

Representative FORD. How long after the President was brought in before you went to trauma room No. 1?

Dr. PERRY. That I don't know either. My last recollection in regard to time was approximately 12:30 when I was having lunch prior to rounds, and Dr. Jones picked up the page and as we went downstairs I took off my watch and dropped it in my coat pocket, rather expecting to do some kind of procedure, and I took off my coat and I never looked at the clock until afterwards.

Mr. McCLOY. One more question, I want to get clear.

The extent to which you examined Governor Connally's wounds, as I gather, you were asked to stand by.

Dr. PERRY. That is right, sir.

Mr. McCLOY. Rather than to be involved in a close examination of the wounds.

Dr. PERRY. That is right, sir.

Mr. McCLOY. So you are not generally familiar?

Dr. PERRY. No, sir; all I did was come into the operating room, put on a scrub suit, cap and mask, and looked at the thigh wound before Dr. Shires started the operation. That was the extent of the episode into the wound, and I stayed there while he carried it down to the lower portion of the wound and indicated there was no serious injury, and I left the operating room at that point.

Mr. McCLOY. And you didn't see the other two wounds?

Dr. PERRY. I didn't see the other wounds at all, sir.

Representative FORD. Thank you very much, Dr. Perry.

Your testimony has been most helpful.

(Whereupon, at 11:45 a.m., the President's Commission recessed.)

Tuesday, March 31, 1964

TESTIMONY OF ROBERT A. FRAZIER AND RONALD SIMMONS

The President's Commission met at 9 a.m. on March 31, 1964, at 200 Maryland Avenue NE., Washington, D.C.

Present were Chief Justice Earl Warren, Chairman; Representative Hale Boggs and John J. McCloy, members.

Also present were J. Lee Rankin, general counsel; Melvin Aron Eisenberg, assistant counsel; Norman Redlich, assistant counsel; Charles Murray and Lewis Powell, observers; and Leon Jaworski, special counsel to the attorney general of Texas.

TESTIMONY OF ROBERT A. FRAZIER

The CHAIRMAN. Mr. Frazier, the purpose of today's hearing is to take the testimony of yourself and Mr. Ronald Simmons.

You are, we understand, a firearms expert with the FBI, and Mr. Simmons is a firearms expert with the Weapons System Division at Fort Meade, Md.

You are asked to provide technical information to assist the Commission in this work.

Would you raise your right hand and be sworn, please?

You solemnly swear the testimony you are about to give before this Commission will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. FRAZIER. I do.

The CHAIRMAN. You may be seated, please.

Mr. EISENBERG. Mr. Frazier, will you give your name and position?

Mr. FRAZIER. Robert A. Frazier, Special Agent, Federal Bureau of Investigation, assigned to the FBI Laboratory, Washington, D.C.

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Mr. EISENBERG. And your education?

Mr. FRAZIER. I have a science degree which I received from the University of Idaho.

Mr. EISENBERG. Could you briefly state your training and experience in the fields of firearms, firearms identification, and ballistics?

Mr. FRAZIER. Beginning in 1937, I was on the University of Idaho Rifle Team, and the following year, 1938. In 1939 I enlisted in the National Guard and for 2 years was on the National Guard Rifle Team firing both small bore, or .22 caliber weapons, and the large bore, .30 caliber weapons, both being of the bolt-action type weapons.

In 1939 and 1940 I instructed in firearms in the Army of the United States, and acquired additional experience in firing of weapons, training in firing at moving targets, additional training in firing the .45 caliber automatic and machine-guns. And to further my firearms, practical firearms training, I received in 1942 a training course offered by the Federal Bureau of Investigation after entering on duty with that organization in—on June 9, 1941. That firearms training course consisted of a basic training in handguns—that is, revolvers and automatic pistols, training in autoloading rifles, training in submachineguns, shotguns, and various other types of firearms.

One year later, approximately 1943, I received a specialized administrative firearms course which qualified me for training other agents in the field of law-enforcement type firearms.

Over the past 23 years, I have received the regular FBI firearms training, which is a monthly retraining in firearms, and a periodic, or every 4 years, detailed retraining in the basic FBI firearms—the firearms training with the rifle, submachinegun, shotgun, revolver.

In the FBI, training includes firing both at stationary targets and moving targets with both revolver and rifle and shotgun, and includes firing at slow-fire targets—that is aimed fire for accuracy and rapid fire to increase speed of firing.

Generally in the field of firearms identification, where I have been assigned for 23 years, I received specialized training given in the FBI Laboratory to train me for the position of firearms identification specialist. In that field, we make examinations of bullets and cartridge cases, firearms of various types, for the purpose of identifying weapons as to their caliber, what they are, their manufacturer, their physical characteristics, and determining the type of ammunition which they shoot.

We examine ammunition of various types to identify it as to its caliber, its specific designation, and the type or types of weapons in which it can be fired, and we make comparisons of bullets to determine whether or not they were fired from a particular weapon and make comparisons of cartridge cases for the purpose of determining whether or not they were fired in a particular weapon, or for determining whether or not they had been loaded into or extracted from a particular weapon.

That training course lasted for approximately 1 year. However, of course, the experience in firearms is actually part of the training and continues for the entire time in which you are engaged in examining firearms.

Briefly, that is the summary of the firearms training I have had.

Mr. EISENBERG. Could you estimate the number of examinations you have made of firearms to identify the firearms?

Mr. FRAZIER. Thousands, I would say—firearms comparisons—I have made in the neighborhood of 50,000 to 60,000.

Mr. McCLOY. Have you written any articles on this subject?

Mr. FRAZIER. Yes. I have prepared an article for the "FBI Law Enforcement Bulletin" on firearms identification, which is published as a reprint and provided to any organization or person interested in the general field of firearms identification.

Mr. McCLOY. Have you read most of the literature on the subject?

Mr. FRAZIER. Yes, I have.

Mr. McCLOY. Is there any classical book on this subject?

Mr. FRAZIER. There are a number of fairly good texts.

The basic one, originally published in 1936, is by Maj. Julian S. Hatcher, who

later, as a general, rewrote his book "Firearms Investigation, Identification, and Evidence."

There are many other books published on the subject.

Mr. EISENBERG. May I ask that this person be accepted as a qualified witness on firearms?

The CHAIRMAN. Yes, indeed.

Mr. EISENBERG. Mr. Frazier, I now hand you a rifle marked Commission Exhibit 139.

Are you familiar with this weapon?

Mr. FRAZIER. Yes, I am.

Mr. EISENBERG. And do you recognize it by serial number or by your mark?

Mr. FRAZIER. By serial number on the barrel, and by my initials which appear on various parts of the weapon.

Mr. EISENBERG. For the record, this is the rifle which was found on the sixth floor of the Texas School Book Depository Building on November 22.

Can you describe this rifle by name and caliber?

Mr. FRAZIER. It is a caliber 6.5 Italian military rifle, commonly referred to in the United States as a 6.5-mm. Mannlicher-Carcano.

It is a bolt-action clip-fed military rifle.

Do you wish a general physical description of the weapon at this time?

Mr. EISENBERG. Well, no; not at this time.

Can you explain the American equivalent to the 6.5-mm. caliber?

Mr. FRAZIER. That is the same as .25 caliber. Such weapons in the United States as the .25-20 Winchester, .25-35, the .250 Savage, and the .257 Roberts, are all of the same barrel diameter, or approximately the same barrel diameter. So a decimal figure of .257 inch is the equivalent of 6.5 mm.

Mr. EISENBERG. And can you explain what the caliber is a measure of?

Mr. FRAZIER. The caliber is the measure of the distance across the raised portions or the lands in the barrel. The groove diameter, or the spirals cut in the barrel to form the rifling, will be slightly larger—in this case between 7/1000ths and 8/1000ths of an inch larger than the actual bore diameter.

The caliber is normally determined by the bore diameter.

Mr. EISENBERG. Can you explain how you made the identification of this rifle?

Mr. FRAZIER. I identified it pictorially by comparing it with pictures in reference books. And the actual identification was of the manufacturer's name appearing on the barrel and serial number, which indicated it was an Italian military rifle.

Mr. EISENBERG. Did you independently determine the caliber of the rifle?

Mr. FRAZIER. Yes, I did.

Mr. EISENBERG. Can you tell us how you did that?

Mr. FRAZIER. The caliber and the caliber type may be confusing here.

The caliber, being the diameter of the barrel, is determined in two ways—one, by comparing the barrel with 6.5-mm. Mannlicher-Carcano ammunition, which we also chambered in the weapon and determined that it actually fit the weapon. And, secondly, we measured the width of the barrel with a micrometer. And in that connection, I would like to point out that we made a sulphur cast of the muzzle of the weapon which permitted us to use a micrometer to determine the land width and the groove width in the barrel.

Mr. EISENBERG. Do you have that sulphur cast?

Mr. FRAZIER. Yes, I do.

Mr. EISENBERG. And that was made by you or under your supervision?

Mr. FRAZIER. Yes, it was made by me.

Mr. EISENBERG. Mr. Chairman, I ask that this be admitted as Commission Exhibit No. 540.

The CHAIRMAN. It will be admitted.

(The article referred to was marked Commission Exhibit No. 540, and received in evidence.)

Mr. EISENBERG. Is there any reason that you can think of why this Exhibit 139 might be thought to be a 7.35- or 7.65-caliber rifle?

Mr. FRAZIER. From outward appearances, it could be a 7.35-mm. rifle, because, basically, that is what it is. But its mechanism has been rebarreled with a

it was fired and before it stopped, or as it stopped, or could be the result of having been dropped or roughly handled.

This particular mark there would be invisible practically speaking to the naked eye when looking at the bullet.

Mr. McCLOY. The mark to which you refer is the one on the right-hand side of the exhibit toward the top, about an inch and a half from the center line?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. Is that about 11 o'clock?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. Do you have another photograph, Mr. Frazier, of this?

Mr. FRAZIER. No, sir.

Mr. EISENBERG. I now hand you a bullet fragment, what appears to be a bullet fragment, in a pill box which is labeled Jacket and Lead Q-2, and it has certain initials on it. For the record, this was found—this bullet fragment was found—in the front portion of the car in which the President was riding. I ask you whether you are familiar with this object.

Mr. FRAZIER. Yes; I am.

Mr. EISENBERG. Is your mark on it?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. Did you examine this? Is this a bullet fragment, Mr. Frazier?

Mr. FRAZIER. Yes, sir. This consists of a piece of the jacket portion of a bullet from the nose area and a piece of the lead core from under the jacket.

Mr. EISENBERG. How were you able to conclude it is part of the nose area?

Mr. FRAZIER. Because of the rifling marks which extend part way up the side, and then have the characteristic leading edge impressions and no longer continue along the bullet, and by the fact that the bullet has a rounded contour to it which has not been mutilated.

Mr. EISENBERG. Did you examine this bullet to determine whether it had been fired from Exhibit 139 to the exclusion of all other weapons?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. What was your conclusion?

Mr. FRAZIER. This bullet fragment was fired in this rifle, 139.

Mr. EISENBERG. Mr. Frazier, did you weigh this fragment?

Mr. FRAZIER. Yes; I did. It weighs 44.6 grains.

Mr. EISENBERG. Did you take a photograph of the fragment as compared with a test bullet?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. This photograph is labeled C-14 on the left and C-2 on the right, and it is a photograph taken by you or under your supervision?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. C-14 being the test bullet?

Mr. FRAZIER. The test bullet from 139.

Mr. EISENBERG. And what is the magnification of this photograph?

Mr. FRAZIER. It would be 70 diameters.

Mr. EISENBERG. Mr. Chairman, may that be admitted?

Mr. McCLOY. C-2 is the actual fragment?

Mr. EISENBERG. Yes.

Mr. McCLOY. It may be admitted.

Mr. EISENBERG. Can we go back a second? I don't think I asked for admission of the bullet fragment which Mr. Frazier identified. May I have that admitted?

Mr. McCLOY. It may be admitted.

Mr. EISENBERG. The bullet fragment will be 567 and the photograph just identified by Mr. Frazier will be 568.

Mr. McCLOY. It may be admitted.

(The items described, identified as Commission Exhibits Nos. 567 and 568, were received in evidence.)

Mr. EISENBERG. Mr. Frazier, could you discuss this photograph with us?

Mr. FRAZIER. In Commission Exhibit 568 is again the vertical dividing line through the center of the photograph, with the test bullet from the rifle 139

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on the left, and the bullet, Exhibit 567, on the right. Am I right in that the bullet jacket fragment is 567?

Mr. EISENBERG. I think I put it down here. That is right, 567.

Mr. FRAZIER. Approximately two-thirds of a groove impression from each of the two bullets is shown, with a very small portion at the bottom of the photograph of a land impression. The individual microscopic characteristics which were used in the comparison, and on which the identification was made, were photographed and are as shown in this photograph. However, this photograph did not enter into the actual conclusion reached. The microscopic characteristics appear as parallel horizontal lines extending from the test bullet on the left to the bullet Exhibit 567 on the right.

The marks used in the identification are grooves, paired lines, a series of ridges up and down the hairline on one bullet, and they also appear on the opposite side of the photograph.

In one particular instance it will be seen that at the edge of the land impression at the lower left portion of the photograph is a very definite paired ridge which appears on the right side of the photograph but in a slightly different area.

The reason for the difference in the location of this paired line on the exhibit, Exhibit 567, can be explained by the fact that this is a jacket fragment, that it was torn from the rest of the bullet, and is greatly mutilated, distorted, and bears only a very few areas suitable for identification purposes because of that fact.

The distortion has foreshortened the area of the jacket fragment, 567, to the extent that over this approximately one-tenth-of-an-inch surface represented in this photograph, these lines do not coincide exactly on the lower part of the photograph when they are lined up on the upper part of the photograph.

Mr. EISENBERG. When you say they don't correspond exactly, do you mean at all, or do you mean they aren't—

Mr. FRAZIER. I mean that the marks are present, but they do not line up at the hairline.

Mr. EISENBERG. But in your opinion the marks on the left are the same as the marks on the right?

Mr. FRAZIER. The marks on the left are the same marks as those on the right. In the examination this is easily determined by rotating the two bullets. As you rotate them, you can see these characteristic patterns line up.

Then you will notice these do not line up. But as you rotate one bullet, you can follow the individual marks mentally and see that the same pattern is present and you can line them up in your mind, even though they are not actually physically lined up in the microscope.

Mr. McCLOY. They are not lined up in the microscope because there is mutilation on the fragment?

Mr. EISENBERG. Yes, sir.

Mr. McCLOY. And there is no mutilation on the test cartridge?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. Mr. Frazier, in the lower portion of each side of that photograph, which I take it is the groove of the bullet, or the land impression of the rifle—is that correct?

Mr. FRAZIER. The land on the rifle leaves this groove on the bullet.

Mr. EISENBERG. Yes; the right-hand side seems to be slightly striated while the left-hand side does not seem to be striated. Can you explain that?

Mr. FRAZIER. Well, the striae in this side are not apparent in this photograph. I don't know whether they actually exist on the bullet or not. You can't tell from the photograph, because they are so fine as to possibly not show at all.

A close examination right at the hairline shows a whole series of very fine scratches which do not appear further away from the hairline, and that could be very easily due to differences in the metal, as the bullet passed down the barrel, being pressed less forcibly against the barrel, or could also be due to the fact that at the edges of the lands it is very often evident that hot gases from the burning powder had passed the bullet through these cracks and actually will melt or erode away the surface of the bullet.

As to why they may or may not be present is difficult to say from an examination of the photograph.

Mr. EISENBERG. What portion of the bullet fragment provided enough markings for purposes of identification, approximately?

Mr. FRAZIER. I would say that one-fourth, in this instance, one-fourth of 567's surface was available. One-fifth to one-sixth would have been sufficient for identification, based on the character of the marks present.

Mr. EISENBERG. Now this portion of the fragment was an even smaller portion of the bullet, the entire bullet, is that correct?

Mr. FRAZIER. Yes; it was.

Mr. EISENBERG. So when you say one-fifth and one-sixth, are you referring now to the proportion of marks on the fragment, as opposed to the proportion of marks you would want from an entire bullet?

Mr. FRAZIER. No; I am referring to the proportion of marks on the fragment which were used in the examination as compared to the total bullet circumference which would have existed on an unutilized bullet.

Mr. EISENBERG. Mr. Frazier, do you feel that the amount of markings here were sufficient to make positive identification?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. Have you made identifications in the past with as few or less markings as are present on this bullet fragment?

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 is?

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?

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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?
Mr. FRAZIER. None whatsoever.
Mr. EISENBERG. Now finally in the category of bullets and bullet fragments, I hand you what is apparently a bullet fragment, which is in a pill box marked Q-3, and which, I state for the record, was also found in the front portion of the President's car, and I ask you whether you are familiar with this item, marked Q-3?
Mr. FRAZIER. Yes, sir; this was submitted to me as having been found beside the front seat of the automobile.
Mr. EISENBERG. Your mark is on that fragment?
Mr. FRAZIER. Yes, it is.
Mr. EISENBERG. When did you receive that fragment, Mr. Frazier?
Mr. FRAZIER. At 11:50 p.m., November 22, 1963, from Special Agent Orrin Bartlett, our liaison agent with the Secret Service, in the FBI laboratory.
Mr. EISENBERG. And the last bullet fragment you examined, Exhibit 567, when did you receive that?
Mr. FRAZIER. It was received at the same time from Special Agent Bartlett.
Mr. EISENBERG. Did you examine both at that time, Mr. Frazier?
Mr. FRAZIER. Yes, sir; beginning the following morning, November 23.
Mr. EISENBERG. Mr. Chairman, may I have this bullet fragment marked Q-3 admitted as Commission 569?
Mr. McCLOY. It may be admitted.
(The item, identified as Commission Exhibit No. 569, was received in evidence.)
Mr. EISENBERG. Mr. Frazier, did you examine this bullet fragment with a view to determining whether it had been fired from the rifle, Exhibit 139?
Mr. FRAZIER. Yes, sir.
Mr. EISENBERG. What was your conclusion?
Mr. FRAZIER. This bullet fragment, Exhibit 569, was fired from this particular rifle, 139.
Mr. EISENBERG. Again to the exclusion of all other rifles?
Mr. FRAZIER. Yes, sir.
Mr. EISENBERG. Did you weigh this fragment, Mr. Frazier?
Mr. FRAZIER. Yes, I did. It weighs 21.0 grains.
Mr. EISENBERG. Can you describe the fragment?
Mr. FRAZIER. Yes. It consists of the base or most rearward portion of the jacket of a metal-jacketed bullet, from which the lead core is missing.
Mr. EISENBERG. How can you tell that it is the most rearward portion?
Mr. FRAZIER. It has the shape which bases of bullets have. It has the canelure which is located at the rear, on the portion of bullets of this type.
Mr. EISENBERG. Can you determine whether this bullet fragment, 567, and 569 are portions of the originally same bullet?
Mr. FRAZIER. No, sir.
Mr. EISENBERG. You cannot?
Mr. FRAZIER. There is not enough of the two fragments in unutilated condition to determine whether or not the fragments actually fit together.
However, it was determined that there is no area on one fragment, such as 567, which would overlap a corresponding area on the base section of 569, so that they could be parts of one bullet, and then, of course, they could be parts of separate bullets.
Mr. EISENBERG. Now 569 is without the core; is that correct?
Mr. FRAZIER. Yes, sir.
Mr. EISENBERG. Could you estimate how much weight you would add if you had the core?

Mr. FRAZIER. No, I cannot.

Mr. EISENBERG. Not at all?

Mr. FRAZIER. No. I do not have the figure on the core weight.

Mr. EISENBERG. In your opinion, is it possible that if you did make such an estimate, the weight, the projected weight of 569 plus the actual weight of 567 would exceed the bullet weight of the 6.5 mm. bullet?

Mr. FRAZIER. Oh, no; it would not.

Mr. EISENBERG. It would not?

Mr. FRAZIER. It would not come even close to it, because the amount of core is only—one-quarter inch of the bullet is all that remains at the base, and that much core would not weigh more than 40 grains at the most.

Mr. EISENBERG. No cannellure shows on 567, is that correct?

Mr. FRAZIER. That is correct.

Mr. EISENBERG. Mr. Frazier, did you make a comparison photograph of 569 with a test bullet?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. This photograph is marked C-14 on the left and C-3 on the right; is that correct?

Mr. FRAZIER. Yes, it is.

Mr. EISENBERG. C-14 being the test?

Mr. FRAZIER. Yes, from the rifle 139, and C-3 is Exhibit 569.

Mr. EISENBERG. And the magnification on this photograph is what, Mr. Frazier?

Mr. FRAZIER. 70 diameters.

Mr. EISENBERG. And this was taken by you or under your supervision?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. Mr. Chairman, may I have this admitted?

Mr. McCLOY. It may be admitted.

Mr. EISENBERG. 570.

(The item was identified as Commission Exhibit No. 570 and was received in evidence.)

Mr. EISENBERG. Can you discuss this picture?

Mr. FRAZIER. Commission Exhibit 570 shows a portion of the test bullet from Exhibit 139 on the left side of the photograph, and a portion of the bullet 569 on the right side, divided by a hairline.

The photograph was taken of the microscopic marks, examined through the comparison microscope, consisting of very fine and very coarse grooves, or scratches, or ridges, on the surface of each of the bullets as compared with those on the other bullet.

The photograph did not, of course, enter into the conclusion reached in the examination, but was merely taken to demonstrate, to illustrate the types of marks present insofar as a photograph can show them.

Mr. EISENBERG. Mr. Frazier, what portion of the Exhibit 569 was unutilized enough to allow you to make a comparison of its markings?

Mr. FRAZIER. Approximately one-third. Actually, the entire base section of the bullet was present, but approximately one-half of that base was mutilated. On the mutilated area, either marks were destroyed completely by striking some object, or being compressed or stretched, or they were thrown out of relationship with each other by stretching or compressing to the extent that they were of no value.

So I would estimate approximately one-third of the area was present.

Mr. EISENBERG. Now, when you say one-third, is this total area or circumference?

Mr. FRAZIER. Circumference—one-third of the circumference.

Mr. EISENBERG. Do you have any further pictures of any of the bullets, Mr. Frazier?

Mr. FRAZIER. No, I do not.

Mr. EISENBERG. Mr. Frazier, I hand you two bullets and ask whether you are familiar with them.

Mr. FRAZIER. Yes, I am. These are the two test bullets which I fired from this rifle, Exhibit 139.

Mr. EISENBERG. Do they have your mark on them?

Mr. FRAZIER. Yes, they do.

Mr. EISENBERG. Mr. Chairman, may I have these admitted as Exhibit 572?

Mr. McCLOY. They may be admitted.

(The document referred to was marked Commission Exhibit No. 572, and received in evidence.)

Mr. EISENBERG. Getting back to the two bullet fragments mentioned, Mr. Frazier, did you alter them in any way after they had been received in the laboratory, by way of cleaning or otherwise?

Mr. FRAZIER. No, sir; there was a very slight residue of blood or some other material adhering, but it did not interfere with the examination. It was wiped off to clean up the bullet for examination, but it actually would not have been necessary.

Mr. EISENBERG. Is that true on both fragments?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. You also mentioned there was blood or some other substance on the bullet marked 399. Is this an off-hand determination, or was there a test to determine what the substance was?

Mr. FRAZIER. No, there was no test made of the materials.

Mr. EISENBERG. As you examined the bullet and the two bullet fragments, are they in the same condition now as they were when they entered your hands?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. One other question on the cartridge cases.

Did you examine the cartridge cases for chambering marks, extraction marks, or ejection marks?

Mr. FRAZIER. Yes, I did, but I did not make any comparisons of either extractor or ejector marks or chambering marks, since the purpose of my examination was primarily to determine whether they were fired in this rifle, and such marks would not have assisted in that determination. They were not necessary because they would have indicated only that it may have been loaded into and extracted from the weapon, whereas the marks which I found served to identify it as having been fired in the weapon, actually.

Mr. EISENBERG. Mr. Chairman, unless you have further questions on the cartridge cases or bullets, I would like to move on to another subject.

Mr. McCLOY. From your examination of the actual bullets that you have been told were fired on the day of the assassination from this rifle, and from your—how many separate bullets do you identify?

Mr. FRAZIER. Two, at the maximum—possibly three, if these two jacket fragments came from different bullets. If they came from one bullet, then there would be a maximum of the whole bullet 399 and this bullet in two parts.

Mr. McCLOY. And you cannot tell whether these two particles came from one bullet or two separate ones?

Mr. FRAZIER. No, sir.

Mr. EISENBERG. When you say "two at the maximum," do you mean two at the minimum?

Mr. FRAZIER. I meant at least two bullets.

Mr. McCLOY. There were at least two different bullets?

Mr. FRAZIER. At least two, yes.

Mr. EISENBERG. Mr. Frazier, can you give an estimate of the total number of bullets fired in the various tests made with this rifle?

Mr. FRAZIER. Approximately 60 rounds.

Mr. EISENBERG. And were all of these rounds 6.5 mm. Western Mannlicher-Carcano ammunition?

Mr. FRAZIER. Yes, sir.

Mr. EISENBERG. Did you have any misfires?

Mr. FRAZIER. No, sir.

Mr. EISENBERG. Did you find the ammunition dependable?

Mr. FRAZIER. Very dependable.

Mr. EISENBERG. Can you think of any reason why someone might think this is an undependable type of ammunition?