Commander BOSWELL. I do, sir.

The CHAIRMAN. Be seated, please.

Mr. SPECTER. Will you state your full name for the record, please?

Commander BOSWELL. J. Thornton Boswell, Commander, Medical Corps, U.S. Navy.

Mr. SPECTER. What is your profession?

Commander BOSWELL. Physician.

Mr. SPECTER. And where did you obtain your medical degree, please?

Commander BOSWELL. At the College of Medicine, Ohio State University.

Mr. SPECTER. And what experience have you had in your professional line subsequent to obtaining that degree?

Commander BOSWELL. I interned in the Navy and took my pathology training at St. Albans Naval Hospital in New York. I was certified by the American Board of Pathology in both clinical and pathological anatomy in 1957 and 1958.

Mr. SPECTER. And what is your duty assignment at the present time?

Commander BOSWELL. I am the Chief of Pathology at the National Naval Medical School.

Mr. SPECTER. Did you have occasion to participate in the autopsy of the late President Kennedy?

Commander BOSWELL. I did.

Mr. SPECTER. And did you assist Doctor Humes at that time?

Commander BOSWELL. Yes, sir.

Mr. SPECTER. Have you been present here today during the entire course of Doctor Humes' testimony?

Commander BOSWELL. I have, sir; yes.

Mr. SPECTER. Do you have anything that you would like to add by way of elaboration or modification to that which Doctor Humes has testified?

Commander BOSWELL. None, I believe. Doctor Humes has stated essentially what is the culmination of our examination and our subsequent conference, and everything is exactly as we had determined our conclusions.

Mr. SPECTER. And are you one of the three coauthors of the autopsy report which has been previously identified as a Commission Exhibit?

Commander BOSWELL. Yes; I am.

Mr. SPECTER. All the facts set forth therein are correct in accordance with your analysis and evaluation of the situation?

Commander BOSWELL. Yes.

Mr. SPECTER. And specifically, as to the points of entry and points of exit which have been testified to by Doctor Humes, do his views express yours as well?

Commander BOSWELL. They do, yes.

Mr. SPECTER. Doctor Boswell, would you state for the record what your conclusion was as to the cause of death of President Kennedy?

Commander BOSWELL. The brain injury was the cause of death.

Mr. SPECTER. And in the absence of brain injury, what, in your view, would have been the future status of President Kennedy's mortality, if he had only sustained the wound inflicted in 385?

Commander BOSWELL. I believe it would have been essentially an uneventful recovery. It could have been easily repaired, and I think it would have been of little consequence.

Mr. SPECTER. Those are my only questions, Mr. Chief Justice.

The CHAIRMAN. Does anyone have any questions of the Commander? If not, Commander, thank you very much, indeed. You have been very helpful to us.

Mr. SPECTER. Colonel Finck.

TESTIMONY OF LT. COL. PIERRE A. FINCK, PHYSICIAN, U. S. ARMY

The CHAIRMAN. Colonel Finck.

Colonel, will you raise your right hand and be sworn? Do you solemnly swear that the testimony you give before this Commission will be the truth, the whole truth, and nothing but the truth, so help you God?

Colonel FINCK. I do.

The CHAIRMAN. Will you be seated, please, Colonel?

Mr. SPECTER. Would you state your full name for the record, please?

Colonel FINCK. My first name is Pierre. My middle initial is "A". My last name is Finck.

Mr. SPECTER. What is your profession, sir?

Colonel FINCK. I am a physician.

Mr. SPECTER. And by whom are you employed?

Colonel FINCK. By the United States Army.

Mr. SPECTER. And what is your rank?

Colonel FINCK. I am a lieutenant colonel in the Medical Corps.

Mr. SPECTER. Where did you obtain your medical degree?

Colonel FINCK. At the University of Geneva Medical School in Switzerland.

Mr. SPECTER. And in what year did you obtain that degree?

Colonel FINCK. In 1948.

Mr. SPECTER. What has your experience been in the medical profession subsequent to obtaining that degree?

Colonel FINCK. I had 4 years of training in pathology after my internship, 2 years, including 2 years of pathology at the University Institute of Pathology in Geneva, Switzerland, and 2 years at the University of Tennessee Institute of Pathology in Memphis, Tenn.

Mr. SPECTER. And how long have you been in the United States Army?

Colonel FINCK. Since 1955.

Mr. SPECTER. And what have your duties consisted of in the Army?

Colonel FINCK. From 1955 to 1958 I performed approximately 200 autopsies, many of them pertaining to trauma including missile wounds, stationed at Frankfort, Germany as pathologist of the United States Army Hospital in Frankfurt, Germany.

Mr. SPECTER. Have you had any additional, special training or experience in missile wounds?

Colonel FINCK. For the past 3 years I was Chief of the Wound Ballistics Pathology Branch of the Armed Forces Institute of Pathology and in that capacity I reviewed personally all the cases forwarded to us by the Armed Forces, and some civilian cases from the United States and our forces overseas. The number of these cases amounts to approximately 400 cases. I was called as a consultant in the field of missile wounds for this particular case, and also last year in February 1963, the Surgeon General of the Army sent me to Vietnam for a wound ballistics mission. I had to testify in a murder trial involving a 30/30 rifle in the first week of March this year, and I came back yesterday after one week in Panama where I had to testify. I was sent to Panama by the Secretary of the Army regarding the fatalities of the events of 9–10 in January of 1964.

Mr. SPECTER. Have you been certified by the American Board of Pathology, Doctor Finck?

Colonel FINCK. I was certified in pathology anatomy by the American Board of Pathology in 1956, and by the same American Board of Pathology in the field of forensic pathology in 1961.

Mr. SPECTER. Would you describe briefly for the Commission what forensic pathology involves?

Colonel FINCK. Forensic pathology is the study with the naked eye and with the microscope of injuries, including missile wounds, trauma in general. In summary, it is the part of pathology in relation to the law, violent death being homicide, be it suicide, accidental or undetermined. It also includes unexplained deaths, sudden deaths, and poisoning.

Mr. SPECTER. Did you have occasion to participate in the autopsy of the late President Kennedy?

Colonel FINCK. Yes; I did.

Mr. SPECTER. And are you one of the three coauthors of the autopsy report which has been previously marked and introduced into evidence here?

Colonel FINCK. Yes, I am.

Mr. SPECTER. Have you had occasion to conduct any experiments on the effect of missile penetration of the brain reflected in the chart which you have brought with you here today?

Colonel FINCK. No, sir.

Mr. SPECTER. Of the skull—let me phrase the question this way: What does the test which is depicted on the document before you relate to?

Colonel FINCK. It is based on my observations, not on experiments.

Mr. SPECTER. Would you pass that to me, sir, so that I may mark that as a Commission Exhibit, and then I will ask you to identify it, please?

Mr. Chief Justice, may I mark as Commission Exhibit No. 400 a document?

The CHAIRMAN. It may be marked.

(The document was marked Commission Exhibit No. 400 for identification.)

Mr. SPECTER. I will ask Doctor Finck to describe it for us, please.

Colonel FINCK. This is a scheme which I prepared before the 22d of November. It is a teaching scheme, but it applies to the case in discussion. It will be of help in understanding how I could identify the entrance and the exit by examination of bone. "A" represents the bony portion of the skull. "B" represents the cavity of the head, the cranial cavity. "C" represents the entrance and "D" represents the exit. The arrows indicate the missile path.

This scheme is based upon observation of through and through wounds of bone, and the same differences apply to a pane of glass. The surface struck first by the missile in relation to the surface struck next by the missile, this one, shows a smaller diameter, which means that if you look at the route of entrance in this case here, C, from the outside you will not see a crater. If you examine it from the inside, you will see a crater corresponding to the bevelling, coning, shelving, previously described by Commander Humes.

In the case we are discussing today, it was possible to have enough curvature and enough portion of the crater to identify positively the wound of entrance at the site of the bone.

Mr. SPECTER. Relating then your evaluation of the situation with respect to President Kennedy, and turning to Commission Exhibit No. 388, what is your opinion as to whether point A is a wound of entrance or exit?

Colonel FINCK. My opinion as regards Exhibit 388, letter A, is that this wound is the wound of entrance.

Mr. SPECTER. And what are the characteristics of that wound which lead you to that conclusion?

Colonel FINCK. The characteristics were that seen from the inside of the skull, I could see a beveling in the bone, a beveling that could not be seen when the wound was seen from outside the skull.

Mr. SPECTER. Are there any other individual characteristics that led you to conclude A was the wound of entrance?

Colonel FINCK. No.

Mr. SPECTER. Were you present when the three pieces of scalp were reconstructed to form the major portion of the absent part of President Kennedy's skull which Doctor Humes described?

Colonel FINCK. I was present when several portions of bone were brought.

Mr. SPECTER. And what did you observe, if anything, as to a reconstructed hole from those three portions of skull?

Colonel FINCK. May I refer to my scheme?

Mr. SPECTER. Please do.

Colonel FINCK. For the sake of demonstration.

Mr. SPECTER. Fine.

Colonel FINCK. At the level of the wound of exit, E, in my scheme, Commission Exhibit No. 400, when viewed from the inside of the skull, there was no crater, whereas when the wound is seen from the outside of the skull, there was beveling, cratering, or coning—this is possible to determine an exit even if only a portion of the bone is submitted, for the reason that if there was enough bone submitted, there is enough curvature to identify the inside and outside of the skull. Therefore the fragment, to give you an example, this portion at the level of the wound of exit can be oriented, and the outer surface of the skull and the inner surface of the skull may be identified due to the curvature.

And then you look at the direction of the beveling and you do see the beveling

when looking from the outside and you can identify an exit wound. And that is what I did, and now I am referring to the actual case in discussion, Commission Exhibit 388.

Mr. SPECTER. That is B?

Colonel FINCK. Letter B. We will see portions of bone in this general area, the large wound in the bone on the right side of the skull of President Kennedy. I had enough curvature to identify outside of the skull, and inside of the skull, as the first step to orient the specimen, and then I could determine the location of the beveling, and I could therefore say that B, Commission Exhibit 388, is a wound of exit.

Mr. SPECTER. Based on your observations and conclusions, was President Kennedy shot from the front, rear, side or what?

Colonel FINCK. President Kennedy was, in my opinion, shot from the rear. The bullet entered in the back of the head and went out on the right side of his skull, producing a large wound, the greatest dimension of which was approximately 13 centimeters.

Mr. SPECTER. And as to angle, was he shot from below, from level, from above, or what, in your opinion?

Colonel FINCK. In my opinion, the angle can be determined only approximately due to the fact that the wound of entrance is fairly small and could give enough precision in the determination of the path, but the dimension of the wound of exit, letter B of Exhibit 388, is so large that we can only give an approximate angle. In my opinion, the angle was within 45 degrees from the horizontal plane.

Mr. SPECTER. Is that to say that there was a 45-degree angle of declination from the point of origin to the point of impact, from the point of origin of the bullet where the bullet came from a gun until the point where it struck President Kennedy?

The CHAIRMAN. In other words, you mean was he shot from above or below.

Mr. SPECTER. Yes.

Colonel FINCK. I think I can only state, sir, that he was shot from above and behind.

Mr. SPECTER. At this time I move for admission into evidence Exhibit 400, Mr. Chief Justice.

The CHAIRMAN. It may be admitted.

(The document was marked Commission Exhibit No. 400 for identification, and was received in evidence.)

Mr. SPECTER. As to Exhibit 385, Dr. Finck, was point C a point of entry or a point of exit, in your opinion?

Colonel FINCK. In my opinion point C of Commission's Exhibit 385 is a wound of entrance.

Mr. SPECTER. And what is the basis for that conclusion?

Colonel FINCK. The basis for that conclusion is that this wound was relatively small with clean edges. It was not a jagged wound, and that is what we see in wound of entrance at a long range.

Mr. SPECTER. Were you present here today and did you hear the entire testimony of Doctor Humes?

Colonel FINCK. Yes; I did.

Mr. SPECTER. And do you concur in Dr. Humes' statements and opinions regarding the point of entry C, point of exit D, and general angle on the flight of the missile?

Colonel FINCK. I certainly do.

Mr. SPECTER. Then from what direction was President Kennedy shot on entry point C?

Colonel FINCK. From behind and above.

Mr. SPECTER. Were the bullets used dumdum bullets, in your opinion, Dr. Finck?

Colonel FINCK. In what wound, sir?

Mr. SPECTER. Well, start with the head wound, or the back wound, either one.

Colonel FINCK. In all the wounds considered, on the basis of the aspect of the wound of entrance, dumdum bullets were not used.

Mr. SPECTER. And what characteristics of dumdum bullets were absent, in your opinion—in your evaluation of these wounds?

Colonel FINCK. I would expect more jagged, more irregular and larger wounds of entrance than described in this case.

Representative FORD. With a dumdum bullet?

Colonel FINCK. With a dumdum bullet.

Mr. SPECTER. With respect to the question of likelihood of Governor Connally having been wounded in the back and chest with the same bullet which passed through President Kennedy in 385, what reduction would there be, if any, in the velocity, considering the relative positions of the two men in the automobile as reflected in photograph, Exhibit 398?

Colonel FINCK. Of course, to reach precise figures we would need experiments and similar circumstances with the same type ammunition at the same distance through two human cadavers, which I did not do.

On the basis that if we assume that this is one bullet going through President Kennedy's body and also through Governor Connally's body, the reduction of velocity would be of some extent after passing through President Kennedy's body, but not having hit bones, the reduction in velocity, after going through President Kennedy's body, would be minimal.

Mr. SPECTER. Would there be sufficient force then to inflict the wound which Dr. Humes described from the Parkland Hospital records as having been inflicted on Governor Connally's back and chest?

Colonel FINCK. There would be enough energy to go through the body of the Governor.

Mr. SPECTER. In expressing your opinion on that subject, Doctor Finck, have you taken into account the assumptions on distance, that we are dealing here with a weapon that has a muzzle velocity in the neighborhood of slightly in excess of 2,000, and that the vehicle carrying these two individuals was approximately 150, about 150 feet away from the site of origin of the missile?

Colonel FINCK. At this range, a bullet of this velocity loses very little velocity, and keeps upon impact a large amount of kinetic energy.

Mr. SPECTER. You heard the whole of Doctor Humes' testimony, did you not?

Colonel FINCK. Yes; I did.

Mr. SPECTER. Do you have anything that you would like to add to what he said?

Colonel FINCK. No.

Mr. SPECTER. Or would you like to modify his testimony in any way?

Colonel FINCK. No.

Mr. SPECTER. Do you subscribe to the observations and procedures which he outlined during the course of his testimony?

Colonel FINCK. I do.

Mr. SPECTER. As having been conducted on President Kennedy?

Colonel FINCK. I do.

Mr. SPECTER. And do you share the opinions which he expressed in their entirety in the course of his testimony here today?

Colonel FINCK. I do.

The CHAIRMAN. You might be seated, Colonel.

Mr. MCCLOY. Just as truthful seated as standing.

Representative FORD. How many cases did you investigate to develop this theory shown by Commission Exhibit 400?

Colonel FINCK. Among the more than 400 cases I have reviewed, several of them—I cannot give you an exact figure, I do not tabulate them, but many of them had through and through wounds of the skull as well as of flat bones, as, for instance, the sternum, the bone we have in front of our chest, and this would apply also to a through and through wound of the sternum. I have cases like that.

There was a specific case in which I was able to identify the entrance at the level of the sternum on the same basis as the criteria I have given for the skull. Whenever a bullet goes through a flat bone, it will produce that beveling, that cratering, shelving, and that I have seen in numerous cases.

Representative FORD. Is this a generally accepted theory in the medical profession?

Colonel FINCK. Yes, sir; it is. Am I allowed to quote a standard textbook?

The CHAIRMAN. You may; yes sir.

Colonel FINCK. The textbook of legal medicine, pathology and toxicology by Gonzalez, Vance, Halpern and Umberger does not give a scheme like I have shown to you today, but describes similar criteria.

As you know, one of the authors of the book I mentioned is still chief medical examiner of New York City, with 20,000 medical-examiner cases a year.

Mr. SPECTER. Doctor Finck, after the path C–D described in No. 385, would that be a straight line starting with the weapon itself, or was that line deviated in any way or altered when it passed through the body of President Kennedy?

Colonel FINCK. For practical purposes line C–D is a straight line with little or no deviation, the bullet not having hit bony structures.

Mr. SPECTER. Dr. Finck, have you had an opportunity to examine Commission's Exhibit 399?

Colonel FINCK. For the first time this afternoon, sir.

Mr. SPECTER. And based upon your examination of that bullet, do you have an opinion as to whether in its current condition it could have passed through President Kennedy at point C–D in 385 and then inflicted the wound in the back and chest of Governor Connally?

Colonel FINCK. Yes; I do. This is a bullet showing marks indicating the bullet was fired. The second point is that there was practically no loss of this bullet. It kept its original caliber and dimensions. There was no evidence that any major portion of the jacket was lost, and I consider this as one bullet which possibly could have gone through the wounds you described.

Mr. SPECTER. And could that bullet possibly have gone through President Kennedy in 388?

Colonel FINCK. Through President Kennedy's head? 388?

Mr. SPECTER. And remained intact in the way you see it now?

Colonel FINCK. Definitely not.

Mr. SPECTER. And could it have been the bullet which inflicted the wound on Governor Connally's right wrist?

Colonel FINCK. No; for the reason that there are too many fragments described in that wrist.

Mr. SPECTER. And is the condition of Exhibit 399 consistent with the type of a wound which Doctor Humes described on Governor Connally's rib?

Colonel FINCK. Yes.

Mr. MCCLOY. I have a question.

The CHAIRMAN. Go right ahead.

Mr. MCCLOY. From your examination of Exhibit 399, can you identify the caliber of that bullet?

Colonel FINCK. The caliber of this bullet, if I could measure it, but I cannot touch it.

The CHAIRMAN. We can.

Colonel FINCK. I would say it is consistent with a 6.5 mm.

Mr. MCCLOY. Are you familiar with the Mannlicher 6.5 rifle?

Colonel FINCK. I am familiar with the caliber 6.5. I can draw the calibers for you on the blackboard.

Mr. MCCLOY. What is the initial velocity of a 6.5 mm. bullet of that character?

Colonel FINCK. Of the order of 2,000 feet per second.

Mr. MCCLOY. And you say there would not be a substantial diminution of that velocity either at the point of impact or at the point of exit?

Colonel FINCK. That is correct.

Mr. SPECTER. One more question, Mr. Chief Justice.

On 388, point A to B, what is your view, Dr. Finck, as to whether or not that is represented by a straight line going back to the point of origin of the weapon?

Colonel FINCK. The difficulty in interpreting the path in line A–B of Commission's Exhibit 388 is that, one, there is, as stated before, a large wound of exit, and, two, there is a secondary path as indicated by the fragments recovered. So we can have an assumption and state that the general direction, the general path, the general angle of this missile was from behind and above, and that the bullet, markedly fragmented, went out of the President's head

on the right side, but that a portion of this bullet which badly fragmented was recovered within the skull.

Mr. SPECTER. In view of the impact on the skull at point A, it is unlikely to be a straight line to B all the way back to the muzzle of the weapon as it is, say, in 385 C–D, all the way back to the muzzle of the gun.

Colonel FINCK. In C–D, Commission's Exhibit 385, due to the fact that there was no fragmentation, I can say that it is a straight line from behind and above, whereas here, due to the fragmentation and to the dual path, I can't give a precise angle, but I can say that the injury is consistent with a wound produced by one bullet producing many fragments.

The CHAIRMAN. Senator, have you any questions you want to ask?

Mr. MCCLOY. May I ask one?

The CHAIRMAN. Yes; go right ahead.

Mr. MCCLOY. Did you examine any of the fragments which were removed from the President's skull?

Colonel FINCK. I only saw one fragment shown to me when I arrived at Bethesda, and it was an elongated black metallic fragment, and that is the only one I saw to my recollection. I was told that it had been removed from the brain of President Kennedy in the anterior portion of his head.

Mr. MCCLOY. From that bullet, that fragment, could you determine, was it sufficiently large to determine from the ballistic evidence the caliber of the bullet?

Colonel FINCK. No, sir; for the reason that to determine the caliber you need the entire bullet, or at least an entire portion. You need a portion of the bullet showing the entire diameter, and I was not shown that. I was shown a fragment which represented a very small portion of the original bullet. Therefore, at that time I could not say anything on the possible original caliber.

Mr. MCCLOY. You examined no fragment which did contain those characteristics?

Colonel FINCK. No, sir; I did not see any entire bullet or bullet showing the entire diameter.

The CHAIRMAN. Congressman Ford?

Representative FORD. I believe you testified, Colonel, that you concurred in the previous testimony by Commander Humes and Commander Boswell, and that you were one of the co-authors of the autopsy. At any time during this process where you were conducting the autopsy, was there any disagreement between any one of you three, any difference of opinion as to anything involved in the autopsy?

Colonel FINCK. No, sir.

Representative FORD. There has been complete unanimity on what you saw, what you did, and what you have reported?

Colonel FINCK. Yes, sir.

The CHAIRMAN. Senator Cooper?

Senator COOPER. Colonel, I would like for you to look at Exhibit 388 and at the possible trajectory of the bullet which entered President Kennedy's head at A and then mark it as a possible point of exit by "out". You remember there was testimony about a portion of the bullet from point A to the place on the diagram marked "fragment" where a fragment was found. I would like to ask if it is possible that the trajectory of the bullet, from the point of origin, could have been A to this point marked "fragment" as well as from A to the place marked "out"?

Colonel FINCK. I don't think so, sir.

Senator COOPER. Why? Would you explain that answer?

Colonel FINCK. I would think that I would consider the midportion of this exit would labeled B, Exhibit 388, as the wound produced by most of the fragments and the major portions of the fragmenting bullet. This is only a small portion of it which makes me say that this is a secondary path.

Senator COOPER. What was the size of the fragment relative to the size of the missile of the 6.5 Mannlicher, fired from the 6.5 Mannlicher rifle?

Colonel FINCK. Approximately one-tenth, or even less.

Representative FORD. From your numerous case studies, is it typical for a

bullet, for a missile in this circumstance as shown in 388, to fragment to the degree that this one apparently did?

Colonel FINCK. Yes, it is quite common to find a wound of exit much larger than the wound of entrance for weapons commonly used.

Representative FORD. But is it typical for the missile to fragment to the degree that this one did as shown in Exhibit 388?

Colonel FINCK. Yes; it is.

Representative FORD. Is it typical to find only a limited number of fragments as you apparently did in this case?

Colonel FINCK. This depends to a great extent on the type of ammunition used. There are many types of bullets, jacketed, not-jacketed, pointed, hollow-nosed, hollow-points, flatnose, roundnose, all these different shapes will have a different influence on the pattern of the wound and the degree of fragmentation.

Representative FORD. That is all.

The CHAIRMAN. Thank you, Colonel, very much for your help.

Colonel FINCK. You are welcome, sir.

Representative FORD. May I ask just one question?

The CHAIRMAN. Yes; Colonel, we would like to ask just one more question.

Representative FORD. Do these two wounds represent the same or a different kind of bullet?

Colonel FINCK. You are referring to one wound and this other wound here?

Representative FORD. I am referring to the wound shown in Exhibit 388 identified as point of entry A, and wound in Exhibit 385 identified as C.

Colonel FINCK. Due to the difference in the nature of the tissue, difference in the nature of the target, it is perfectly possible that these two wounds came from the same type of bullet, that one hit bony structures and the other one did not, and that explains the differences between the patterns of these two wounds.

Representative FORD. Why one fragmented and one did not.

Colonel FINCK. Yes.

(Discussion off the record.)

The CHAIRMAN. Gentlemen, again thank you very much.

(Whereupon, at 3:45 p.m., the President's Commission recessed.)

Wednesday, March 18, 1964

TESTIMONY OF MICHAEL R. PAINE AND RUTH HYDE PAINE

The President's Commission met at 9 a.m. on March 18, 1964, at 200 Maryland Avenue NE., Washington, D.C.

Present were Chief Justice Earl Warren, Chairman; Senator John Sherman Cooper, Representative Gerald R. Ford, John J. McCloy, and Allen W. Dulles, members.

Also present were J. Lee Rankin, general counsel; Wesley J. Liebeler, assistant counsel, Albert E. Jenner, Jr., assistant counsel; Dr. Alfred Goldberg, historian; and Charles Murray, observer.

TESTIMONY OF MICHAEL R. PAINE

The CHAIRMAN. The Commission will be in order.

Mr. Paine, I will just read a brief statement concerning the purpose of the meeting today which is our practice.

The purpose of this hearing is to take the testimony of Mr. and Mrs. Michael R. Paine. The Commission has been advised that Mr. and Mrs. Paine made the acquaintance of the Oswalds during 1963, and that Mrs. Marina Oswald lived in the Paine home from late September 1963 up to the time of the assassination.