

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

HAROLD J. WEISBERG,)	
)	
Plaintiff,)	
)	
vs.)	Civil Action No.
)	
DEPARTMENT OF JUSTICE, et al.,)	226-75
)	
Defendants.)	

Deposition of JOHN F. GALLAGHER

Washington, D.C.
March 28, 1977

Pages 1 thru 120

Hoover Reporting Co., Inc.
320 Massachusetts Avenue, N.E.
Washington, D.C. 20002
546-6666

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 DEPARTMENT OF JUSTICE, et al., :
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Washington, D. C.
Monday, March 28, 1977

Deposition of JOHN F. GALLAGHER, taken on behalf of the plaintiff in the above-entitled action at 910 16th Street, Northwest, Washington, D. C., pursuant to notice, beginning at 11:32 a.m., before Sandra S. Morgan, a notary public in and for the District of Columbia.

APPEARANCES:

For the plaintiff:

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For the defendants:

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Washington, D. C.

ALSO PRESENT:

MARION M. JOHNSON
TRUDY PETERSON
National Archives

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WITNESS:

PLAINTIFF:

DEFENDANTS:

JOHN F. GALLAGHER

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P R O C E E D I N G S

Whereupon,

JOHN F. GALLAGHER

was called as a witness and, having first been duly sworn,
was examined and testified as follows:

EXAMINATION BY COUNSEL FOR THE PLAINTIFF

BY MR. LESAR:

Q Would you begin by stating your experience with the
FBI, how long you were employed, when you retired, and what
your areas of expertise were when you were with the FBI?

A I joined the FBI after I got out of the service
in 1946.

From 1946 to 1975 I was employed by the FBI,
primarily in the laboratory as a special agent.

Q Pardon me.

You resigned in 1975?

A Yes.

Q When?

A January.

Q And what areas were you qualified in as an expert?

A I was qualified in the areas of instrument analysis.

Q What instruments?

A Well, the spectrophotometer, the spectrograph, the

X-ray defraction, spectrometer, the neutron activation analysis and spark source mass spectrography.

Q Were you also trained in ballistics?

A No.

Q Did you perform microscopic examination of items of evidence?

A Yes, about every piece of evidence that comes into our unit --

Q Could you speak up a little?

A About every peice of evidence that came into our section was at first subjected to mecrosopic examination.

That's not universally true, but generally.

Q What section of the FBI were you assigned to in 1973?

A The spectrographic unit.

Q Who was your immediate supervisor?

A Special Agent Roy Jevons.

Q What would have been the relationship between you and Mr. Robert Frazier?

A He was a special agent examiner in the fire arms unit of physics and chemistry section.

Q Fine.

I am going to try and accommodate Mr. Johnson and

direct to you some questions that will enable us to dispose of some of the items of evidence that he has brought here from the National Archives.

I would like to know whether or not you made any examination of a curbstone removed from Dealey Plaza which was alleged to have been struck by a bullet.

A I have no recollection of doing that examination.

Q You made no microscopic examination of it?

A I don't think I examined any curbstone from some plaza that you mentioned.

Q Dealey Plaza.

A I don't think I examined the curbstone.

Q Could I ask you to step over here and take a look at this curbstone?

Did you ever see this curbstone before?

A I don't recall seeing that curbstone.

Q Do you notice anything on that curbstone that would appear to you to be made by a bullet or fragment of bullet?

A I could not make a judgment like that just looking at it.

Q What would you have to do?

A I would have to thoroughly examine it, microscopically

and instrumental analysis.

Q Fine.

Do you know whether or not any instrumental analysis was made of that curbstone?

A I do not know that of my own knowledge.

Q You made no spectrographic analysis of that?

A No.

Q Did you ever see any spectrographic -- report of spectrographic analysis made of that curbstone?

A I did not.

Q Do you know whether or not that curbstone was ever subjected to the neutron activation analysis?

A I am sure it wasn't.

Q Did you conduct the neutron activation analyses?

A Yes, I did.

Q All of them?

A I don't understand what you mean by all of them.

Q All of those items which were examined by neutron activation analysis with respect to the assassination of President Kennedy.

A As far as I know I did, with the help, of course, of Oak Ridge National Laboratory.

Q I want to pass you an exhibit which we have

identified for the purposes of these depositions as Shaneyfelt Exhibit No. 2 and ask you whether or not you have ever seen that before?

A I don't recall seeing this.

Q Do you recognize the handwriting on it?

A I am not a handwriting expert.

Q Could it have been done by Mr. Heilman?

A It could have been.

Q Who else was working there at the time?

A Special Agent Fred Edwards and Special Agent Heilman and myself and Special Agent Heidberger.

Q Were you all co-equals or was any one of you senior to the other or in a superior position of rank?

A We were all special agents, FBI; and we were assigned to the laboratory.

Q Customarily if one of you prepared a report on a spectrographic examination made, would it have been circulated among the other members -- let's deal with the case of the assassination of President Kennedy.

A Customarily it wouldn't.

Now, whether it was on occasion or not, I don't recall.

Q With respect to the assassination of President

Kennedy in particular?

A I am sure it wasn't on all occasions.

I am sure there are occasions when we were all around.

It wouldn't be circulated for initials or anything like that.

Q Did you have occasion to examine the President's tie?

A I saw the President's clothing, but I do not think I examined it.

That's my recollection now; I don't think I examined it.

Q Do you recall whether or not you made any spectrographic analysis of the items of the President's clothing?

A I do not recall at this time.

I do not recall.

Q Mr. Johnson, do you have those photographs again?

Excuse me.

Mr. Gallagher, I wanted to direct one more question to you with respect to the curbstone.

If you would step over to it again, I would like you to indicate to me if you see any place on that curbstone

from which a spectrographic sample could have been taken.

A It would be impossible for me, just looking at it, to tell you that.

Q I direct your attention to this area here which has been testified to by Mr. Shaneyfelt as the mark referred to in reports, subjected to examination to determine whether or not a bullet had struck it.

Do you see any place in that area where a spectrographic sample was removed?

A I see places where it is possible.

Q Could you point them out to me?

A Along the bottom.

Q The bottom edge of that mark?

A Yes.

Q Thank you. That's all.

Now, Mr. Johnson has two photographs of a tie.

The first one that I will ask him to show you is a view of the tie taken from the front side of the tie.

Can you see a nick on that tie?

A Yes, I do.

Q What is the location of the nick?

A About halfway up on the photograph.

Q With respect to the margins of the tie, sides of

the tie, is it in the center, sides, which side?

A. As I am looking at the tie here, it's a little to the left, about halfway up.

Q. On the right side of the tie as worn by the President?

A. It would be on the right side as worn by the President, yes.

Q. Is there a sample -- an area where a sample has been removed for spectrographic analysis?

A. I can't make a judgment on that from the photograph.

Q. You do not recall removing a sample for spectrographic analysis?

A. I do not recall removing a sample.

Q. Mr. Johnson, would you show him the second tie photograph?

This is the side taken from the back.

Do you see any nick present on that view of the back side of the tie?

A. There is none that's apparent to the naked eye.

Q. Fine.

Mr. Johnson, you have some photographs there of the President's shirt collar, I believe.

You have another one, I think, that shows the tears.

Yes.

Would you show him that.

Would you describe that photograph? What does it say on the back of back of the photograph?

A The photograph bears the label, Collar of Shirt from --

MR. JOHNSON: From back to front.

THE WITNESS: Of Shirt from back to front.

BY MR. LESAR:

Q Do you see any holes or tears in the collar area.

A Yes, I do.

Q Do those holes overlap?

If you button that shirt collar, would the holes overlap?

Orient yourself with respect to the stripe on the shirt; does it appear that one hole or tear is higher on the shirt than another?

A I wouldn't want to make a judgment on that.

Q Do you see any area there where a spectrographic sample was taken for analysis?

A I cannot make that judgment.

Q Do you remember making any spectrographic analysis

of the President's shirt collar?

A I do not recall making an examination.

MR. LESAR: Mr. Johnson, did you bring CE-399?

MR. JOHNSON: Yes, I did.

BY MR. LESAR:

Q Did you have occasion to examine that bullet which is CE-399?

A I believe I did.

Q What sort of examination did you make of it?

A I examined the lead in this particular bullet.

Q You examined the lead only?

A I believe so.

Q Do you see an area there where a sample was taken for spectrographic analysis?

A Well, on the bottom here there is an indentation which could indicate the area where a sample was taken.

Q Is there any place else on that missile from which it appears a spectrographic sample may have been taken?

A It's very difficult for me to make a judgment whether it was taken from this place or not or whether it was in there from other events.

Q Do you recall whether or not any spectrographic analysis was done on the jacket of the bullet?

A I don't recall.

Q Wouldn't you customarily make a spectorgraphic examination of the jacket?

A You mean routinely?

Q Yes.

A No.

Q Under what circumstances would you do it?

A If we thought it would contribute to the investigation.

Q Are you familiar with the history of that bullet or the history that the Warren Commission attributed to that bullet?

A If my recollection is correct, this is the pristine bullet.

Q Sometimes referred to as the virtually pristine bullet.

A That's my only recollection of that.

I think it was found near the body of the President.

Q Do you recall what wounds it is alleged to have inflicted upon the President?

A No.

Q Are you familiar with the autopsy panel report?

A No, I am not.

Q You are not familiar with that.

At the time that you --

You did conduct some examinations on that bullet, did you not?

A It is my recollection that I did.

Q What were those examinations?

A I think I conducted spectrographic and neutron activation analysis of some of the fragments.

Q At the time that you did that, what reports did you have available to you?

Do you recall any reports that you had available to you at that time?

A I had a laboratory work sheet which listed the specimens and gave them a number that would be carried in the FBI laboratory to identify that.

Q I will just ask a few more questions about these exhibits and then we can break for lunch.

Mr. Johnson, I believe you have a picture of the enlargement of the collar area and the back of the shirt.

Mr. Gallagher can read what the back of that photograph says.

A Inside of back of shirt.

Q All right.

Is there a hole in that photograph of that shirt?

A. There is a hole.

Q. Does it appear that spectrographic samples have been removed from that?

A. I have no way of telling.

Q. Does it appear that there is any place on that hole where the material has been cut rather than damaged by a bullet?

A. I can't make a judgment like that from a photograph.

Q. What did you analyze?

A. What did I analyze?

A. Specifically and by means of the neutron activation analysis?

A. Paraffin lifts which were taken from Oswald's cheek and hands. I analyzed those lifts for primary residue.

I analyzed fragments of lead.

Q. With respect to this shirt?

A. I don't recall analyzing any fragments of lead from that shirt because, actually, I don't know whether there were fragments of lead on that shirt or not.

Q. Do you recall analyzing that shirt to determine whether or not there were traces of copper on it?

A I do not recall analyzing that shirt.

Q Where would you have taken the sample from that shirt had you wished to do that?

A That's a supposition that's not true.

Q What?

A That I took samples from that shirt.

Q You are stating you did not?

A I have no recollection of it, and I think I would have if I did.

Q Where would you get the sample, if you conducted the spectrographic analysis of it, where would you get the sample from?

A That would be determined subsequent to my microscopic examination.

Q You would make a report of your microscopic examination?

A I would make a report on whether or not I had deemed that to be a bullet hole.

I would put in there that I saw, probably, fragments of lead or I didn't, the conclusions I did or did not find material that could be associated with the bullet.

Q Did you conduct any X-ray examination of the places on the President's clothing where bullets were alleged

to have struck?

A I don't recall making any.

Q Would such an X-ray examination have possibly revealed anything helpful?

A I would only make a judgment of that particular type after I had made an examination.

Q You did make an examination, did you not?

A Of this shirt?

Q Yes.

A I don't recall making an examination of that shirt.

Q Mr. Johnson, would you show him the photograph of the collar?

A I have a photograph here bearing the number 5 on the back.

Q What is the photograph of?

A The photograph is of a stained, striped shirt collar area and a tie.

Q Do there appear to be tears in the shirt collar?

A There could be a tear in the shirt collar.

Q Just one?

A Below the button.

Q Below the button.

There are several horizontal stripes below the button, three immediately below it and two more right at the edge of the collar area.

Is it below that that you are talking about?

A It's below the button.

Q I would like to hand you a Xerox of a photograph which was introduced in evidence as Plaintiff's Exhibit No. 60 on February 24, and I would like you to take this red pen that I have here and mark areas where you see tears.

MR. RYAN: I think I will have to object to the question.

The witness is attempting to indicate where he thinks there might be tears, but it is purely speculative.

MR. LESAR: He was putting several circles, I gather, on the photograph.

THE WITNESS: I can't tell.

MR. RYAN: There is no way of telling from this photograph.

BY MR. LESAR:

Q Fine.

Let me return to the question of the spectrographic analysis.

The photograph showing the hole in the back of the

President's shirt, if you were called upon to make a spectrographic analysis to determine whether or not a bullet had passed through that hole, where would you take your spectrographic samples from?

A. I would take it from the area in the neighborhood of the hole which appeared to be most profitable subsequent to a microscopic examination.

Q. Would this be around the edges of the hole?

A. Could be.

Could be a little removed.

It is whatever it appears to be would be more profitable at the time I was making an examination.

MR. LESAR: I think that probably concludes the use we will need to make of the materials that were brought here by Mr. Johnson; and what I would suggest is that we will break for lunch.

MR. RYAN: What other areas are you going to touch upon?

MR. LESAR: We haven't begun to touch upon what specific tests were performed, spectrographic and neutron activation, and what specific reports were made.

I think that's going to have to go quite some time.

MR. RYAN: Excuse me for one moment.

MR. LESAR: Mr. Johnson and his assistant can
leave.

What do you want, half hour, 45 minutes?

MR. RYAN: 45 minutes.

We will be here at 12:45.

(Whereupon, at 12:00 noon, a luncheon recess was
taken, to reconvene this same day at 12:45 p.m.)

AFTERNOON SESSION

(12:47 p.m.)

MR. LESAR: Ready to proceed.

Before I begin to resume questioning, I want to have the reporter mark this photograph of the President's shirt collar area which Mr. Gallagher marked in red pen as areas where there might be holes or tears.

I would like to have you put an exhibit number on that for the record.

(The document referred to was marked Gallagher Exhibit No. 1 for identification.)

BY MR. LESAR:

Q Mr. Gallagher, you are familiar with two FBI agents, Mr. Francis O'Neill and James Sibert?

A I can't place O'Neill.

I know Sibert.

MR. LESAR: I want to show you a copy of a report that I would like put into the record as Gallagher Exhibit 2.

(The document referred to was marked Gallagher Exhibit No. 2 for identification.)

BY MR. LESAR:

Q Would you read the text of that document?

A This is from Francis X. O'Neill, Jr., Agent, FBI and James W Sibert, Agent, FBI, to Captain J. H. Stover, Jr., Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland.

"We hereby acknowledge receipt of a missile removed by Commander James J. Humes, MC, USN on this date."

Signed Francis X. O'Neill and James W. Sibert.

Q Do you know what missile this refers to?

A I have no way of knowing.

Q Could it be the missile that you examined this morning, Commission Exhibit 399?

A I have no way of knowing.

Q You don't know whether or not you ever performed any tests on that missile?

A I don't know what the missile is.

Q From the use of the term missile, what do you think it might include?

A Anything that could move through the air.

Q Would it include a substantially intact bullet?

A Anything that could move through the air could be considered a missile in my terminology.

Q Are you familiar with the Sibert-O'Neill report?

This is a report which was made by those two FBI agents on their observations of the President's autopsy.

A I never even knew they even covered the autopsy.

Q You never saw any report on the autopsy?

A I don't know even whether they did prepare a report.

Q Then I take it that their report was not discussed at any conference of which you were a part?

A I have no knowledge whatsoever of the existence of a report of that character.

Q This morning you testified --

A Excuse me.

I might want to add there is no reason in the world if they did make a report like that that they would brief me.

Q This morning you testified you examined some bullet fragments in connection with the President's assassination.

A Yes, I did.

Q What was the history of those fragments?

A The only fragment that I have a distinct recollection of is the lead taken from the alleged pristine type bullet.

The other fragments, I cannot recall what they were.

I think they were taken from Kennedy's body, but I

can't be sure.

Q Did Mr. Sibert or Mr. O'Neill ever deliver to you any fragments in connection with the President's assassination?

A I didn't even know they were associated with the President's assassination.

Q Did FBI Agent Robert Frazier ever receive any fragments relating to the President's assassination?

A I have no way of knowing.

Q Did Mr. Frazier ever give any fragments to you?

A I examined fragments from Frazier and returned them to him.

Q What did they consist of, to your recollection?

A I don't remember, except they were associated with the Kennedy assassination.

Q Do you recall how many there were?

A No, I don't.

Q The Sibert-O'Neill report, which was dated on the 23rd of November, 1963, the day after the President was shot, states that two fragments measuring 7 by 2 millimeters and 1 by 2 millimeters were removed from the right side of the President's brain.

Were those fragments tested?

A I have no recollection of the fragments, now, that were tested.

I think those were tested, but I have no positive recollection.

Q What tests do you think would have been performed on them?

A Well, they would probably be spectrographic and neutron activation.

Q In 1967, the then-Attorney General of the United States, Ramsey Clark, established a panel to review the autopsy X-rays and photographs of the Kennedy assassination and that panel issued a report in 1968.

Are you familiar with that report?

A No, sir.

Q Was a copy of the report ever made available to you?

A No.

Q Were you consulted in its preparation?

A On the Clark report?

Q Yes.

A No, I was not.

Q Do you know of anyone else in connection with the FBI that was associated or consulted with respect to that

report?

A No.

Q Did you ever review the X-rays and photographs of the President's autopsy?

A I don't recall ever having seen them.

Q Did you consult with anyone who had seen them?

A I had no reason to consult with anybody who had seen them.

Q In order to conduct the tests that you intended to carry out, it was not necessary to see those films and establish the location and character of the wounds?

A I was given isolated fragments which were designated as having come from certain places associated from the Kennedy body and the pristine bullet and asked to compare it.

My examination has nothing to do with where they are found as far as I am concerned.

I was asked to compare the composition.

Q Who asked you to make these comparisons?

A Frazier was what we refer to as the number one examiner, I believe, on that case at the time.

As the number one examiner, he reads what has come in, what the specimens are, and then makes some judgments as

to what can be done about them.

If he can't make a judgment, he calls us in and we discuss it.

I thought I could make an analysis of some of these fragments.

Q He did call you in?

A We did discuss it.

Q Were there many conferences or just one or two?

A I don't recall.

Q You don't recall?

A No, I do not recall.

Q Were there any notes made of those consultations or conferences or any reports made on them?

A The conferences Frazier and I had?

Q Yes.

A Generally speaking, there were no notes made on them unless, for example, I had to make arrangements to go down to Oak Ridge, Tennessee.

That is some that's out-of-house, you might say; so I had to make some kind of a note to my superior to get approval to go down to Oak Ridge and make this examination.

Other than that, there wouldn't, as a routine thing, be a memorandum or note or anything written about us

discussing some particular item.

We would never get anything done.

Q Do I understand you correctly; there were conferences both with respect to the spectrographic and neutron activation analysis, or would you specify what you conferred with Mr. Frazier about?

A You asked me how did I get these fragments.

I said I got these fragments, I'm sure, from Frazier.

Frazier was the recipient of specimens as they came into the laboratory.

Frazier could have called me in -- I don't recall it -- but if he did, I would have said, "Sure, I can handle specimens of that nature."

Q You are saying you don't recall whether or not he called you in?

A I am saying, whether he made a judgment from his experience or whether he called me in, I can't recall that detail.

Q Was Mr. Frazier qualified in spectrographic analysis?

A No.

Q Was he qualified in neutron activation analysis?

A No, he was not.

If he made a judgment that was wrong, of course, he would be corrected by me.

Q If he made a judgment to do or not to do certain tests, you would correct him?

A If he sent me something and gave me a list of specimens for a neutron activation examination and in my judgment I didn't think that would be an appropriate type of examination, I would certainly discuss that with Frazier and Frazier would be objective about it.

Q Would Mr. Frazier consult anyone else other than you about making spectrographic and neutron activation analysis?

A Absolutely.

He would discuss or assign these things to any agent examiner in the spectrographic unit.

Q In the spectrographic unit only?

A If it was a matter that related to spectrographic matters.

Q Would he discuss it with Mr. Jevons or Mr. Conrad?

A I don't know.

Q The autopsy panel report issued in 1968 says that there was a 6.5 millimeter fragment imbedded in the outer table of the President's skull close to the edge of the hole,

to the right of the midline.

Was that 6.5 millimeter fragment ever tested?

A I don't recall.

Q Was it ever removed?

A I don't recall the fragments that I tested now.

It has been 12 years.

Q Let me ask you another question.

Should that fragment have been tested?

A I can't make a judgment on that.

Q The panel report says there was this 6.5 millimeter fragment in the President's head.

Would it be of utility to your examinations to test that fragment?

A If I saw it I could make that judgment.

Q If you saw such a fragment in a film or if you were informed of the existence --

A If I had that fragment to look at microscopically, I could make that judgment.

Q You couldn't make that determination until you had it?

A I would have to make that judgment after I looked at it microscopically.

Q If you were aware that that fragment existed, you

would want to look at it under a microscope?

A If it would contribute to the investigation.

Q You would have to examine it microscopically first in order to make that examination, right?

A Normally.

By the same token, I respect Frazier's judgment, too, if he made the microscopic examination.

Q What if no microscopic examination was made?

Suppose you knew the fragment was in the President's skull. Would you request it be removed so you could make an examination of it?

A I didn't know it was in the skull.

Q Assuming that you had known that.

A I can't answer that.

Q Would your microscopic examination of a fragment disclose the chemical analysis of the bullet?

A Chemical elements present?

Q What chemical elements would be disclosed by microscopic examination?

A By microscopic examination, you don't discover the elements.

You do it by subsequent spectrographic examination.

Q That's what I was driving at.

Then why do you do the microscopic examination?

A. There is a lot of specimens that, if they weren't so highly contaminated, or for some other reason, we would just pass over them for examination.

In other words, you have got to have a representative specimen.

Q. I understand that.

Does that apply to neutron activation analysis?

A. It applies to all kinds.

If you take a coin out of your pocket -- it applies to that, too -- if you take a coin out of your pocket and it's a whole coin, you say, "That's a quarter."

If I cut it down too far, what will you say it is?

Q. What could have contaminated the fragment inside the skull of the President?

A. I can't make any judgment on that.

Q. How big a sample do you have to have in order to make a proper chemical analysis?

Take spectrographically first.

A. A fragment about the size of a common pin head.

Q. How many millimeters of a bullet would you have to have?

A. A millimeter square would be adequate if it's a

representative sample.

Q For neutron activation analysis?

A Now, you use this term for a proper examination; is that what you are saying?

Q How big a sample would you need in order to make a neutron activation analysis?

A Probably a half a millimeter on each side, roughly.

Q The fragment in the President's skull is said to have been 6.5 millimeters, so it would have been adequate for the purposes of either spectrographic analysis or neutron activation analysis.

A I could get a sample that's 20 millimeters and it wouldn't be adequate if highly contaminated.

Q What could have contaminated a fragment in the President's head?

A What did it go through?

Q The President's head.

A What else?

Q According to the FBI, the President's head.

A I can't sit here at a table and make a judgment why or why not an examination was made or not made.

Q For what purposes did you subject items of evidence in the President's assassination to spectrographic analysis?

A In order to see if they compared as far as their chemical composition is concerned.

Q Let me read to you from the text of a memorandum from Mr. Jevons to Mr. Conrad, November 27, 1963:

"In connection with our examination of evidence in the above matter" -- referring to the assassination of President Kennedy -- "we have considered all possible examinations and techniques which could be productive in identifying the perpetrator of the crime ... "

What examinations and techniques were considered?

A I don't recall that memo.

Q Did you ever confer with Mr. Jevons about the assassination of President Kennedy?

A I conferred with Jevons and Frazier on occasions; but when and how often, I don't remember.

Q Did you confer separately and individually or --

A I don't recall.

Q Is Mr. Jevons an expert in any scientific fields?

A Jevons was associated with the petrographic section of the laboratory before he went into the administrative office.

Q What does that section do?

A They analyze with a petrographic microscope both

artificial and natural mixtures of minerals.

Q Would he have been familiar or qualified as an expert in the areas of spectrographic and neutron activation analysis?

A He was knowledgeable in those areas.

Q But not qualified as an expert?

A Not to my knowledge, no.

Q So that when he says, "We have considered all possible examinations and techniques," he must have been relying upon advice received from you or someone else with respect to spectrographic analysis and neutron activation analysis?

A He could have been relying on what he knew, on other people in the unit.

I don't know who he was relying on.

Q All right.

This indicates "We have considered all possible examinations and techniques which would be productive in identifying the perpetrator of the crime."

Was that the purpose of the tests you conducted, to identify the perpetrator of the crime?

A Certainly.

The reasons for my tests were to compare fragments

and see if all were associated with the same source.

Q Did you make tests and examinations to establish that they were not connected with the same source?

A I think that follows.

If they are not from the same source, and you can make a definitive judgment, you can say they are from a different source.

Q Let me rephrase the question.

Did you conduct tests designed to eliminate the possibility that Oswald was the perpetrator of the crime?

A I don't try to conduct tests to prove that Oswald was or was not.

I conduct tests to see whether these metal fragments match in composition or do not.

If they match, I report that. If they don't, I report that.

I have to put it out as it comes out of the instruments as interpreted by me.

Q Did you conduct examinations and tests which were designed to determine whether or not more than one person could have been the perpetrator of the assassination?

A I conducted tests to see if bullet fragments matched in composition.

I performed tests on the paraffin to see if they could be associated with the firing of the weapon.

Those are the immediate purposes for which I examined these specimens.

Q Did you make any spectrographic analysis of the empty shells found in the TSBD?

A I believe I did make an examination of shells. I don't know where they were found at this stage.

Q Did you compare them -- did you make a spectrographic comparison of them?

A Yes, I believe I did.

Q What form would that take?

A I don't know whether it was a spectrographic or neutron activation test now, really.

I think I did, though; but I am not sure of that particular thing.

Q Assuming that you might have done it, how would you do it is what I am driving at.

A I could do it by emission spectrograph.

Q What would you do?

A I could spark the sample or burn the sample.

Q If you burn a sample, what sort of records are created?

A Spectrographic plates.

Q Then you write down notes on what you observe on the spectrographic plates?

A Normally.

Q Do you type up reports?

A No.

I do not type up reports.

Q You would make a report which would be put in typed form?

A I might not make the report.

I might give the data to Frazier, for example, and then to incorporate it in his report.

Q I see.

What elements would you be testing for in testing those empty shells?

A Any that I could see.

Q How many would you normally expect to see?

A There is no such a thing.

Every one of these things has to be viewed and the determination made on an individual basis.

Q With respect to the ammunition of the type allegedly used by Oswald?

A I don't know.

Q Did you test for the chemical composition of the empty shell itself?

A I don't know whether I did or not at this stage of the game.

I have analyzed empty shells, but I don't know if I did in this case or somebody else did.

Q If you didn't make such a test, how could you make a match?

A I wouldn't make a match, but that doesn't say somebody else didn't.

I don't know whether I did or not.

Q Did you consider -- other than spectrographic and neutron activation analysis -- did you consider other tests; for example, analysis of the residues on bullet 399?

A Specifically what residue are you talking about?

Q Either human or any other residues; human, first?

A I wouldn't analyze anything for human residue.

Q Why not?

A That's not my expertise.

Q You did observe the President's tie and shirt collar, I believe?

A The photographs.

Q The photographs.

You did not ever observe the shirt and tie?

A If I did observe them, I think it was real casually.

Q Did you form any opinion as to whether or not the tears in the collar and the nick on the tie had been formed by a bullet?

A I don't recall making that judgment.

Q Now, how many chemical elements would you find -- the range of the number of chemical elements you would normally find in that bullet?

A The range of chemical elements?

Q Yeah, how many?

A By what examination?

Q By spectrographic examination.

A Oh, you might find, by the emission spectrograph, you might find sometimes 12.

Q Could you name some of them?

A Lead, antimony, copper, silver, gold, bismuth, magnesium, silicon, to name a few.

Q Do you draw a distinction between elements and trace elements?

A I don't know what you mean.

Q Sometimes some of the literature on the subject refers to trace elements; antimony, for example.

A Antimony is an element.

Now, a trace element is a small amount of antimony, probably .001 percent, would be a trace of antimony.

Q You say you might find up to 12 elements in a bullet by means of emission spectrograph.

A You might.

Q You might.

What would the range normally be?

What is the fewest you would expect to find and, on the average, how many would you expect to find?

A I don't have that data.

Q With respect to neutron activation analysis of the bullet, how many elements could you find present in a bullet and how many would you normally expect to find?

A Probably about three.

Q You would only find three?

A Yes.

Q By means of neutron activation analysis?

A Yes.

Q Why does the spectrographic analysis reveal more than the neutron activation analysis?

A Why does it?

Well, actually, when you are using the spectrograph,

ou have got more or less a shotgun approach. With neutron activation analysis, you have more of a rifle approach.

You have many elements that can be seen on the emission spectrograph, and then when we wanted to quantify these elements and try to measure them accurately, the amount present, we try to get the three we can see on the neutron activation analysis procedure.

Q Of the twelve elements or so that you can see on the spectrographic plates, there are only three that you can test for by neutron activation analysis?

A No, there are more than three.

Normally copper, antimony and silver.

Q How about bismuth?

A I don't think you would see bismuth.

Q How about barium?

A You could see barium.

Q When you say there are about twelve elements that you can detect by means of emission spectrograph, do you mean more or less all in the bullet?

How many would be present in the jacket of the bullet and how many in the core?

A I don't know.

Q Would you find more in the core than in the jacket?

A I don't know offhand.

I would have to analyze them and see.

Q Can the spectrograph pick up all the elements present in the bullet?

A I don't know any procedure than can pick up all the elements in any specimen.

Q All right.

MR. RYAN: Are you asking Mr. Gallagher to state what current laboratory techniques can find -- or on the basis of his experience working with the laboratory those many years ago during the Kennedy assassination?

MR. LESAR: State of the technology when President Kennedy was shot.

That should be understood.

BY MR. LESAR:

Q There was a live round of ammunition found in the rifle, the murder weapon, in the Mannlicher-Carcano rifle.

How many chemical elements were identified as present in that round?

A I don't know.

Q Did you test that round?

A I don't know.

Q Should you have tested that round?

A Somebody probably did, and it might have been me; but I don't remember.

Q It would have been normal to test that round?

What I am asking, you have got a live round found in a rifle that's alleged to have fired the shots that killed the President.

You normally would test that round, wouldn't you?

A I would have to know all the circumstances surrounding that.

Somebody might have said, "Don't."

Q And if they said, "Don't," you wouldn't have?

A I examine the specimens that are brought in to me.

Q I thought you were the expert on those procedures.

A I am one of the experts in these procedures, one of the experts.

Q Who else would possibly have told you not to test?

A Nobody would tell me not to test.

There might be circumstances surrounding the examination where they didn't want it touched.

Q Would you elaborate on that?

I am most mystified by that.

What possible circumstances could there be for not

testing the round found in the rifle?

A. I don't know offhand.

Probably it was tested. If it was paramount to have it tested, it was tested.

Q. What would you normally test --

A. There are some times where it is more important, blood, for example, covering the surface of the thing. I have had cases like that.

They told us, "Don't take anything off; the thing is soaked in blood and that's what I want."

You have to know all the details of the investigation.

Q. Absent something that contaminated the bullet or evidenciary purpose that had a higher demand on it, you would have tested that bullet?

A. The chances are it would have been, yes, definitely.

Q. If you were told not to test that bullet, would you inquire why?

A. Yes.

Certainly.

I would be told why.

Q. Do you recall anyone telling you why that bullet should not be tested?

A I don't know for a fact it wasn't tested.

I don't know whether it was or wasn't tested.

Q With respect to the spectrographic analysis of the President's clothing, you made that spectrographic analysis, did you not?

A I don't think I did.

I don't remember making it.

Q Do you recall whether or not --

Do you recall having seen any report on the testing of the President's clothing?

A At this stage, I don't recall.

It has been 14 years since I have seen these reports -- 13 years. If I could see the report, I could probably give you some --

Q I will pass you a folder which contains spectrographic analysis.

A I might point out here that that entire cartridge there which is defined in the FBI laboratory report as Q-8 was judged to be of the same manufacturer as Q-6 and Q-7, 6.5 millimeter Mannlicher-Carcano cartridges, Western Cartridge Company, as was the 6.5 millimeter Q-8.

There probably is the answer. They know where it came from.

Q You don't know the chemical composition, do you?

A That's why you analyze, to see if it came from the same source.

If I gave you a two-cent or eight-cent stamp, you would say, "This is a United States stamp."

Would you send it in to me to have me analyze the glue and ink?

Q Would you analyze it to determine whether or not other fragments associated with the murder are of the same chemical composition as it?

A You had other specimens there.

Q What other specimens?

A The pristine bullet, which was the same as these.

Q Was there any question about whether or not that bullet was actually the one which shot the President or Governor Connally?

A Which bullet?

Q The bullet you examined this morning, CE-399.

A Is there any question?

Q Yes.

A I can't make a judgment on that.

I didn't make that examination.

Q If you couldn't make that judgment, then you needed

to test the bullet in the Mannlicher-Carcano, did you not?

A No, because did not that bullet come from the same rifle?

Q The bullets had all been chambered, including in different rifles.

A I can't make a judgment.

I know I just pointed out to you that there are circumstances which I didn't know when I started this conversation which would hinge on whether or not an examination would be made.

This is just one of a maze of circumstances.

I don't know them all at this particular date.

I think sound judgments were made all along the line.

Q Would you expect to find human tissue on a bullet that is alleged to have passed through two men?

A I will not make any judgment on that.

Q Did you make any observation on the bullet to see whether or not it had such residues?

A I do not -- that's not my area of expertise.

Q Who would have done that?

A Somebody in the serology section.

Q Do you recall that the spectrographic examination

of the President's clothing found no copper on the President's shirt collar and the President's tie?

A. I don't recall that.

Q. Were you ever consulted about that?

A. I don't recall having been consulted about that.

Q. I want to show you a copy of a letter to Mr. Rankin from Mr. J. Edgar Hoover, dated March 18, 1964, and ask you whether or not you are familiar with this document.

A. Yes.

Q. Would you read aloud the top paragraph on the second page of that document?

A. On the second page of the document,

"4. Would neutron activation analyses show if a bullet passed through the hole in the front of President Kennedy's shirt near the collar button area and also if a bullet passed through the material of his tie? Neutron activation is a sensitive analytical technique to determine elements present in a substance. During the course of the spectrographic examinations previously conducted of the fabric surrounding the hole in the front of the shirt, including the tie, no copper was found in excess of that present elsewhere in undamaged areas of the shirt and tie. Therefore, no copper was found which could be attributed to

projectile fragments."

MR. LESAR: I would like to have the reporter label that as Gallagher Exhibit 3.

(The document referred to was marked Gallagher Exhibit No. 3 for identification.)

BY MR. LESAR:

Q To resume with the questioning, with respect to this question which Mr. Rankin posed to Mr. Hoover, "Would neutron activation analyses show if a bullet passed through the hole in the front of President Kennedy's shirt near the collar button area and also if a bullet passed through the material of his tie?" -- what is the answer to that question?

A Normally, no.

Q It would not show whether or not it passed through?

A Normally, no.

Q Why not?

A Neutron activation analysis will not pick up lead by what we call the thermal neutron analysis procedure.

It will pick up copper.

When you have a shirt like that, you cannot pick the pieces of particles or copper off the shirt. You have to take a sample around the hole as was done in this case

and analyze it on the spectrograph to see the copper.

Now, when you take a piece of a shirt and you put it in a reactor and you activate, the shirt has an abundance of sodium in it and sodium just wipes out everything.

You would have to make a chemical separation. It would be the wrong way to go.

Q Wrong for what reason?

A It would not be the appropriate examination to use.

Q What do you mean by that?

A Exactly that.

For example, there are examinations that you use for blood. You would not analyze a blood sample by neutron activation analysis or spectrograph.

There are examinations which are appropriate.

In the judgment of everybody in the business, neutron activation analysis would not be the appropriate examination for a bullet hole.

Q I can understand you are saying it would not be. What I don't understand is the reason.

A I can't make it any clearer.

Q Are you saying it would destroy the tie?

A I said if you find a piece of cloth, the cloth has

an abundance of sodium, especially something that has been worn like a shirt, and that just wipes out your analysis.

Sodium had a large cross section for thermal neutron capture. This cross section, great ability to eat up neutrons in the reactor and becomes highly activated.

When you put your data on a multi-channel analyzer, all you see is sodium.

Why would you do something like that when there is an examination that is more appropriate?

Q Would the spectrographic analysis determine whether or not a bullet struck those areas of the President's clothing?

A You want me to give you a probability on it?

Q Yes.

A I can't do that.

Sometimes it does and sometimes it doesn't.

Every one of these examinations has to be evaluated on its own merit.

Q It apparently did give an analysis with respect to the back of the shirt.

A I certainly would believe that.

Q Would it not do the same thing with respect to the collar and the tie?

A I don't know.

What does it say there?

Q He goes on to say that, "Neutron activation is a sensitive analytical technique to determine elements present in a substance. During the course of the spectrographic examinations previously conducted of the fabric surrounding the hole in the front of the shirt, including the tie, no copper was found in excess of that present elsewhere in undamaged areas of the shirt and tie. Therefore, no copper was found which could be attributed to projectile fragments."

In short, I interpreted that to mean that there was no copper found that could be attributed to a bullet on the tie and the shirt collar.

Is that sufficient to determine that no bullet struck those areas?

A I don't know.

Q Did you make any comparison between the spectrographic finding with respect to the hole in the back of the President's shirt which showed copper and the finding with respect to the tie and shirt collar which did not show copper?

A I don't recall making that examination.

Q Would there have been a report on whether or not

that examination had been made?

A I don't know.

Q Would there be a report of the results of that examination?

A If the examination was made, there would be a report.

Q A written report?

A You mean a handwritten report?

Q Handwritten or typed.

A I imagine it would be sent out as a report.

Q You mean a typed report?

A Normally a report is sent out on the examinations that are conducted.

Q Is it common for the chemical composition of a bullet to vary from one location to another within the bullet?

A It's possible.

Q How much would the variation be?

A Anywhere from none at all to a huge amount.

Q Would there be a qualitative variation; in other words, would you find chemical elements present at the nose of a bullet which you would not find at the base end of a bullet?

A It's possible.

Q But it's not likely, I take it?

A It's not likely under normal conditions.

Q Would that apply to both the jacket and to the core?

A I don't know.

Q Would there be a quantitative variation?

A You are asking me to make judgments here on this stuff; is that what you are asking me to do?

Q I am just seeking information from you based upon your experience, would you expect to find variations within a bullet from one end to the other in the chemical composition, quantitative amount of chemical element differences?

MR. RYAN: That seems to be a hypothetical question which doesn't seem to have a foundation in this case.

MR. LESAR: I want to find out if they performed tests to find out if there were such examinations.

MR. RYAN: Is there something that says there were variations in the chemical compositions?

MR. LESAR: That's what I am trying to find out.

MR. RYAN: The witness can testify as to whether he knows there were any reports that indicated variations.

THE WITNESS: I don't know.

BY MR. LESAR:

Q You don't know whether there were any variations in the bullets of the type of ammunitions allegedly used in the assassination?

A I can't answer that question.

Q Why not?

A Because it's too vague.

Q Let's try and refine it.

Did you perform any tests in connection with the President's assassination on ammunition of the type allegedly used in the assassination to determine whether or not the chemical composition of that type of ammunition varied within a bullet?

A Studies were made of that for various types of bullets.

Q Including the Western ammunition?

A I believe so; studies before the assassination, studies were made.

Q Of that particular type of ammunition?

A For the examiners' background information.

Q I am asking you specifically -- you had ammunition of the type allegedly used in the assassination.

Did you take that ammunition and perform

spectrographic and neutron activation analysis on it to determine the chemical composition of the bullet at various locations in the bullet?

A. Yes, we did; except in the case of the pristine bullet, we couldn't get to because we were asked to keep it for posterity.

Q. And you made reports on what results were obtained?

A. The results of the bullet fragments?

Q. I am not talking about bullet fragments.

I am talking about the other ammunition.

A. Of course we didn't. This was background information.

I analyze 100 samples of paint to get background information. This is my homework, what I have to do for homework so I understand what I am talking about.

Q. That's what I am getting at.

In order to evaluate your results of spectrographic analysis of bullets and fragments, you have to have a control, don't you?

You need to analyze other examples of that same type of ammunition in order to determine what variations are found within the chemical composition within a particular bullet?

A Are you telling me what I need?

Q I am asking you.

A We had what we needed to make the judgments we made.

I had an analysis of the bullets which I determined to be representative samples from these bullets.

Q Which were those?

A I don't know.

I don't have the reports.

Q Are you saying that the representative sample is CE-399?

A I took a sample from 399.

Q Did you have other bullets that you made tests on?

A I don't recall.

I don't recall.

The only thing I do know is that I took representative specimens from these fragments and bullets as best I could.

I made judgments on what the data showed.

When you take specimens from different areas of the sample, you get an idea -- feel for the variation, which I do not have at this date.

Q What sort of variations did you find?

A I don't know at this time.

13 years later, I don't recall the data on that.

Q Do you recall whether or not the chemical mix was relatively consistent within the samples?

A I don't recall.

Q Would you have made tests, also, upon the jackets of that type of ammunition to determine whether there was variation from one place to another on the jacket?

A I don't recall whether I did or not.

Q All right.

You don't recall, for example, whether or not there was any variation --

Did you take more than one sample from CE-399 for spectrographic examination?

A I don't recall.

Q Therefore you cannot recall whether or not there was any variation from different locations on that bullet?

A 399?

I don't recall.

Q Did you test -- the samples you took, say from the base of 399, subjected to the spectrographic analysis and, I think, neutron activation analysis.

How many times did you test the sample?

A I don't know offhand.

I know it was more than once, but I don't know whether it was six or five times.

Q Let's take spectrographic analysis first.

If you have a sample of the core of a bullet and you subject it to spectrographic testing several times, do you get identical results in each testing?

A You don't get identical results in any type of testing. Every type of testing has instrumental error, measurement error of some type.

If I asked you to measure the length of this table to .02 millimeters, you couldn't get identical results if you did that more than one time.

The term doesn't mean anything.

Q What I want to know, what is the range of error? Did you determine what the range of error would be?

A Yes, I did.

Q How did you determine that?

A I determined it from my standard deviations.

Q You applied the standard deviation to the samples?

A Yes.

Q How do you obtain the standard deviation?

A The standard deviation?

MR. RYAN: Can you relate that question specifica to a particular item of evidence in the Kennedy assassination rather than making it a generalized question?

MR. LESAR: Yeah.

BY MR. LESAR:

Q What was the maximum variation that you found --

A I don't remember.

Q Let me show you a folder of your neutron activation analysis and see if you can determine it from that.

A No. I can't determine it from this.

Q Would there be any sort of record in which you could determine what the maximum variation was?

A I could take and tabulate these and figure it out.

Q Would you ordinarily -- you would ordinarily tabulate the results on those notes there before you would be able to figure out the variation?

A I mean, looking at this I couldn't.

But at the time as I was going along with this, I was keeping book on it and I knew what was going on. I was following the thing.

I was into it; I was living it.

Q You listed all the elements, and then you listed the results for each of them?

A I might not have listed them. I might have made calculations as I went along.

Q Can you determine from those sheets whether you made calculations as you went along?

A How could I?

This is the essential data.

If anybody wants to go back and check my work, the essential data is here.

Q Who else could understand them but you?

A Anybody down at Oak Ridge, Tennessee, can understand these things; anybody doing neutron activation analysis can follow these things very clearly.

Every single peice of data that they need is here.

MR. RYAN: I object.

I don't think it is fair to ask the witness to try to remember every calculation which he might have made or somebody might have made in the laboratory 13 years ago.

It's asking too much.

BY MR. LESAR:

Q Could the Warren Commission have made the proper calculations from those notes?

A The Warren Commission -- I don't know whether they could or not, but I know anybody in the business can.

Q Did you give them a report on the neutron activation analysis?

A A report?

A letter went out to Rankin, I think, on some of this stuff.

Q Who did you submit your report to on this?

A Who did I submit it to?

Q Yes.

A I submitted it to the files.

It went to Rankin.

Q Commission's general counsel?

A He got a copy of the results.

Q What do you recall about that report?

A I had to wedge this data in with the Oak Ridge atomic reactor data.

Q I believe you will see the dates on those work sheets, I think May 15.

Is that correct?

A Yes.

Q What explains the long delay in conducting neutron activation analysis on these items?

A You can see from all the reports that were furnished that there was no delay whatsoever in any of the

reports that were in-house.

This here requires an atomic reactor.

At that particular time, the atomic reactor that we chose to use, which was a real good reactor, was at Oak Ridge, Tennessee. We can't just walk in there like we own the reactor.

It has a fuel cycle period where they have to change the fuel and all that. There are also ongoing programs on that reactor which we have to sandwich in between.

All this has to be done out-of-house, you might say; and it takes a lot longer with a complicated piece of equipment like a nuclear reactor.

Q Could it have been done sooner at the Gulf Atomic at San Diego?

MR. RYAN: I object.

I think that calls for speculations on the part of the witness.

BY MR. LESAR:

Q Why did you choose Oak Ridge over Gulf Atomic?

A Because Oak Ridge was a very prominent site, had great capabilities along these lines.

Q Didn't the AEC recommend you use Gulf?

A I don't recall that AEC recommended we use theirs.

Q When did you do the neutron activation analysis on the paraffin casts?

A I did that prior to the lead.

Q You did it prior to the lead?

A But I don't remember when.

Q Do you recall you had a series of conferences in December with officials from the AEC?

A I had conferences with officials of the AEC to get into their reactor.

Q You got into the reactor for the paraffin cast long before the fragment and bullet analysis?

A Yes.

That's understandable.

Q Why?

A We had bullet analysis by spectrographic analysis and didn't have the paraffin casts analyzed by any technique.

Q When you performed these neutron activation analyses at Oak Ridge, was Mr. Vincent Guinn present?

A Dr. Vincent Guinn at the time was a director of general dynamic -- general atomics, was making lazy susan type reactors; and Vincent Guinn was a man who was deep into neutron activation analysis.

I know him very well.

Q He has initially indicated he was going to be a consultant on the tests you carried out down in Oak Ridge?

A No.

He didn't say he would be a consultant. I don't think he ever said that.

I don't recall him, to me, offering his services as a consultant.

Q Was he a consultant?

A He was a consultant on many cases; not as far as we were concerned.

Q He did not provide you any advice or information or suggestions with respect to the tests that you carried out in this case?

A As I told you before, I was working with extremely competent men at Oak Ridge, Tennessee.

We had a reactor facility that was equal to -- no other equal to it as far as I was concerned; and, as far as the competency of the men concerned, I don't think you can doubt their competency.

They were deep into neutron activation analysis.

If we had a problem, we had to consult with somebody, we would have done it.

Q Would one of the more experienced men in the field

of neutron activation analysis as a criminologist would have been Dr. Aebersold, would it not?

A I highly disagree with that.

I don't think Dr. Aebersold -- I think he committed suicide.

Q As of what date?

Do you know?

A I don't know.

Q Wasn't he the head of the research arm, AEC, carrying out experiments in those fields?

A Dr. Aebersold was an administrative man. I think everybody in the business realizes that.

Q Why did you want to keep him out of these procedures?

A I could care less whether Dr. Aebersold was in the procedures or not, but I would have weighted his judgment. I don't think he had the expertise in neutron activation analysis, and I am sure he had never conducted any.

Q You had no reason for trying to conceal from him the tests to be carried out?

A I could care less.

I could care less who knows about the tests carried out. At that time it was important they didn't get out all over the papers until we got some data in.

MR. RYAN: What is the relevance of this line of questioning?

MR. LESAR: What I am driving at is to understand the manner in which these tests were carried out and what sort of records were generated with respect to them.

MR. RYAN: I don't understand the relevance of what Dr. Aebersold's involvement is.

MR. LESAR: Mr. Aebersold specifically recommended certain tests.

I would like to know why they weren't carried out in view of his recommendations.

BY MR. LESAR:

Q I have a letter which Mr. Aebersold directed to Mr. Herbert J. Miller, December 11, 1963. It contains certain recommendations.

As you will recall, earlier this afternoon, I directed a number of questions as to why no tests were made on the bullet found in the rifle.

Why was this advice from this letter rejected?

A I don't know the reason this advice was rejected.

I gave you one reason I just read from a few pages of the report.

The fellow read on there who made the cartridges

and who was the manufacturer. That would be the reason for the tests.

Aebersold is speculating there.

MR. RYAN: I think the main reason for us to be here is to find out whether tests were conducted. I think we could really shorten the questioning.

BY MR. LESAR:

Q I would like you just to do your best to recall all the items of evidence that you took down to Oak Ridge National Laboratory and subjected to neutron activation analysis.

A I cannot recall specifically what the items and specimen numbers were. You understand the confusion -- we had FBI numbers, Commission numbers; and I don't recall all these numbers and I don't recall the specimens.

I took down paraffin lifts from Oswald and bullet particles for examination.

Specific items you could list from now until Sunday and I don't recall the specific items.

Q Let me give you a couple of examples.

The curbstone that you examined earlier this afternoon, did you take that to Oak Ridge and subject that to analysis?

A I did not.

Q Is there any reason why that would not be done?

MR. RYAN: I object.

I don't think why is a relevant issue in your Freedom of Information lawsuit.

Does the witness know why it was not done?

THE WITNESS: It was run by a spectrographic examination, which results could not be improved on, undoubtedly is the reason.

BY MR. LESAR:

Q Did you take the President's clothing down?

A For the holes?

Q Yes.

A I thought I was very explicit about analyzing holes.

Q Did you take the scraping from the window of the presidential limousine down and subject that to those tests?

A I can't recall.

Q You don't recall the test you ran on that?

A I don't recall.

Q Could you hand me the folder back?

You now have in front of you a sheet which has specimen No. Q-15 on it, do you not?

A Yes.

Q That indicates that you did take it down for testing, does it not?

A It indicates that I had it down for testing, yes.

Q That you had it in the reactor?

A Yes.

Q Why are there no results?

A I didn't obtain any.

Q Did you make any report on the significance of that?

A Except that the sample wasn't adequate.

Q Is there any report on the fact that the sample was not adequate?

A I don't know whether there was a report on it.

Do you have the letter to Rankin?

Q Who was present at the time that you put that in the reactor?

A I tell you, Dr. Frank Dyer and possibly William Lyon; and there was one other gentleman there -- I am giving you the possibility of those who could have been there.

I can't think of the other chap's name to save my life. I will think of it before I leave, probably.

Previously you asked if I had run repeated samples

and I think this chart will reflect that I have.

MR. LESAR: We will mark it as an exhibit.

Could you mark that as the next Gallagher exhibit, just that page?

(The document referred to was marked Gallagher Exhibit No. 4 for identification.)

BY MR. LESAR:

Q Now, without a report on Q-15, how would anyone know that you obtained no results from it?

A By looking on these notes here.

Q Where on those notes does it say you obtained nothing on Q-15?

A The page is blank. If any thing had come out, it would have been on here.

Q How would the Warren Commission know that?

A They could have asked me.

Q They could have asked you.

A If it was pertinent, I am sure they would have.

Q You don't feel it is pertinent?

A If they did, they would have.

Q Did the Warren Commission ask you to make the test?

A No, I don't think so.

Q Who asked you to make a test?

A It was our judgment we might get something out of them.

Q What sort of comparisons did you make as a result of your spectrographic and neutron activation analysis?

A Compared them to see if they were compatible.

Q You compared each sample of each item of evidence?

A Each specimen, analysis of the different specimens to see if anything -- any judgment that could be furthered.

Q Let me get it clear.

There were two fragments removed from the President's head and two fragments in the front seat of the car, one from Governor Connally's wrist, the bullet which is Commission Exhibit 399.

There were the items of the President's clothing.

There was a curbstone and the windshield scraping.

Did you take each specimen and compare it with each of the others?

A Yes, I believe I did.

Q And did you make a table of that?

A I don't recall whether I did or not.

Q Did you make a report on the comparisons and what the comparisons showed?

A No.

There was a report that went out previously on the spectrographic examinations.

Q When was that?

A I don't know.

Subsequent to the receipt of the specimens.

Q When was that?

A I don't know.

Q The specimens were received on November 22 or 23, I believe.

A Within two weeks a report went out, I would say.

Q There was no further report after that?

A Then there was a report on the neutron activation analysis, a letter to Rankin.

Q We have no work sheets, no reports, no evidence whatsoever that the copper fragment found on the front seat was subjected to neutron activation analysis.

Was it?

A I don't recall.

Q Should it have been?

A I don't recall.

I think copper has the same problem of hiding elements as does sodium.

Probably was run on a spectrograph.

Q You didn't run tests on other things, other matters, having copper?

A I don't know.

I don't know at this stage.

Q Did you compare the copper found on the President's clothing, the back of the coat and back of the shirt, with the copper from bullet 399?

A How do you compare copper?

Copper is an element.

Q Did you make a comparison of the quantitative amounts present?

A Quantitative amounts present -- just that's a greater amount found on the cloth or greater than the amount in the cloth itself that determines whether the area is contaminated with copper.

Q Wouldn't you find out how many parts per million was copper or silver or something else?

A I probably would if I thought somebody would be interested in that.

Q You didn't think that should have been determined so you could compare the percentage of those elements present in the sample removed from the President's coat with the

bullet alleged to have made the bullet hole?

A I don't know.

To me, it sounds like you are garbling on this.

Copper is an element. If you find copper on the back of the coat and it is in excess of what is in the cloth, you say that area is smeared with copper.

You want me to compare this copper and measure how much copper there is so that you can say that the bullet is 60 percent copper or the jacket is 60 percent copper?

Q Yes.

A The 60 percent copper smeared on the coat?

The samples are not capable for that type of an examination.

Q All right.

Were there any other elements --

A I did not make those examinations.

Q Which examinations?

A On the cloth.

Q You did not make those examinations?

A No.

Q Who made them?

A I don't know.

I was probably at Oak Ridge with the parrafin casts at the time.

I don't know.

Q Did you compare the copper present in the jacket of bullet CE-399 with the copper present in the Q-3 jacket?

A I did not compare the copper present in 399 with the copper present in Q-3.

Q Why not?

A I didn't think --

The copper present in Q-3 -- what is that?

Q One of the two front seat fragments.

A I don't see Q-3.

I don't find it there.

What is that?

Q Is it a copper fragment found on the front seat, one copper and one copper and lead.

A That was probably examined by spectrographic and not enough for me to examine.

Q This was a large fragment.

A I don't know.

We will see if it is in here.

Q You can't find it in there?

A I can't find it here. I can't find it in here.

I don't know how large it was or how small it was.

Q. It was 35 grains.

A. I have no recollection of it.

Q. Of whether or not it was tested?

A. I have no recollection of it.

Q. You would expect that you would have tested it?

A. I am not here to expect anything. I am telling you I have no recollection of it.

Q. Is there any reason why you would not have tested it?

A. I don't know.

I have no recollection of it.

Q. Who determined what you would test?

A. I think it's a sound judgment of experienced examiners.

Q. Which examiners?

A. Examiners who have expertise in the matter.

Q. How many examiners participated in the spectrographic examinations?

A. I don't know.

As I say, I think I must have been down at Oak Ridge when a lot of these spectrographic examinations were run.

Q Did you compare the lead fragments --

A You are going to ask me about specifically lead fragments, and I told you repeatedly that I am not familiar with these individual specimens.

If you want to talk in general terms, all right; but specific, individual specimens I don't recall.

Q Let me ask it, then, in terms of what should have been done or what you normally would have done under the circumstances.

There were fragments recovered from Governor Connally's wrist.

Would you normally have compared those fragments with the chemical composition of the bullet which is alleged to have gone through both President Kennedy and Governor Connally?

A There isn't anything I do normally. We make judgments on each individual case, and we view each one of these and make judgments on their own.

Q Isn't the relevant factor that you had a bullet which is in what has been described as virtually pristine shape with very little, if anything, missing from it; you have fragments removed from Governor Connally's wrist; would you not want to know whether or not those fragments were

identical with that bullet or could be?

A Of course we would like to know.

We would like to know anything that could contribute to the investigation.

I am not going to answer anything on specific items which I am not familiar with and do not recall right now.

Q It would have added to your knowledge if there had been such a comparison, would it not?

A I will not make any judgments on individual specimens.

Q Was there any reason why you would not perform every test possible in the case of the assassination of the President of the United States?

A I think we took every damn avenue we could walk down in this case.

When the paraffin casts came in, we didn't think we had any chance of getting a result. We determined antimony and barium.

We knew there was very little chance. We covered every avenue that we thought was scientifically sane.

Q You did that before you determined whether or not the fragments from Governor Connally's wrist came from the

bullet which allegedly caused his wrist wound?

A. I explained to you the reason for that.

Q. Do you recall whether or not the fragments from Governor Connally's wrist were compared with --

A. I cannot talk to you about individual specimens which I do not recall.

Q. I believe that the FBI was not pinching pennies on the investigation of President Kennedy's assassination.

A. They weren't pinching any pennies, energy or enthusiasm to get to the bottom of it.

Q. You would expect all of the tests possible would have been done?

A. Every test we thought was possible was done -- not possible, but practical.

Q. Then why wouldn't you compare --

A. Don't ask me about specific specimens.

Q. Q-3 is not present in any work sheets we have.

Wouldn't you want to determine --

A. I will not comment on any specific specimen.

Q. Wouldn't you want to determine whether or not that was associated with the allegedly fatal bullet which struck President Kennedy?

A. Every examination we did was to contribute something

to the solution of this particular crime.

Q You had specimens of copper in the front seat --

MR. RYAN: The witness has already stated he will not be able --

MR. LESAR: Let me rephrase.

BY MR. LESAR:

Q Were you present when Special Agent Robert Frazier testified before the Warren Commission?

A No, I wasn't.

Q Mr. Frazier testified that you made the examination comparing the bullet fragment found on the front seat with Commission Exhibit 399, and Mr. Spector asks was that examination made in the regular course of examining procedures in the FBI.

The answer was yes, sir.

Mr. Frazier and Mr. Spector refer to normal conference procedures among FBI examiners.

What are they referring to when they refer to the normal conference procedures?

A I can't speak for anybody but myself.

Normally when I do an examination, Frazier has responsibility for this evidence. I get this evidence from Frazier; I have to return it to Frazier because he will be

held responsible for these different specimens.

When I bring that specimen back, I am going to either -- he might have a girl there dictating to her and I might dictate a paragraph.

Conference is too formal a term.

I might dictate my part, or I might give him a little note.

I give him my work sheet and I give him the specimens and then I go back and make a note that I gave them to him on that certain date.

After 30 days these cards are thrown away.

Q What cards?

A The little case cards.

Q For receipt of the evidence?

A Just so that in case some question comes up, there is a specimen missing, just little ticklers I keep for myself.

After 30 days I throw them away.

Q Did you do that in the case of the Warren Commission?

A I am sure I did.

My own personal ticklers, because I do that after I check the report and make sure the dates are right, and so forth.

Q Mr. Frazier goes on here, and he says, referring to you, "Submitted his report to me and I prepared the formal report of the entire examination."

Now, what report of yours is Mr. Frazier referring to?

A My work sheet.

Q He is talking about your work sheet, not a report. That's a misnomer.

When he says he prepared the formal report of the entire examination, what is he referring to?

A As I told you, Frazier, in the normal course of business, Frazier is responsible for the evidence when it comes in and responsible for that evidence until it goes out.

Now, when he gives me this evidence to analyze, I have a responsibility to get that back to him, and I might be one of three other examiners.

He might, for example, have a piece of hair and he gives it to a hair examiner. He might have some soil and gives it to a soil man.

When the things come back in, he is responsible to get the report out.

MR. LESAR: I want to show you a copy of another

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document which I would like the reporter to put in as next exhibit.

(The document referred marked Gallagher Exhibit for identification.)

BY MR. LESAR:

Q I want to show you a report dated November 2 to Mr. Jesse E. Curry, Chief of Dallas Police.

A That is Gallagher Exhibit 5.

Q All right.

Are you familiar with that report; do you r having seen that report before?

A Yes.

Q Do you recall who made that report?

A Frazier made it.

Q Is that the only report by Mr. Frazier that saw?

A I think it was after this that I left for Oa Ridge, right after this, to the best of my recollectio

Q The date of this is November 23.

A The assassination was on the 22nd.

Q Yes.

A Yes.

Q Now, in view of the fact that this report is dated a day after the President's assassination, could this be what Mr. Frazier is referring to here when he says he prepared the formal report of the entire examination?

A That's it.

Q This is the entire examination?

A To that date, yes.

Q Was there another examination later that he prepared a report on?

A I imagine there was.

It probably went to the chief.

The best one to ask that is Frazier.

Q I was going to get to this question of, do you recall that the laboratory reports were generally sent to the Dallas Field Office?

A Frazier would be the one to ask that, because, as I say, he was the one responsible for getting out the reports and contributing editors were the people who did the auxiliary examinations.

Q In general, with respect to FBI reports, where are copies filed; to whom are they submitted and where filed?

A Normally the reports are returned to the contributor. If the Dallas office sent in some specimens, I

imagine they would get a report back.

In this particular case, this is a report on the assassination of President Kennedy. It goes to the Chief of Police, Dallas, Texas.

The reason, he was responsible for the investigation at that time.

Q Would the Dallas Field Office also get a copy?

A I really don't know on that.

Q How about -- would copies of laboratory reports ordinarily go to the communications division?

A Administratively, I don't know how this particular thing was set up; I really don't know.

A copy of the report goes someplace so it can be recovered if someone wants it for testimony.

Q When do you recall --

What's your first recollection of someone asking for copies of the reports of the spectrographic analysis?

Do you have any recollection when the first came to your attention?

A After the Freedom of Information Act was passed. I don't know.

I think that precipitated a lot of requests.

Q How about with respect to neutron activation analysis?

A I don't know.

Q Who made you aware that a request was being made?

A Of what?

Q For copies of the spectrographic and NAA tests?

A I think you did.

Q I did?

A Somebody -- I don't know who it was -- somebody wanted all the copies of the neutron activation analysis tests.

Q How did he contact you?

A I really don't remember.

I thought it was you.

Q Did he contact you telephonically or by mail, or how?

A I don't even remember when it happened.

I thought it was you and you contacted me telephonically.

MR. LESAR: For the record, no, I did not.

BY MR. LESAR:

Q Who first --

Do you recall any official from any government agency contacting you about Mr. Weisberg's requests for spectrographic analysis?

Any official, FBI, Department of Justice --

A. I don't recall that.

Q. Anyone from the Atomic Energy Commission or its successor?

A. I think somebody from the Atomic Energy Commission -- I had a casual acquaintance there -- said there was an inquiry.

Q. Do you recall what you informed him?

A. What I informed him?

Q. With respect to what tests had been made.

A. No, I don't recall what I told him.

I know if it was early in the game, if somebody was inquisitive, I told them there was no comment, at the time the data was being taken.

Q. I am talking about, say, the fall of 1974.

A. I have no way of knowing.

This doesn't strike me of being of paramount significance, and I don't remember.

Q. I am curious why you told the Atomic Energy Commission, one of their representatives, that the only neutron activation analyses that had been conducted were on the paraffin casts.

A. I certainly would have no way of knowing who I talked to in that regard, and I certainly would have to reason

to hide anything.

The question was probably asked, what reports went to committee, or something like that. I probably said the paraffin casts.

I don't recall talking to anybody and deliberately withholding the fact that lead was analyzed.

Q Are you aware of --

Do you have any knowledge of any documents, memorandum, notes, reports, films or photographs which have been removed from the FBI headquarters with respect to President Kennedy's assassination?

A I think everything was brought over to the Archives. Is that what you mean?

Q Do you have knowledge of any agents taking any things home?

A I am certain nobody would do that.

Q Do you ever hear of any agents taking a copy of the Zapruder film out and taking it home?

A No.

Absolutely no.

I never saw it except on TV myself.

The question was labored for quite a while on specimen Q-3 and why I didn't analyze it.

I think the answer is very clear here. Q-3 data is represented in this chart, and the reason Q-3 is not analyzed, the background count was 462 counts. The net count from the specimen was 463.

One additional count is a fact not worth remembering, but it's in here.

Q Is it a fact worth making a report on?

A As I say, I don't know whether or not a report was made on this or not.

Q Should there not be a laboratory work sheet for that specimen?

A It is here.

Q Is that spectrographic or NAA?

A This is NAA.

Q All the other specimens you have indicated the time you put it in the activator and how long it was in there and numbers representing the results.

A Yes.

This doesn't because there is no data. It is just background.

Q Are you aware that we have been told by the FBI under oath that this was not tested?

A What?

Q Q-3.

A I just was of the opinion of that myself; you almost talked me into this myself.

It was probably an honest mistake just like I made previous to this.

Q Why didn't you do with respect to Q-3 what you did to Q-15, a sheet on which is reflected the time it was put on the reactor?

A This is probably an oversight on my part, evidently.

It could be an oversight on my part, or it might be on another sheet of paper that I didn't put it down in this form.

Q There would have been print-out on it, wouldn't there?

A Probably.

Q On each of these specimens, would there not?

A Probably yes, unless they were judged to be worthless and not kept.

The data is here, and it just indicates there is no data available for any judgments.

Q Why not?

Is that a customary practice?

A I told you, with the coin -- if I give you a little

corner of the coin and I ask you whether it is a quarter or a dime, what are you going to tell me?

Q It would seem to me that if you subject a specimen to neutron activation analysis and there are no results that you would write out "no results obtainable," would you not?

A When you do your neutron activation analysis, you write down "no results obtainable."

I know what I am talking about and what I am doing.

Q How would anybody else know?

Suppose this case came to trial --

A Nobody else could testify from my notes; certainly you wouldn't want somebody taking my notes and testifying against you who didn't do the work.

Q How about the Warren Commission?

A I think if anybody is going to testify against a tobacco-chewing American, he should be faced by the man who did the work.

Q Why didn't you testify to the Warren Commission about the spectrographic and neutron activation analysis?

A Because I wasn't asked.

Q Somebody was asked, weren't they?

A. I was not asked.

That's the only thing I can testify to.

Q. Mr. Frazier said that, as I recall, to save time.

A. I have no way of knowing why I wasn't asked.

I certainly didn't make any inquiries.

Q. You were aware that Mr. Frazier testified about the spectrographic analysis?

A. I saw it in print.

Q. Were you aware at the time he testified that he was going to testify about it?

A. No, I wasn't aware -- I wasn't even aware he was going to testify.

He didn't come in and say, "I am going in to testify today."

Q. He didn't tell you he would be testifying about spectrographic analysis?

A. I don't think he knew himself.

Q. How did he know what to testify to if he didn't consult with you?

A. Strictly what was in the laboratory results.

Q. You did testify before the Warren Commission at the very tail end of the proceeding if I recall.

A. I gave a deposition; yes, I did.

Q Did you testify at all about spectrographic analysis?

A No, I did not.

Q Why not.

A I was asked to testify on the paraffin lifts, and I answered the questions.

Q Who asked you?

Someone from the Warren Commission and not from the FBI?

A I gave a deposition associated with the Warren Commission, but I certainly can't remember his name.

Q You were asked to testify about neutron activation analysis, were you not?

A That's what I was asked about, yes.

Q You didn't testify about neutron activation analysis about the fragments?

A I didn't think there was anything that contributed any more to the bullet examination than the spectrographic showed.

Q I have here a table of some results.

I would like you to look at it and tell me what it is.

I think there is another page of it here. This goes with it.

A The standard deviation formula is on this paper here, if you have looked at it.

Let the record reflect it is on this --

What were you going to call it?

MR. LESAR: Let's mark it as another exhibit.

(The document referred to was marked Gallagher Exhibit No. 6 for identification.)

BY MR. LESAR:

Q Now, how would you describe what you are looking at now?

A Where is the first page?

Q Here are the additional pages.

I want to hold back the covering letter for a second and give you the rest of it. I want to refer back to that in a minute.

How would you characterize what you have there?

A I think it's just an orderly presentation of the data in that blue folder.

I think if you would have given me this first it would have been easier.

Q This is neutron activation analysis?

A On leads.

Q On leads only; is that correct, on leads only?

A On the lead material constituting the various specimens here.

Q Does it include anything with copper?

A No, it does not include anything with copper.

Q Did you make a similar tabulation for items of evidence which were copper?

A No, I did not.

Q Any reason why not?

A Because I didn't think I could clean them up sufficiently.

Q The covering letter to which these are attached is a letter dated July, I believe, 6, 1964, from Mr. Jevons to Mr. Conrad; and it indicates that, "As previously reported to the Commission, certain small lead metal fragments uncovered in connection with this matter were analyzed spectrographically to determine whether they could be associated with one or more of the larger bullet fragments and no significant differences were found within the sensitivity of the spectrographic method.

"Because of the higher sensitivity of neutron activation analysis certain of the small lead fragments were subjected to neutron activation analyses and comparisons

with the larger bullet fragments. While minor variations in composition were found by this method, these were not considered sufficient to permit positively differentiating among the larger bullet fragments and thus positively determining from which of the larger bullet fragments any small lead fragment may have come."

This speaks of variations in the composition.

What variations did you notice?

A. I think this chart illustrates the variations.

Q. What elements have the largest variations?

A. The element that specifically -- we were hoping we would get some exotic elements.

Q. By "exotic" --

A. Rare earth, promethium, some rare earths which have a very high cross section for thermo-neutron capture and are very sensitive by this test.

Same way with gold.

We were hoping that some one of these exotic elements would show up that we could put a handle on this thing.

We didn't see any of these exotic elements, so we just zeroed in on lead and silver.

Copper was a coating material, and copper was too

hard -- we couldn't be sure we had cleaned out all the copper.

We didn't want to go on to copper even if we got data because we weren't sure the sample we had was of heterogeneous contents.

This is the antimony determinations here.

We did several different runs on these samples.

Q Do you notice any of the variations between samples which are higher than you would normally expect from samples that come from the same specimen?

A I expect what I get.

I don't anticipate what my data is going to be.

Q Let me phrase it this way, do you evaluate any of those results obtained as ruling out the possibility that one sample is of the same source as another?

A I can't change one single thought that's in that report to Rankin which I labored over.

Q You labored over the report?

A The letter.

Q This is your letter?

A To Rankin.

Q This is not to Rankin but from Mr. Jevons to Mr. Conrad.

A It's essentially the same.

Q You did the draft of it?

A The notions are essentially mine.

Q Mr. Jevons had something written from you that he picked up and put in this?

A I don't know.

He called me in and said, "There is a stenographer here. What are you going to tell her?"

And I would dictate after considerable reflection.

Q You say you labored over it and reflected over it.

A I wanted it to be understood and as clear as I could make it so there would be no hemming and hawing about it 10 years later.

Q Did you write something out?

A I don't recall.

I probably had this in my hands, stuff written out and scribbled over.

I don't know.

Or I probably dictated to her and asked her to read it back and scrap it, this way.

I know it wasn't the first draft that satisfied me.

Q Would it take a period of days, perhaps?

A It took many and many a day to get the data.

I was living with it for so long that I wanted it to be understood.

Q You say in it -- I note it is very carefully worded -- you say, "While minor variations in composition were found by this method, these were not considered sufficient to permit positively differentiating among the larger bullet fragments and thus positively determining from which of the larger bullet fragments any given small lead fragment may have come."

What my question is, how much of a differentiation would you have had to have in order to come to a conclusion that eliminated any two specimens as being from the same source?

A As I say, if I found one particular specimen to consistently come up with some exotic element which was not revealed in any of the other specimens, I think the answer would be obvious; I could throw that specimen out.

However, I would like to have a two or three time variation; I would like it to be several times greater than the standard deviation.

Q What is the standard deviation with respect to antimony?

A This is the statistical approach to the stuff.

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the stuff.

I brushed up on it for the report here, but I am
 as the devil on it now.

What was your question?

Q My question is, what is the standard deviation with
 respect to the antimony?

A 17.48, in 29.63, on Q-2, Q-4 and Q-5, 13.52, Q-9,
 14, Q-1, illegible.

Q-1 is illegible on the Xeroxing.

Q-14 is 20.87.

Q Given those standard deviations and those results,
 are there any which indicate that they come from a different
 source or could come from a different source?

A I think this chart illustrates what I am talking
 about very much.

Here are the different antimony -- not antimony --
 the value of antimony is not represented by a number, plus
 or minus, or ability to measure.

This is what we have got here. The elements are
 placed in there. If you drew a line through there, you couldn't
 say any of them were much below the line which is what I would
 have had to have to eliminate one.

Q Would you pick the smallest and largest numbers
 in terms of antimony?

A. Smallest and largest numbers with respect to antimony.

749 parts per million.

Q For which specimen?

A. Excuse me, 697 parts per million.

Q For which specimen?

A. For Q-1, 697 parts per million.

Then the other one was 534.

Q Now, given the standard deviations --

534 was for which specimen?

A Q-2.

Q Given the standard deviations for those, can you eliminate those two as having come from the same source?

A No.

I think I have put it down in that report as clearly as I can.

I cannot do it from this data.

Q I don't think your report addresses the problem of any other source. Your report --

Take the standard deviation, again, for Q-1; what did you say that was?

A Standard deviation is 17.48.

Q For the other?

A. What other?

Q. The 534.

A. 29.63.

Now, that's not parts per million. Those are counts.

Q. Given those figures, can you tell me at what point you would be willing to say that the parts per million figures would eliminate the possibility that they could have come from the same source?

A. Well, if I had, for example, antimony determination here that was --

For example, if it were 10 times bigger or 10 times smaller, certainly I would throw that out.

Q. You are saying that if you have antimony of 5000 on Q-1, you would then throw out the other specimen we have been dealing with?

A. With not too big a bounce on it, I would throw it out.

Q. I don't understand.

A. I have repeated samples run here, from the same specimen.

If the samples look real homogenous and then there is a difference of 500 to 5000 parts per million of antimony,

I would look for two different sources.

Q But it would have to be how many times greater?

A I am giving you an example.

I have to evaluate each one of these on their merit, knowing what the samples look like, how homogenous they are, and everything else.

Q Essentially you are saying it is very subjective.

A It is very objective to anybody who is in the business.

It's just that I am not eloquent enough to get it across.

This is a competent elements study here done statistically. I brushed up on this specifically for this.

I think it's pretty revealing to anybody that's into statistics and wants to delve into that.

Q The result of it was that you concluded that you cannot establish that any two of the samples tested are from different sources?

A I think that not only I, but anybody that took this data and looked at it would come to the same judgment.

Q I think you testified earlier that the spectrographic analysis made on the curbstone showed all that was possible --

A If I testified that, I want to correct it right now.

I did not make the examination on the curbstone.

I don't want to comment on any of the results which I know nothing about.

Q What was your explanation -- do you recall your explanation for not selecting the curbstone for neutron activation analysis?

A It was reported to me that a spectrographic examination had been done.

Q Who made the report?

A It was either Heilman, Heidenberger or Edwards, special agent examiners in the unit.

Q Did you see the report?

A You showed it to me here today.

Q I showed you --

A And you asked me to make a handwriting analysis on it.

Q I did ask whether or not it was your writing.

Is that all the spectrographic analysis of the curbstone?

A That's it, apparently.

Q There were no quantitative figures for it?

A How can you get quantitative figures from something like that?

He is lucky to find whatever he found there.
The question was asked, is it a bullet mark?
He said it could be because he found lead and
antimony.

Q Did you ever see a microscopic examination of the
curbstone made by anyone?

Do you recall that?

A I recall seeing the curbstone.

Q I am asking about the report on the microscopic
examination of it.

A It just goes without saying that a microscopic
examination -- this has been the procedure for 30 years in
the FBI.

We don't say, "Dear contributor, we subjected your
evidence to a microscopic examination; we fondled the outside
of the bullet and measured the outside of it."

Q The reason I was asking is because we don't have
it.

A You wouldn't have it on 99 and 44/100 percent of
the examinations done in the spectrographic examinations.

Q I am talking about the microscopic examination.

A The fellow would say, "I found a smear and analyzed
it."

He wouldn't say, "I subjected this to a microscopic examination."

Q Would you take microscopic pictures of it?

A I think all the specimens in the Kennedy assassination case, pictures were taken.

Q You are talking about microscopic pictures?

A No.

Q Would you do it in this case?

A No, because it would make very dull reading. It would contribute nothing to the understanding of what this man was facing, a gray smear on something, highly unintelligible to anybody who didn't look through the microscope himself.

Q How many elements -- you take the smear on the curbstone, and it's said to be three-quarters of an inch by an inch.

How many elements would you expect to find by means of spectrographic analysis?

A I would expect to find all that are there within the range of an emission spectrographic examination.

Q Let me ask you one final question. I think that's probably it.

What variation would you consider significant in

testing primer residues?

A In primer residues, you have -- in the primer itself is barium nitrate and antimony sulfide.

When the primer is discharged, the lead is stiffening; it should be.

Actually, when a weapon is fired, the solid residues that are deposited on the shooter's hands contain antimony, barium and lead.

You can't see lead by neutron activation analysis because it is one of the elements you don't activate in a reactor that has a decay constant long enough to measure.

You go after antimony and barium.

Our principle has been to compare the amount of antimony and barium on one hand -- our principle now -- with the antimony and barium on the other hand to see if there is an increase in the antimony and barium on the shooting hand over the nonshooting hand or whether there is an amount of antimony and barium which represents an amount that's excessive as far as to a tobacco-chewing American is concerned.

Q Would you compare --

You also test for the residues in the rifle barrel?

A In the rifle shell.

Here again, we analyze the primer residues in the

shell because we were hoping that, again, we would find an exotic, some element, rare earth, some element which would really highlight this particular primer residue as being characteristic in itself.

Actually, the subject in this particular case, Oswald, had fired a revolver allegedly after he had fired a rifle.

If we could distinguish between the primer residues of the revolver and the rifle, we would have been a couple of steps in advance.

Q Let me ask you, how much variation between the amount of antimony or barium in the residue from the pistol you would have to have between that and the shell residue in order to establish that the sources were different?

A The variation in the antimony and barium would not give us that amount of intelligence -- the amount of variation in the antimony and barium that you find as residue on a hand and you take out of a shell, this is not entirely significant or not very significant because when that gun is discharged, that's an extremely violent act, and there is nothing in the world that tells us that the antimony and barium is going to be homogenously mixed on the shooter's hand.

Q You have two different rifle shells.

How much variation in antimony or barium do you have to have before you establish that there is a different source?

MR. RYAN: I will have to object.

I don't know that you have connected up that question with the specific facts or test results in this case.

MR. LESAR: The question relates whether we have been given any reports on comparisons made between different shells testified to in this case.

BY MR. LESAR:

Q Let me rephrase the question this way:

How much variation would you have to find in any two rifle shells before you would find it noteworthy?

A In the primer residue?

Q Yes.

A I don't know.

You see, the primer shells have got writing on the bottom of them, the cartridge cases.

You can tell.

If I gave you a three-cent stamp, you wouldn't ask me to analyze it, I think.

Q Suppose you are trying to determine whether or not the ammunition in that shell was reloaded or original

ammunition?

A. If it is reloaded ammunition?

Q. Yes.

A. Reloaded --

Q. Western --

A. Shells?

Q. Yes.

A. You would have to ask the fire arms examiner. He could tell that.

I don't know. I am not an expert in that field.

Q. Let's get back again to, what variation would you have to find in order to make the determination?

A. I have no judgment on that.

Q. Suppose the variation was double?

A. I have no judgment on that on residue.

Q. Did you make any determinations of that sort with respect to President Kennedy's assassination?

A. I don't recall.

I made primer residue examination when I was doing the paraffin lifts to find out if there were any exotics.

Q. How about for other purposes, such as the one I suggested, determining whether or not the ammunition had been reloaded?

A The state of the art wouldn't allow you, when we were doing this examination, to make any conclusions from the residues of the primer.

Q If you found a 30 percent variation in the primer -

A I don't answer hypothetical questions.

MR. LESAR: I think you have.

MR. WEISBERG: Why not for another purpose, when you have test results from examination of the shells, not the paraffin lifts, statistically significantly different in these same elements, why not consider something besides the paraffin tests when you are conducting this kind of an investigation?

We have these reports of this variation in the primer.

THE WITNESS: You say they are statistically significant. You want to put that in quotes.

MR. WEISBERG: That's why I asked you the question.

THE WITNESS: There is nothing in the state of the art at the time we were doing this which would enable us to associate a particular source with another particular source

MR. WEISBERG: That wasn't what I was saying, sir.

There was a difference of about 30 percent between the reports you got from testing two different shells.

THE WITNESS: For primer residues?

MR. WEISBERG: I am saying that's not the same as comparing it with the lifts.

All I am asking, isn't a 30 percent difference, test results from the shells themselves, something that should be commented upon in a report?

THE WITNESS: Obviously I didn't think so or I would have done it.

MR. WEISBERG: You may have done it without us getting it.

MR. LESAR: Our purpose is to find out whether or not there are records the government has and we have not received.

MR. WEISBERG: Or have not been found.

MR. LESAR: The purpose has been simply to determine what records were created and what exists and where they might be so we have some way of assessing what we asked for; and it's very difficult -- a very difficult way in which to proceed.

That's what we have been attempting to do.

I think I am concluded with the deposition.

EXAMINATION BY COUNSEL FOR THE DEFENDANTS

BY MR. RYAN:

Q Could you please describe the state of the art of neutron activation analysis in 1964 briefly?

A It was very young at that time. The equipment was relatively medieval.

It was not the multichannel analyzers with the automatic print-outs you have today and the read-out equipment where you generate your data was extremely complex and the record-keeping on the part of the people doing the examination was voluminous.

Today that would all be printed out in computer-like form.

Then on top of that, as far as the work insofar as criminalistics is concerned, there was a few men leading in the field, Dr. Vincent Guinn, San Diego, for example. There were a few more down at Oak Ridge.

There were very few universities with low power reactors.

It was really in its infancy.

MR. LESAR: In 1963, 1964, compared with spectrographic analysis, what was the comparative sensitivity between the two?

THE WITNESS: For specific elements, it had no peers, for gold, some of the rare earths, to determine arsenic in some cases, it had no peer in my estimation, antimony or barium in primer residues.

MR. LESAR: Would it have been on the order of 10 times more sensitive than spectorgraphic analysis?

THE WITNESS: In some cases 1000 times more sensitive.

MR. LESAR: Just to pin it down to the things we have been talking about and the instances with which your examinations are concerned, how much more sensitive would it have been for antimony, for silver, for barium?

THE WITNESS: Probably two-fold more sensitive but more dependable quantitatively.

BY MR. RYAN:

Q Could you describe the physical circumstances on copying down the data as the samples were going into the reactor?

A The time the samples went into the reactor, time out, time it was counted, the length of time, had to be recorded. All this had to be done by myself there while they were putting stuff in and taking it out.

MR. LESAR: Does that mean there was no one who

verified what you wrote down; you wrote down everything yourself; you wrote down the result yourself?

THE WITNESS: I did most of that, yes.

MR. LESAR: From a print-out?

THE WITNESS: In many cases, the chap running the pneumatic tubes would have a print-out, and he would put that on the print-out and I would transpose the time he started counting so I could make calculations that night; and so there was actually a cross check on it.

We checked each other's work as best we could.

MR. LESAR: Did he keep any separate notes?

THE WITNESS: No.

No notes at all that he was entitled to keep.

That was one of the stipulations; we didn't want this thing to go all over Oak Ridge until we got data and the Commission knew about it.

That's one of the reasons --

You were talking about Vince Guinn.

He was a good friend of ours and very supportive in every way. He was selling atomic reactors.

It would be a lot more easy for a man trying to sell reactors to say we were using his facility.

I think that's understandable if you know the

down everything

elf?

t, yes.

a chap running the

id he would put that

time he started

night; and so

best we could.

rate notes?

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we didn't want

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very supportive in

man trying to

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und.

MR. LESAR: What sort of clock did you use to clock --
re a clock connected to the reactor?

How do you determine the time it goes in and goes

THE WITNESS: There is a big second clock and it's
ared automatically.

MR. LESAR: Okay.

I think I am through if you are through.

MR. RYAN: I have no further questions.

(Whereupon, at 3:45 p.m., the taking of the
sition was ended.)

CERTIFICATE OF DEPONENT

I have read the foregoing 118 pages which contain a correct transcript of the answers made by me to the questions therein recorded.

Subscribed and sworn to before me this _____ day of _____.

Notary Public

My commission expires _____.

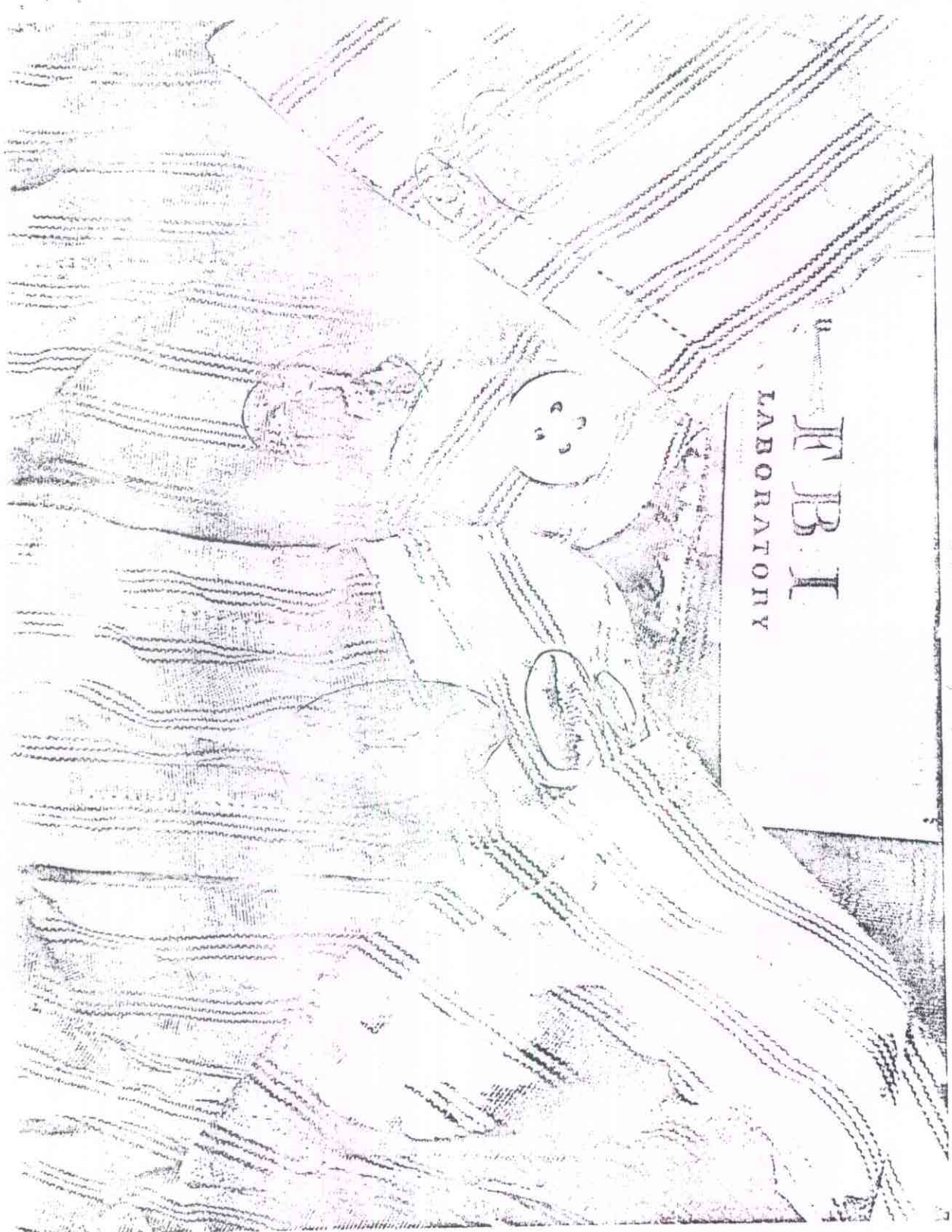
CERTIFICATE OF NOTARY PUBLIC

I, Sandra S. Morgan, the officer before whom the foregoing deposition was taken, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me; that the testimony of said witness was taken by me stenographically and thereafter reduced to typewriting by me; that said deposition is a true record of the testimony given by said witness; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken; and, further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of the action.

Sandra S. Morgan

Notary Public in and for
the District of Columbia

My commission expires October 14, 1981.



F. B. I.
LABORATORY

10/10/83 3 Yellow 10/10/83
5-11-83 5-22-83

22 November 1963

From: Francis X. O'NEILL, Jr., Agent FBI
James W. SIBERT, Agent FBI

To: Captain J. H. STOWER, Jr., Commanding Officer, U. S. Naval Medical
School, National Naval Medical Center, Bethesda, Maryland

1. We hereby acknowledge receipt of a missile removed by Commander James
J. HURMS, MC, USN on this date.

Francis X. O'Neill, Jr.
Francis X. O'NEILL, Jr.
James W. Sibert
James W. SIBERT

Wallingford Exhibit No 2
512M
3-28 77



UNITED STATES DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION

WASHINGTON 25, D.C.

March 16, 1964

By Courier Service

Honorable J. Lee Rankin
General Counsel
The President's Commission
200 Maryland Avenue, Northeast
Washington, D. C. 20002

Dear Mr. Rankin:

During the course of discussion of radiation activation analyses between Mr. Melvin Eisenberg, of your staff and Special Agent John F. Gallagher of this Bureau on March 16, 1964, Mr. Eisenberg requested the following information:

1. What are some items in common usage which contain barium? Some items that may include barium are: grease, ceramics, glass, paint, printing ink, paper, rubber, plastics, leather, cloth, pyrotechnics, oilcloth and linoleum, storage batteries, matches and cosmetics.
2. What are some items in common usage which contain antimony? Some items that may include antimony are: matches, type metal, lead alloys, paints and lacquers, pigments for oil and water colors, flameproof textiles, storage batteries, pyrotechnics, rubber, pharmaceutical preparations and calico.
3. What are some items in common usage which contain both barium and antimony? Barium and antimony may be found in the following items: printed paper and cloth, paint, storage batteries, rubber and matches, pyrotechnics and possibly other items.

GALLAGHER EXHIBIT NO. 1

Honorable J. Lee Rankin

4. Would neutron activation analyses show if a bullet passed through the hole in the front of President Kennedy's shirt near the collar button area and also if a bullet passed through the material of his tie? Neutron activation is a sensitive analytical technique to determine elements present in a substance. During the course of the spectrographic examinations previously conducted of the fabric surrounding the hole in the front of the shirt, including the tie, no copper was found in excess of that present elsewhere in undamaged areas of the shirt and tie. Therefore, no copper was found which could be attributed to projectile fragments.

It is not felt that the increased sensitivity of neutron activation analyses would contribute substantially to the understanding of the origin of this hole and frayed area.

Sincerely yours,

J. Edgar Hoover

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GALLAGHER EXHIBIT No. 1--Continued

FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D. C.

Mr. James H. Gandy
Chief of Police
Dallas, Texas

November 23, 1963

This communication has been made with a view to maintaining the confidentiality of the information furnished with an official report of a criminal matter and that the laboratory reports are intended for official use only, related to the investigation or a subsequent trial, prosecution. Authorization cannot be granted for the use of the laboratory report in connection with a civil proceeding.

RE: ASSASSINATION OF PRESIDENT
JOHN F. KENNEDY

J. Edgar Hoover
John Edgar Hoover, Director

LAB. NO. [blank]
FBI FILE NO. [blank]
LAB. NO. DC-4743 BX
D-436431 AX

Requester: Dallas Police Department
Address: See below

Requester: Dallas Police Department
Address: See below

Examination requested: Firearms - Photographic - Microscopic Analyses -
Fingerprint - Document

Specimens:

Specimen 1: Bullet received from Special Agent William J. Smith, Washington Field Office of the FBI on 11/22/63:

Specimen 2: Bullet from stretcher

Specimen 3: Bullet received from Special Agent Orin Powell of the FBI on 11/22/63:

Specimen 4: Bullet fragment from front seat cushion
Specimen 5: Bullet fragment from front seat cushion

Specimen 6: U. S. Special Service

Specimen 7: Dallas

(continued on next page)

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00416

Evidence received from Special Agents James W. Hilbert and Special Agent Francis O'Neill, Jr., of the Baltimore Office of the FBI on 11/23/63:

- Q4 Metal fragment from the President's head
- Q5 Metal fragment from the President's head

Evidence received from Special Agent Vincent E. Drain of the Dallas Office of the FBI on 11/23/63:

- Q6 6.5 millimeter Mannlicher-Carcano cartridge case from building
- Q7 6.5 millimeter Mannlicher-Carcano cartridge case from building
- Q8 6.5 millimeter Mannlicher-Carcano cartridge from rifle
- Q9 Metal fragment from arm of Governor John Connally
- Q10 Wrapping paper in shape of a large bag
- Q11 Suspect's shirt
- Q12 Blanket
- Q13 Bullet from Officer Tippett

- K1 6.5 millimeter Mannlicher-Carcano rifle, with telescope sight, Serial No. C2766
- K2 Paper and tape sample from shipping department, Texas Public School Book Depository
- K3 .33 S&W Smith and Wesson revolver, Serial No. V516210, Assembly No. 65248

Evidence obtained by FBI Laboratory personnel during examination of the President's limousine:

- Q14 Three metal fragments recovered from rear floor board carpet
- Q15 Scraping from inside surface of windshield

Also submitted: Photograph of rifle, K1
Finger and palm prints of Lee Harvey Oswald

Summary of examinations:

Q6, Q7, Q8, Q1, is a 6.5 millimeter Mannlicher-Carcano rifle
Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q32, Q33, Q34, Q35, Q36, Q37, Q38, Q39, Q40, Q41, Q42, Q43, Q44, Q45, Q46, Q47, Q48, Q49, Q50, Q51, Q52, Q53, Q54, Q55, Q56, Q57, Q58, Q59, Q60, Q61, Q62, Q63, Q64, Q65, Q66, Q67, Q68, Q69, Q70, Q71, Q72, Q73, Q74, Q75, Q76, Q77, Q78, Q79, Q80, Q81, Q82, Q83, Q84, Q85, Q86, Q87, Q88, Q89, Q90, Q91, Q92, Q93, Q94, Q95, Q96, Q97, Q98, Q99, Q100, Q101, Q102, Q103, Q104, Q105, Q106, Q107, Q108, Q109, Q110, Q111, Q112, Q113, Q114, Q115, Q116, Q117, Q118, Q119, Q120, Q121, Q122, Q123, Q124, Q125, Q126, Q127, Q128, Q129, Q130, Q131, Q132, Q133, Q134, Q135, Q136, Q137, Q138, Q139, Q140, Q141, Q142, Q143, Q144, Q145, Q146, Q147, Q148, Q149, Q150, Q151, Q152, Q153, Q154, Q155, Q156, Q157, Q158, Q159, Q160, Q161, Q162, Q163, Q164, Q165, Q166, Q167, Q168, Q169, Q170, Q171, Q172, Q173, Q174, Q175, Q176, Q177, Q178, Q179, Q180, Q181, Q182, Q183, Q184, Q185, Q186, Q187, Q188, Q189, Q190, 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Specimens Q2 and Q3 are portions of a rifle bullet. Specimen Q2 weighs 4.6 grains and is composed of a portion of the copper alloy jacket and a portion of the lead core. Specimen Q3 is a portion of the base of a copper alloy jacket. Q3 weighs 21.0 grains and is composed of a portion of the jacket from which the lead core is missing. It could not be determined whether specimens Q2 and Q3 are portions of the same bullet or are portions of two separate bullets.

The rifle, K1, is a 3.5 millimeter Mannlicher-Carcano Italian military rifle Model 91/38. Test bullets were fired from this rifle for comparison with specimens Q1, Q2 and Q3. As a result, Q1, Q2 and Q3 were identified as having been fired from the submitted rifle.

Specimens Q6 and Q7 are 6.5 millimeter Mannlicher-Carcano cartridge cases. They were manufactured by the Western Cartridge Company, East Alton, Illinois, as was the 6.5 millimeter Mannlicher-Carcano cartridge, Q8.

Two cartridge cases obtained from the submitted rifle were compared with specimens Q6 and Q7. As a result, specimens Q6 and Q7 are identical as having been fired in this rifle. The bullet, Q13, from Officer Tippett, is a .38 Special copper-coated lead bullet. Q13 weighs 3.6 grains and possesses the physical characteristics of a .38 grain Western-Union revolver bullet. The surface of Q13 is so badly pitted that there are not sufficient individual microscopic characteristics present for identification purposes. It was determined, however, that the .38 Special Smith and Wesson revolver, K3, is among those weapons which produce general rifling impressions of the type found on Q13.

The lead metal of Q13 and Q5, Q9, Q14 and Q15 is similar to the lead of the core of the bullet fragment, Q2.

A small tuft of lead fibers was found adhering to a jagged area on the left side of the lead fragment plate on the M1 gun. Included in this tuft were approximately equal parts of blue and orange-yellow cotton fibers which match in color and characteristics the gray-black, dark blue and orange-yellow cotton fibers appearing on the shirt of the suspect. These fibers could have originated from this shirt.

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(continued on next page)

A number of fibers were found on the Q10 paper bag and several light green cotton fibers were found on the Q12 blanket. These fibers match in microscopic characteristics with those viscose fibers and light green cotton fibers found on the Q12 blanket and could have originated from this blanket.

It is pointed out, however, that fibers do not exhibit sufficient individual microscopic characteristics to be positively identified as originating from a particular source to the exclusion of all others.

No fibers were found on the K1 gun that could be associated with the Q12 blanket and no fibers were found on the Q10 paper bag that could be associated with the Q11 shirt.

The debris, including foreign textile fibers and hairs, removed from the Q12 blanket and Q11 shirt has been placed in pillboxes for possible future comparisons. These pillboxes and the glass microscope slides containing fibers removed from K1 and Q10 are being temporarily retained in the laboratory for possible future comparisons with additional items of the suspect's clothing should they be recovered.

The Q12 blanket has been folded double and one corner has been secured in and pinned with a safety pin. A length of white cotton cord has been tied around this corner giving it a triangular-shaped appearance as if it had once contained a long object.

The paper of the wrapping and the Q10, were found to have the same characteristic physical characteristics as the known wrapping paper and tape, K2, from the Texas Public School Book Depository.

The inside surface of specimen Q10 did not disclose markings comparable with the rifle, K1. A number of indentations, folds and various markings appear on the inner surface of the Q10 wrapping.

The latent prints appearing in the photograph taken of the rifle, K1, by the Dallas Police Department, are extremely faint and indistinct and of any value for identification purposes. Photographs of this weapon taken by this office also did not produce prints of sufficient legibility for comparison purposes.

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(continued on next page)

A latent fingerprint was developed on the wrapping paper, Q10, which was identified with the left index finger impression of Lee Harvey Oswald. In addition, one latent palm print developed on specimen Q10 was identified with the right palm print of Oswald.

No latent prints of value were developed on Oswald's revolver, the cartridge cases, the unfired cartridge, the clip in the rifle or the inner parts of the rifle.

Specimens Q1 through Q5, Q14 and Q15 are being retained in the laboratory until called for by a representative of the U. S. Secret Service.

Specimens Q6 through Q13, K1, K2 and K3 are being returned to the Dallas Police Department by Special Agent Vincent H. Drain of the Dallas Field Office of this Bureau. The photograph of the latent print on the rifle is being returned separately. The fingerprints and palm prints of Oswald are being retained.

Mr. Conrad

2/8/64

R. E. Jovens

- 1 - Mr. Callagher, 7417
- 1 - Office, 7123
- 1 - Mr. Jovens, 7123
- 1 - Mr. Conrad

ASSASSINATION OF PRESIDENT
JOHN F. KENNEDY, 11/22/63,
DALLAS, TEXAS

As previously reported to the Commission, certain small lead metal fragments recovered in connection with this matter were analyzed spectrographically to determine whether they could be associated with one or more of the larger bullet fragments and no significant differences were found within the sensitivity of the spectrographic method. Because of the higher sensitivity of neutron activation analysis certain of the small lead fragments were subjected to neutron activation analysis and comparisons with the larger bullet fragments. While minor variations in composition were found by this method, these were not considered sufficient to permit positively differentiating among the larger bullet fragments and thus positively determining from which of the larger bullet fragments any given small lead fragment may have come.

Generally speaking, the small lead metal particles fall into two categories. In one category fall the small lead fragment from the arm of Governor Connally and the lead from the almost intact bullet recovered from the stretcher. In the other category fall the lead particles from the head of President Kennedy, the lead fragments from the rear floor of the car and the lead from the mutilated bullet fragment from the front seat cushion. While there is a probability that the fragment from the Governor's arm came from the whole bullet rather than from the mutilated bullet and that the fragments from the President's head and from the floor of the car could have come from the mutilated bullet fragment from the front seat cushion, it remains a probability and does not permit a positive finding or statement that any given small fragment did in fact come from one of the bullets to the exclusion of the others.

Enclosures (2)

- 1 - Mr. Belmont
- 1 - Mr. Casper
- 1 - Mr. Calliven
- 1 - Mr. Malloy

62-109060
JFC:EG (9)

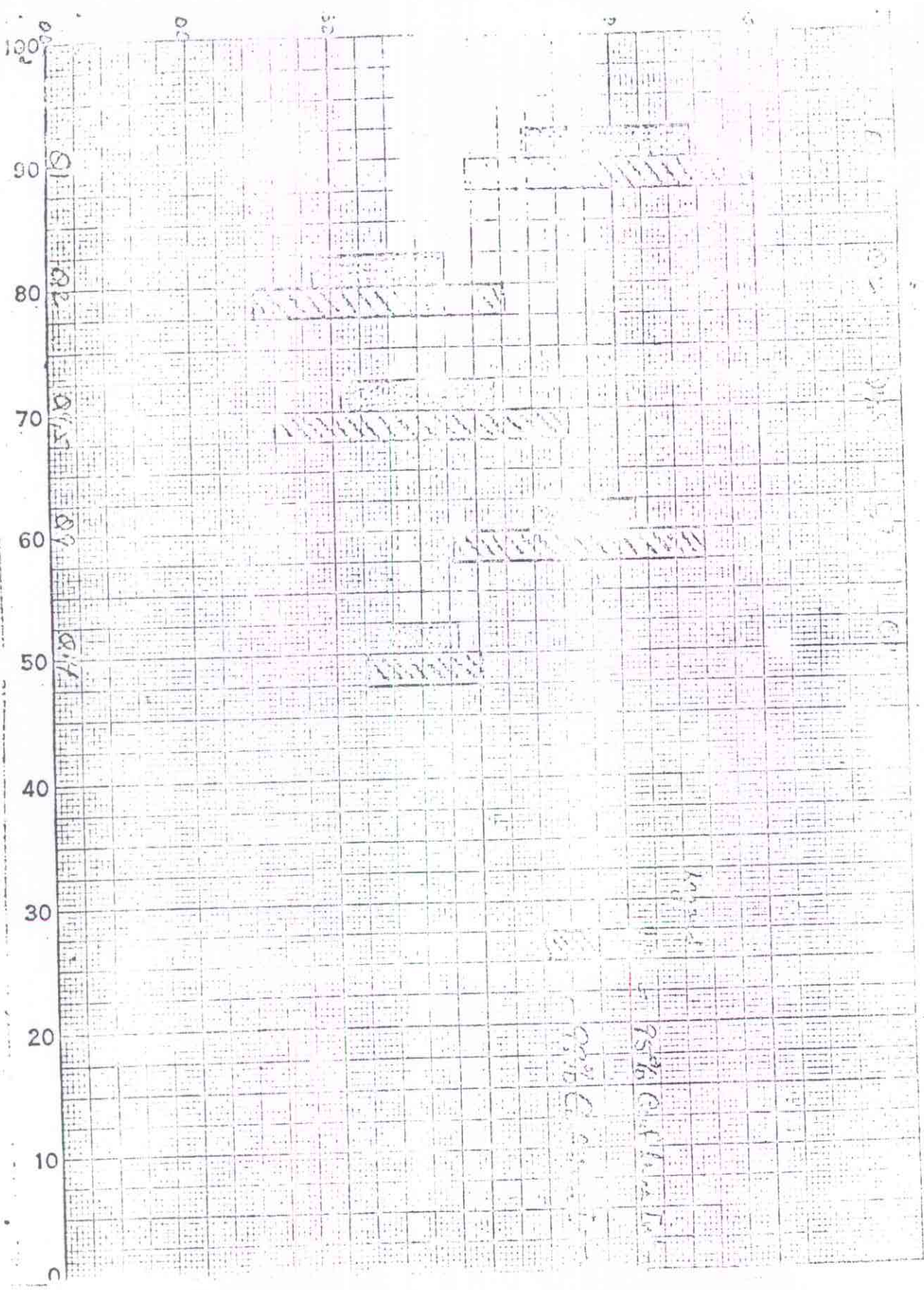
Callagher Exhibit No. 6
11
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Memorandum to Mr. Conrad
Re: IDENTIFICATION OF PRESIDENT
JOHN F. KENNEDY, 81/22/63
DALLAS, TEXAS
CG-15000

As indicated, the attached letter to the Commission reports that the findings do not permit a positive determination as to the particular origin of any of the small lead metal fragments. A tabulation of the results of the analyses is attached hereto. A letter is attached for forwarding to the President's Commission.

RECOMMENDATION:

That the attached letter be forwarded to the President's Commission.



Confidence Intervals

These can be obtained from ranges. The range is defined as the largest value - smallest value. The % Confidence Level is:

$$C.I. = \pm A.R$$

A = value from statistical tables

R = range.

Considering Sb determination

Table below are values for 95% and 99% C.I.
FOR SB Determination

Specie	Number of SPECIMENS ANALYZED = N	A		R	\bar{X}	\pm C.I.	
		95%	99%			95%	99%
Q1	5	0.515	0.875	114	697	59	100
Q2	4	0.735	1.1395	63	534	46	88
Q4,5	4	0.735	1.1395	74	561	54	103
Q9	3	1.301	3.000	28	676	36	84
Q14	5	0.515	.875	44	562	23	39

EXPRESSED AS INTERVALS RESULTS ARE

	95% interval	99% interval
Q1	638 - 752	597 - 797
Q2	488 - 580	446 - 622
Q4,5	507 - 615	458 - 624
Q9	640 - 712	592 - 760
Q14	539 - 585	523 - 601

- | | | |
|--------|--------|---|
| C1 | Q1 | Bullet from stretcher |
| C2 | Q2 | Bullet fragment from front
seat cushions |
| C4, C5 | Q4, Q5 | Metal fragment from Pres.'s head |
| C9 | Q9 | Metal fragment from arm of Governor |
| C16 | Q14 | Three metal fragments from Pres.
floor board carpet of car |

Gallogher

Standard Deviation Table

Line	Weight	mg	Ag	Standard Deviation	D	Standard Deviation
1	S	8.0	7.19		-.21	.0041
2	Lb	5.7	7.61		+.21	.0041
3	Aug		7.90			.0097
4	a	41.9	8.09		-.16	.0066
5	b	25.2	9.15		+.22	.0072
6	c	4.57	7.22		-.71	.0041
7	d	3.89	7.24		-.69	.0041
8	Aug		7.93			.0018
11	S	3.8	8.95		+.48	.00304
12	Qes La	13.0	8.37		-.14	.0020
13	Lb	21.5	8.13		-.34	.0156
14	Aug		8.47			.0008
16	a	2.3	9.21		-.04	.0016
17	b	2.3	9.29		+.04	.0016
18			9.25			.0071
19	S	10.9	8.63		+.17	.0037
20	Qes La	8.5	8.40		-.06	.0036
21	Lb	4.7	8.34		-.12	.0144
22			8.46			.0057

Sample	Weight * Mg.	SB PFM	Deviation From Mean D	D ²	St. dev.
A	7.16	643	- 54	2916	
B	4.2	656	- 61	3721	
C	1.79	750	+ 53	2809	
Q1 D	1.24	747	+ 52	2704	
E	3.34	715	+ 8	64	
Avg		697			
Q1 E	1.16	749			
A	39.75	521	- 13	169	
B	21.6	521	- 13	169	
Q1 C	3.84	578	+ 44	1936	
D	3.68	515	- 19	361	
Avg		534			
Q1 S					
S	3.22	555	- 6	36	
L2	6.85	552	- 9	81	
L6	21.15	532	- 29	841	
L6	.825	606	+ 45	2025	
Aug.		561			
A	1.92	690	+ 18	324	
Q1 B	2.07	662	- 14	196	
S	1.34	677	+ 1	1	
Aug		676			

	CB	REVISION	D ²	STANDARD DEVIATION
S	545	- 19	361	
E(1)	582	+ 20	400	
Op La	546	- 16	256	
Ed	552	- 10	100	
Lc	597	+ 25	625	
Qty	562			20.87

* Represents the weight after surface was scoured.

* Sample resampled for accreditation.

Standard Deviation = $\sqrt{\frac{\sum D^2}{n}}$

Sample	Time from start of counts	A/Bc	Conversion Factor (F)	F x A/Bc	F x (F x A/Bc)	Decay Factor	Net Count	Standard Deviation	σ^2	σ
a	20"	45.6"	.446	20.3	40.3	.3123	311	9962	735×10^8	919×10^4
b	20"	43.8"	.447	19.6	59.6	.39	2367	7420	544×10^8	961×10^4
S	24"	42.0"	.457	18.9	42.9	.29	1337	4610	340×10^8	8.95×10^4
Q45Ka	20"	45.9	.446	20.5	40.5	.3108	4562	14678	1.853×10^7	8.33×10^4
Lb	20"	49.8	.441	22	42	.2975	7046	23684	1.98×10^7	8.13×10^4
a	20"	40	.653	18.1	38.1	.333	952	2871	4.119×10^8	$2.112 \times 10^5 = 221 \times 10^4$
b	20"	41	.651	18.5	38.5	.329	952	2899	3.136×10^8	$2.133 \times 10^5 = 229 \times 10^4$
S	20"	45	.447	20.1	40.1	.34	4061	12742	9.404×10^8	8.13×10^4
Q45Ka	20"	45.8	.447	19.6	39.6	.3188	3083	9671	7.137×10^8	8.4×10^4
Lb	20"	42.1	.450	18.9	38.9	.3252	1727	5311	3.52×10^8	8.3×10^4
a	20"	55.8				.2508	12181	48628	3.38×10^7	$5.88 \times 10^4 = 809 \times 10^4$
b	35"	50.4				.1758	5819	23122	2.3×10^7	$1.51 \times 10^4 = 151 \times 10^4$

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Sample	Time from start of churning	Ave. ρ	Compression Factor (F)	F x A _h	F ₁ (Expt)	Density Factor	Mt. Quant	$\frac{W_{\text{float}}}{W_{\text{total}}}$	$\frac{H}{H_0}$	$\frac{\rho_{\text{float}}}{\rho_{\text{total}}}$	$\frac{F}{\text{correct lead}}$
a	20"	457.6	.446	20.3	40.3	.3123	3111	9.942		735 x 10 ⁻⁸	9.19 x 10 ⁻⁶
b	30"	431.8	.447	19.6	39.6	.319	2367	7.420		548 x 10 ⁻⁸	9.61 x 10 ⁻⁶
3	34"	420.0	.450	18.9	42.9	.29	1337	4.610		3.40 x 10 ⁻⁸	8.95 x 10 ⁻⁶
4	30"	451.9	.446	20.5	40.5	.3108	4552	14.678		1.053 x 10 ⁻⁷	8.33 x 10 ⁻⁶
5	30"	491.8	.441	22	42	.2975	7096	23.684		1.798 x 10 ⁻⁷	8.13 x 10 ⁻⁶
6	30"	40	.653	18.1	38.1	.333	952	2871		3.119 x 10 ⁻⁸	2.112 x 10 ⁻⁶ = 9.21 x 10 ⁻⁶
7	20"	41	.651	18.5	38.5	.329	952	2894		3.136 x 10 ⁻⁸	2.133 x 10 ⁻⁶ = 9.29 x 10 ⁻⁶
8	20"	45	.447	20.1	40.1	.314	4001	12.744		9.404 x 10 ⁻⁸	8.43 x 10 ⁻⁶
9	20"	42.8	.447	19.6	39.6	.3108	3083	9.671		7.137 x 10 ⁻⁸	8.40 x 10 ⁻⁶
10	30"	42.1	.440	18.9	38.9	.3252	1727	5.311		3.92 x 10 ⁻⁸	8.30 x 10 ⁻⁶
11	20"	55.8				.2508	12181	48.528		3.38 x 10 ⁻⁷	3.38 x 10 ⁻⁶ = 8.09 x 10 ⁻⁶
12	35"	50.4				.1758	5819	23.170		2.13 x 10 ⁻⁷	2.13 x 10 ⁻⁶ = 9.15 x 10 ⁻⁶

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