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?

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

9 - Common source

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.

you 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?

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

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 amoung 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

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 knowledged 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

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.

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.