

JFK
head
frag?

On November 23, 1963, at 1:45 a.m., the two metal fragments in this container were delivered to me in the FBI laboratory by Special Agent James W. Sibert, and Special Agent Francis O'Neill of the Baltimore office of the FBI who stated they had obtained these in the autopsy room at the Naval Hospital near Washington, D.C., where they were present when they were removed from the head of President Kennedy.

Mr. SPECTER. Is there any specification as to the portion of the President's head from which they were removed?

Mr. FRAZIER. No, sir; they told me that there had been numerous particles in the head but only these two had been removed, the others being very small.

Mr. SPECTER. May it please the Commission I would like to have those marked and admitted into evidence as Commission Exhibit No. 843.

Mr. DULLES. It shall be so marked and admitted under those numbers.

(Commission Exhibit No. 843 was marked for identification and received in evidence.)

Mr. SPECTER. In the event we have not already had 842 admitted into evidence, I move, Mr. Dulles, for the admission into evidence of 842 which was the fragment from Governor Connally's arm.

Mr. DULLES. That shall be admitted.

Mr. SPECTER. Moving back to 843 will you describe those fragments indicating their weight and general composition?

Mr. FRAZIER. These fragments consisted of two pieces of lead, one weighed 1.65 grains. The other weighed .15 grain. They were examined spectrographically so their present weight would be somewhat less since a very small amount would be needed for spectrographic analysis.

Mr. SPECTER. Was a comparison made between or among these two fragments with the other metal from the bullets heretofore identified as Commission Exhibits 399, 567, 569, 840, and 842?

Mr. FRAZIER. Yes; they were.

Mr. SPECTER. What did that examination disclose?

Mr. FRAZIER. Possibly my numbers do not agree with those you have. These two particles from the President's head were compared with the lead of Exhibit 842.

Mr. SPECTER. Which is the fragment from the arm of Governor Connally?

Mr. FRAZIER. Yes, sir; they were compared with the lead scraping from the inside of the windshield.

Mr. SPECTER. Which is Exhibit 841.

Mr. FRAZIER. And with the three lead fragments found on the rear floorboard carpet of the limousine.

Mr. SPECTER. Which is Exhibit 840.

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Mr. FRAZIER. And they were found to be similar in metallic composition.

Mr. SPECTER. Can you state with any more certainty----

Mr. FRAZIER. Excuse me, one thing. These, as a group, were compared with the bullet fragment, Commission Exhibit 567, which was found on the front seat of the automobile, which also was found to be similar in metallic composition.

Mr. SPECTER. Is it possible to state with any more certainty whether or not any of those fragments came from the same bullet?

Mr. FRAZIER. Not definitely, no; only that they are of similar lead composition.

Mr. SPECTER. Have you now described fully all of the relevant characteristics of the fragments identified as Commission Exhibit 843?

Mr. FRAZIER. Yes, sir.

Mr. SPECTER. Are there any other bullets or bullet fragment or metallic substances of any sort connected with this case in any way which you have examined which you have not already testified to here today or on your prior appearance?

Mr. FRAZIER. No, sir; that is all of them.

Mr. DULLES. Is there anything further?

Mr. SPECTER. No.

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

The Commission will reconvene at 2:30.

(Whereupon, at 1:30 p.m., the President's Commission recessed.)

Vch V

Frazier we - testimony on hole in coat & shirt JFK collar Tie

Mr. SPECTER. Would you then please tell us what those tests disclose?

Mr. FRAZIER. Traces of copper were found around the margins of the hole in the back of the coat, and as a control, a very small section under the collar was taken, and no copper being found there, it was concluded that the copper was foreign to the coat itself.

Mr. SPECTER. Have you now described all of the characteristics of that hole, which you consider to be important for the Commission's consideration?

Mr. FRAZIER. Yes, sir.

Mr. SPECTER. Assuming that those clothes, that jacket, specifically, at this juncture, was worn by President Kennedy, and was in the same condition when that hole was made as it is now, and at the time when you made your examination, do you have a professional opinion as to what caused that hole in the back of the jacket?

Mr. FRAZIER. Yes, sir; I would say that it was an entrance hole for a bullet.

Mr. SPECTER. And what is the reason for that conclusion, please?

Mr. FRAZIER. It has all the physical appearance characteristics which are considered when examining holes, such as its shape, its size, and in particular the fact that the fibers around the margins of the hole were all pushed inward where the cloth was torn by the object which passed through, and the fibers were unraveled as they were pushed inward, which is characteristic of a entrance-type bullet hole.

Mr. SPECTER. Is the presence of the metallic substance relevant in your conclusion that it was a bullet hole?

Mr. FRAZIER. Not necessarily. It is a factor which corroborates that opinion

but even without it, it would still have been my opinion that it was a bullet entrance hole.

Mr. SPECTER. Can you tell the size of the bullet from the hole in the jacket?

Mr. FRAZIER. The hole in the jacket is approximately a quarter of an inch in diameter.

Mr. SPECTER. Would that hole be consistent with a hole which would be caused by a 6.5 millimeter bullet?

Mr. FRAZIER. Yes, sir; the actual bullet which makes a hole cannot be determined because the cloth in one instance may stretch more than it does in another instance causing either a larger or smaller hole even for the same caliber, but it is consistent for a bullet of 6.5 millimeters in diameter to make a hole of approximately this size.

Mr. SPECTER. Were there any holes indicative of being bullet holes found on the front part of the President's jacket?

Mr. FRAZIER. No, sir.

Mr. SPECTER. Did you have further occasion to examine the President's shirt?

FRAZIER? Shain hole 5 3/4 inches below top of the collar - Alignment of hole in JFK's coat and with his shirt. (p. 60) top of coat hole is 5 3/8 inches below the collar (p. 60)

Mr. FRAZIER. Yes; they were, in that the bullet is distorted by having been slightly flattened or twisted.

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The CHAIRMAN. You are speaking of the collar button itself, aren't you?

Mr. FRAZIER. The collar button.

The CHAIRMAN. Yes.

Mr. FRAZIER. In each instance for these holes, the one through the button line and the one through the buttonhole line, the hole amounts to a ragged slit approximately one-half inch in height. It is oriented vertically, and the fibers of the cloth are protruding outward, that is, have been pushed from the inside out. I could not actually determine from the characteristics of the hole whether or not it was caused by a bullet. However, I can say that it was caused by a projectile of some type which exited from the shirt at that point and that is again assuming that when I first examined the shirt it was--it had not been altered from the condition it was in at the time the hole was made.

Mr. SPECTER. What characteristics differ between the hole in the rear of the shirt and the holes in the front of the shirt which lead you to conclude that the hole in the rear of the shirt was caused by a bullet but which are absent as to the holes in the front of the shirt?

Mr. FRAZIER. The hole in the front of the shirt does not have the round characteristic shape caused by a round bullet entering cloth. It is an irregular slit. It could have been caused by a round bullet, however, since the cloth could have torn in a long slitlike way as the bullet passed through it. But that is not specifically characteristic of a bullethole to the extent that you could say it was to the exclusion of being a piece of bone or some other type of projectile.

Mr. SPECTER. Have you now described all of the characteristics of the front of the shirt holes which you consider to be important?

Mr. FRAZIER. Yes, sir.

Mr. DULLES. Could I ask one question there. If the bullet, after entering, hit something that made it tumble or change, would that account for this change in the appearance of the exit through the shirt?

Mr. FRAZIER. I think not. In my opinion it would not have been necessary, if I may put it that way, for the bullet to have turned sideways or partially sideways in order to make an elongated hole.

Mr. DULLES. I see.

Mr. FRAZIER. I think the effect in the front of the shirt is due more to the strength of the material being more in the horizontal rather than the vertical direction which caused the cloth to tear vertically rather than due to a change in the shape or size of the bullet or projectile.

Mr. DULLES. Or possibly the velocity of the bullet at that place, would that have anything to do with it?

Mr. FRAZIER. I think the hole would not have been affected unless it was a very large change in velocity.

The CHAIRMAN. Mr. Frazier, I notice that the front of the shirt immediately around the hole you have just been describing and in fact on much of the front of the shirt is bloodsoaked. Would that, with the other evidences you have seen there indicate to you as an expert that this was the exit of the bullet that had entered in the back of the coat as you have described it?

Mr. FRAZIER. The presence of the blood would have in my opinion no value for determining which was entrance or exit, because I have seen entrance wounds which bleed extensively and exit wounds which bleed not at all and vice versa. It depends entirely on the type of bullet which strikes, whether or not it mutilates itself in the body, and probably more importantly it depends on the position of the person who is shot after the shooting occurs as to where the blood will be located on the garments.

The CHAIRMAN. May I put it this way, probably a little better. Do the evidences that you see on this shirt indicate to you that this hole in the front of the shirt that you have just described was made by the bullet which entered in the rear.

Mr. FRAZIER. I can say that this hole in the collar area could have been made by this bullet but I cannot say that the bullet which entered the back actually came out here or at some other

VFK
collar

place because I am not aware of the autopsy information as to the path of the bullet through the body. (of course, since FBI never reviewed the official autopsy report) my usual

in photograph

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Mr. FRAZIER. But if the path of the bullet was such that it came through the body at the right angle, then one bullet could have caused both holes.

The CHAIRMAN. Could have caused both holes.

Mr. FRAZIER. Yes.

The CHAIRMAN. That is sufficient.

Mr. DULLES. Is it correct that the blood on the shirt might well have been occasioned by the second wound rather than exclusively by the first wound?

Mr. FRAZIER. Yes; it could have come from any other wound on the body as well as this one.

Mr. SPECTER. When you refer to any other wound, Mr. Frazier, are you referring to the head wound which is widely known to have been inflicted on the President at the time of the assassination?

Mr. FRAZIER. Yes, sir.

Mr. SPECTER. Did you have occasion to examine the President's tie or the tie purportedly worn by the President on November 22, 1963?

Mr. FRAZIER. Yes; I did.

Mr. SPECTER. May the record show at this juncture that that tie has heretofore been marked as Commission Exhibit 395?

The CHAIRMAN. Yes; it may show that.

Mr. SPECTER. What did you note, if anything, with respect to the tie, Mr. Frazier?

Mr. FRAZIER. When the tie was examined by me in the laboratory I noted that the neck portion had been cut from one side of the knot. However, the knot remained in apparently its original condition. The only damage to the tie other than the fact that it had been cut, was a crease or nick in the left side of the tie when you consider the tie as being worn on a body. As you view the front of the tie it would be on the right side. This nick would be located in a corresponding area to the area in the shirt collar just below the button.

Mr. SPECTER. As you now indicate on your own tie, you are indicating on the portion of the tie to your right?

Mr. FRAZIER. If it was on my tie it would be on the left side of the tie.

Mr. SPECTER. Your left side.

Mr. FRAZIER. The left side of my tie. There is a nick on the left side of the tie if you consider it as left and right according to the person wearing the tie.

Mr. SPECTER. Does the nick in the tie provide any indication of the direction of the missile?

Mr. FRAZIER. The nick is elongated horizontally, indicating a possible horizontal direction but it does not indicate that the projectile which caused it was exiting or entering at that point. The fibers were not disturbed in a characteristic manner which would permit any conclusion in that connection.

Mr. SPECTER. Is the nick consistent with an exiting path?

Mr. FRAZIER. Oh, yes.

Mr. SPECTER. Is there any indication from the nature of the nick as to the nature of the projectile itself?

Mr. FRAZIER. No, sir.

Mr. SPECTER. Is the nick consistent with a 6.5 millimeter bullet having caused the nick?

Mr. FRAZIER. Yes. Any projectile could have caused the nick. In this connection there was no metallic residue found on the tie, and for that matter there was no metallic residue found on the shirt at the holes in the front. However there was in the back.

JFK Tie

Any suggestion of fiber analysis on Tie & collar - Stambaugh Report

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heretofore referred to contain any indications at all of any bullet holes or any other type of holes?

Mr. FRAZIER. No, sir.

Mr. SPECTER. Mr. Frazier, did you have occasion to examine the clothing which

has heretofore been identified in prior Commission proceedings as that worn by Governor Connally on November 22, 1963?

Mr. FRAZIER. Yes; I did.

Mr. SPECTER. I now hand you what purports to be the Governor's coat, and may the record show that has been heretofore marked as Commission Exhibit No. 683?

(At this point the Chairman left the hearing room.)

Mr. DULLES [presiding]. The record may so show.

Mr. SPECTER. Have you had opportunity heretofore to examine that coat?

Mr. FRAZIER. Yes; I have.

Mr. SPECTER. What did your examination reveal with respect to the back side of the coat?

Mr. FRAZIER. There was found on the coat by me when I first examined it, near the right sleeve 1 1/8 inches from the seam where the sleeve attaches to the coat, and 7 1/4 inches to the right of the midline when you view the back of the coat, a hole which is elongated in a horizontal direction to the length of approximately five-eighths of an inch, and which had an approximate one-quarter inch height.

Mr. SPECTER. Were you able to determine from your examination of the Governor's clothing whether or not they had been cleaned and pressed prior to the time you saw them?

Mr. FRAZIER. Yes; they had.

Mr. SPECTER. Is that different from or the same as the condition of the President's clothing which you have just described this morning?

Mr. FRAZIER. It is different in that the President's clothing had not been cleaned. It had only been dried. The blood was dried. However, the Governor's garments had been cleaned and pressed.

Mr. SPECTER. Had the President's clothing been pressed then?

Mr. FRAZIER. No, sir.

Mr. SPECTER. Will you proceed to describe any other characteristics----

Mr. DULLES. Had been dried artificially or let nature take its course?

Mr. FRAZIER. It appeared to be air dried.

Mr. DULLES. Air dried, artificially?

Mr. FRAZIER. I couldn't say whether any outside heat had been applied but it did not appear that any heat had been applied to the blood.

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Frazier and Connally's clothes follows

Vok. III

Mr. FRAZIER. Oh, yes; and on less, much less of an area. The character of the marks is more important than the number of the marks.

Mr. EISENBERG. Mr. Frazier, here you were of course unable to see all of the lines which were present on the bullet before mutilation. Have you ever had an occasion where you examined a bullet and saw one portion of it which was an apparent match and then found out that the balance of the bullet was not an apparent match?

Mr. FRAZIER. No, sir; and if I understand your words "apparent match," there is no such thing as an apparent match. It either is an identification or it isn't, and until you have made up your mind, you don't have an apparent match. We don't actually use that term in the FBI. Unless you have sufficient marks for an identification, you cannot say one way or the other as to whether or not two bullets were fired from a particular barrel.

In other words, you cannot nonidentify on the absence of similarities any more than you can identify when you have no similarities present.

Mr. EISENBERG. In other words, you won't make an identification unless you feel enough marks are present to constitute a basis for a positive identification?

Mr. FRAZIER. That is right, and I would not report any type of similarities unless they were sufficient for an identification, because unless you can say one bullet was fired from the same barrel as a second bullet, then there is room for error, and in this field of firearms identification, we try to avoid any possible chance of error creeping in.

Mr. EISENBERG. Do you avoid the category of "probable" identification?

Mr. FRAZIER. Oh, yes; we never use it, never.

Mr. EISENBERG. And why is that?

Mr. FRAZIER. There is no such thing as a probable identification. It either is or isn't as far as we are concerned.

Mr. EISENBERG. And in this case it--

Mr. FRAZIER. It is, yes.

Mr. EISENBERG. Any further questions on this bullet fragment, Mr. Chairman?

Mr. McCLOY. Do we have any proof in the record thus far as to where the fragment referred to a moment ago came from?

Mr. EISENBERG. Honestly, I am not sure. I know it will be in the record eventually, but I have not taken that up as part of this testimony.

Mr. McCLOY. That will be subject to further proof.

Mr. EISENBERG. Yes.

Mr. McCLOY. If it is not in the record. As a result of all these comparisons, you would say that the evidence is indisputable that the three shells that were identified by you were fired from that rifle?

Mr. FRAZIER. Yes, sir.

Mr. McCLOY. And you would say the same thing of Commission Exhibit 399, the bullet 399 was fired from that rifle?

Mr. FRAZIER. Yes, sir.

Mr. McCLOY. And the fragment 567---

Mr. FRAZIER. 567, the one we have just finished.

Mr. McCLOY. Was likewise a portion of a bullet fired from that rifle?

Mr. FRAZIER. Yes, sir.

Mr. McCLOY. You have no doubt about any of those?

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turn to the anterior portion of the body and describe various other wounds which were present.

Mr. SPECTER. You were focussing on 388 before I last asked a question, Dr. Humes. Why don't you describe in general terms the nature of the wound which was present at the top of the head of the late President?

Commander HUMES. With your permission, sir, and Mr. Chief Justice, I think I might describe those two wounds together, and describe the defects in the scalp and in the skull in each instance.

Mr. SPECTER. That would be fine.

Commander HUMES. Would that be appropriate?

Mr. SPECTER. Yes.

Commander HUMES. Turning now to Commission Exhibit 388, where we have depicted in the posterior right portion of the skull a wound which we have labeled "in" or a wound of entrance and a large roughly 13 cm. diameter defect in the right lateral vertex of the skull. I would go into some further detail in describing these wounds.

The scalp, I mentioned previously, there was a defect in the scalp and some scalp tissue was not available. However, the scalp was intact completely past this defect. In other words, this wound in the right posterior region was in a portion of scalp which had remained intact.

So, we could see that it was the measurement which I gave before, I believe 15 by 6 millimeters.

When one reflected the scalp away from the skull in this region, there was a corresponding defect through both tables of the skull in this area.

Mr. SPECTER. Will you describe what you mean by both tables, Dr. Humes?

Commander HUMES. Yes, sir. The skull is composed of two layers of bone. We will put the scalp in in dotted lines.

The two solid lines will represent the two layers of the skull bone, and in between these two layers is loose somewhat irregular bone.

When we reflected the scalp, there was a through and through defect corresponding with the wound in the scalp.

This wound had to us the characteristics of a wound of entrance for the following reason: The defect in the outer table was oval in outline, quite similar to the defect in the skin.

Mr. SPECTER. You are referring there, Doctor, to the wound on the lower part of the neck?

Commander HUMES. No, sir; I am speaking here of the wound in the occiput. The wound on the inner table, however, was larger and had what in the field of wound ballistics is described as a shelving or a coning effect. To make an analogy to which the members of the Commission are probably most familiar, when a missile strikes a pane of glass, a typical example, a B-B fired by a child's air rifle, when this strikes a pane of glass there will be a small, usually round to oval defect on the side of the glass from whence the missile came and a belled-out or coned-out surface on the opposite side of the glass from whence the missile came.

(At this point Mr. Dulles entered the hearing room.)
Commander HUMES. Experience has shown and my associates and Colonel Finck, in particular, whose special field of interest is wound ballistics can give additional testimony about this scientifically observed fact. This wound then had the characteristics of wound of entrance from this direction through the two tables of the skull.

Mr. SPECTER. When you say "this direction," will you specify that direction in relationship to the skull?

Commander HUMES. At that point I mean only from without the skull to within.

Mr. SPECTER. Fine, proceed.

Commander HUMES. Having ascertained to our satisfaction and incidentally photographs illustrating this phenomenon from both the external surface of the skull and from the internal surface were prepared, we concluded that the large defect to the upper right side of the skull, in fact, would represent a wound of exit.

A careful examination of the margins of the large bone defect at that point, however, failed to disclose a portion of the skull bearing again a wound of—a point of impact on the skull of this fragment of the missile, remembering, of course, that this area was devoid of any scalp or skull at this present time. We did not have the bone.

In further evaluating this head wound, I will refer back to the X-rays which we had previously prepared. These had disclosed to us multiple minute fragments of radio opaque material traversing a line from the wound in the occiput to just above the right eye, with a rather sizable fragment visible by X-ray just above the right eye. These tiny fragments that were seen dispersed through the substance of the brain in between were, in fact, just that extremely minute, less than 1 mm. in size for the most part.

(At this point, Senator Cooper entered the hearing room.)

Mr. SPECTER. Dr. Humes, this would be a good juncture to produce two photographs.

May it please the Commission, Mr. Chief Justice Warren, I have identified as Commission Exhibits 389 and 390 which will at a later time be identified as being two frames from the motion picture camera operated by one Abraham Zapruder, being the amateur photographer who was on the scene, which I think would assist in evaluating the angle of the President's head corresponding to that exhibit designated as 388.

I will hand those to you, Dr. Humes, and ask you if you would state for the record the relative position of the President's head in 389 which is a frame about one-sixteenth of a second before the point of impact shown in Exhibit 390.

(The frames referred to were marked Commission Exhibits Nos. 389 and 390 for identification.)

Commander HUMES. It will be noted in Exhibit 389 that the President's head is bent considerably forward and perhaps somewhat to the left in this frame of the photograph 389.

Mr. SPECTER. Is that in approximately the same position as the angle of the head depicted in Commission Exhibit No. 388?

Commander HUMES. Yes, sir; it is.

Mr. SPECTER. Mr. Chief Justice, at this time I would like to move for admission in evidence of Exhibits 387 through 390.

The CHAIRMAN. They may be admitted under those numbers, (Commission Exhibits Nos. 385, 386, 387, 388, 389, and 390, previously marked for identification in evidence.)

Mr. SPECTER. Will you proceed now, Dr. Humes, to continue in your description of the head wound?

Commander HUMES. Head wound—a careful inspection of this large defect in the scalp and skull was made seeking for fragments of missile before any actual detection was begun. The brain was greatly lacerated and torn, and in this area of the large defect we did not encounter any of these minute particles.

I might say at this time that the X-ray pictures which were made would have a tendency to magnify these minute fragments somewhat in size and we were not too surprised in not being able to find the tiny fragments depicted in the X-ray.

Mr. SPECTER. Approximately how many fragments were observed, Dr. Humes, on the X-ray?

Commander HUMES. I would have to refer to them again, but I would say between 30 or 40 tiny dustlike particle fragments of radio opaque material, with the exception of this one I previously mentioned which was seen to be above and very slightly behind the right orbit.

Mr. DULLES. Were these all fragments that were injected into the skull by the bullet?

Commander HUMES. Our interpretation is, sir, that the missile struck the right occipital region, penetrated through the two tables of the skull, making the characteristic coming on the inner table which I have previously referred to. That one portion of the missile and judging by the size of the defect thus produced, the major portion of the missile, made its exit through this large defect. A second portion of the missile or multiple second portions were deflected, and