

Mr. Champagne is presently a firearms and tool mark examiner with the Florida Department of Criminal Law Enforcement in Tallahassee. He previously served for 15 years as a firearms and tool mark examiner in the Crime Detection Laboratory in Ottawa, Ontario.

Mr. Bates is the senior firearms examiner in the New York State Police Laboratory at Albany. He has been a lecturer at the State University of New York at Albany, the New York Police Academy and the New York State Municipal Police Training Council.

Mr. Newquist is a special agent and firearm, tool mark and latent fingerprint examiner for the Iowa Bureau of Criminal Investigation. He is a member and a past president of the Association of Firearm and Tool Examiners, and he currently is on its executive committee.

Serving as technical assistant to the firearms panel is Mr. George R. Wilson. Through his assistance, the facilities at the Metropolitan Police Department Firearms Laboratory here in the District of Columbia were secured. His expertise in the area of firearms identification greatly assisted the panel's conduct of its inquiry.

It would be appropriate Mr. Chairman, at this time to call the panel as a whole.

Chairman STOKES. The committee at this time calls the panel forward.

Would each of you gentlemen raise your right hand to be sworn.

Do you solemnly swear the testimony you will give before this committee is the truth, the whole truth, and nothing but the truth, so help you God?

**TESTIMONY OF FIREARMS PANEL: MONTY C. LUTZ, DONALD E. CHAMPAGNE, JOHN S. BATES, JR., AND ANDREW M. NEWQUIST**

Mr. LUTZ. I do.

Mr. CHAMPAGNE. I do.

Mr. BATES. I do.

Mr. NEWQUIST. I do.

Mr. WILSON. I do.

Chairman STOKES. Thank you. You may be seated.

The Chair recognizes committee counsel James McDonald.

Mr. McDONALD. Thank you Mr. Chairman.

Members of the firearms panel, have you completed your tests of the firearms evidence in the assassination of President John F. Kennedy?

Mr. LUTZ. Yes, sir, we have.

Mr. McDONALD. And do you have a report ready at this time to present to the committee.

Mr. LUTZ. Yes, sir.

Mr. McDONALD. Mr. Chairman, I would like with your permission to have the clerk receive a copy of the firearms panel report, and identified for the record as JFK exhibit No. F-275.

Chairman STOKES. Without objection.

[JFK exhibit No. F-275 will be published as an appendix to the committee's final report.]

Mr. McDONALD. The first exhibit, Mr. Chairman, is CE-139.

For the record, would each of the panel members please identify himself, starting with Mr. Lutz on my left.

Mr. LUTZ. Monty C. Lutz, from the Regional Crime Laboratory, Wisconsin State.

Mr. CHAMPAGNE. Donald Champagne from the Florida Department of Criminal Law Enforcement Crime Laboratory in Tallahassee, Fla.

Mr. BATES. John S. Bates, Jr., New York State Police Scientific Laboratory, Albany, N.Y.

Mr. NEWQUIST. Andrew Martin Newquist from the Iowa Department of Public Safety Bureau of Criminal Investigation, Des Moines, Iowa.

Mr. WILSON. George R. Wilson, Metropolitan Police Department, Firearms Identification Section, Washington, D.C.

Mr. McDONALD. Thank you, Mr. Chairman, our first exhibit this afternoon has been previously identified here today as Warren Commission exhibit 139, and for purposes of our report and testimony we wish it to be identified with JFK exhibit No. F-276.

Chairman STOKES. It may be so identified.

[Warren Commission exhibit No. 139 is identified as JFK exhibit F-276 and a photograph made for the record.]



JFK EXHIBIT F-276

Mr. McDONALD. And with your permission, Mr. Chairman, I would like to approach the representatives of the National Archives to retrieve Warren Commission exhibit No. 139, the Mannlicher-Carcano rifle found on the sixth floor of the Texas School Book Depository building.

Mr. Chairman, the first series of questions will be directed to Mr. Monty Lutz.

Mr. Lutz, have you seen the exhibit before you before?

Mr. LUTZ. Yes, sir, I have.

Mr. McDONALD. And where have you seen it?

Mr. LUTZ. This I first observed at the National Archives for a cursory inspection of it in November of 1977 and later made subsequent examinations of it at the Metropolitan Police Crime Laboratory here in Washington, D.C.

Mr. McDONALD. Would you please move the microphone closer to you.

And, Mr. Lutz, before we go any further, would you please examine Warren Commission exhibit 139 to assure us that it is in an unloaded state.

Mr. LUTZ. It is unloaded.

Mr. McDONALD. Did you check this exhibit this morning, Mr. Lutz, to assure yourself that it was the same weapon that you have test fired for this committee?

Mr. LUTZ. Yes, sir; I did.

Mr. McDONALD. How did you identify it?

Mr. LUTZ. I removed the butt plate from the rear of the weapon, identified my initials that I had placed on the firearm at the time that I examined it at the laboratory.

Mr. McDONALD. And your initials are still on there?

Mr. LUTZ. Yes, sir; that is correct.

Mr. McDONALD. And when you conducted firearms tests of this weapon, was there a representative of the National Archives present at all times?

Mr. LUTZ. Yes, sir.

Mr. McDONALD. Mr. Lutz, what kind of rifle is CE-139?

Mr. LUTZ. This particular rifle is a 6.5 millimeter Mannlicher-Carcano bolt action rifle.

Mr. McDONALD. And would you tell us what is the nature and the characteristics of that rifle, and if you would like to stand and hold it and explain to us we would appreciate it.

Mr. LUTZ. The characteristics of this rifle is that it is a six shot repeating rifle. It is clip-fed with the capacity of a six round in-line clip being capable of being loaded and inserted into the top of the magazine, in the magazine area. It is a bolt-action rifle, and is of Italian manufacture and 6.5 millimeter Mannlicher-Carcano caliber.

Mr. McDONALD. Can it be described as an automatic weapon.

Mr. LUTZ. No, sir; it cannot.

Mr. McDONALD. Thank you, Mr. Lutz, you may place the weapon down.

Mr. Lutz, could a 6.5 millimeter Mannlicher-Carcano rifle be easily mistaken for a German Mauser, and before you answer the question, if we could have marked for identification JFK exhibit F-96. If you would utilize the chart in explaining your answer.

Mr. LUTZ. In regards to that question, there are considerable similarities between the 6.5 millimeter Mannlicher-Carcano rifle in conjunction with numerous rifles of several countries and several sources of origin. The similarities with the 7.65 German Mauser are quite a few. The similarities that would be noted between the Carcano and the 7.65 German Mauser are depicted in this particular photograph that I have here. The photograph that I have put together represents several rifles that have the general class characteristics or the overall silhouette design for this particular rifle.

The features that could possibly be confused with the Mannlicher-Carcano rifle and an Argentine Mauser would be the Mannlicher-type magazine protruding from the bottom of the receiver area. The feature that is common on all bolt action rifles, the operating handle or the bolt handle protruding from the right side, on all of these rifles.

Mr. McDONALD. Mr. Lutz, would you please tell us which one is the Mannlicher-Carcano in that composite photograph.

Mr. LUTZ. The photographs that I have are a series of photographs involving the Mannlicher-Carcano being the second one from the top of the photographic display. This is a rifle of the same model type and general characteristics as the questioned rifle, CE-139. It is not CE-139 but a rifle just like it. The second one from the top. The similarities that are available and quite noticeable and might be confused with an Argentine Mauser rifle, manufactured in Germany, can readily be seen.

The magazine, the general silhouette being quite similar. This rifle comes in quite a few different lengths and different models. This is one of the longer rifle versions. This comes with another model that has a shorter barrel and is quite similar even in length to the Mannlicher-Carcano. So we have that feature. This one has been sporterized and the wood lightened. Normally the military version has a darkened stock, a dull finish. These again being similar between the Carcano and the German Mauser, or in this case the Argentine Mauser manufactured in Germany. So these similarities are the same.

We will find bayonet studs on many of the rifles, so that this is not just a unique feature to the Carcano. A protrusion that the bayonet would be attached to is quite frequently encountered on all of these rifles.

So many of these rifles could very easily have been confused with a Mannlicher-Carcano to the person who did not make a complete and thorough examination of that particular rifle.

Mr. McDONALD. Can you determine the caliber of a rifle merely by looking at it?

Mr. LUTZ. No, you cannot, because many times the differences in caliber is a few thousandths of an inch. The difference between a 6.5-millimeter Carcano bullet, or the muzzle, the barrel itself, the inside diameter, and the difference between it and the 7.65 German Mauser is only a few thousandths of an inch, 40-some thousandths of an inch difference. We are speaking of .265 inches in diameter for the 6.5 Mannlicher-Carcano bore diameter and we are speaking of .313 inches of diameter for the Argentine Mauser made in Germany.

Mr. McDONALD. To a casual observer would it be easy to mistake a Carcano for a Mauser?

Mr. LUTZ. Yes, sir; I believe it would.

Mr. McDONALD. Thank you very much.

Mr. Lutz, if you could return to your seat.

Mr. Chairman, may JFK exhibits F-96 and 97 be marked for identification and received into the record.

Mr. PREYER [presiding]. Without objection, so ordered.

[JFK exhibits F-96 and F-97 were marked for identification and received into the record.]



JFK EXHIBIT F-96



JFK EXHIBIT F-97

Mr. McDONALD. Mr. Lutz, perhaps if you could just stay right there and I will ask you a question. Have you examined the scope, the rifle scope, attached to CE-139?

Mr. LUTZ. Yes, sir, I have.

Mr. McDONALD. Perhaps if you could put the microphone back on.

What kind of scope is it?

Mr. LUTZ. This is a four-power Ordinance Optics telescopic sight with a crosshair reticle.

Mr. McDONALD. Would you in your opinion classify it as an accurate scope?

Mr. LUTZ. The accuracy is fairly undependable, as far as once getting the rifle sighted in and it is very cheaply made, the scope itself has a crosshair reticle that is subject to movement or being capable of being dislodged from dropping, from impact, or a very sharp recoil. So the accuracy would be somewhat questionable for this particular type of a scope.

Mr. McDONALD. Would you please describe for us how this scope is mounted on 139?

Mr. LUTZ. This scope is mounted with a set of split rings that surround the circumference of the scope, to three-quarter-inch diameter tube. They are screwed into place to the mount and then that mount attached to the left side of the receiver, two holes are drilled into the receiver. This is not a standard military attachment as the rifle would be manufactured at the factory. The holes have to be drilled into the receiver. Those holes then threaded and the mount attached to the left side of the rifle.

Mr. McDONALD. Are you saying if the scope were mounted at the factory it would be mounted in a different fashion?

Mr. LUTZ. Normally this scope is not attached at the arsenal that would manufacture it, it does not have an attachment for a scope.

Mr. McDONALD. Does the method of mounting the scope on a rifle affect or have any influence on whether the rifle can be fired by a left-handed person?

Mr. LUTZ. The manner in which it is attached does not dictate whether it can be fired either left or right handed.

Mr. McDONALD. Well, with the scope on 139, could it be possibly classified as a left-handed scope?

Mr. LUTZ. Definitely not. There is no such thing as a left-handed scope.

Mr. McDONALD. While you have got the weapon in your hand, let me ask you this; in your examination of 139—and when I say you I also refer to the panel itself. As a group you examined all of the evidence; is that correct?

Mr. LUTZ. That is correct.

Mr. McDONALD. Did you examine the iron sight?

Mr. LUTZ. Yes, sir, I did.

Mr. McDONALD. And tell us, if you would, what you mean by iron sight.

Mr. LUTZ. The iron sights are the standard sights that are placed on the firearm at the time it is manufactured at the military arsenal. In this particular firearm we have a block of metal that is attached to the area immediately in front of the chamber area. It is

a fixed rear sight. There is a notch. A V-shaped notch in this piece of metal that acts as the rear sighting alinement device.

Mr. McDONALD. I am sorry.

Mr. LUTZ. This is the rear portion. The front sight is attached with a fixed front blade also. This particular arrangement then allows the sighting arrangement to be made through the notch in the rear sight, lining up the front sight in that notch, and having a fixed sight that cannot be adjusted for windage or elevation, zeroed in for one particular setting.

Mr. McDONALD. Would it be possible to attain the same accuracy with the iron sight on that rifle as it would with the scope, for an average marksman, at a distance of well, say less than 100 yards?

Mr. LUTZ. Yes, it would be very likely to be able to do that.

Mr. McDONALD. Mr. Lutz, in your examination of 139, did you test the trigger to determine whether the weapon has what is known as a hair trigger?

Mr. LUTZ. Yes, sir; I did

Mr. McDONALD. And, first of all, would you tell us what is a hair trigger?

Mr. LUTZ. A hair trigger normally is defined as a trigger that can be released with a very light pressure being applied to that trigger. The figure that we, the panel, have arrived at is around 16 ounces, or 1 pound or less. It must fall within that category to become what I consider and we as the panel consider a hair trigger, a very light trigger, so that a light amount of pressure is applied, and then the sear is released and the firearm will fire with that light touch.

Mr. McDONALD. What is the result of your examination of 139 regarding hair trigger?

Mr. LUTZ. Our examination of the trigger pull of this firearm revealed it to have approximately 3 pounds for a trigger pull.

Mr. McDONALD. Would you classify that as a hair trigger?

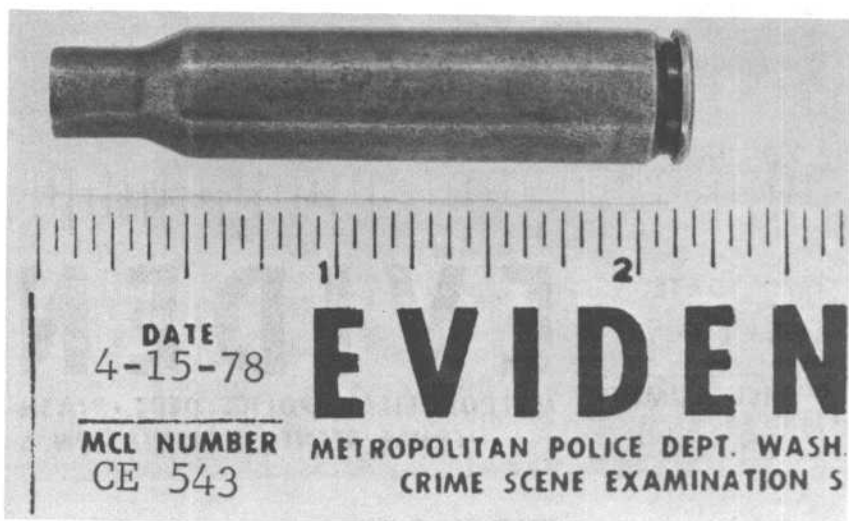
Mr. LUTZ. No, I would not.

Mr. McDONALD. Thank you. You can place the weapon down.

Next, Mr. Chairman, a series of questions will be directed to Mr. Champagne.

At this time I would request that the Chair request the clerk to present to the panel Warren Commission exhibits CE-543, 544, and 545, which correspond to JFK exhibits F-277, F-278, and F-279, and photographs provided for the record.

[The information follows:]

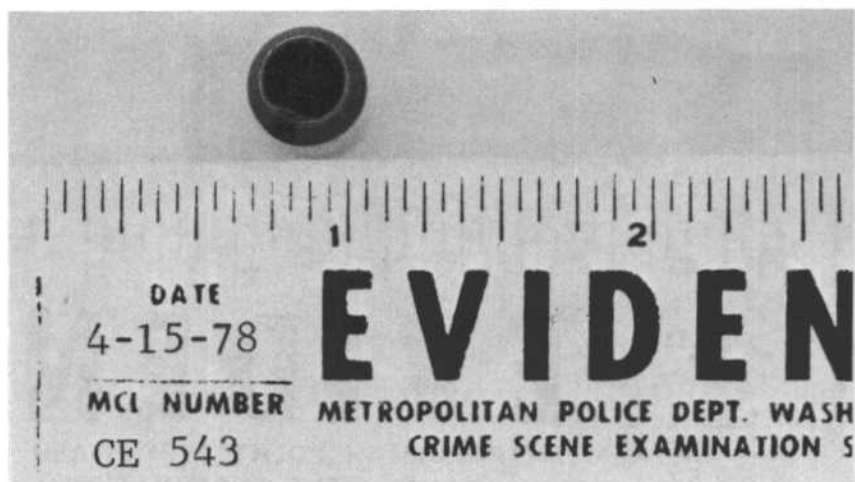


JFK EXHIBIT F-277-A

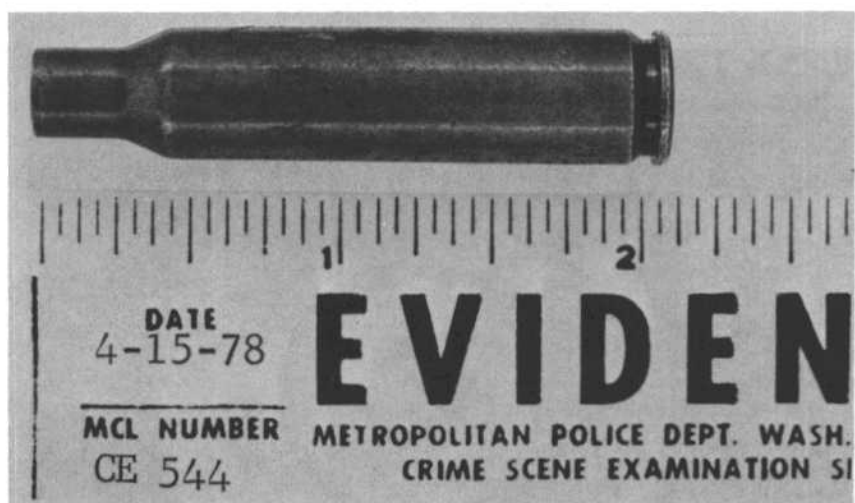


JFK EXHIBIT F-277-B

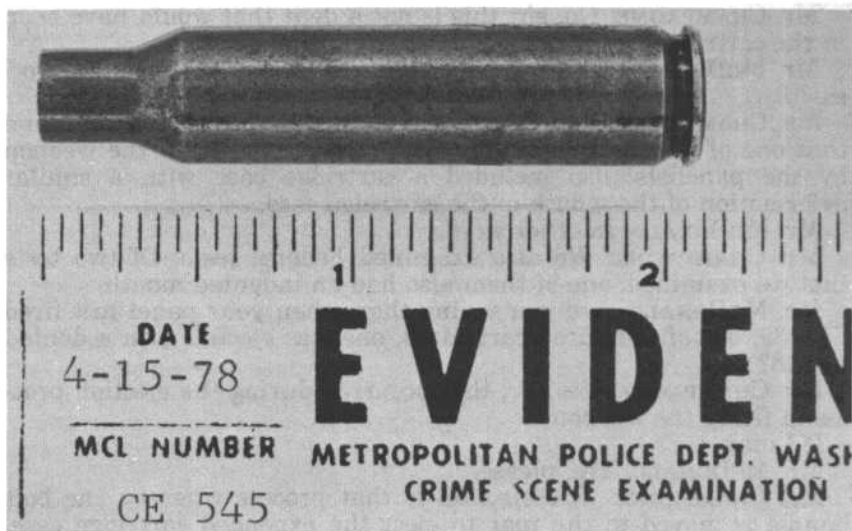




JFK Exhibit F-277-C



JFK Exhibit F-278



JFK EXHIBIT F-279

Mr. McDONALD. Mr. Champagne, have you had a chance to look at exhibits 543, 544 and 545? Have you seen them before?

Mr. CHAMPAGNE. Yes, sir; I have.

Mr. McDONALD. And where have you seen them?

Mr. CHAMPAGNE. At the Metropolitan Police Department fire-arms identification section.

Mr. McDONALD. And what are the cartridge cases that you are now looking at?

Mr. CHAMPAGNE. These are three 6.5 millimeter caliber Western Cartridge Co. cartridge cases.

Mr. McDONALD. And are those the cartridge cases found on the sixth floor of the Texas School Book Depository building?

Mr. CHAMPAGNE. Yes, sir.

Mr. McDONALD. Have you examined CE-543?

Mr. CHAMPAGNE. Yes, sir; I have.

Mr. McDONALD. Mr. Chairman, if we could now have JFK exhibit No. F-98. Mr. Champagne, have you seen that photograph before?

Mr. CHAMPAGNE. Yes, sir; I have.

Mr. McDONALD. Does the photograph accurately depict the condition of the exhibit that you have in front of you at the time of your examination?

Mr. CHAMPAGNE. If I may look at it.

Mr. McDONALD. Please do.

Mr. CHAMPAGNE. Yes, sir. This composite photograph depicts CE-543 and in particular the area of the mouth that has an indentation in it. This is shown primarily in the lower left-hand photograph. It is rather difficult to see but it is there. It can also be seen to a certain extent in the upper left-hand photograph in this area.

Mr. McDONALD. Mr. Champagne; as you have testified, this was one of the cartridges found on the sixth floor of the School Book Depository Building and the mouth has a dent. Could that dent have occurred during the loading process.

Mr. CHAMPAGNE. No, sir; this is not a dent that would have been in the cartridge case during the loading process.

Mr. McDONALD. Could it have occurred during the ejection process?

Mr. CHAMPAGNE. Yes; during the testing of the weapon we found that one of the tests that were fired and ejected from the weapon by the panelists also included a cartridge case with a similar deformation of the mouth of the cartridge case.

Mr. McDONALD. In other words.

Mr. CHAMPAGNE. We also examined Federal tests. Of two tests that we examined, one of them also had an indented mouth.

Mr. McDONALD. Are you saying then when your panel test fired CE-139, out of four fired cartridges, one was ejected with a dented mouth?

Mr. CHAMPAGNE. Yes, sir, that occurred during the ejection process in firing the weapon.

If I may.

Mr. McDONALD. Yes, please.

Mr. CHAMPAGNE. The ejection is that process whereby the bolt handle is moved to the rear to eject the expended cartridge case, ejecting the cartridge case out of the weapon.

Mr. McDONALD. Now, when you tested the rifle, the panel tested the rifle, of your panel members, who ejected the shell or cartridge case that came out with the dent?

Mr. CHAMPAGNE. Mr. Lutz.

Mr. McDONALD. Would Mr. Lutz please come forward and demonstrate to us how you ejected to cause a dent in the test cartridge case.

Mr. LUTZ. The particular amount of force that I used to extract and eject the cartridge case from the weapon was much in the manner that I would consider to be employed during an attempt to rapidly fire the firearm. The cartridge was fired with the bolt being closed and then with considerable speed and pressure being applied, opening it and pulling the bolt to the rear and holding it to my side, and in a manner very rapidly, kicking the cartridge back and ejecting the cartridge and causing it fall to the floor.

Mr. PREYER. Mr. Edgar.

Mr. EDGAR. Mr. Lutz, would you turn so we can see it.

Mr. LUTZ. In this manner, where I have grasped the bolt forward, the cartridge had been fired, moved away from the firing tube holding the bolt handle and then pulling it back with a violent move duplicating what I deemed to be a rapid sequence of firing, operating the handle to rapidly fire the firearm.

Mr. McDONALD. Thank you.

Mr. Champagne, we have before you on the easel JFK exhibit No. F-100. Does that accurately portray the four spent cartridge cases that your panel test fired?

Mr. CHAMPAGNE. Yes, sir, it does.

Mr. McDONALD. And does one of the four cartridge cases have a dent?

Mr. CHAMPAGNE. No. 2 has the dent in the mouth.

Mr. McDONALD. Could we place before the panel JFK cartridge cases No. F-280, please?

Are those the cartridge cases that the panel test fired?

Mr. CHAMPAGNE. Yes, sir.

Mr. McDONALD. How do you know, sir?

Mr. CHAMPAGNE. The container has our initials on it.

Mr. McDONALD. Mr. Champagne, in your examination of those cartridge cases, did you compare your panel test cartridge cases, JFK No. F-280 with CE-543?

Mr. CHAMPAGNE. Yes; we did.

Mr. McDONALD. As a result of your examinations, what conclusions did you come to, and if we could have JFK chart F-99 placed on the easel, if you would use that in explaining your answer.

Mr. CHAMPAGNE. To answer your question, we did come to a conclusion with respect to the tests that we had fired and exhibit CE-543. The conclusion we came to was that exhibit CE-543 was fired from the rifle.

Mr. McDONALD. And which rifle are you referring to?

Mr. CHAMPAGNE. Exhibit CE-139.

The conclusion that we came to was based on a number of factors. The tests were compared microscopically with CE-543 in a number of areas. One of those areas was in the firing pin impression. The firing pin impression is an indentation in the primer of the center-fire cartridge. It is caused by the impingement of the firing pin on the soft metal of the primer. Any individual identifying features that may be present on the firing pin are then impressed into the metal of the primer. These can be in the form of machining marks that are put on there during the time of manufacture or they can be in the form of irregularities that are put on the firing pin impression during its use during its lifetime.

Some of the marks that we found, and this is a photograph taken through a comparison microscope, shows exhibit CE-543 in the left-hand side of the field and panel test No. 1 in the right-hand side of the field. There's a dividing line through both of these. In the comparison microscope, we take two physically separated objects and bring them together optically. It is almost as if we cut the two in half physically and bring them together. We do this through the prismatic bridge system of the comparison microscope. So that we have two objects brought together microscopically side by side and adjacent to one another.

In the firing pin impression, we have a series of irregularities that show up and go from one side of the dividing line to the other indicating that the same firing pin caused the marks on both cartridge cases.

In the lower photograph, we have what are known as extractor marks. Each extractor in each firearm has its own individual peculiarities. When the cartridge case is extracted from the weapon and thrown out of it, the extractor will leave irregularities or individual identifying marks on the rim of the case. In the lower photomicrograph, we have CE-543 and panel test 3.

We have the same type of situation here where we have the dividing line down the center. We have a series of striations that have been put on the rim of the cartridge cases and you can see that there is a correspondence there among those striations.

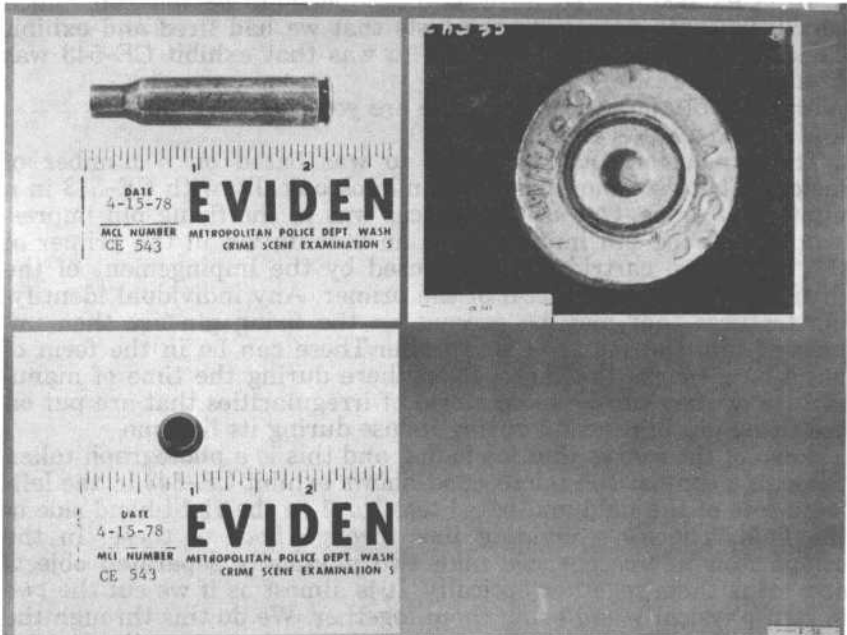
There were other areas that we examined as well as these two, breech face marks and some other marks that were not of a suitable nature for photographing. As a result of examination of all

these marks, we came to the conclusion that CE-543 was fired in the exhibit rifle.

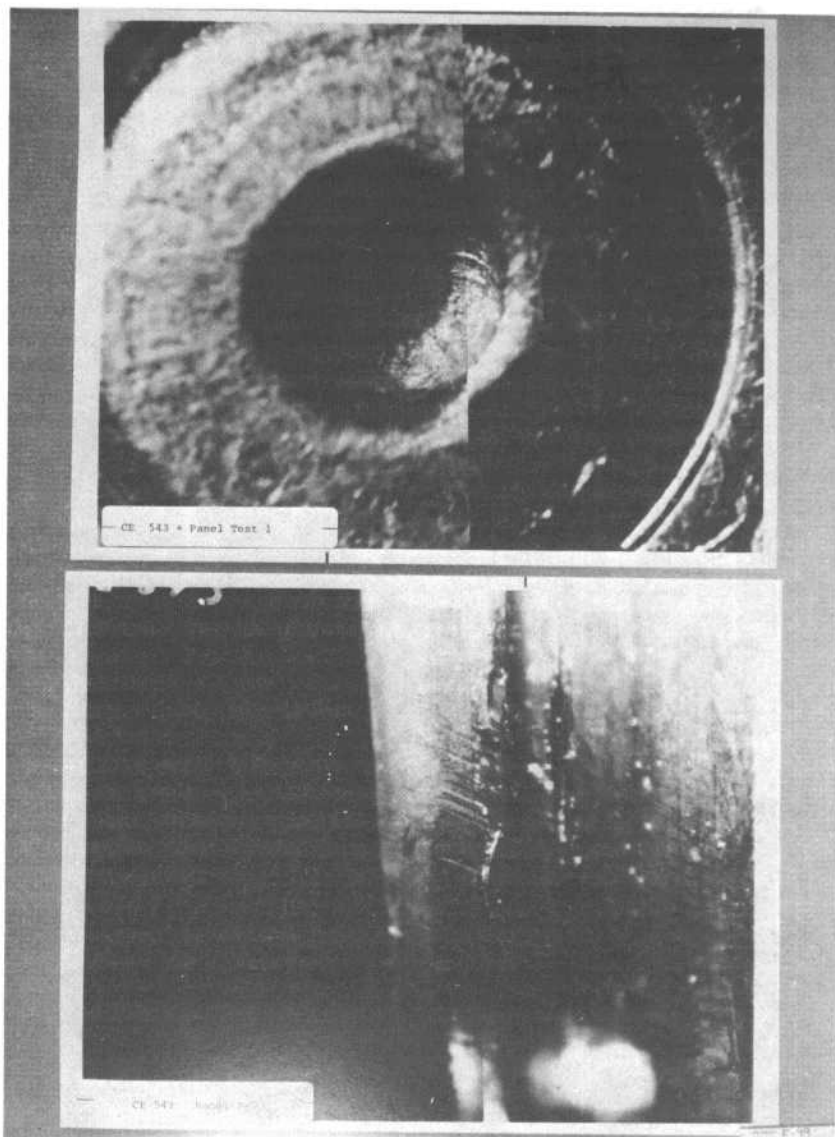
Mr. McDONALD. Thank you, Mr. Champagne. Mr. Chairman, I would like to move JFK exhibits F-99, F-98 and F-100 be received into the record at this time.

Chairman STOKES. Without objection they may be received in the record at this time.

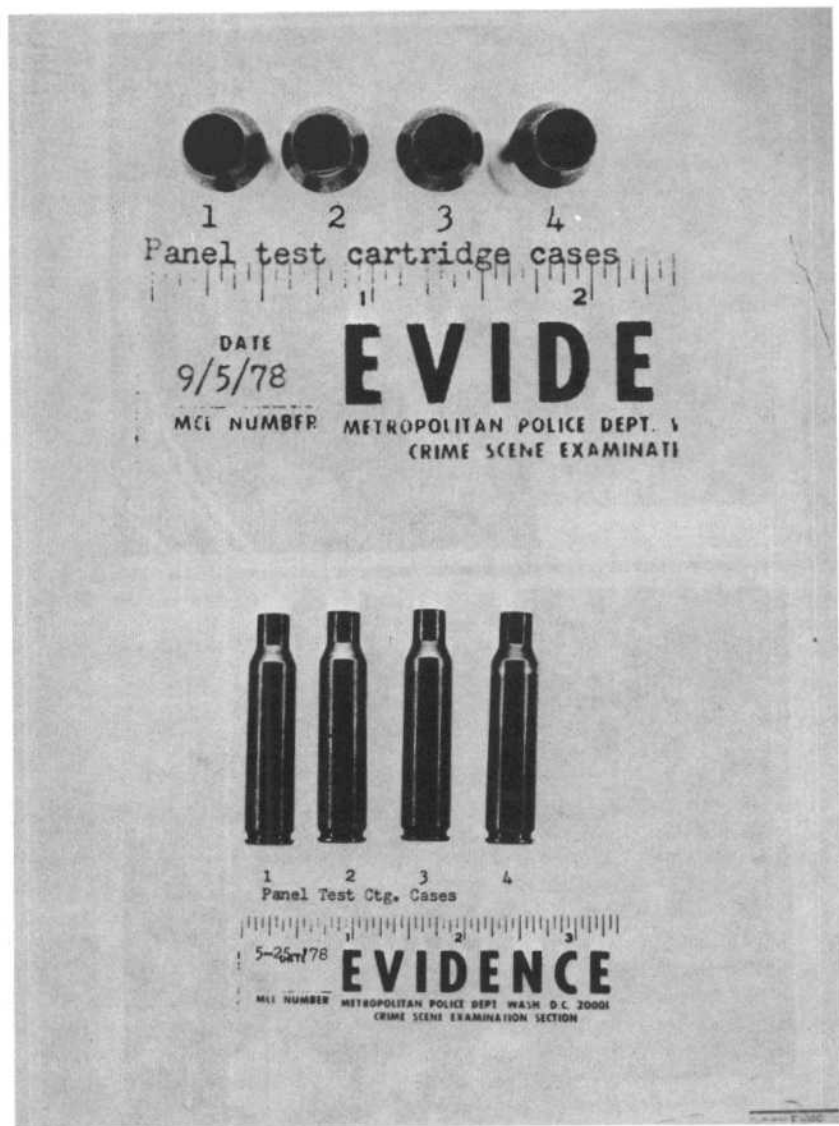
[JFK exhibits F-98, F-99, and F-100 were received into the record.]



JFK EXHIBIT F-98



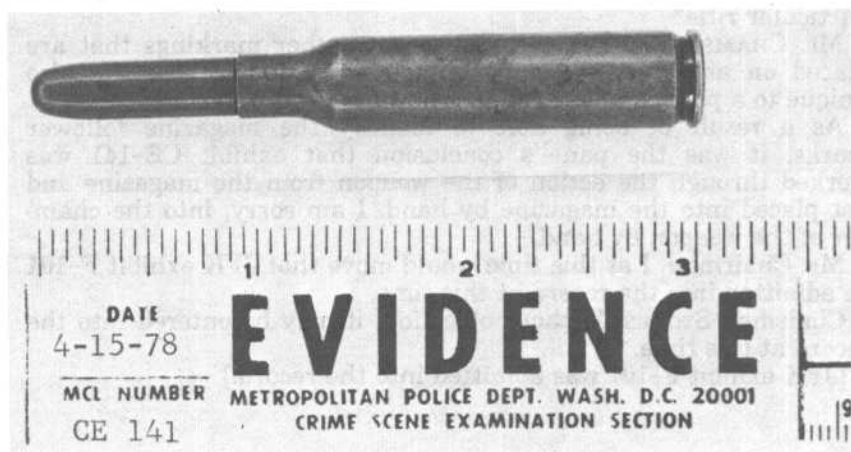
JFK EXHIBIT F-99



JFK EXHIBIT F-100

Mr. McDONALD. And would the clerk present to the panel Warren Commission CE-141, which is the unfired cartridge found in Oswald's rifle on November 22, 1963. If the clerk would present that to the panel, which has been given JFK No. F-281, and also if the clerk would hand the panel its own test cartridge which has been given the number JFK F-333. And if we could have the chart F-101 placed up on the easel and ready to go.

[JFK exhibit F-281 was presented to the panel and a photograph made for the record.]



JFK EXHIBIT F-281

Mr. McDONALD. Mr. Champagne, you have had placed before you CE-141. Would you please examine what that is?

Mr. CHAMPAGNE. CE-141 is an unfired 6.5 millimeter cartridge.

Mr. McDONALD. Have you seen that cartridge before?

Mr. CHAMPAGNE. Yes, sir.

Mr. McDONALD. And you also have in front of you the unfired cartridge, your own panel test bullet?

Mr. CHAMPAGNE. Yes, sir; I have.

Mr. McDONALD. And you have seen that before?

Mr. CHAMPAGNE. Yes, sir.

Mr. McDONALD. Have you examined both of these items for magazine follower markings?

Mr. CHAMPAGNE. Yes, sir.

Mr. McDONALD. And would you please explain to the committee using exhibit F-101, which is on the easel, what the results of your findings are?

Mr. CHAMPAGNE. This is a composite photograph of CE-141. The top photograph depicts the unfired cartridge. The bottom photograph is an enlargement of a photomicrograph taken on the comparison microscope showing on the left-hand side CE-141 and a panel test cartridge that was not fired in the weapon but worked through the action. This shows the magazine follower marks that resulted in the movement of the unfired cartridge through the action of the weapon and also the magazine follower marks found



on the unfired cartridge that was reportedly removed from the chamber of the weapon.

Mr. McDONALD. Mr. Champagne, what are magazine follower marks?

Mr. CHAMPAGNE. Magazine follower marks are those marks that are placed on the sides of the case by the metal floor plate in the magazine of the weapon. This is placed on the last cartridge in the magazine. It would be the first cartridge placed in the magazine and the last cartridge to come out of the magazine.

Mr. McDONALD. Are these magazine follower marks unique to a particular rifle?

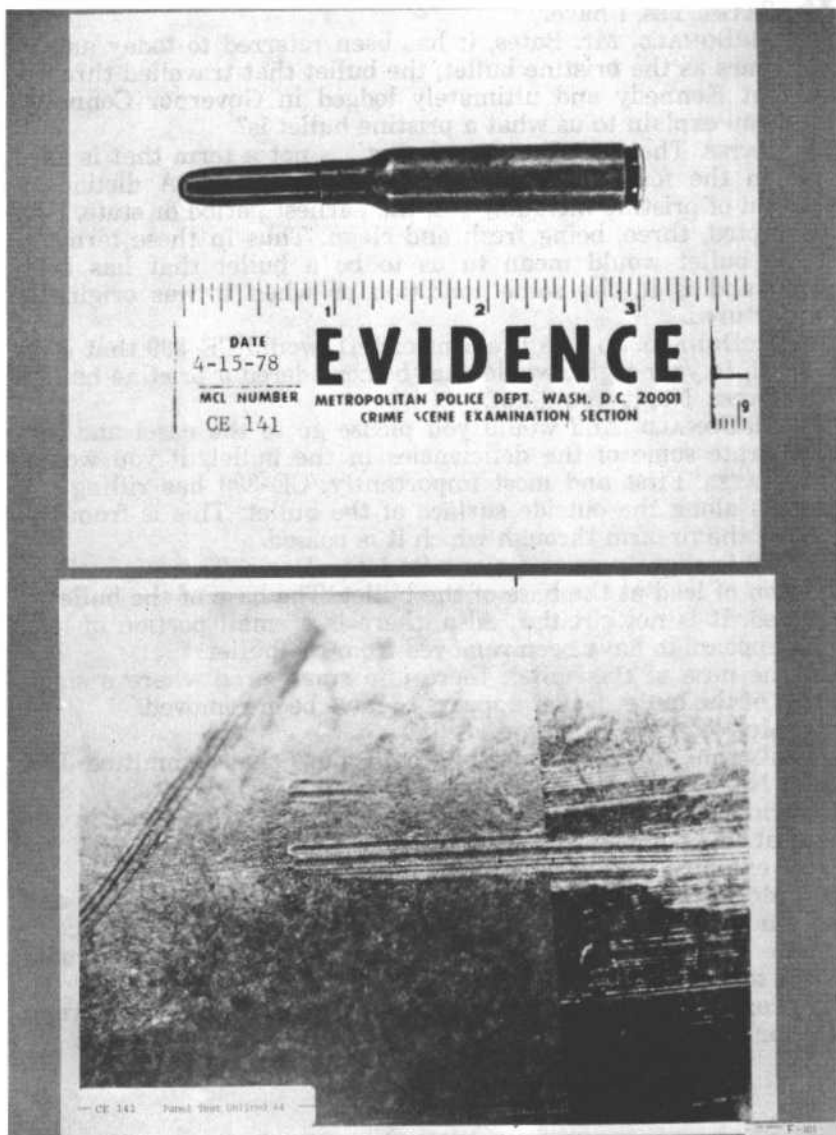
Mr. CHAMPAGNE. Yes, sir, just as any other markings that are placed on ammunition components by a weapon, these are also unique to a particular magazine follower.

As a result of being able to identify the magazine follower marks, it was the panel's conclusion that exhibit CE-141 was worked through the action of the weapon from the magazine and not placed into the magazine by hand. I am sorry, into the chamber of the weapon by hand.

Mr. Chairman, I at this time would move that JFK exhibit F-101 be admitted into the record at this time.

Chairman STOKES. Without objection, it may be entered into the record at this time.

[JFK exhibit F-101 was admitted into the record.]



JFK EXHIBIT F-101

Mr. McDONALD. Thank you, Mr. Champagne.

The next series of questions will be directed to Mr. Bates and if the clerk would place before the panel CE-399, which has been referred here to day as the pristine bullet, JFK No. F-95, and if you would please place JFK F-102 on the easel.

Mr. McDONALD. Mr. Bates, have you seen Commission exhibit 399 before?

Mr. BATES. Yes, I have.

Mr. McDONALD. Have you had a chance to examine it?

Mr. BATES. Yes, I have.

Mr. McDONALD. Mr. Bates, it has been referred to today and at other times as the pristine bullet, the bullet that travelled through President Kennedy and ultimately lodged in Governor Connally. Would you explain to us what a pristine bullet is?

Mr. BATES. The term "pristine bullet" is not a term that is used by us in the forensic firearms identification field. A dictionary definition of pristine includes, one, the earliest period or state, two, uncorrupted, three, being fresh and clean. Thus in these terms, a pristine bullet would mean to us to be a bullet that has been unfired and is in the same condition as when it was originally manufactured.

Mr. McDONALD. So as a firearms expert, would CE-399 that is on the easel, to your right, would that be considered a pristine bullet?

Mr. BATES. No, it would not.

Mr. McDONALD. And would you please go to the easel and just demonstrate some of the deficiencies in the bullet, if you would.

Mr. BATES. First and most importantly, CE-399 has rifling impressions along the outside surface of the bullet. This is from the barrel of the firearm through which it is passed.

CE-399 is slightly curved along its lateral axis. There is a slight extrusion of lead at the base of the bullet. The base of the bullet is deformed. It is not circular. Also, there is a small portion of lead which appears to have been removed from the bullet.

On the nose of the bullet, there is a small area where a small portion of the bullet jacket appears to have been removed.

Mr. McDONALD. Thank you.

At this time, Mr. Chairman, I would move that committee JFK exhibit No. F-102 be received into evidence.

Chairman STOKES. Without objection, it may be received in the record at this point.

[JFK exhibit F-102 was entered previously.]

Mr. McDONALD. Mr. Bates, the FBI test fired CE-139 in 1963 and fired a number of rounds of ammunition. Have you had a chance to examine CE-572, K-1-A and K-1-B, which if the clerk would present to the panel.

[JFK exhibit F-282 was presented to the panel and a photograph made for the record.]



JFK EXHIBIT F-282

Mr. McDONALD. Mr. Bates, have you seen those exhibits before?

Mr. BATES. Yes, I have.

Mr. McDONALD. And are those the FBI test fire bullets from 139?

Mr. BATES. Yes, they are.

Mr. McDONALD. Did you and your panel conduct an examination of those bullets?

Mr. BATES. We did.

Mr. McDONALD. Would you please tell us what examination you did, and you can use committee exhibit F-103, which is on the easel, to assist you in your explanation.

Mr. BATES. First of all, the panel conducted a physical examination of each of the bullets and its physical condition. Then the members of the panel, including myself, conducted a comparative microscopic examination of both of the bullets in exhibit 572. they were microscopically compared against each other.

Mr. McDONALD. Did you compare the FBI test bullets with your own test bullets that you recently fired out of 139?

Mr. BATES. Yes, we also made a microscopic comparison of that.

Mr. McDONALD. And what did the comparison show?

Mr. BATES. The results of this examination indicated that we could not determine whether the FBI test bullets were, in fact, fired from the rifle, CE-139.

Mr. McDONALD. And would you please explain your answer?

Mr. BATES. Based upon the microscopic comparison, there were differences in the individual identifying characteristics found within the land and groove impressions on the FBI test bullets and on the panel test bullets.

Mr. McDONALD. Just so we are clear, when you are speaking of bullets, you are referring to the tip of what would be known as a cartridge, the complete projectile would be called the cartridge; correct?

Mr. BATES. No; the loaded projectile in the cartridge case is the cartridge. The bullet is the portion, or tip that is released upon firing of the cartridge.

Mr. McDONALD. And you are saying in your test fires, your comparison with the FBI test fires, you could not say that those bullets came from CE-139?

Mr. BATES. That is correct.

Mr. McDONALD. Would you have expected that result considering the number of times that CE-139 has been fired over the years?

Mr. BATES. Yes, we would have.

Mr. McDONALD. Would you explain?

Mr. BATES. Our inability to identify our panel tests with each other and the failure to identify the panel tests with the FBI tests is believed by us to be due by one or a combination of several factors. No. 1, repeated test firing of CE-139 over the years causing extensive changes in the individual rifling characteristics within the barrel of the weapon. No. 2, natural variations caused by the high velocity of the 6.5 bullet resulting in extreme heat and friction during the passage of the bullet through the bore of the weapon.

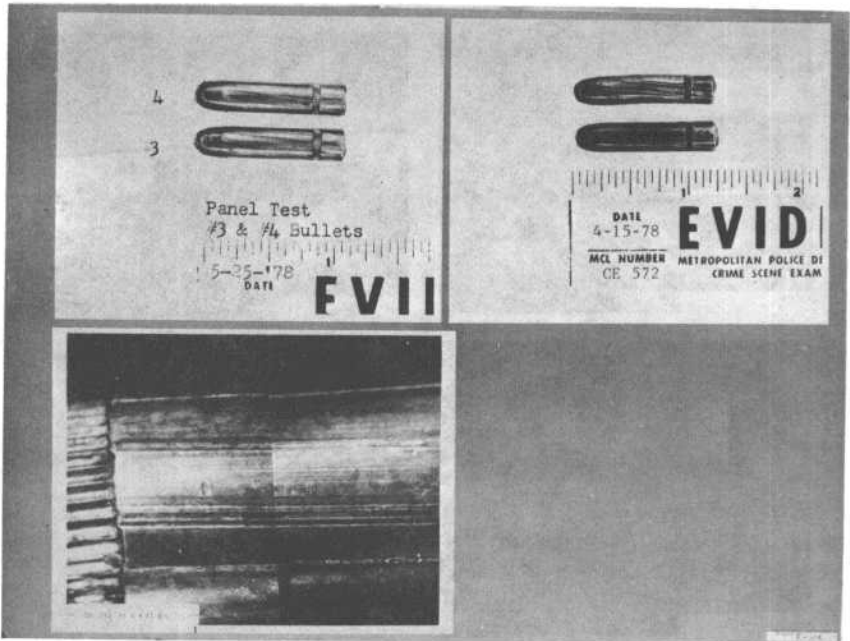
And No. 3, deterioration of the rifling surfaces over an extended period of time due to the absence of proper cleaning, maintenance and/or protective lubrication.

Mr. McDONALD. So what you are saying though, you can't compare the bullets but, of course, we have had previous testimony regarding the cartridge cases with firing pin impressions and the like and because of the deterioration in the barrel, it has made it impossible to match up your test fires with the FBI test fires, is that correct?

Mr. BATES. That is correct, yes.

Mr. Chairman, may we have JFK exhibit F-103 received into the record?

Chairman STOKES. Without objection it may be received.



JFK EXHIBIT F-103

Mr. McDONALD. Mr. Bates, another area of inquiry, was the FBI's comparison of the pristine bullet found on Governor Connally's stretcher with the FBI test-fired bullet, CE-572? Did you conduct an examination regarding this area?

Mr. BATES. Yes, I did.

Mr. McDONALD. Will you please tell us what you did and what the findings are of the panel?

Mr. BATES. The panel, including myself, conducted comparative microscopic examinations of CE-399 against both of the FBI test bullets, CE-572.

Mr. McDONALD. What findings did you make?

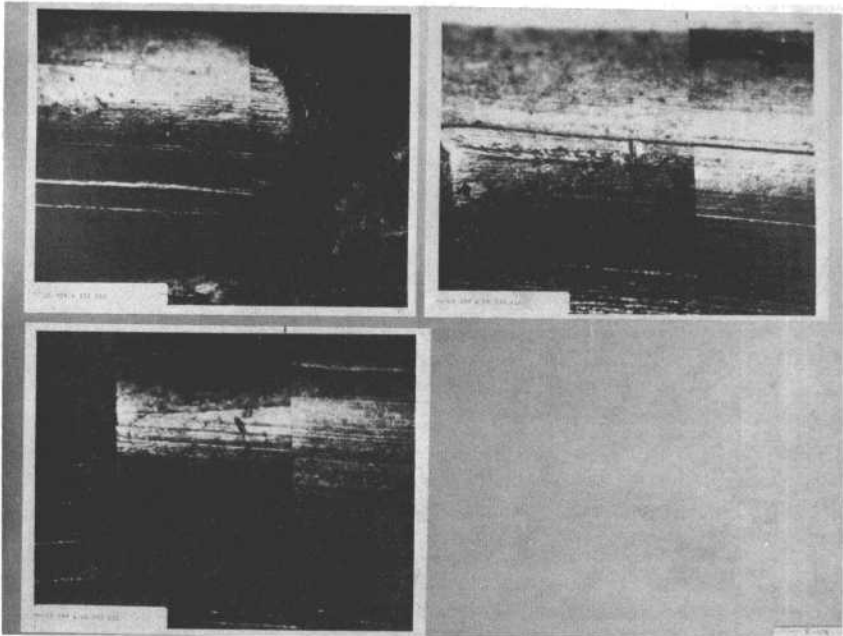
Mr. BATES. As a result of our comparative microscopic examinations, it is our opinion that the bullet, CE-399, was fired through the same firearm barrel that fired the FBI tests, CE-572.

Mr. McDONALD. Thank you.

Mr. Chairman, if committee exhibit F-104 would be received into the record at this time, I would so move.

Chairman STOKES. Without objection, it may be entered into the record at this point.

[Committee exhibit F-104 was entered into the record.]



JFK EXHIBIT F-104

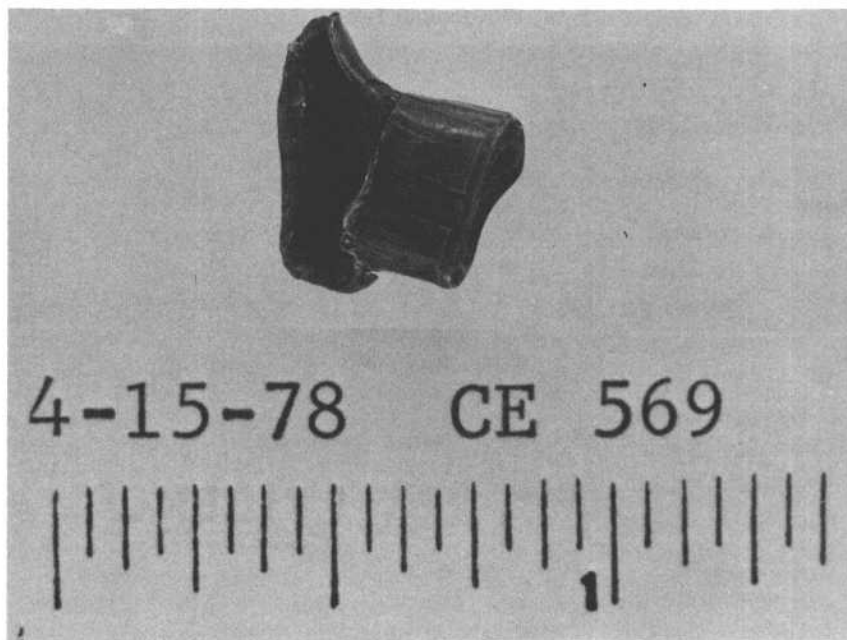
Mr. McDONALD. The next series of questions will be directed to Mr. Newquist. If the Clerk would present Mr. Newquist and the panel with Commission exhibits 567, which is the fragment found on the right front seat of the Presidential limousine, CE-569, the bullet fragment found on the right front floor, CE-840 found under the left jump seat occupied by Mr. Connally, CE-842, a bullet fragment found in Governor Connally's arm and CE-843, a bullet fragment recovered from President Kennedy's brain.

[JFK exhibits F-284 through F-288 were presented to the panel and photographs made for the record.]

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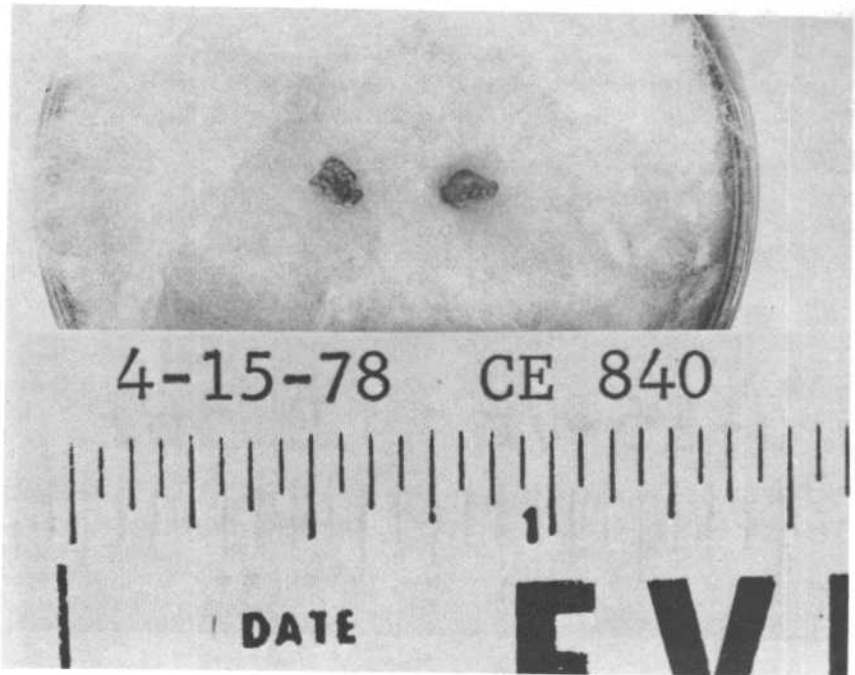


JFK EXHIBIT F-284



JFK EXHIBIT F-285





JFK EXHIBIT F-286

DALLAS COUNTY HOSPITAL DIS.

FOREIGN BODY ENVELOPE

DATE: April 15, 1968 TIME: 1600H

NAME: Gov. John Connally

UNIT NUMBER \_\_\_\_\_

SEX-RACE \_\_\_\_\_

FOREIGN BODY: Subst

Fragment

AREA FROM WHICH REMOVED: \_\_\_\_\_

Right arm

DOCTORS: Dr. C. Murray

NURSES: Thelma Schaefer - Bell

4-15-78 CE 842

DATE EVIDENCE

INCL NUMBER METROPOLITAN POLICE DEPT. WASH. D.C. 20001  
CRIME SCENE EXAMINATION SECTION

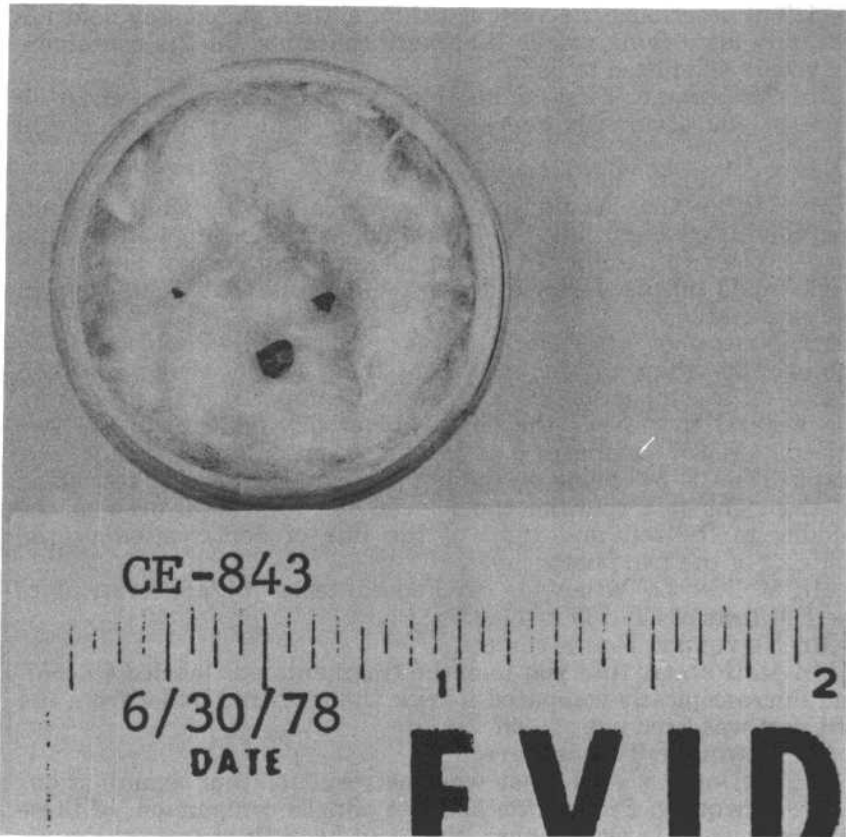
11/2/67

4/15/68

CK 10

CK 10

JFK EXHIBIT F-287



JFK EXHIBIT F-288

Mr. McDONALD. Mr. Newquist, have you seen those exhibits before and had a chance to look at them?

Mr. NEWQUIST. I have.

Mr. McDONALD. Have you examined them before?

Mr. NEWQUIST. I have.

Mr. McDONALD. And are those the same exhibits that were in the company of the National Archives people when you examined them and are they in the same condition now?

Mr. NEWQUIST. They are.

Mr. McDONALD. And if the clerk would put up committee exhibit F-105.

Mr. Newquist, have you examined the bullet fragments I have previously identified?

Mr. NEWQUIST. I have.

Mr. McDONALD. Would you please use committee exhibit F-105, and if you would approach the easel, explain to the committee your examination, and the results of your examination.

Mr. NEWQUIST. The examination that was conducted on these exhibits by myself and the panel was first that a work sheet was

made out describing the various exhibits, their shape, any deformities, any identifying marks that were contained on the containers they were submitted to us in.

Mr. McDONALD. First of all, Mr. Newquist, does the chart in front of you accurately represent the physical evidence that you examined?

Mr. NEWQUIST. That is correct, it does.

Mr. McDONALD. Would you please explain to us what analysis you conducted regarding CE-567 which is in the upper left-hand corner, the two exhibits in the upper left-hand corner, and if the clerk would put up JFK exhibit F-106, I think that would help in the explanation.

Mr. NEWQUIST. After work sheets had been filled out describing the exhibits, their various markings, their weight, they were then placed on a comparison microscope and compared with tests from the Federal to observe the similarity or dissimilarity of the two objects. CE-567 comparison is in the lower enlarged photomicrograph. The CE-567 being on the left side and the Federal test being on the right side showing the identifiable individual area in the middle; to the left and right of the line of demarcation or the splitting of the two photographs.

Mr. McDONALD. When you say Federal tests, you are referring to the FBI tests of CE-139 in 1963?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. And you took the fragment, is it labeled CE-567, and microscopically compared it with the test-fired bullet from the FBI that was fired out of 139?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. And what was the result of your examination?

Mr. NEWQUIST. From mine and the panel's comparison, of these two exhibits, it is our opinion, they had been fired from the same firearm.

Mr. McDONALD. In other words, CE-567, which was the bullet fragment found on the front seat of the Presidential limousine, it is your conclusion through your analysis that it was fired from CE-139, which is before us this morning?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. What did you do regarding CE-569?

Mr. NEWQUIST. The same being true for CE-569, it was placed on a microscope and compared with the FBI test bullets fired from the Oswald rifle to observe the similarity or dissimilarity, the result or a photographic representation of the identification is in the upper photograph. CE-569 on the left side of the line of demarcation, the FBI test, CE-572 is on the right side showing the concurrence of the individual characteristics as seen on the comparison microscope.

Mr. McDONALD. And the conclusion is that they were both fired from the same weapon?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. Could you move your microphone just a little bit higher? We are having difficulty hearing you.

In effect, what we are doing, we are taking the actual evidence that the FBI used, the test-fired bullets, the fragments found in the

Presidential limousine, and you are taking those and independently reevaluating them again in 1978; is that correct?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. And you are reaching the same conclusion that the FBI reached 15 years ago?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. Would you please explain what the panel did regarding CE-840?

Mr. NEWQUIST. The lead fragments in CE-840 were weighed to get the work sheet prepared, describing them and noting any identifying initials placed on the exhibit prior to being submitted to us. That is all the further, or no other examination was conducted on this exhibit.

Mr. McDONALD. And that would be the same for CE-842 and CE-843?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. Mr. Newquist, if you would, using the upper portion of 106, would you explain to us what lands and grooves are.

Mr. NEWQUIST. Lands and grooves are commonly referred to as rifling, or is the rifling of the inside bore of the firearm. After a barrel blank is drilled for the approximate bore diameter, then grooves are cut into it. The lands are the raised portions and the grooves are the lower portions within the bore. At the same time the cutting tool is passed through the bore of the barrel, it is given rotation, either to the left or to the right, depending upon the manufacturing specifications prior to manufacture. When a bullet is fired down the rifle barrel, it takes on the impressions of the land and grooves, and rotation of the direction of twist to add stability to it in flight.

They are imparted to the bullet and referred to as land impressions and groove impressions because they are a negative of the barrel itself.

Mr. McDONALD. Thank you. If we would now have JFK F-107 placed on the easel, and if the clerk would show Mr. Newquist Commission exhibit 573 identified here as JFK F-289. CE-573 is what is known as the Walker bullet. The allegation being made that Lee Harvey Oswald attempted to assassinate General Edwin Walker on November 10, 1963. CE-573 was the bullet found embedded in the wall of his home.

[Warren Commission exhibit 573 corresponds with JFK exhibit F-289, which is the physical evidence, represented by JFK F-107 that will subsequently be introduced into the record.]

Mr. McDONALD. Mr. Newquist, have you seen CE-573 before?

Mr. NEWQUIST. I have.

Mr. McDONALD. You have just looked at it again. Is it the same exhibit on which you conducted an examination?

Mr. NEWQUIST. It is.

Mr. McDONALD. Would you please tell us what examination you did perform on CE-573.

Mr. NEWQUIST. A work sheet was prepared by myself and the panel members on the description of the damaged bullet, knowing damage, knowing the weight, knowing the number of lands and grooves, direction of twist, also identifying markings placed on containers that were submitted to the panel in.

CE-573 was then placed on a comparison microscope and compared with the test fire bullets, CE-572 from the Oswald firearm.

Mr. McDONALD. If we could put up JFK exhibit F-103.

Mr. Newquist, did you find similar class characteristics, between the Walker bullet, CE-573, and the panel test bullets that you have before you?

Mr. NEWQUIST. Yes, class characteristics of CE-573 and the class characteristics of the bullets, CE-572, the Federal test from the Oswald firearm and also the panel test fired from the Oswald firearm were consistent in number, width, and direction of twist.

Mr. McDONALD. Could your panel reach a conclusion as to the rifle of origin for CE-573 using the evidence available to you?

Mr. NEWQUIST. Would you repeat the question?

Mr. McDONALD. Were you able to reach a conclusion as to what rifle fired CE-573, the Walker bullet?

Mr. NEWQUIST. No, we were not, due to the distortion of CE-573, and lacking a significant correspondence of individual characteristics with the test, no conclusion could be reached. However, no significant difference was observed from CE-573 to CE-572, no gross difference was noted to indicate that it had not been fired from it.

Mr. McDONALD. But what you are saying is, through distortion, because of impact, the peculiar identifying marks were not able to be found by your panel on CE-573?

Mr. NEWQUIST. That is correct.

Mr. McDONALD. And was this the conclusion that the FBI reached in 1963?

Mr. NEWQUIST. That is correct.

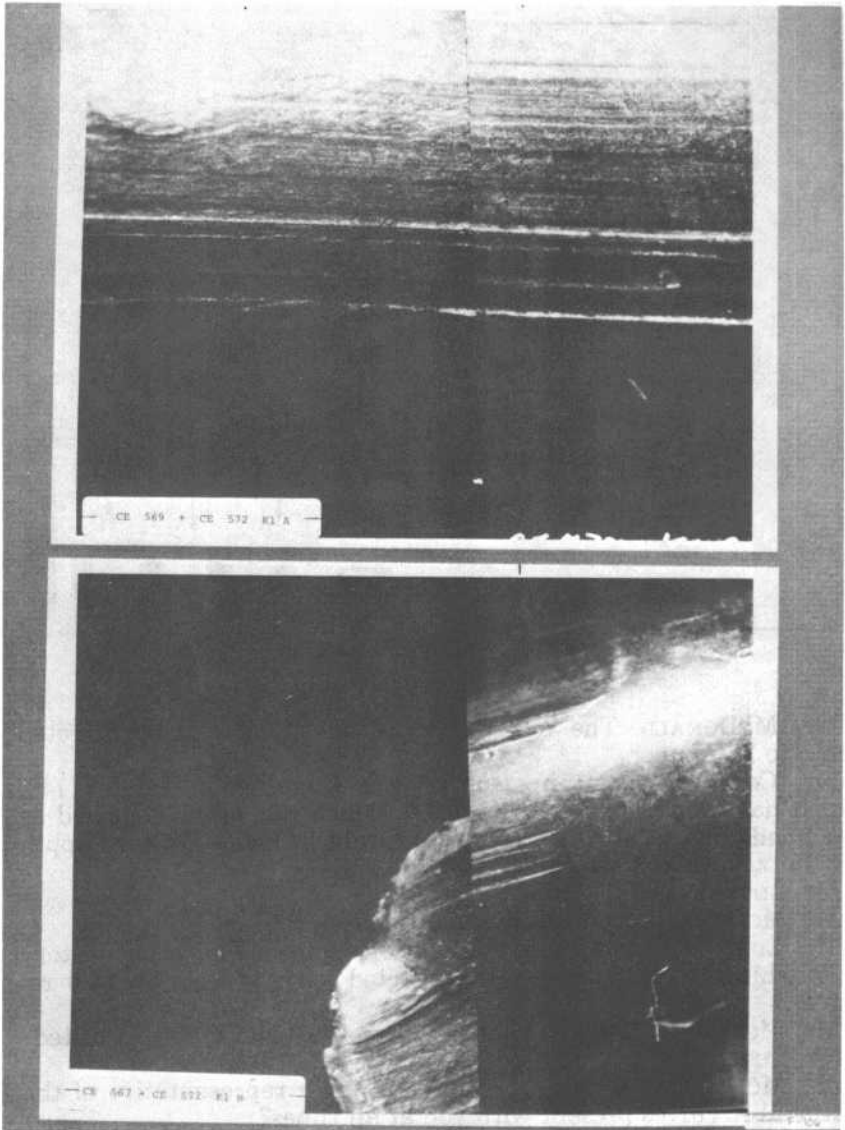
Mr. McDONALD. Thank you very much.

At this time, Mr. Chairman, I would move that committee exhibits F-105, F-106, and F-107 be received into the record at this time.

Chairman STOKES. Without objection, they may be entered into the record at this point.

[Committee exhibits F-105, F-106, and F-107 were received into the record.]





JFK EXHIBIT F-106



JFK EXHIBIT F-107

Mr. McDONALD. The next series of questions will be directed again to Mr. Lutz.

Mr. Conzelman will present to you Commission exhibit 143, which has been give JFK No. F-290, which has been identified as the handgun used by Lee Harvey Oswald to shoot Officer Tippit. Mr. Lutz, have you seen that weapon before?

Mr. LUTZ. Yes, sir, I have.

Mr. McDONALD. And where have you seen it?

Mr. LUTZ. I observed this at the Metropolitan Police Laboratory in Washington, D.C., where I conducted various tests on this revolver.

Mr. McDONALD. And is that the same weapon that you tested?

Mr. LUTZ. Yes, it is.

Mr. McDONALD. When you tested it, was a representative of the National Archives present with you at all times?

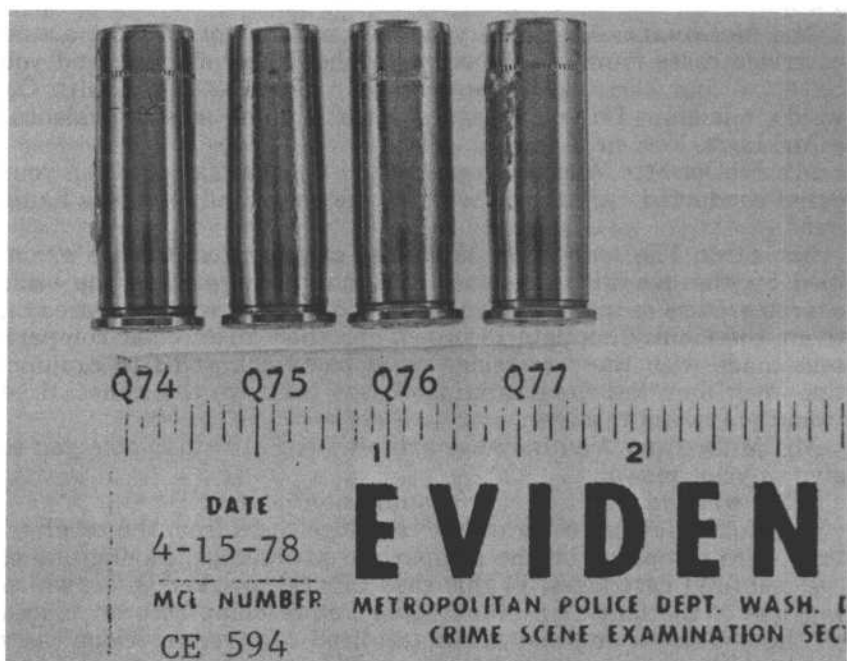
Mr. LUTZ. Yes, he was.

Mr. McDONALD. I take it that is the same when you tested CE-139?

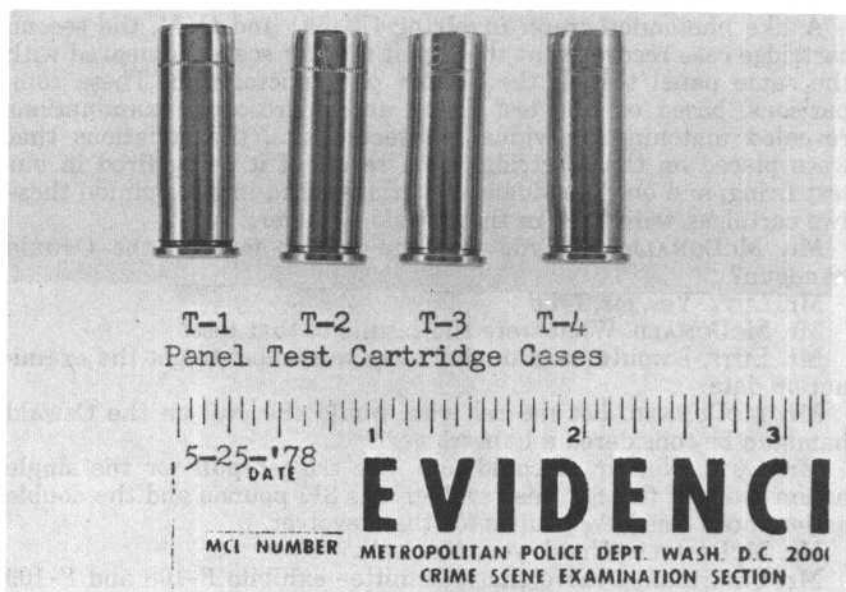
Mr. LUTZ. Yes, sir.

Mr. McDONALD. If we could also present to the panel the cartridge cases from the Oswald handgun, CE-594, Q-74, 5, 6, and 7, identified as JFK F-292, and at the same time the test cartridge cases which have a JFK exhibit number of F-293.

[JFK exhibits F-292 and F-293 were presented to the panel and photographs made for the record.]



JFK EXHIBIT F-292



JFK EXHIBIT F-293



Mr. McDONALD. Mr. Lutz, you have in front of you the actual cartridge cases found at the scene of the Tippit murder, and you have the four cartridge cases that your panel test fired with Oswald's handgun. Do you recognize each of those sets of evidence?

Mr. LUTZ. Yes, sir, I do.

Mr. McDONALD. Would you please tell us what examination your panel conducted regarding the cartridge cases and Oswald's handgun?

Mr. LUTZ. The four fired .38 special cartridge cases were examined for the overall appearance, the manufacturer, and the basic characteristics of the cartridge cases. Worksheets were prepared on them, the identifying data recorded, and then microscopic comparisons made with these cartridge cases being compared in conjunction with four test-fired cartridge cases that we, the panel, fired from the Oswald revolver.

Mr. McDONALD. You may use exhibit No. F-109 to enable you to give us your answer.

What was the result of your examination?

Mr. LUTZ. Having test fired the cartridge cases from the revolver, they were compared on the comparison microscope, having one of the test-fired cartridges, in this case CE-594, marked Q-77, which was one of the four being Remington Peters manufacturer, placed on the left stage, and one of our test-fired revolver cartridge cases on the right side, our panel test one. This photomicrograph shows the primer area of the particular cartridge cases. We are looking at the enlarged portion of it with the striations caused by the breech face and the indentation on the primer.

A like photomicrograph involving CE-594 and Q-74, the second cartridge case recovered at the Tippit murder scene, compared with the same panel test in the bottom photomicrograph. These comparisons, based on our test firing and microscopic examinations revealed matching individual characteristics, the striations that were placed on that cartridge as a result of it being fired in our test firing, and on the evidence cartridges, and in our opinion these two cartridges were fired in the Oswald revolver.

Mr. McDONALD. Did you test the trigger pull on the Oswald handgun?

Mr. LUTZ. Yes, sir, I did.

Mr. McDONALD. What were the results of that test?

Mr. LUTZ. I would have to check my worksheet to get the examination data.

Mr. McDONALD. Let me ask you, would the pull on the Oswald handgun be considered a hair trigger?

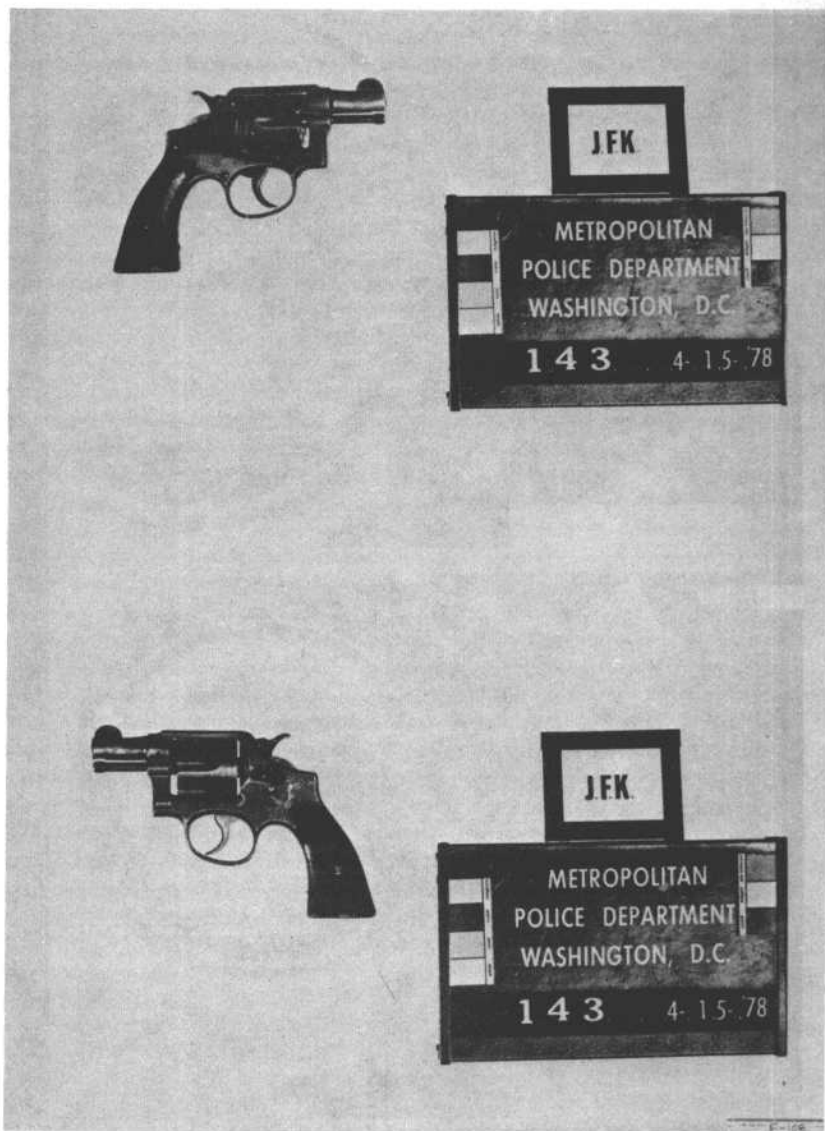
Mr. LUTZ. No, sir, it could not. The trigger pull for the single action mode of fire for this revolver was 3½ pounds and the double action mode was 10¼ pounds for that revolver.

Mr. McDONALD. Thank you, Mr. Lutz.

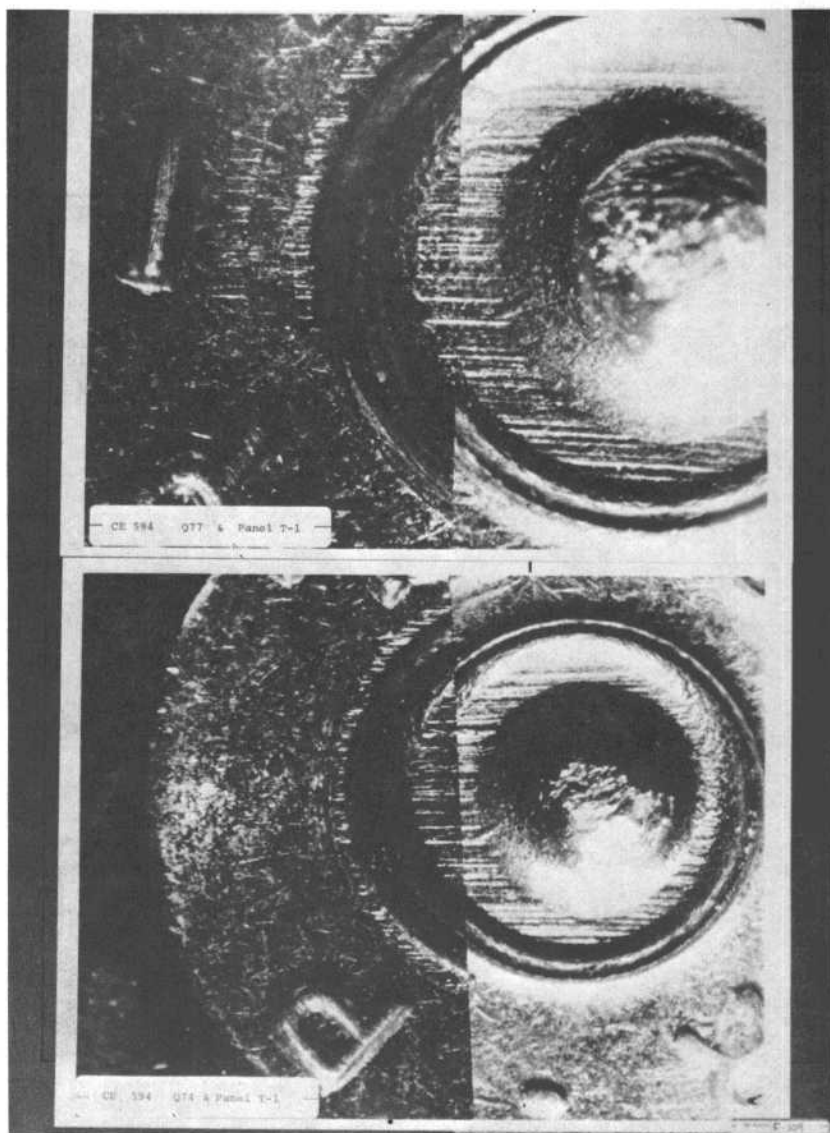
Mr. Chairman, I move that committee exhibits F-108 and F-109 be received into the record at this time.

Chairman STOKES. Without objection, they may be received.

[JFK committee exhibits F-108 and F-109 were received into the record.]



JFK EXHIBIT F-108



JFK EXHIBIT F-109

Mr. McDONALD. The next and last series of questions will be directed to Mr. Champagne.

Mr. Conzelman, would you please hand Mr. Champagne the committee exhibit which has been marked F-110, the handgun allegedly used by Jack Ruby in the shooting of Lee Harvey Oswald. Mr. Champagne, have you seen that weapon before?

Mr. CHAMPAGNE. Yes, sir, I have.

Mr. McDONALD. And where have you seen it?

Mr. CHAMPAGNE. At the Metropolitan Police Department Firearms Section.

Mr. McDONALD. What kind of weapon is it?

Mr. CHAMPAGNE. This is a .38 special caliber Colt Cobra revolver. It bears serial No. 2744-LW. It is a 2-inch barrel, lightweight revolver with a 6-shot cylinder.

Mr. McDONALD. Is there anything out of the ordinary about that handgun?

Mr. CHAMPAGNE. There is nothing out of the ordinary about the weapon other than the fact that it does have a hammer shroud on it.

Mr. McDONALD. Would you please explain what you mean by a hammer shroud?

Mr. CHAMPAGNE. A hammer shroud is an attachment that covers most of the hammer of the weapon.

Mr. McDONALD. What is it used for?

Mr. CHAMPAGNE. On a lightweight short-barreled weapon many people carry it in their pocket. A hammer shroud is designed to prevent snagging of the hammer on the clothing when the weapon is removed from the pocket.

Mr. McDONALD. Is that shroud put on at the factory or is it put on at a gun shop, do you know?

Mr. CHAMPAGNE. There was no way of determining whether it was put on at the factory or at some later date.

Mr. McDONALD. And, Mr. Champagne, did you test the trigger strength, the trigger pull of that handgun?

Mr. CHAMPAGNE. Yes, sir.

Mr. McDONALD. And would you please tell us the results of that test?

Mr. CHAMPAGNE. The amount of pressure required to pull the trigger single action is approximately 5 pounds; double action is approximately 10½ pounds.

Mr. McDONALD. And would you consider that to be a hair trigger?

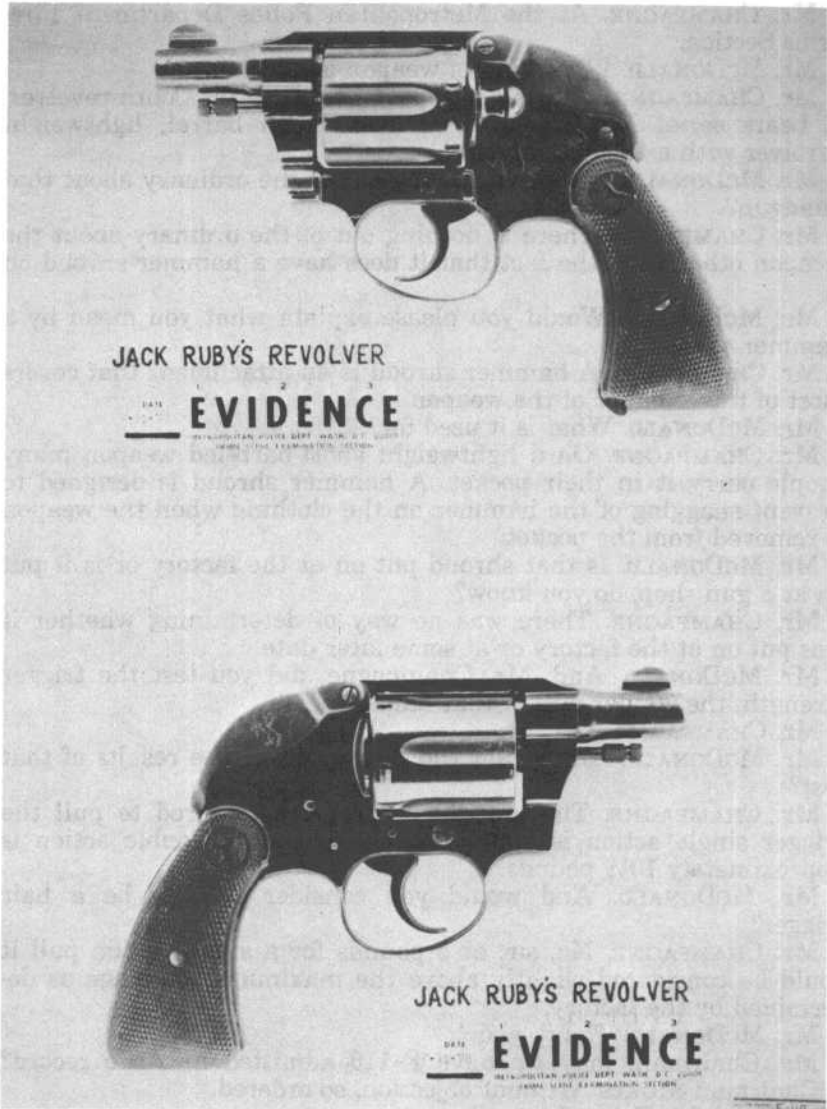
Mr. CHAMPAGNE. No, sir, at 5 pounds for a single action pull it could be considered slightly above the maximum poundage as determined by the factory.

Mr. McDONALD. Thank you.

Mr. Chairman, may we have F-110 admitted into the record?

Chairman STOKES. Without objection, so ordered.

[JFK exhibit F-110 follows:]



## JFK EXHIBIT F-110

Mr. McDONALD. Mr. Lutz, I failed to ask you one question. What specific kind of handgun is that, the Oswald handgun?

Mr. LUTZ. This is the .38 special revolver manufactured by Smith & Wesson. It was originally designed to chamber the .38 Smith & Wesson cartridge. It had been rechambered. The length of the space inside the cylinder allowing the cartridge to be seated in the cylinder had been extended to now accept the longer .38 special cartridge that it is presently chambered for.

Mr. McDONALD. Thank you. Mr. Chairman, I have no further questions.

Chairman STOKES. The Chair is planning to recognize the gentleman from Pennsylvania, Mr. Edgar, who has had to go to the floor for a vote that is presently on the floor. We can recess for just a couple of moments, about 5 minutes, I would say.

[A brief recess was taken.]

Mr. PREYER [presiding]. The committee will come to order, please.

The Chair recognizes the gentleman from Pennsylvania, Mr. Edgar.

Mr. EDGAR. Thank you, Mr. Chairman.

I would like to welcome the panel and thank you for your testimony today. I have a series of questions that I would like to ask.

I wonder if Mr. Lutz and Mr. Champagne could come in front of the table because I have questions relating to the rifle itself and its action.

Could you use the neck mike and lift the rifle.

Mr. Lutz, perhaps you can take the rifle in hand.

I was interested in seeing you handle the rifle and talking about the action of the rifle. I have just a couple of questions relating to the rifle itself.

Could you describe the magazine section of the rifle and how that works?

Mr. LUTZ. The magazine section is this attached area, a fixed box-type magazine, that is part of the trigger guard protruding from the bottom of the stock. It is the large metal object that you see on the lower silhouette. The magazine itself consists of the follower, the steel or metal arm that is inside of the receiver, that is pushed down as the cartridges are inserted into the top of the firearm, and then that steel or metal arm is on a spring that pushes on the bottom cartridge and is part of the magazine and causes the feeding of the system to operate inside of the rifle as it is loaded.

Mr. EDGAR. So it would be accurate to say that there isn't a portable magazine that is clipped into the rifle and clipped out again, that the magazine is part of the rifle itself.

Mr. LUTZ. That is correct as opposed to the detachable magazine that could be removed and taken out of the rifle.

Mr. EDGAR. The reason for asking that question is that it was not clear to me when we were talking about some of the markings on the last bullet, that it had to come from being loaded first in that magazine. I know that there are rifles that do have detachable magazines, but it cannot be detached on this rifle?

Mr. LUTZ. That is correct, the follower itself is an integral part of the rifle and the magazine itself is attached to the receiver and cannot be removed by simply pulling it from the rifle.

Mr. EDGAR. How would you load the rifle?

Mr. LUTZ. This rifle can be loaded in two ways. If an individual wanted to insert a single cartridge, a separate clip would not be required. The bolt would be opened. Normally the rifle would be pointed down or in some way so that the cartridge could be fed in by hand into the chamber area of the rifle. Then the bolt would be closed on that cartridge and you would be able to fire the rifle with a single round.

The normal procedure to load the rifle with more than one round would be to insert a number of cartridges, one through six, in the clip, in this case a brass clip. They are inserted into this and it acts as a retainer or a holder for the cartridges. They are then inserted into the open area by pushing it down. The bottom of the bottom cartridge is forcing the follower all the way to the bottom. It pushes it down and is forced to the extreme bottom and goes into a locked position allowing you then to push the bolt handle forward stripping the first cartridge from the top of the clip and inserting it into the chamber area of the rifle.

Mr. EDGAR. The cartridge clip was removed from CE-139 by Lieutenant Day of the Dallas Police Department on November 22, 1963 at the crime laboratory for the police department. Shouldn't a clip automatically fall out once the last cartridge has fed into the chamber?

Mr. LUTZ. This rifle is designed to incorporate that feature so that the last cartridge is stripped out of the clip, then that allows the clip itself to fall or to drop from the opening that you see in the bottom of the box magazine. However, in many cases, and in this particular case, where we functioned the rifle, fed cartridges through it, we found this clip to stay in the rifle after the last round had been stripped and fed into the chamber. Because the lips or the edges of the clip many times will open up, they will spring against the walls on the inside of the box magazine and it will hang up in that area, and even though it is supposed to drop out, many times it will hang up in the box area.

Mr. EDGAR. So that in this case, while it is normal for the clip to fall automatically, because of that particular problem with the clip, it remains in the rifle?

Mr. LUTZ. Yes, sir, many times it will.

Mr. EDGAR. Can you describe the bolt action once again? I recognize that we are not trying to get sequence of time here, but it is a relatively short period of time in which three shots are fired. Can you describe in laymen's terms how the bolt action would work in order to fire off three shots?

Mr. LUTZ. To fire three cartridges the procedure would be either (1) putting a cartridge into the chamber and two or more into the clip, and then allowing the bolt to be closed forcing the top cartridge down so that the bolt would close over it and on to the cartridge that had been inserted into the chamber, or putting three in the clip and stripping the top one from the clip, three or more, and loading it in that manner. To do this the cartridges would be inserted, the bolt handle grasped, pushed forward, and then crammed down to lock the bolt into the receiver and prepare it for firing.

Mr. EDGAR. Could you do that three times quickly?

[Demonstration.]

Mr. EDGAR. Now that it just moving the bolt action, that is not putting the gun up for sighting and preparing it for firing, you are just moving the bolt that quickly?

Mr. LUTZ. That is correct, yes sir.

Mr. EDGAR. Are magazine follower markings, like those found on CE-141, only found on the last cartridge regardless of how many

cartridges are loaded into the clip? I think you had suggested this earlier.

Mr. LUTZ. Yes sir, they would because the follower is contacting that bottom cartridge and pushing it up.

Mr. EDGAR. Is it reasonable to believe that there were at least four cartridges placed in this rifle, in light of the fact that three were found on the ground and one was found remaining, so that there were at least four; is that correct?

Mr. LUTZ. Yes, sir, that would be quite logical.

Mr. EDGAR. Do the magazine follower markings found in CE-141 indicate that the clip was used?

Mr. LUTZ. Could I defer that question to Mr. Champagne?

Mr. EDGAR. Sure.

Mr. CHAMPAGNE. Yes. Without the clip the weapon would not function properly. The cartridges would lie loose in the magazine.

Mr. EDGAR. How many bullets does the clip actually hold?

Mr. CHAMPAGNE. The clip will hold six rounds or less.

Mr. EDGAR. But it is the last bullet that has the markings, and that is the first one placed in, it is the last one remaining?

Mr. CHAMPAGNE. That is correct, it is the last cartridge that has the markings on it, the last one to leave the magazine.

Mr. EDGAR. In your test firings of the rifle, where you by accident created the cartridge with the dent on it, similar to the one that was found in the Texas book depository, what were you firing at and where were you firing?

Mr. LUTZ. This was a single cartridge being inserted into the chamber and firing into a cotton waste recovery box, a box approximately 12 to 14 inches in dimensions in width, approximately 10 to 12 feet long, filled with a recovery material, a cotton waste material, backing away from the box, a foot or two, and pointing the muzzle into the box and then firing into it, in order to recover the projectile.

Mr. EDGAR. But you weren't firing with clip—using the clip, were you?

Mr. LUTZ. No sir; I did not.

Mr. EDGAR. Did anyone on the panel fire with the clip in?

Mr. LUTZ. I do not believe so; no, sir.

Mr. EDGAR. What was the reason for that?

Mr. LUTZ. There were no particular markings that we were able to identify as having come from the clip, nor were we checking for time firing or sequential firing in any way in that respect.

Mr. EDGAR. Let me ask you some questions about the scope itself. You described the scope earlier as being totally attached to the rifle. Can you explain that again?

Mr. LUTZ. Yes, sir; the scope is attached on the lefthand side, attached by two small metal screws that can be removed by backing them off and the entire mount comes off once those two screws are backed off and pulled away from the receiver.

Mr. EDGAR. But it is not just an unhooking of a latch or the removal of a clip to get the scope off, you actually physically have to use a tool to get it off?

Mr. LUTZ. Yes, sir, that is correct.

Mr. EDGAR. And you indicated earlier—I believe, one of the panel members did—that it would be possible for an average marksman



to shoot fairly accurately with the rifle without using the scope; is that not correct?

Mr. LUTZ. Yes, sir, that would be.

Mr. EDGAR. Can you describe further why that is so? Why wouldn't you use the scope in every occasion, if it is connected to the rifle?

Mr. LUTZ. This scope, I will apply the principle to it. We are dealing with a four-power or a magnification of 4. The field of view is 18, meaning an 18-foot circle at 100 yards. So it is a 4 x 18 scope, a relatively small circle to locate your target in when you are firing and recovering from the recoil in successive shots. So to align your target to get a sighting position, by placing the stock into the shoulder, the head has to be adjusted or moved slightly to the left to align the way that the scope is mounted on the left-hand side and get into position to fire.

The scope itself is also designed so that the crosshair, the reticles, do not remain in the exact center position. When you adjust windage or elevation those crosshairs move, so that you are not looking dead center in the object itself.

A more natural and easier form or position to fire is to put the rifle against the shoulder, the cheek on the stock, and look right down the center, straight ahead from where you are now positioned, and align the iron sights, the fixed iron sights that are presently on the rifle.

Mr. EDGAR. Can you demonstrate the holding of the rifle in a position of firing at a target (a) using the scope, and (b) without the scope? Fire toward the screen there.

Mr. LUTZ. The best position using the scope would be placing the stock against the shoulder, the left hand on the upper forearm of the rifle, gripping the stock area and the trigger finger going into the trigger guard, and I am now using the scope itself. The crosshairs are close to the center of the objective area. To get exactly on center I have to raise my head an inch or so, with the cheek of my face away from the stock. If I put my face onto the stock I cannot see through the objectives of the scope. The scope is slightly to the left and is considerably higher.

So I must raise my face off of the stock and a little bit higher to get a position. To sight through the iron sights, they are not obstructed by the scope, because the scope is mounted high enough, I can see under it. I can place it into a better position by putting my cheek on the stock, finger on the trigger, and I have a more solid position and easier position to recover to once the rifle has fired.

Mr. EDGAR. Are you indicating that in rapid-fire use of that rifle it would probably be easier to use the rifle without using the scope?

Mr. LUTZ. For me it would be considerably easier, yes.

Mr. EDGAR. Considering the physical layout of Dealey Plaza, would the shots at the President have been more feasible without a scope for a person of less than marksman proficiency, in other words, for someone not as proficient as a police sharpshooter?

Mr. LUTZ. I believe that it would. The ability to grasp the rifle and put it into the shoulder and recover after each firing is considerably easier using just the iron sights.

Mr. EDGAR. Does any member of the panel have any differing points or related points that they would like to make in relationship to the questions that we have asked revolving around the rifle?

Mr. BATES. No.

Mr. NEWQUIST. No.

Mr. WILSON. No, sir.

Mr. EDGAR. When the assassination occurred, many people in Dealey said they saw puffs of smoke coming from the direction of the grassy knoll. Do rifles or handguns emit smoke that is discernable to the human eye?

Mr. LUTZ. Yes, sir; they do.

Mr. EDGAR. Does that particular rifle emit any smoke when it is fired?

Mr. LUTZ. During the test firings, I did not make observations concerning this particular rifle. I believe Mr. Bates may have some data on that that he could give you, sir.

Mr. EDGAR. Mr. Bates.

Mr. BATES. During the test firing, even though we were firing at the cotton box and the water recovery tank from a very short distance, it was possible to observe some smoke emitting from the muzzle of the weapon.

Mr. EDGAR. This is going to be difficult. Can you describe what the smoke looked like? I mean it is not billowy smoke and—

Mr. BATES. No; it appeared as a very thin haze of a light or whitish type of smoke. It was very difficult to evaluate the quantity of smoke emitted during our firing, especially when using the cotton bullet-recovery box. This was due to the muzzle of the rifle being held in close proximity to the front of the box. As the rifle was fired, the expansion of the propellant gasses forced cotton to blow out of the box, partially obscuring some of the smoke.

Mr. EDGAR. From the experience of the panel members, if a gun similar to this particular weapon were fired out of doors, would the smoke emanating from this type of a rifle exhibit more or less smoke than a lighted cigarette?

Mr. BATES. Possibly similar.

Mr. LUTZ. Possibly I could assist somewhat in that. I have fired a rifle of the same dimensions as the ones that was in the photographic display that I had. I observed, or I had another person fire it while I was observing, in bright sunlight. I found not a puff of smoke but the gray smoke in an outdoor condition being expelled from the front of the muzzle during firing of the same type of ammunition, and then I used some Italian surplus ammunition and some Swedish commercial ammunition, each of them given a considerable amount of smoke. It could be readily detected as a result of being fired from a similar rifle.

Mr. EDGAR. Thank you.

Let me draw your attention now to Oswald's revolver that was used, at least that is exhibit here, CE-143.

In describing the firing of that revolver you used the phrase single and double action mode of firing, and you indicated that the pressure to pull the trigger single action was different than the double action mode.

Can you explain for me what you mean by the single- and double-action mode of firing?

Mr. LUTZ. Yes, sir. The single action is describing that process where the revolver is fired. Normally the cylinder will be swung to the left, cartridges will be inserted into the chamber or chambers of the cylinder, the cylinder closed, and then the revolver can be fired single action by cocking the hammer, pulling it to the rear, in some way, normally with the thumb applying pressure, pulling it back, putting it into a cocked position, so that now all that has to be done is pressure applied to the trigger causing the hammer to be released and move forward striking the primer area of the cartridge. This can be repeated by cocking it each time, each time rotating the cylinder and firing the revolver in that manner. That would be single action, and a lighter mode of fire, 3½ pounds approximately, I believe.

The second mode is simply having the revolver loaded, the hammer now all the way forward, and applying pressure to the trigger, and pulling the trigger, at the same time mechanically cocking the hammer by the pressure being applied to the trigger, causing the hammer to be moved to the rear, to that point where it is released, and then again falls and can be fired. [Demonstrating.]

As often as the trigger is pulled and there is ammunition in the chamber.

Mr. EDGAR. Thank you.

Regarding CE-143, Oswald's revolver, do your test-fired bullets match, microscopically, with CE-602, 603, 604, and 605?

Mr. LUTZ. Are these the bullets that were recovered from Officer Tippit?

Mr. EDGAR. These were the bullets that were recovered from the body of Officer Tippit.

Mr. LUTZ. Our microscopic examination and comparison of these bullets failed to positively identify this revolver as the one that fired those bullets. We did find the class characteristics that were present, the number of lands and grooves, the width of those lands and grooves, to be the same. However, the individual characteristics were not present in sufficient quantities that we could say that that revolver and no other revolver fired them.

Mr. EDGAR. Can you describe whether this is a traditional problem and why?

Mr. LUTZ. It is not an uncommon problem. The problems being in this case we are dealing with a revolver that has been fired numerous times, by all reports that we have received, the condition of the revolver itself is not new, and there is all indications of considerable wear involving the rifling, the chambers of the cylinder have been bored out to accept the longer .38 special cartridge as opposed to the shorter but larger diameter .38 S&W cartridges. So that these in conjunction with the gas erosion, the firing of the lead bullets, not picking up and not retaining enough striations and as a result of going through or into a body and obliterating some of those markings that we could not identify them positively.

Mr. EDGAR. Didn't you say earlier that the firing pin impressions on your test-fired cartridge cases matched the ones recovered at the scene of the murder?

Mr. LUTZ. Yes, sir; we did.

Mr. EDGAR. In the Warren Commission testimony, Ronald Simons, Chief, Infantry Weapons Evaluation Branch, Ballistic Research Laboratory, Department of the Army, stated that a 6.5 millimeter caliber Mannlicher-Carcano trigger was two staged and unusual. Is the two-stage trigger unusual for a military weapon? Second, does a two-stage trigger affect the accuracy of a weapon?

Mr. LUTZ. The answer to the first question is that the two-stage trigger is not uncommon in a military firearm or especially rifles. They are designed with a two-stage trigger, that two-stage trigger being defined as a mechanism or a type of firing system that allows for some slack or a distance of travel for that trigger before it engages into the sear mechanism and then pressure being applied and allowing the rifle or firearm to fire.

So, military rifles are designed with a two-stage trigger. The only ones that I have encountered that did not have the two-stage capability were those that had been worked over for marksmanship shooting, that two-stage feature being intentionally eliminated. As issued, the military rifle many times has that two-stage capability.

Mr. EDGAR. Thank you.

Mr. CHAMPAGNE, I think it was during your testimony that there was some reference made to extractor markings on CE-543, one of the three cartridges found on the 6th floor of the Texas school book depository. Since Lee Harvey Oswald did not have any live rounds on him at the time of his apprehension, nor did officials find any at either of his residences, did you find any multiple extractor markings which would indicate that cartridge had been loaded in or extracted from CE-139 on more than one occasion?

Mr. CHAMPAGNE. No, sir; we did not.

Mr. EDGAR. What about CE-141, the live cartridge found in the chamber of CE-139?

Mr. CHAMPAGNE. No, sir.

Mr. EDGAR. Would such markings deteriorate over a period of time?

Mr. CHAMPAGNE. That is a possibility but it is unlikely because of the nature of the cartridge case, unless you had some extreme handling of the cartridges.

Mr. EDGAR. When we were demonstrating the action of it we discovered that you could fairly quickly use the bolt action of that particular rifle. Would it be safe to say, in other words, that this bolt action would not prohibit Lee Harvey Oswald from firing the shots in the required time limit that has been estimated were the time between the first and the last shot?

Mr. CHAMPAGNE. No, sir.

Mr. EDGAR. The Warren Commission cited firearms expert Robert Fraser as weighing the three 6.5 millimeter caliber bullets and found them to weigh 160.85, 161.5 and 161.1 grams respectively.

Is it possible that CE-399, that is, the so-called pristine bullet, weighing 158.6 grains, did not have any weight loss?

Mr. BATES. Yes, it is possible. All bullet weights are approximate due to manufacturing tolerances. There are variations, because of plus or minus factors. It is not possible for us to determine what the weight loss was, if any, without knowing the actual weight of the bullet prior to the time that it was fired.

Mr. EDGAR. Thank you. Let me just ask each of you as panel members: Is there anything related to the rifle or either of the two revolvers relating to any of the testimony that has been given today that you would like to comment on or make any extra explanation of?

Mr. CHAMPAGNE. No, sir.

Mr. EDGAR. Let me ask you one final question, then. In your expert opinion, did the FBI do an adequate job in their ballistics test after the death of President Kennedy and for the Warren Commission?

Mr. CHAMPAGNE. I would say, considering the pressures at the time, the FBI did a very good job.

Mr. EDGAR. Are there any tests that you would have done at the time that were not done?

Mr. CHAMPAGNE. No, sir.

Mr. EDGAR. Thank you. Mr. Chairman, I have no further questions.

Chairman STOKES. The time of the gentleman has expired. The Chair recognizes the gentleman from Indiana, Mr. Fithian.

Mr. FITHIAN. Thank you, Mr. Chairman. I wonder if the panel, any one of all of you, would comment on what has been one of the widely written about and discussed features of the actual shooting. As I understand it, the distance from the window where Oswald was supposed to have been located to the President was 165 feet. With that weapon which you now have inspected and test fired, how difficult a shot is it with the scope or without the scope, sort of from left to right?

Mr. LUTZ. The answer I would give, I believe, would be that it would not appear to be a difficult shot with either device with reasonable training or a reasonable capability of a firer that was familiar with that firearm.

I personally feel that the iron sights would have provided a better capability because of the problems of sighting through the other device, through the telescopic sight, but I feel that it could have very easily been accomplished from that distance with that rifle.

Mr. FITHIAN. And with the car moving at the estimated speed?

Mr. LUTZ. From the data I have about the movement of the vehicle and the speeds involved, I still feel that it would not have been a difficult target at that distance.

Mr. FITHIAN. Is there any other member of the panel who believes that it would be somehow an exceptional feat to have hit the target from that range?

Mr. BATES. I don't believe so, no.

Mr. CHAMPAGNE. No, sir.

Mr. FITHIAN. Mr. Newquist stated, I believe, that the panel could not match their own test-fired bullets with either the FBI's tests from 1963—maybe I misunderstood this—or the so-called pristine bullet that has been so much talked about and the bullet fragments removed from the limousine?

One of the reasons theorized that a match could not be made was that the rifle had been fired too often, somehow destroying or altering the land-and-groove markings. Does anyone on the panel know how many times the weapon was fired by the FBI?

Mr. BATES. No; I do not.

Mr. CHAMPAGNE. Are you referring just to the FBI firing it or the number of times it was actually fired?

Mr. FITHIAN. I was just going in the order I thought it was fired once it was acquired by the FBI and then by the committee panel and by anybody else. I was trying to get at how much actual wear and alteration there has been.

Let me rephrase the question. I am informed by our counsel that the weapon has been fired over 100 times. Is that sufficient wear that it would significantly alter the markings and the identifications?

Mr. CHAMPAGNE. Yes; I think with this type of weapon and the type of bullets involved, that it is. I think that probably the weapon has been fired more than 100 times.

Mr. FITHIAN. Mr. Chairman, I have no other questions of this panel.

Chairman STOKES. The time of the gentleman has expired.

Gentlemen, any witnesses appearing before this committee are entitled, after they have concluded their testimony, to 5 additional minutes in which to explain, amplify, or in any manner expand upon their testimony. On behalf of the committee I at this time extend to you 5 minutes in which any of you may make any comments you so desire.

Mr. LUTZ. I don't believe there is any further expanding on the examinations that we have conducted. I think we feel that they have been as thorough as could have possibly been done. We have been given the opportunity to examine every piece of evidence that we asked for. We didn't have any restrictions. We weren't bound to come up with a particular finding. So I think in that respect we have been very fortunate to conduct an objective examination.

I also would like to express on behalf of the entire panel the thanks to our own employers, the State of Wisconsin, the State of Florida, the State of Iowa, the State of New York, and the Metropolitan Police Department of the District of Columbia for allowing us to participate in this panel. I would like further to extend on behalf of the entire panel our appreciation to the staff of the committee, for the assistance they have given us and especially to thank the committee itself for the privilege and the honor of appearing before it.

Chairman STOKES. We certainly deem ourselves fortunate to have had such a distinguished panel of experts lend their services to this cause. We appreciate all the time that you have expended on behalf of the report that you have brought to the committee and the testimony you have given us here today. We express at this time our very deep appreciation to each of you for the services that you have rendered. Thank you.

The Chair recognizes Professor Blakey.

#### NARRATION BY G. ROBERT BLAKEY, CHIEF COUNSEL AND STAFF DIRECTOR

Mr. BLAKEY. Thank you, Mr. Chairman. Mr. Chairman, there have been several prior attempts to analyze missiles and fragments recovered from the assassination from the standpoint of their me-