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# Ballistics Expert Testifies Oswald Had

Lee Harvey Oswald had "a relatively easy shot" at President Kennedy from the sixth floor window of the Texas School Book Depository, an FBI ballistics expert testified today.

Robert A. Frazier of Hillcrest Heights, Md., resumed his testimony in the trial of Clay L. Shaw. On the stand when court closed yesterday, Frazier testified a single gun

# (See Trial Testimony on Page 12)

fired the identifiable bullet fragments found in President Kennedy's car after his assassination in Dallas Nov. 22, 1963.

SHAW, 55, IS ON TRIAL before Criminal District Judge Edward A. Haggerty Jr. District Attorney Jim Garrison charges Shaw plotted the slaying here with Oswald and David W. Ferrie.

Frazier testified Oswald's shot was an easy one because the presidential car was moving on a direct line away from him at 12 miles an hour, making the distance the gunman had to "lead" his target almost negligible.

Had the target been moving laterally across the gun-

# d'Easy Shot'-

SATURDAY, FEBRUARY 22, 1969

man's field of vision at that speed, Frazier said, he would have been required to lead the target by about two feet.

FRAZIER SAID HIS OPINION as an expert firearms witness is that he found no evidence at the scene that shots were fired from anywhere except the sixth floor window of the book depository.

Questioned about his examination of the clothing worn by President Kennedy on the day of the assassination, he said it indicated a bullet entered his body through the back. Garrison contends Kennedy was shot from the front.

In his testimony yesterday, Frazier stated the nearly intact bullet found on a stretcher at Parkland Hospital where Kennedy and Gov. John B. Connally were taken after the shooting was fired from the same gun as the two bullet fragments found in the presidential limousine.

AS COURT OPENED TODAY, chief defense counsel F. Irvin Dymond returned to direct examination of Frazier. The witness said the metallic composition of the intact

See Expert, Page 2

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#### Continued from Page 1

bullet as the same as that of the bullet fragments.

Frier testified he examined the clothing worn by Kennet on the day of the assassination, including a suit coat.

He aid the examination showed only one hole in the

garment, a quarter inch in diameter, located 5% inches below the top of the coat collar.

USING DEFENSE ATTORNEY William Wegmann as a model, Dymond had Frazier point out the exact spot the bullet entered the President's back.

Fibers from the back of the coat were pushed inward by the bullet, Frazier testified, indicating "this was the entrance hole of the bullet."

He gave the same opinion regarding the fibers of the shirt Kennedy was wearing. He said he believes a short slit in the front of the shirt is an "exit split, from pressure from inside."

DYMOND ASKED FRAZIER if he could establish the same bullet made a hole in the coat and shirt and then damaged the necktie. He said it could have, but this could not be definitely substantiated.

Asked what direction the bullet came from, Frazier said it came from the rear, but added the actual direction would depend on the position of the President's body.

Frazier, turning to the clothing worn by Gov. Connally, said he found two holes in the coat, one in the back near the seam, another in the front of the coat on the right side.

HE SAID THE COAT HAD been cleaned and pressed when he got it, making it virtually impossible to examine the fibers.

Dymond asked Frazier if he found anything inconsistent about the theory that a single bullet struck both men. Frazier said he did not.

Frazier cited the positions of Connally and Kennedy in the car to support his belief the same bullet could have hit both men.

HE SAID THE FACT CONNALLY'S coat had been laundered prevented him from reaching conclusions about exactly how it was damaged.

He said, however, he saw nothing in the film of the assassination taken by Dallas dress manufacturer Abraham Zapruder inconsistent with the holes being made by the same projectile.

Frazier said if a bullet fired from the front had made the holes in Connally's trousers, it would have had to penetrate the windshield, and none did. The witness said a bullet fired the distance from the

The witness said a bullet fired the distance from the depository window to the windshield from that type of rifle ordinarily would penetrate the glass, unless something caused it to lose velocity.

"IF IT WOULD HAVE PASSED through a person's head, would it have lost sufficient velocity?" Dymond asked. "Yes, I think so," said Frazier.

Dymond then went into the matter of the difficulty of the shot and the possible direction. He then tendered the witness for cross-examination.

Here are the highlights of yesterday's court action:

-Judge Haggerty turned down a defense motion for a directed verdict of not guilty that would have ended the trial and set Shaw free.

-Mrs. Marina Oswald Porter of Richardson, Tex., Oswald's widow, countered several points of the testimony of the state's star witness, Perry Raymond Russo, and her husband.

-Lloyd J. Cobb, president of the International Trade Mart, testified that he knew Shaw's whereabouts at all times during the period in 1963 when Garrison said the assassination plot was hatched.

-Shaw's personal secretary, Miss Goldie N. Moore, introduced documents supporting Shaw's story that his trip to the West Coast in November 1963 was a prearranged business trip and not, as Garrison charges, an overt act in furtherance of the alleged conspiracy.

-Rex L. Kommer, a meteorologist with the U.S. Weather Bureau in Baton Rouge, introduced temperature records for Clinton, La., for August and September of 1963 to show it was consistently hot there in that period. Several state witnesses said they saw Shaw, Oswald and Ferrie there during a cool spell.

Frazier yesterday afternoon qualified as an expert witness in the field of ballistics and said in the early morning hours of Nov. 23, 1963, he examined the limousine in which Kennedy and Connally were riding.

The witness said he observed a crack in the windshield made by a bullet, fired from the vehicle's rear. He said it could not have been made by a shot from the front.

THE DIRECTION OF THE SHOTS is a major difference between Garrison and the Warren Commission's account of the slaying. The commission says all the shots came from the sixth floor window of the Texas School Book Depository. Garrison says JFK was caught in a crossfire, with the fatal shot coming from the front.

Frazier said he found blood and tissue all over the outside area of the hood, on the side rails, inside and outside the vehicle. He said he found no other bullet marks.

He said he was unable to determine with any accuracy the length of time between the first and last shots fired at



## Kennedy.

The state objected strongly to Frazier's testifying about the nearly intact bullet found on the stretcher in Parkland hospital, two large bullet fragments found in the car and three shell casings found near the depository widow.

OSER SAID THE WITNESS had no personal knowledge of where these items came from Dymond said the court should take judicial notice of them as "a matter of history."

The judge rejected this argument, but allowed testimony about the items as long as their origin was unexplained. The jury was left to draw its own conclusions about them.

All of the items—the bullet, the fragments, and the shell casings—were fired from Oswald's rifle "to the exclusion of all other firearms", the expert said. The trial was then recessed until this morning.



spot on Wegmann's back to match the point where the bullet entered the President's back.

JUDGE HAGGERTY then directed Dymond to place Wegmann so that the most people in the courtroom could see the position.

Frazier picked up a ruler and, measuring from Wegmann's coat collar downward and from the midline across, picked out the spot and then, dramatically, pointing his finger to the spot.

He then pressed his finger into Wegmann's back and, stepping to the side, said, "This is the location." 10.1

DYMOND'S NEXT line of questioning concerned examination by the witness of fibers from the coat's material.

Asked what the examination of these fibers showed, the witness explained that the cloth had been torn in short radial strips. He testified that the size of the bullet hole was a quarter inch in diameter. He further testified that the fibers were pushed inward. that the fibers were smooth on the outside and standing out on the inside as if pushed. through by an object.

"AS AN EXPERT, what did this indicate to you," Dymond asked.

The witness answered, "This was the entrance hole of the bullet."

Responding to further direct examination by Dymond, Frazier described his examination of the shirt worn by the late President.

HE DESCRIBED a hole in the shirt as being five and three-quarters inches below the top of the collar and one and one-eighth inches to the right of the midline.

He further testified regarding the fibers in the cloth of the shirt, saying the fibers s h o w e d that they were pressed inward. He said the hole was one-quarter inch in diameter. He said there were very slight radial tears on the margin of the hole.

FRAZIER SUMMED up his testimony concerning the shirt by saying that this had

all the appearances of a "bullet entrance hole."

At this point the witness' voice appeared to be hoarse. There was a short pause while he drank some water.

In connection with the examination, Dymond asked if there was anything unusual in relation to the front of the shirt\_

ANSWERING AFFIRMA-TIVELY, Frazier replied that there was a short slit a half inch in length located on the button line, just below the collar button.

Frazier said his examination of this particular area led him to believe it was an exit split, from pressure from inside.

"With regard to the holes in the back of the coat and the shirt, did these two holes connect," Dymond asked.

"YES, THEY DID," was

the reply. Asked if there were any actual differences in the alignment, the witness replied, there was a slight difference, explaining that the hole in the coat was about three-eighths of an inch higher than the hole in the shirt. He further explained that he considered this to be normal in as much as the collar of the shirt normally stands above the coat.

Questioning then centered on Frazier's examination of President Kennedy's necktie. "Had the neck band been cut?" asked Dymond.

Asst. Dist. Atty, Alvin V. Oser offered a quick objection on the grounds that the witness could not answer this unless the witness himself had cut it.

THE JUDGE said, "I'm going to rule that it had been cut" when it got to Frazier. Frazier described a point where the slit in the President's shirt front near the collar button lined an with a

Continued to Page 31

### (Continued from Page 12)

slight nick in the knot of the necktie.

DYMOND ASKED if, as an expert, Frazier could establish that the same projectile made a hole in the coat, the

shirt, and damaged the necktie.

Frazier responded that he could say that it might have been caused by the passage of a single projectile, would not be able to substantiate this.

Dymond next asked which direction the bullet took. Frazier said the bullet came from the rear, but added that actual direction would depend on the position of the President's body.

He further explained that the bullet had a downward angle of from 20 to 30 degrees. Frazier explained that the position of the president's body would have a variant which would affect the angle to the ground.

AT THIS POINT Dymond began questioning the examination of the clothing of former Gov. John B. Connally of Texas. Connally was

#### wounded.

Describing Connally's coat, Frazier said he found two holes in the coat, one in the back near the seam, and near the right sleeve, and the other in the front of the coat in the right side of the coat.

HE FURTHER testified tha the coat had been cleaned and pressed when he got it. This made it virtually impossible to examine the fibers.

Dymond asked Frazier if he found anything inconsistent about the theory that a single bullet struck both men.

Oser objected on grounds the answer to the question would be based on hearsay.

DYMOND ARGUED that the witness had seen everythink and could therefore testify to what he had seen. Oser then argued further that the witness had already testified that he possessed no technical knowledge along this line.

Oser contended that the state did not know how much of the Zapruder film showing the assassination that Frazier had actually seen.

Dymond then rephrased his question. He asked if there was anything inconsistent with the possibility that the same bullet hit both men.

"NO, SIR," was the reply. In response to further questioning by Dymond Frazier described his examination of the limousine and the position of the persons in the limousine. He testified that Gov. Connally was nearer the center of the car than the president.

He said Kennedy was seated with an arm out on the rail of the car. Frazier described these positions to establish his reasons for saying that a bullet fired from above and to the right could have struck the president and also entered the governor's body.

The questioning then shifted to the examination by the witness of the shirt worn by Gov. Connally.

FRAZIER TESTIFIED that he found a slightly elongated hole in the back of the shirt. He further testified that this hole corresponded to a hole in the coat.

He described an irregular in the front of the shirt, saying he found an "H" shaped hole, very irregular in nature.

ASKED IF THE shirt had been laundered before he examined it, Frazier replied that it had been. He said that this made it impossible to examine the fiber content.

Q-From your examination of the sleeve of Gov. Connally's coat, were you able to learn anything?

A—On the sleeve of the coat I found a hole, irregular in shape, on the right sleeve, near the inside edge and on the shirt a hole through the cuff, a French cuff, with all four layers cut. I could reach no conclusions whether the damage was by a bullet or other object, since both garments had been laundered.

Q-BOSED ON YOUR viewing the Zapruder film, did you find anything inconsistent with the holes in the cuffs of Gov. Connally's shirt and coat as being made from the same projectile?

A-No, sir.

Q-Did you have occasion to examine his trousers?

A-YES, SIR.

Q-What were you able to determine?

A-I found in the trousers, near the left knee, a hole that was circular and about a quarter inch in diameter that was slightly elongated, possibly due to the cloth's tearing, but as to the particular characteristics, it was difficult to determine whether it was the passage of the bullet.

Q-HAD THIS garment been laundered?

A-Yes, sir. Q-Based on your study, and with particular reference to the trousers of Gov. Connally, if this hole were inflicted by a gun fired in front of the car, would the bullet have had to penetrate the windshield?

A—It would have either had to penetrate the windshield, or the metal part of the car, or the front seat of the car.

Q-WAS THERE any evidence of this?

A-No. sir, there was none. Q-With reference to the rifle and the live ammunition turned over to you, could you tell me the approximate speed of the projectile from that round of ammunition?

A—The velocity at the muzzle was in the heighborhood of 1,965 feet per second, but this could vary as much as 40 feet per second. However, ammunition similar to the one turned over to me and produced by the same manufacturer, the average velocity was 1,965 feet per second.

Q-To what extent would the speed of the projectile diminish?

A-As a rule of thumb, it would generally diminish 265 feet per second.

Q-Can you compare this with the speed of sound?

A-Actually it was faster than the speed of sound.

Q—Would a shot fired at a velocity faster than the speed of sound have any acoustical characteristics?

A-Yes, sir.

Oser objected that the acoustical characteristics would vary depending upon the area involved, but the judge permitted the question to stand.

A-YES SIR, from our studies a person standing in front of a shot fired faster than the speed of sound, unat person would hear the sound before he would hear the report, what I mean is he would hear the sonic boom from the shot itself before he would hear the report, that is, over the explosion of the gunpowder and the muzzle blast carried through in the air.

This sound would travel one second for every 1,100 feet, so a person standing 1,100 feet away would hear it one second later.

Q-COULD YOU LIKEN this to the sonic boom of a jet plane?

Oser objected on the grounds that the witness was not an areonautical engineer, but the judge allowed the question.

A-It would be the same

principle.

Q-Would the sonic noise be easily distinguishable from the report of the gun itself?

A—It would be easily confused unless the person was anticipating it and unless he knew the difference in the sounds.

Q-FROM YOUR tests, you found damage to the interior of the windshield of the presidential limousine?

A—The damage was to the exterior of the windshield, but there was a lead smear on the interior of the windshield.

Q-How many bullet fragments did you find in the car?

A-There were three lead fragments.

Q—From your test on the fragments were you able to determine the gun from which it was fired?

A-No, sir, there were no barrel markings on the fragments.

Q-Let me give you a hypothetical question. If a bullet were fired from a 6.5 cal. rifle from a distance of 265 feet, would it ordinarily penetrate the automobile windshield?

# A-YES, IT WOULD.

At this point Oser again objected to the hypothetical question because it involved facts which had not already been brought out in the trial. The judge overruled the objection.

A-Yes, it would.

Q-IF A BULLET hit the

windshield and did not penetrate it, what could be the explanation for this?

À—The velocity of the projectile would have had to have dropped drastically to the point that it would not break the glass, in other words it must have passed through some object or ricocheted from one object to the other.

Q—If it would have passed through a person's head would it have lost sufficient velocity?

A-Yes, I think so.

Q-Now you stood in the window of the sixth floor of the Dallas Book Depository when the presidential limousine was driven along the route during the reenactment of the shooting?

#### A-YES, I DID.

Q—As an expert, would you say that this would have been a difficult shot?

A—Using this particular rifle with the attached telescoping sight, it would not have been a difficult shot.

Q—From a distance of 265 feet what effects would the telescopic sight have had on the shot?

2HONES

A-IT WOULD have cut the distance by three-quarters, that is to say that the effective target size would be the same as if he were shooting without a scope at one-quarter of the distance, that is to say 80 feet. In other words, it would be easier to line up the cross hairs of the scope on the target. It would only be necessary to pull the trig-

ger while the cross hairs are on the target.

In other words it would be a relatively easy shot, although slightly complicated if the target were moving.

Q—During your examination was there anything to indicate that it would be inconsistent that all of the shots were fired from the right rear and from the sixth floor of the book depository?

OSER OBJECTED, claiming that the witness was not qualified to answer such a question. The judge permitted the question.

A—There is nothing inconsistent about the shots being shot from above and behind. The judge then said "excuse the interruption, but I would like to know if it would have been difficult to lead the target if the vehicle had been traveling at 12 miles an hour."

A—It would have required a lead of only about six inches over the target.

The judge then asked if 12 miles per hour would have required much of an adjustment.

A-It does not.

Q—From the sixth floor and the reenactment was this 12 miles per hour a lateral movement, or was it pretty much a case of the vehicle going away?

A-IT WAS LARGELY a question of the vehicle going away.

Q-Would this make it a more difficult shot?

A—It would make it considerably easier. It would mean cutting the lead from—two feet to about six inches.

Q—From your expert examination were you able to find any evidence that the shots came from any place other than the Dallas Book Depository?

A-No, sir, no such evidence.

At this point the witness was tendered, and the judge called a five-minute recess.

Under cross-examination by Oser, Frazier said he had been an agent for 26 years. The state asked Frazier how the evidence pertaining to the assassination of the President was taken out of Texas, where the state said it belonged, and taken to Washington, D.C., where it did not belong.

FRAZIER SAID he did not not know.

When he was asked by Oser what state officials authorized the evidence to be removed, Dymond immediately objected. There followed an exchange between state and defense counsel, with Dymond charging that if there was a violation of Texas law by the federal government in removing this information, the state (of Louisiana) should charge the federal government with fraud.

JUDGE HAGGERTY then told Oser to rephrase his question.

Frazier testified that to his knowledge, the first evidence obtained by the FBI arrived in Washington at 1:40 a.m. on the day after the assassination. He said he did not know if the presidential limousine had been under guard from the time of the assassination until the FBI obtained its first evidence.

He admitted that at the time he made his ballistic examination he did not have all of the FBI evidence at hand, or the FBI information on what happened at Parkland Hospital regarding the evidence.

Frazier said he did not attempt to obtain results of reports of the FBI in Dallas.

THE FBI AGENT said he did not examine a supplemental report of the FBI regarding a dent in the presidential limousine above the windshield.

In answer to a subsequent question, Frazier said he examined the presidential limousine. Asked if he noticed a dent above the windshield, Frazier said there was a dent.

Asked if the dent could have been caused by a fragmented bullet, Frazier said it could have.

FRAZIER said under crossexamination there were two other FBI men assisting him in the examination of the car. He identified the other agents as Courtlandt Cunningham and Charles Killion.

ASKED IF during this reconstruction examination he had available FBI reports of an interview with a Mr. and Mrs. William Newman, Frazier said he didn't remember any such reports.

Asked if at any time he had seen any statements of any witnesses in Dealey Plaza on Nov. 22, 1963. Frazier said he did not recall.

He testified that the substituted occupants of the reconstructed car were placed in their relative positions by the Warren Commission according to examination of the Zapruder film.

ing to examination of the Zapruder film. FRAZIER WAS ASKED if he wasn't in the window of the Texas School Book depository during the reconstruction of the assassination. The witness said he was in the window, but had also been on the street for that phase of the examination.

phase of the examination. The witness said he had seen the Zapruder film many times and had made three ex-aminations of it. He had ex-transe with the film frame by frame and enlargements of certain frames. Frazier said he had con-centrated on special frames which had been selected by the President's commission. Frazier said he could not recall having taken measure-ments of the jump seats as they related to the rear seat of the presidential car. He also said that the presi-

He also said that the presidential limousine was not used for reconstruction of the assassination and said he did not know why. NYE YA