence of Commission Exhibits 885 through 903 which constitute all of the photographs referred to by Mr. Shaneyfelt and Mr. Frazier during their testimony during their testimony.

(Commission Exhibits Nos. 885 through 903 were marked for identification and received in evidence.)

Mr. McCloy. They may be admitted.

Mr. Specter. That completes the questioning.

Mr. McCloy. As I get it, Mr. Frazier, what you are saying is there is only a certain point at which the bullet could pass through the President could have hit Mr. Connally and that is at a point when he is not sitting full face forward and at a point

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when he is not too far turned around.

Mr. Frazier. That is exactly right.

Mr. McCloy. Somewhere when he is turning to the right.

Mr. Frazier. He was placed approximately 20 degrees to the right.

Mr. McCloy. To the right.

Mr. Frazier. That is 20 degrees according to my examination of his clothing ^{BUT} I don't know the exact figures of the angle through his body.

Mr. Specter. I have one additional question.

Mr. Frazier, assuming the factors which I have asked you to accept as true for the purposes of expressing an opinion, before as to the flight of the bullet and the straight line penetration through the President's body, considering the point of entry and exit, do you have an opinion as to what probably happened during the interval between frames 207 and 225 as to whether the bullet which passed through the neck of the President entered the Governor's back.

Mr. Frazier. There are a lot of probables in that. First, we have to assume there is absolutely no deflection in the bullet from the time it left the barrel until the time it exited from the Governor's body. That assumes that it has gone through the President's body and through the Governor's body.

I feel that physically this would have been possible because of the positions of the Presidential stand-in and the Governor's

stand-in, it would be entirely possible for this to have occurred.

However, I myself don't have any technical evidence which would permit me to say one way or the other, in other words, which would support it as far as my rendering an opinion as an expert, but I would certainly say it was possible, but I don't say that it probably occurred because I don't have the evidence on which to base a statement like that.

Mr. Specter. What evidence is it that you would be missing to assess the probabilities?

Mr. Frazier. We are dealing with hypothetical situations here of replacing people in cars from photographs which are not absolutely accurate. They are two dimensional. They don't give you the third dimension. They are as accurate as you can accurately place the people, but it isn't absolute.

Secondly, we are dealing with the fact that we don't know whether, I don't know technically, whether there was any deviation in the bullet which struck the President in the back, and exited from his front. If there were a few degrees deviation then it may affect my opinion on as to whether or not it would have struck the Governor.

We are dealing with an assumed fact that the Governor was in front of the President in such a position that he could have taken it. To when you say, would it probably have occurred, then you are asking me for an opinion, to base my opinion on a whole series

of hypothetical facts which I can't substantiate.

Mr. McCloy. Let me put it to you in another way: from your best judgment about what you know about this thing what was the sequence of the shots and what was the, who was hit and when in relation to --

Mr. Frazier. I will say this: I have looked at the film and have seen evidence of one shot ^{occurring} ~~occurring~~ which struck the President in the head. That was at frame 313.

Mr. Specter. 313? Yes.

Mr. Frazier. Commission 902. I have seen evidence in the film of the President with both arms up clutching at his throat, and having examined his clothing and having seen the hole in his shirt and his back, I might assume that ~~there was~~ ^{he is} clutching his throat because a bullet exited from his throat. I don't have the technical knowledge to substantiate that. There was no metal on this hole in front, and there is ^{no way} ~~nothing~~ for me to say from my own examination that it actually was a bullet hole.

Nowhere else in this film have I seen any indication of a bullet striking.

Mr. Specter. The President.

Mr. Frazier. Either the President or the Governor. Because I do not know the reaction time which would exist from the time a bullet struck until someone made a move. It may be a half second, it may be a full second, it may be a tenth of a second. It depends upon the intensity of the pain, and actually

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what happened.

And therefore, in looking at the film you can't say a bullet struck right here because he started to move his hands here. It may have been a full second, a half second behind that spot. I would say that two bullets at least struck in the automobile. I cannot say that three bullets did not strike in the automobile from my examination, but it appears, and due to the reconstruction at Dallas, it appears that if the one bullet did strike the President, then it landed in the automobile, and if it landed in the automobile, and we found no evidence of it having hit the car itself, then I say it is possible that it struck the Governor.

Now, as to the sequence of the shots, that one obviously was before the head shot. If there was a third shot fired, I could not tell you from anything I know whether it was the first, the second or the third.

Mr. McCloy. It is possible, according to your analysis of it that the first shot could have gone through the back of the President and exited through the front of his neck, and the second shot could have hit Connally and the third shot could have hit the President?

Mr. Dulles. Where would the first shot have gone under that thesis?

Mr. McCloy. I just say I don't know where it could have gone.

Mr. Frazier. From what I know ^{from} of my examination, that is

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true, because I have seen bullets strike small twigs, small objects and ricochet for no apparent reason except they hit and all the pressure is on one side and it turns the bullet and it goes off at an angle.

If there was no deviation ~~in that~~ from the time the bullet left the rifle barrel until the time it exited from the Governor's body, then the physical setup exists for it to have gone through the President, and through the Governor.

Mr. Specter. You mean from the time it exited through the Governor's body?

Mr. Frazier. That is right.

Otherwise, you have nothing to base a conclusion upon. If you have deviation anywhere along the line then you both affect the position at which the Governor could have been shot -- for instance if the bullet entered the Governor's back and immediately took a 20 degree leftward angle, then the Governor could have been shot when he was facing straightforward in the automobile.

Now, I can't tell that, and therefore I can only say that my opinion must be based on the ~~fact~~ ^{tion} that there was not a deviation of the bullet through the President's body and no deviation of the bullet through the Governor's body, no deflection. On that basis then you can say that it is possible for both of them to have been hit with one bullet.

Rep. Ford. Does that opinion rule out the possibility or

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cast doubt on (possibility of a third (ot?

Mr. Frazier. It does not rule out the possibility of a third shot. No, sir, because I can only base my opinion on what I saw and ^{on} my own experience, and that is, ~~that~~ a bullet could have struck the President, if it had deflection in the President's body it could have, and he happened to be in a certain position in the car which would affect the angle, the bullet may have exited from the automobile.

Rep. Ford. As I understood your assumptions there was no deviation and no deflection, and I thought I phrased my question based on your opinion under those facts, it might rule out a third shot.

Mr. Dulles. Do you mean rule out a third shot entirely or just rule out a third shot hitting in the car?

Rep. Ford. Rule out a third shot in one instance or establish the possibility of a third shot that missed everything.

Mr. Frazier. As I understand your question I am now assuming ^{on} these various factors to exist, that there was no deviation, no change in the path of the bullet.

Rep. Ford. The bullet went through the President and through the Governor.

Mr. Frazier. Yes, then under that premise and the reconstruction showing the position of the car with reference to the path of the bullet, then it is entirely possible that these two individuals were hit with one bullet and that there was not

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another bullet that struck in the car, other than the one that struck the President in the back of the head and exited from his head.

Rep. Ford. Under these assumptions there is a possibility there was not a third shot or there was a third shot that missed everything.

Mr. Frazier. That missed everything, yes, sir.

Mr. Dulles. Is there any way of correlating the time of the shot with the position of the car so as to know whether possibly the first shot was fired before the car was out from the tree and it might have hit a branch of the tree and be deflected so it didn't hit the car? If he had fired too soon. I guess it is impossible.

Mr. Frazier. It is possible, I don't have any evidence to support it one way or the other.

Mr. Dulles. Yes.

Mr. Frazier. As to whether or not a limb of the tree may have deflected one shot. However, I think it should be remembered that the frame 207 is just as he exits under the tree; from there to 225 to where the President shows a reaction is only a matter of one second. He is under the tree in frames ~~168 to 207 which is, excuse me, it is frame 166 until frame 207,~~ which is about two seconds. So somewhere in that three-second interval there may have been a shot--which deflected from a limb or for some other reason and was never discovered.

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Rep. Ford. Chairman, may I return questions that I was asking Mr. Frazier?

Mr. McCloy. Yes.

Rep. Ford. Again making those same assumptions we made a moment ago, is there any evidence that a third shot hit the car or any occupant of the car?

Mr. Frazier. Assuming all those assumptions we had before, no. I would say that, and again I have not the technical evidence to back this up one way or the other but ^{you} make these assumptions and I would say under those conditions only two shots hit the occupants or the car, because the one through the President had to cause Connally's wound otherwise it would have struck somewhere else in the car and it did not strike somewhere else.

Therefore, it had to go through Governor Connally.

And the second shot had to strike the President in the head.

Mr. McCloy. How about these shots you spoke of, one of the fragments, at least, hitting the glass, the windshield and one possibly hitting the chrome. Was there anything, could it have been any fragmentation of the first shot which didn't hit, the first shot that hit the President, let's say, but didn't hit Connally, might that again make the possibility of three shots, one of them hitting the President and fragmenting as you indicated, and a second one hitting Connally, and the third one hitting the President for the lethal shot.

Mr. Frazier. Under that circumstance the bullet exiting from

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the President would have had to strike something else in the car to break it up.

Mr. McCloy. Break it up ^{as} much as it was broken up?

Mr. Frazier. Yes, sir. There was no evidence that the bullet which exited from the President was in any but complete condition; that is, there was only one hole through the shirt, there was only one hole through his coat or shirt, actually, and the testimony of the medical examiners ^{was} ~~was~~ that it made a relatively straight path through the body.

Mr. Specter. That completes my questions of Mr. Frazier.

Mr. Dulles. Could I ask just one more question?

Mr. Specter. Yes, sir, Mr. Dulles.

Mr. Dulles. There has been a certain amount of testimony indicating there was a longer pause between the report of the first shot or what is believed to be the report, explosion of the first shot and the second and third shots, that is not absolutely unanimous but I would say it is something like five to one or something of that kind, what would you say, two to one, three to one?

(Discussion off the record.)

Mr. Dulles. Is it possible that the assassin attempted to fire when the car was behind the tree or going into the tree, that that shot went astray, and that that accounts for, if there was a longer delay between one and two, that would account for it, and then the lethal shots were fired or the wound, the

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one shot that fired that hit the two a... then the lothal shot was fired immediately after? It is speculation.

Mr. McCloy. I think that must be speculation because there certainly is conflicting evidence as to the intervals between the first and the second shot and the second and the third shot.

Mr. Dulles. I think if you will read the testimony you will find it at least two to one except for the people in the car.

Mr. MCCloy. Maybe, but what weight do you give these, I don't know. I think that is quite possible that a bullet was deflected by that tree, but there is no evidence whatever of the bullet landing anywhere in the street or among the crowd.

And yet there seems to be no doubt at all that three shots were fired.

Mr. Dulles. That seems to be the evidence.

Mr. McCloy. At least three shots were fired, and probably three shots were fired because of the three shells that were found.

Mr. Dulles. Three shells?

Mr. McCloy. Yes.

Mr. Dulles. We probably won't settle that today.

Mr. Frazier. I don't know how to answer that question except possibly to go back to the frame numbers of the Zapruder film. You will find they are about equally spaced from frame 161 just before the tree to frame, say, 220, which is just a few frames after the tree, that is 59 or approximately 60

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frames, from that point, ²⁷² But from frame ~~280~~ to the last shot of 313 is 78 and 13, 91 frames, so there is more time between the second and third than the first and second, assuming that the second one actually occurred and that it occurred at about the middle of that interval.

Mr. McCloy. In the middle of that frame, yes. I think that is pretty persuasive.

Mr. Dulles. I didn't quite follow that.

Mr. McCloy. There seemed to be more frames between, going backwards, between the third shot, that is between the time that --

Mr. Dulles. The first shot went astray, you don't know whether it was fired. You have no way of getting at that.

(Discussion off the record.)

Mr. McCloy. Thank you very much, Mr. Frazier.

Mr. Specter. I want to call Inspector Kelley for observations from the underpass.

May the record show that Inspector Thomas Kelley has returned to the witness chair.

TESTIMONY OF THOMAS J. KELLEY, -- resumed

Mr. Kelley. Yes, sir.

Mr. Specter. Before we conclude the testimony, Inspector Kelley, I want to ask you if on May 24 you had occasion to go over to the triple underpass and observe the simulated car and occupants drive down Elm Street from Houston Street?

Mr. Kelley. Yes, I accompanied Mr. Redlich and Mr. Specter