

the gummed tape on the paper sack found on the sixth floor of the Texas School Book Depository Building, Commission Exhibit 142, and of the sample of gummed tape in Commission Exhibit 677 obtained November 22, 1963, at the Texas School Book Depository Building.

Fiber analysis of the two gummed tapes in Commission Exhibits 142 and 677 revealed that they were similar in fiber composition.

Sincerely yours,

J. EDGAR HOOVER.

*Tuesday, April 21, 1964*

**TESTIMONY OF DR. ROBERT ROEDER SHAW, DR. CHARLES FRANCIS GREGORY, GOV. JOHN BOWDEN CONNALLY, JR., AND MRS. JOHN BOWDEN CONNALLY, JR.**

The President's Commission met at 1:30 p.m., on April 21, 1964, at 200 Maryland Avenue NE., Washington, D.C.

Present were Chief Justice Earl Warren, Chairman; Senator Richard B. Russell, Senator John Sherman Cooper, Representative Hale Boggs, John J. McCloy, and Allen W. Dulles, members.

Also present present were J. Lee Rankin, general counsel; Francis W. H. Adams, assistant counsel; Joseph A. Ball, assistant counsel; David W. Belin, assistant counsel; Norman Redlich, assistant counsel; Arlen Specter, assistant counsel; Charles Murray and Charles Rhyne, observers; and Waggoner Carr, attorney general of Texas.

**TESTIMONY OF DR. ROBERT ROEDER SHAW**

Senator COOPER. The Commission will come to order.

Dr. Shaw, you understand that the purpose of this inquiry is taken under the order of the President appointing the Commission on the assassination of President Kennedy to investigate all the facts relating to his assassination.

Dr. SHAW. I do.

Senator COOPER. And report to the public.

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

Dr. SHAW. I do.

Senator COOPER. Do you desire an attorney to be with you?

Dr. SHAW. No.

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

Dr. SHAW. Robert Roeder Shaw.

Mr. SPECTER. What is your profession, please?

Dr. SHAW. Physician and surgeon.

Mr. SPECTER. Will you outline briefly your educational background?

Dr. SHAW. I received my B.A. degree from the University of Michigan in 1927, and my M.D. degree from the same institution in 1933.

Following that I served 2 years at the Roosevelt Hospital in New York City from July 1934, to July 1936, in training in general surgery. I had then 2 years of training in thoracic surgery at the University Hospital, Ann Arbor, Mich., from July 1936 to July 1938.

On August 1, 1938, I entered private practice limiting my practice to thoracic surgery in Dallas, Tex.

Mr. DULLES. What kind of surgery?

Dr. SHAW. Thoracic surgery or surgery of the chest.

I have practiced there continuously except for a period from June 1942, until December 1945, when I was a member of the Medical Corps of the Army of the United States serving principally in the European theater of operations.

I was away again from December 1961, until June of 1963, when I was head of the MEDICO team and performed surgery at Avicenna Hospital in Kabul, Pakistan.

Mr. DULLES. Will you tell us a little bit about MEDICO. Is that the ship?

Dr. SHAW. No; that is HOPE. MEDICO was formed by the late Dr. Tom Dooley.

Mr. DULLES. Yes; I know him very well. He was the man in Laos.

Dr. SHAW. Yes, sir; this was one of their projects.

Mr. DULLES. I see.

Dr. SHAW. I returned to——

Mr. DULLES. An interesting project.

Dr. SHAW. I returned to Dallas and on September 1, 1963, started working full time with the University of Texas Southwestern Medical School as professor of thoracic surgery and chairman of the division of thoracic surgery.

In this position I also am chief of thoracic surgery at Parkland Memorial Hospital in Dallas which is the chief hospital from the standpoint of the medical facilities of the school.

Mr. SPECTER. Are you licensed to practice medicine in the State of Texas?

Dr. SHAW. I am.

Mr. SPECTER. Are you certified?

Dr. SHAW. By the board of thoracic surgery you mean?

Mr. SPECTER. Yes; by the board of thoracic surgery.

Dr. SHAW. Yes; as of 1948.

Mr. SPECTER. What experience, if any, have you had, Dr. Shaw, with bullet wounds?

Dr. SHAW. I have had civilian experience, both in the work at Parkland Hospital, where we see a great amount of trauma, and much of this involves bullet wounds from homicidal attempts and accidents.

The chief experience I had, however, was during the Second World War when I was serving as chief of the thoracic surgery center in Paris, France. And during this particular experience we admitted over 900 patients with chest wounds of various sort, many of them, of course, being shell fragments rather than bullet wounds.

Mr. SPECTER. What is your best estimate as to the total number of bullet wounds you have had experience with?

Dr. SHAW. It would be approximately 1,000, considering the large number of admissions we had in Paris.

Mr. SPECTER. What were your duties in a general way on November 22, 1963.

Dr. SHAW. On that particular date I had been at a conference at Woodlawn Hospital, which is our hospital for medical chest diseases connected with the medical school system. I had just gone to the Children's Hospital to see a small patient that I had done a bronchoscopy on a few days before and was returning to Parkland Hospital, and the medical school.

Woodlawn and the Children's Hospital are approximately a mile away from Parkland Hospital.

Mr. SPECTER. Were you called upon to render any aid to President Kennedy on November 22?

Dr. SHAW. No.

Mr. SPECTER. Were you called upon to render medical aid to Gov. John B. Connally on that day?

Dr. SHAW. Yes.

Mr. SPECTER. Will you describe briefly the circumstances surrounding your being called into the case.

Dr. SHAW. As I was driving toward the medical school I came to an intersection of Harry Hines Boulevard and Industrial Boulevard.

There is also a railroad crossing at this particular point. I saw an open limousine pass this point at high speed with a police escort. We were held up in traffic because of this escort. Finally, when we were allowed to proceed,

I went on to the medical school expecting to eat lunch. I had the radio on because it was the day that I knew the President was in Dallas and would be eating lunch at the Trade Mart which was not far away, and over the radio I heard the report that the President had been shot at while riding in the motorcade. I went on to the medical school and as I entered the medical school a student came in and joined three other students, and said the President has just been brought into the emergency room at Parkland, dead on arrival.

The students said, "You are kidding, aren't you?" and he said, "No, I am not. I saw him, and Governor Connally has been shot through the chest."

Hearing that I turned and walked over to the emergency room, which is approximately 150 yards from the medical school, and entered the emergency room.

Mr. SPECTER. At approximately what time did you arrive at the emergency room where Governor Connally was situated?

Dr. SHAW. As near as I could tell it was about 12:45.

Mr. SPECTER. Who was with Governor Connally, if anyone, at that time, Dr. Shaw?

Dr. SHAW. I immediately recognized two of the men who worked with me in thoracic surgery, Dr. James Duke and Dr. James Boland, Dr. Giesecke, who is an anesthesiologist, was also there along with a Dr. David Mebane who is an instructor in general surgery.

Mr. SPECTER. What was Governor Connally's condition at that time, based on your observations?

Dr. SHAW. The Governor was complaining bitterly of difficulty in breathing, and of pain in his right chest. Prior to my arriving there, the men had very properly placed a tight occlusive dressing over what on later examination proved to be a large sucking wound in the front of his right chest, and they had inserted a rubber tube between the second and third ribs in the front of the right chest, carrying this tube to what we call a water seal bottle.

Mr. SPECTER. What was the purpose?

Dr. SHAW. Yes; this is done to reexpand the right lung which had collapsed due to the opening through the chest wall.

Mr. SPECTER. What wounds, if any, did you observe on the Governor at that time?

Dr. SHAW. I observed no wounds on the Governor at this time. It wasn't until he was taken to the operating room that I properly examined him from the standpoint of the wound.

Mr. SPECTER. How long after your initial viewing of him was he taken to the operating room?

Dr. SHAW. Within about 5 minutes. I stepped outside to talk to Mrs. Connally because I had been given information by Dr. Duke that blood had been drawn from the Governor, sent to the laboratory for cross-matching for blood that we knew would be necessary, that the operating room had already been alerted, and that they were ready and they were merely awaiting my arrival.

Mr. SPECTER. How was Governor Connally transported from the emergency room to the operating room?

Dr. SHAW. On a stretcher.

Mr. SPECTER. And was he transported up an elevator as well?

Dr. SHAW. Yes. It is two floors above the emergency rooms.

Mr. SPECTER. Will you describe what happened next in connection with Governor Connally's—

Mr. DULLES. Could I ask a question, putting in this tube is prior to making an incision?

Dr. SHAW. Yes; a stab wound.

Mr. DULLES. Just a stab wound?

Dr. SHAW. Yes.

Mr. SPECTER. What treatment next followed for Governor Connally, Doctor?

Dr. SHAW. He was taken to the operating room and there Dr. Giesecke started the anesthesia. This entails giving an intravenous injection of sodium pentothal and then after the Governor was asleep a gas was used, that will be on the anesthetic record there.

Mr. SPECTER. Do you know at approximately what time this procedure was started?

Dr. SHAW. I will have to refresh my memory again from the record. We had at the time I testified before, we had the——

Mr. SPECTER. Permit me to make available to you a copy of the Parkland Memorial Hospital operative record and let me ask you, first of all, if you can identify these two pages on an exhibit heretofore marked as Commission Exhibit 392 as to whether or not this constitutes your report?

Dr. SHAW. Yes; this is a transcription of my dictated report of the operation.

Mr. SPECTER. Are the facts set forth therein true and correct?

Dr. SHAW. Yes. On this it states that the operation itself was begun at 1300 hours or 1 o'clock, 1 p.m., and that the actual surgery started at 1335 or 1:35 p.m.

The operation was concluded by me at 3—1520 which would be 3:20 p.m.

Mr. SPECTER. You have described, in a general way, the chest wound. What other wounds, if any, was Governor Connally suffering from at the time you saw him?

Dr. SHAW. I will describe then the wound of the wrist which was obvious. He had a wound of the lower right forearm that I did not accurately examine because I had already talked to Dr. Gregory while I was scrubbing for the operation, told him that this wound would need his attention as soon as we were able to get the chest in a satisfactory condition. There was also, I was told, I didn't see the wound, on the thigh, I was told that there was a small wound on the thigh which I saw later.

Mr. SPECTER. When did you first have an opportunity then to examine Governor Connally's wound on the posterior aspect of his chest?

Dr. SHAW. After the Governor had been anesthetized. As soon as he was asleep so we could manipulate him—before that time it was necessary for an endotracheal tube to be in place so his respirations could be controlled before we felt we could roll him over and accurately examine the wound entrance.

We knew this was the wound exit.

Mr. SPECTER. This [indicating an area below the right nipple on the body]?

Dr. SHAW. Yes.

Mr. DULLES. How did you know it was a wound exit.

Dr. SHAW. By the fact of its size, the ragged edges of the wound. This wound was covered by a dressing which could not be removed until the Governor was anesthetized.

Mr. SPECTER. Indicating this wound, the wound on the Governor's chest?

Dr. SHAW. Yes; the front part.

Mr. SPECTER. Will you describe in as much detail as you can the wound on the posterior side of the Governor's chest?

Dr. SHAW. This was a small wound approximately a centimeter and a half in its greatest diameter. It was roughly elliptical. It was just medial to the axillary fold or the crease of the armpit, but we could tell that this wound, the depth of the wound, had not penetrated the shoulder blade.

Mr. SPECTER. What were the characteristics, if any, which indicated to you that it was a wound of entrance then?

Dr. SHAW. Its small size, and the rather clean cut edges of the wound as compared to the usual more ragged wound of exit.

Mr. SPECTER. Now, I hand you a diagram which is a body diagram on Commission Exhibit No. 679, and ask you if, on the back portion of the figure, that accurately depicts the point of entry into Governor Connally's back?

Dr. SHAW. Yes. The depiction of the point of entry, I feel is quite accurate.

Mr. SPECTER. Now, with respect to the front side of the body, is the point of exit accurately shown on the diagram?

Dr. SHAW. The point is——

Mr. SPECTER. We have heretofore, may the record show the deposition covered much the same ground with Dr. Shaw, but the diagrams used now are new diagrams which will have to be remarked in accordance with your recollection.

Dr. SHAW. Yes. Because I would have to place—they are showing here the angle.

Mr. DULLES. Is this all on the record?

Mr. SPECTER. It should be.

Dr. SHAW. We are showing on this angle, the cartilage angle which it makes at the end of the sternum.

Mr. SPECTER. That is an inverted V which appears in front of the body?

Dr. SHAW. Now the wound was above that. They have shown it below that point so the wound would have to be placed here as far as the point is concerned.

Mr. SPECTER. Would you draw on that diagram a more accurate depiction of where the wound of exit occurred?

Dr. SHAW. Do you want me to initial this?

Mr. SPECTER. Yes; if you please, Dr. Shaw.

I hand you another body diagram marked Commission Exhibit 680 and I will ask you if that accurately depicts the angle of decline as the bullet passed through Governor Connally?

Dr. SHAW. I think the declination of this line is a little too sharply downward. I would place it about 5° off that line.

Mr. SPECTER. Will you redraw the line then, Dr. Shaw, and initial it, indicating the more accurate angle?

Dr. SHAW. The reason I state this is that as they have shown this, it would place the wound of exit a little too far below the nipple. Also it would, since the bullet followed the line of declination of the fifth rib, it would make the ribs placed in a too slanting position.

Mr. SPECTER. What operative procedures did you employ in caring for the wound of the chest, Dr. Shaw.

Dr. SHAW. The first measure was to excise the edges of the wound of exit in an elliptical fashion, and then this incision was carried in a curved incision along the lateral portion of the right chest up toward the right axilla in order to place the skin incision lower than the actual path of the bullet through the chest wall.

After this incision had been carried down to the level of the muscles attached to the rib cage, all of the damaged muscle which was chiefly the serratus anterior muscle which digitates along the fifth rib at this position, was cleaned away, cut away with sharp dissection.

As soon as—of course, this incision had been made, the opening through the parietal pleura, which is the lining of the inside of the chest was very obvious. It was necessary to trim away several small fragments of the rib which were still hanging to tags of periosteum, the lining of the rib, and the ragged ends of the rib were smoothed off with a rongeur.

Mr. SPECTER. What damage had been inflicted upon a rib, if any, Dr. Shaw?

Dr. SHAW. About 10 centimeters of the fifth rib starting at the, about the mid-axillary line and going to the anterior axillary line, as we describe it, or that would be the midline at the armpit going to the anterior lateral portion of the chest had been stripped away by the missile.

Mr. SPECTER. What is the texture of the rib at the point where the missile struck?

Dr. SHAW. The texture of the rib here is not of great density. The cortex of the rib in the lateral portions of our ribs, is thin with the so-called cancellus portion of the rib being very spongy, offering very little resistance to pressure or to fracturing.

Mr. SPECTER. What effect, if any, would the striking of that rib have had to the trajectory of the bullet?

Dr. SHAW. It could have had a slight, caused a slight deflection of the rib, but probably not a great deflection of the rib, because of the angle at which it struck and also because of the texture of the rib at this time.

Mr. SPECTER. You say deflection of the rib or deflection of the bullet?

Dr. SHAW. Deflection of the bullet, I am sorry.

Mr. SPECTER. Was any metallic substance from the bullet left in the thoracic cage as a result of the passage of the bullet through the Governor's body?

Dr. SHAW. No. We saw no evidence of any metallic material in the X-ray that we had of the chest, and we found none during the operation.

Mr. SPECTER. Have you brought the X-rays with you, Dr. Shaw, from Parkland Hospital?

Dr. SHAW. Yes; we have them here.

Mr. SPECTER. May the record show we have available a viewer for the X-rays.

Dr. SHAW, would you, by use of the viewer, exhibit the X-rays of the Governor's chest to show more graphically that which you have heretofore described?

Dr. SHAW. This is the first X-ray that was taken, which was taken in the operating room with the Governor on the operating table, and at this time anesthetized. The safety pin that you see here is used, was used, to secure the tube which had been put between the second and third rib in expanding the Governor's lung.

We can dimly see also the latex rubber tube up in the chest coming to the apex of the chest.

The variations that we see from normal here are the fact that first, there is a great amount of swelling in the chest wall which we know was due to bleeding and bruising of the tissues of the chest wall, and we also see that there is air in the tissues of the chest wall here and here. It is rather obvious.

Mr. SPECTER. When you say here and here, you are referring to the outer portions, showing on the X-ray moving up toward the shoulder area?

Dr. SHAW. Yes; going from the lower chest up to the region near the angle of the shoulder blade.

The boney framework of the chest, it is obvious that the fifth rib, we count ribs from above downward, this is the first rib, second rib, third rib, fourth rib, fifth rib, that a portion of this rib has been shattered, and we can see a few fragments that have been left behind.

Also the rib has because of being broken and losing some of its substance, has taken a rather inward position in relation to the fourth and the sixth ribs on either side.

Mr. SPECTER. What effect was there, if any, on the upper portion of that rib?

Dr. SHAW. This was not noticed at the time of this examination, Mr. Specter. However, in subsequent examinations we can tell that there was a fracture across the rib at this point due to the rib being struck and bent.

Mr. SPECTER. When you say this point, will you describe where that point exists on the X-ray?

Dr. SHAW. This is a point approximately 4 centimeters from its connection with the transverse process of the spine.

Mr. SPECTER. And is the fracture, which is located there, caused by a striking there or by the striking at the end of the rib?

Dr. SHAW. It is caused by the striking at the end of the rib.

Mr. SPECTER. Fine. What else then is discernible from the viewing of the X-ray, Dr. Shaw?

Dr. SHAW. There is a great amount of, we would say, obscuration of the lower part of the right lung field which we know from subsequent examination was due to blood in the pleural cavity and also due to a hematoma in the lower part of the right lower lobe and also a severe laceration of the middle lobe with it having lost its ability to ventilate at that time. So, we have both an airless lung, and blood in the lung to account for these shadows.

Mr. SPECTER. Is there anything else visible from the X-ray which is helpful in our understanding of the Governor's condition?

Dr. SHAW. No; I don't think so.

Mr. SPECTER. Would it be useful—As to that X-ray, Dr. Shaw, will you tell us what identifying data, if any, it has in the records of Parkland Hospital, for the record?

Dr. SHAW. On this X-ray it has in pencil John G. Connally.

Mr. SPECTER. Is that G or C?

Dr. SHAW. They have a "G" November 22, 1963, and it has a number 218-922.

Mr. SPECTER. Were those X-rays taken under your supervision?

Dr. SHAW. Yes, by a technician.

Mr. SPECTER. And that is, in fact, the X-ray then which was taken of Governor Connally at the time these procedures were being performed?

Dr. SHAW. It is.

Mr. SPECTER. Dr. Shaw, would any of the other X-rays be helpful in our understanding of the Governor's condition?

Dr. SHAW. I believe the only—perhaps showing one additional X-ray would

show the fracture previously described which was not easily discernible on the first film. This is quite often true but not important to the—here is the fracture that can be easily seen.

Mr. SPECTER. You are now referring to a separate and second X-ray.

Dr. SHAW. Yes.

Mr. SPECTER. Will you start out by telling us on what date this X-ray was performed.

Dr. SHAW. This X-ray was made on the 29th of November 1963, 7 days following the incident.

Mr. SPECTER. What does it show of significance?

Dr. SHAW. It shows that there has been considerable clearing in the lower portion of the lung, and also that there is a fracture of the fifth rib as previously described approximately 4 centimeters from the transverse process posteriorly.

Mr. SPECTER. Is there anything else depicted by that X-ray of material assistance in evaluating the Governor's wound?

Dr. SHAW. No.

Mr. McCLOY. Were there any photographs taken as distinguished from X-rays of the body?

Dr. SHAW. There were no photographs.

Mr. SPECTER. Dr. Shaw, we shall then, subject to the approval of the Commission, for the record, have the X-rays reproduced at Parkland Memorial Hospital, and, if possible, also have a photograph of the X-ray made for the permanent records of the Commission to show the actual X-ray, which Dr. Shaw has described during his testimony here this afternoon.

Senator COOPER. It is directed that it be made a part of the record of these hearings.

Mr. SPECTER. Dr. Shaw, what additional operative procedures did you perform on Governor Connally's chest?

Dr. SHAW. I will continue with my description of the operative procedure. The opening that had been made through the rib after the removal of the fragments was adequate for further exploration of the pleural cavity. A self-retaining retractor was put into place to maintain exposure. Inside the pleural cavity there were approximately 200 cc. of clotted blood.

It was found that the middle lobe had been lacerated with the laceration dividing the lobe into roughly two equal parts. The laceration ran from the lower tip of the middle lobe up into its root or hilum.

However, the lobe was not otherwise damaged, so that it could be repaired using a running suture of triple zero chromic catgut.

The anterior basal segments of the right lower lobe had a large hematoma, and blood was oozing out of one small laceration that was a little less than a centimeter in length, where a rib fragment had undoubtedly been driven into the lobe. To control hemorrhage a single suture of triple zero chromic gut was placed in this laceration. There were several small matchstick size fragments of rib within the pleural cavity. Examination, however, of the pericardium of the diaphragm and the upper lobe revealed no injury to these parts of the chest.

A drain was placed in the eighth space in the posterior axillary line similar to the drain which had been placed in the second interspace in the front of the chest.

The drain in the front of the chest was thought to be a little too long so about 3 centimeters of it were cut away.

Attention was then turned on the laceration of the latissimus dorsi muscle where the missile had passed through it. Several sutures of chromic gut were used to repair this muscle.

The incision was then closed with interrupted No. zero chromic gut in the muscles of the chest wall—first, I am sorry, in the intercostal muscle, and muscles of the chest wall, and the same suture material was used to close the serratus anterior muscle in the subcutaneous tissue, and interrupted vertical sutures of black silk were used to close the skin.

Attention was then turned to the wound of entrance which, as previously described, was about a centimeter and a half in its greatest diameter, roughly

elliptical in shape. The skin edges of this wound were incised—excised, I beg your pardon—I have to go back just a little bit.

Prior to examination of this wound, a stab wound was made at the angle of the scapula to place a drain in the subscapular space. In the examination of the wound of entrance, the examining finger could determine that this drain was immediately under the wound of entrance, so that it was adequately draining the space.

Two sutures were placed in the fascia of the muscle, and the skin was closed with interrupted vertical matching sutures of black silk.

That concluded the operation. Both tubes were connected to a water seal bottle, and the dressing was applied.

Mr. SPECTER. Who was in charge then of the subsequent care on the Governor's wrist?

Dr. SHAW. Dr. Charles Gregory who had been previously alerted and then came in to take care of the wrist.

Mr. SPECTER. Now, with respect to the wound on the wrist, did you have any opportunity to examine it by way of determining points of entry and exit?

Dr. SHAW. My examination of the wrist was a very cursory one. I could tell that there was a compound comminuted fracture because there was motion present, and there was a ragged wound just over the radius above the wrist joint. But that was the extent of my examination of the wrist.

Mr. SPECTER. Dr. Shaw, did I take your deposition at Parkland Memorial Hospital on March 23 of 1964?

Dr. SHAW. Yes; you did.

Mr. SPECTER. Has that deposition been made available to you?

Dr. SHAW. Yes.

Mr. SPECTER. To you here this afternoon?

Dr. SHAW. Yes.

Mr. SPECTER. Have you subsequent to the giving of that deposition on March 23, 1964, had an opportunity to examine Governor Connally's clothing which we have available in the Commission room here today?

Dr. SHAW. Yes.

Mr. SPECTER. Now, based on all facts now within your knowledge, is there any modification which you would care to make in terms of the views which you expressed about entrance and exit wounds back on March 23, based on the information which was available to you at that time?

Dr. SHAW. From an examination of the clothing, it is very obvious that the wound of entrance was through the coat sleeve.

Mr. SPECTER. While you are testifying in that manner, perhaps it would be helpful if we would make available to you the actual jacket, if it pleases the Commission.

We shall reserve Exhibits Nos. 681 for the X-ray of November 22; 682 for the X-ray of November 29; and we shall now mark a photograph of the coat for our permanent records as "Commission Exhibit No. 683".

Dr. Shaw, I hand you at this time what purports to be the coat worn by Governor Connally, which we introduce subject to later proof when Governor Connally appears later this afternoon; and, for the record, I ask you first of all if this photograph, designated as Commission Exhibit No. 683, is a picture of this suit coat?

Dr. SHAW. It is.

Mr. SPECTER. I had interrupted you when you started to refer to the hole in the sleeve of the coat. Will you proceed with what you were testifying about there?

Dr. SHAW. The hole in the sleeve of the coat is within half a centimeter of the very edge of the sleeve, and lies—

Mr. DULLES. This is the right sleeve, is it not?

Dr. SHAW. I am sorry, yes. Thank you. Of the right sleeve, and places it, if the coat sleeve was in the same position, assuming it is in the same position that my coat sleeve is in, places it directly over the lateral portion of the wrist, really not directly on the volar or the dorsum of the surface of the wrist,

but on the lateral position or the upper position, as the wrist is held in a neutral position.

Mr. SPECTER. With the additional information provided by the coat, would that enable you to give an opinion as to which was the wound of entrance and which the wound of exit on the Governor's wrist?

Dr. SHAW. There is only one tear in the Governor's garment as far as the appearance of the tear is concerned, I don't think I could render an opinion as to whether this is a wound of entrance or exit.

Mr. SPECTER. Then, do you have sufficient information at your disposal in total, based on your observations and what you know now to give any meaningful opinion as to which was the wound of entrance and which the wound of exit on the Governor's wrist?

Dr. SHAW. I would prefer to have Dr. Gregory testify about that, because he has examined it more carefully than I have.

Mr. SPECTER. Fine.

Mr. DULLES. Could you tell at all how the arm was held from that mark or that hole in the sleeve?

Dr. SHAW. Mr. Dulles, I thought I knew just how the Governor was wounded until I saw the pictures today, and it becomes a little bit harder to explain.

I felt that the wound had been caused by the same bullet that came out through the chest with the Governor's arm held in approximately this position.

Mr. SPECTER. Indicating the right hand held close to the body?

Dr. SHAW. Yes, and this is still a possibility. But I don't feel that it is the only possibility.

Senator COOPER. Why do you say you don't think it is the only possibility? What causes you now to say that it is the location——

Dr. SHAW. This is again the testimony that I believe Dr. Gregory will be giving, too. It is a matter of whether the wrist wound could be caused by the same bullet, and we felt that it could but we had not seen the bullets until today, and we still do not know which bullet actually inflicted the wound on Governor Connally.

Mr. DULLES. Or whether it was one or two wounds?

Dr. SHAW. Yes.

Mr. DULLES. Or two bullets?

Dr. SHAW. Yes; or three.

Mr. DULLES. Why do you say three?

Dr. SHAW. He has three separate wounds. He has a wound in the chest, a wound of the wrist, a wound of the thigh.

Mr. DULLES. Oh, yes; we haven't come to the wound of the thigh yet, have we?

Mr. McCLOY. You have no firm opinion that all these three wounds were caused by one bullet?

Dr. SHAW. I have no firm opinion.

Mr. McCLOY. That is right.

Dr. SHAW. Asking me this now if it was true. If you had asked me a month ago I would have.

Mr. DULLES. Could they have been caused by one bullet, in your opinion?

Dr. SHAW. They could.

Mr. McCLOY. I gather that what the witness is saying is that it is possible that they might have been caused by one bullet. But that he has no firm opinion now that they were.

Mr. DULLES. As I understand it too. Is our understanding correct?

Dr. SHAW. That is correct.

Senator COOPER. When you say all three are you referring to the wounds you have just described to the chest, the wound in the wrist, and also the wound in the thigh?

Dr. SHAW. Yes.

Senator COOPER. It was possible?

Dr. SHAW. Our original assumption, Senator Cooper, was that the Governor was approximately in this attitude at the time he was——

Senator COOPER. What attitude is that now?

Dr. SHAW. This is an attitude sitting in a jump seat as we know he was,

upright, with his right forearm held across the lower portion of the chest. In this position, the trajectory of the bullet could have caused the wound of entrance, the wound of exit, struck his wrist and proceeded on into the left thigh. But although this is a possibility, I can't give a firm opinion that this is the actual way in which it occurred.

Mr. SPECTER. If it pleases the Commission, we propose to go through that in this testimony; and we have already started to mark other exhibits in sequence on the clothing. So that it will be more systematic, we plan to proceed with the identification of clothing and then go on to the composite diagram which explains the first hypothesis of Dr. Shaw and the other doctors of Parkland. And then proceed from that, as I intend to do, with an examination of the bullet, which will explore the thinking of the doctor on that subject.

Dr. Shaw, for our record, I will hand you Commission Exhibit No. 684 and ask you if that is a picture of the reverse side of the coat, which we will later prove to have been worn by Governor Connally, the coat which is before you?

Dr. SHAW. It is.

Mr. SPECTER. What, if anything, appears on the back of that coat and also on the picture in line with the wound which you have described on the Governor's posterior chest?

Dr. SHAW. The picture—the coat and the picture of the coat, show a rent in the back of the coat approximately 2-centimeters medial to the point where the sleeve has been joined to the main portion of the garment.

The lighter-colored material of the lining of the coat can be seen through this rent in the coat.

Mr. SPECTER. Dr. Shaw, I show you a shirt, subject to later proof that it was the shirt worn by Governor Connally, together with a photograph marked "Commission Exhibit No. 685," and ask you if that is a picture of that shirt, the back side of the shirt?

Dr. SHAW. Yes; it is a picture of the back side of the shirt. However, in this particular picture I am not able to make out the hole in the shirt very well.

Now I see it, I believe; yes.

Mr. SPECTER. Will you describe the hole as you see it to exist in the shirt? Aside from what you see on the picture, what hole do you observe on the back of the shirt itself?

Dr. SHAW. On the back of the shirt itself there is a hole, a punched out area of the shirt which is a little more than a centimeter in its greater diameter. The whole shirt is soiled by brown stains which could have been due to blood.

Mr. SPECTER. How does the hole in the back of the shirt correspond with the wound on the Governor's back?

Dr. SHAW. It does correspond exactly.

Mr. SPECTER. Now turning the same shirt over to the front side, I ask you if the photograph, marked "Commission Exhibit No. 386," is a picture of the front side of this shirt?

Dr. SHAW. It is.

Mr. SPECTER. What does the picture of the shirt show with respect to a hole, if any, on the right side of the front of the shirt?

Dr. SHAW. The picture and the shirt show on the right side a much larger rent in the garment with the rent being approximately 4 centimeters in its largest diameter.

Mr. SPECTER. What wound, if any, did the Governor sustain on his thigh, Dr. Shaw?

Mr. DULLES. Just one moment, are you leaving this?

Mr. SPECTER. Yes.

Mr. DULLES. I wonder whether or not it would not be desirable for the doctor to put on this photograph where these holes are, because they are not at all clear for the future if we want to study those photographs.

Dr. SHAW. This one is not so hard.

Mr. DULLES. That one appears but the other one doesn't appear and I think it would be very helpful.

Dr. SHAW. How would you like to have me outline this?

Mr. SPECTER. Draw a red circle of what you conceive to be the hole there, Doctor.

Mr. DULLES. The actual hole is not nearly as big as your circle, it is the darkened area inside that circle, is it not?

Dr. SHAW. Yes; the darkened area is enclosed by the circle.

Mr. SPECTER. Are you able to note on the photograph of the back of the shirt, 685?

Will you draw a red circle around the area of the hole on the photograph then, Dr. Shaw?

Mr. DULLES. Would you just initial those two circles, if you can.

Mr. SPECTER. Dr. Shaw, what wounds, if any, did the Governor sustain on his left thigh?

Dr. SHAW. He sustained a small puncture-type wound on the medial aspect of the left thigh.

Mr. SPECTER. Did you have an opportunity to examine that closely?

Dr. SHAW. No.

Mr. SPECTER. Did you have an opportunity to examine it sufficiently to ascertain its location on the left thigh?

Dr. SHAW. No; I didn't examine it that closely, except for its general location.

Mr. SPECTER. Where was it with respect to a general location then on the Governor's thigh?

Dr. SHAW. It is on the medial anterior aspect of the thigh.

Mr. DULLES. Nontechnically, what does it mean?

Dr. SHAW. Well, above, slightly above, between, in other words, the medial aspect would be the aspect toward the middle of the body, but as far as being how many centimeters or inches it is from the knee and the groin, I am not absolutely sure.

Mr. SPECTER. I now show you a pair of trousers which we shall later identify as being those worn by the Governor. I will, first of all, ask you if a photograph bearing Commission Exhibit No. 687 is a picture of those trousers?

Dr. SHAW. It is.

Mr. SPECTER. And what hole, if any did you observe on the trousers and on the picture of the trousers?

Dr. SHAW. There is a hole in the garment that has been made by some instrument which has carried away a part of the Governor's garment. In other words, it is not a tear but is a punched out hole, and this is approximately 4 centimeters on the inner aspect from the crease of the trousers.

Mr. DULLES. Can you tell where the knee is there and how far above the knee approximately?

Dr. SHAW. I can't tell exactly.

Mr. DULLES. I guess you can't tell.

Dr. SHAW. From the crotch I would say it would be slightly, it is a little hard to tell, slightly more toward the knee than the groin.

Mr. SPECTER. Does that hole in the left leg of the trousers match up to the wound on the left thigh of the Governor?

Dr. SHAW. To the best of my recollection it does.

Mr. DULLES. Are there any other perforations in these trousers at all, any other holes?

Dr. SHAW. No.

Mr. DULLES. So that means that whatever made the hole on the front side did not come through and make a hole anywhere else in the trousers?

Dr. SHAW. That is correct. It had to be a penetrating wound and not a perforating wound, it didn't go on through.

Mr. SPECTER. Will you turn those trousers over, Dr. Shaw?

Dr. SHAW. I believe we had already looked at it.

Mr. SPECTER. On the reverse side, and state whether or not this picture bearing Commission Exhibit No. 688 accurately depicts the reverse side of the trousers?

Dr. SHAW. Yes; it does.

Mr. SPECTER. Is there any hole shown either on the picture or on the trousers themselves?

Dr. SHAW. No.

Mr. SPECTER. Dr. Shaw, I now show you a body diagram which is marked "Commission Exhibit No. 689."

Senator COOPER. May I ask a question before you ask that question?

When you first saw Governor Connally in the emergency room was he dressed or undressed?

Dr. SHAW. His trousers were still on. He had his shorts on, I should say, Senator Cooper, but his coat, shirt, and trousers had been removed.

Mr. SPECTER. Were his clothes anywhere in the vicinity where you could have seen them?

Dr. SHAW. No; I never saw them. This is the first time that I saw them.

Mr. SPECTER. That is earlier today when you examined them in this room?

Dr. SHAW. That is correct.

Mr. SPECTER. Looking at Commission Exhibit No. 689, is that a drawing which was prepared, after consultation with you, representing the earlier theory of all of the Governor's wounds having been inflicted by a single missile?

Dr. SHAW. That is correct.

Mr. SPECTER. With reference to that diagram, would you explain the position that you had earlier thought the Governor to have been in when he was wounded here?

Dr. SHAW. We felt that the Governor was in an upright sitting position, and at the time of wounding was turning slightly to the right. This would bring the three wounds, as we know them, the wound in the chest, the wound in the wrist, and the wound in the thigh into a line assuming that the right forearm was held against the lower right chest in front.

The line of inclination of this particular diagram is a little more sharply downward than is probably correct in view of the inclination of the ribs of the chest.

Mr. SPECTER. Will you redraw that line, Dr. Shaw, to conform with what you believe to be—

Dr. SHAW. The fact that the muscle bundles on either side of the fifth rib were not damaged meant that the missile to strip away 10 centimeters of the rib had to follow this rib pretty much along its line of inclination.

Mr. DULLES. I wonder if you could use that red pencil to make it a little clearer for us?

Dr. SHAW. I think these would probably work well on this paper. Perhaps this isn't a tremendous point but it slopes just a little too much.

Mr. SPECTER. You have initialed that to show your incline?

Dr. SHAW. Yes.

Mr. SPECTER. With respect to the wound you described on the thigh, Dr. Shaw, was there any point of exit as to that wound?

Dr. SHAW. No.

Mr. SPECTER. I now show you—

Mr. DULLES. Could I ask one more question there, how deep was the wound of entry, could you tell at all?

Dr. SHAW. Mr. Dulles, I didn't examine the wound of the thigh so I can't testify as to that. Dr. Gregory, I think, was there at the time that the debris was carried out and he may have more knowledge than I have.

Mr. DULLES. We will hear Dr. Gregory later?

Mr. SPECTER. Yes; he is scheduled to testify as soon as Dr. Shaw concludes.

Dr. Shaw, I now show you Commission Exhibit 399 which has heretofore been identified as being a virtually whole bullet weighing 158 grains.

May I say for the record, that in the depositions which have been taken in Parkland Hospital, that we have ascertained, and those depositions are part of the overall record, that is the bullet which came from the stretcher of Governor Connally.

First, Dr. Shaw, have you had a chance to examine that bullet earlier today?

Dr. SHAW. Yes; I examined it this morning.

Mr. SPECTER. Is it possible that the bullet which went through the Governor's chest could have emerged being as fully intact as that bullet is?

Dr. SHAW. Yes; I believe it is possible because of the fact that the bullet

struck the fifth rib at a very acute angle and struck a portion of the rib which would not offer a great amount of resistance.

Mr. SPECTER. Does that bullet appear to you to have any of its metal flaked off?

Dr. SHAW. I have been told that the one point on the nose of this bullet that is deformed was cut off for purposes of examination. With that information, I would have to say that this bullet has lost literally none of its substance.

Mr. SPECTER. Now, as to the wound on the thigh, could that bullet have gone into the Governor's thigh without causing any more damage than appears on the face of that bullet?

Dr. SHAW. If it was a spent bullet; yes. As far as the bullet is concerned it could have caused the Governor's thigh wound as a spent missile.

Mr. SPECTER. Why do you say it is a spent missile, would you elaborate on what your thinking is on that issue?

Dr. SHAW. Only from what I have been told by Dr. Shires and Dr. Gregory, that the depth of the wound was only into the subcutaneous tissue, not actually into the muscle of the leg, so it meant that missile had penetrated for a very short period. Am I quoting you correctly, Dr. Gregory?

Mr. SPECTER. May the record show Dr. Gregory is present during this testimony and—

Dr. GREGORY. I will say yes.

Mr. SPECTER. And indicates in the affirmative. Do you have sufficient knowledge of the wound of the wrist to render an opinion as to whether that bullet could have gone through Governor Connally's wrist and emerged being as much intact as it is?

Dr. SHAW. I do not.

Mr. SPECTER. Dr. Shaw, assume if you will certain facts to be true in hypothetical form, that is, that the President was struck in the upper portion of the back or lower portion of the neck with a 6.5-mm. missile passing between the strap muscles of the President's neck, proceeding through a fascia channel striking no bones, not violating the pleural cavity, and emerging through the anterior third of the neck, with the missile having been fired from a weapon having a muzzle velocity of approximately 2,000 feet per second, with the muzzle being approximately 160 to 250 feet from the President's body; that the missile was a copper jacketed bullet. Would it be possible for that bullet to have then proceeded approximately 4 or 5 feet and then would it be possible for it to have struck Governor Connally in the back and have inflicted the wound which you have described on the posterior aspect of his chest, and also on the anterior aspect of his chest?

Dr. SHAW. Yes.

Mr. SPECTER. And what would your reason be for giving an affirmative answer to that question, Dr. Shaw?

Dr. SHAW. Because I would feel that a missile with this velocity and weight striking no more than the soft tissues of the neck would have adequate velocity and mass to inflict the wound that we found on the Governor's chest.

Mr. SPECTER. Now, without respect to whether or not the bullet identified as Commission Exhibit 399 is or is not the one which inflicted the wound on the Governor, is it possible that a missile similar to the one which I have just described in the hypothetical question could have inflicted all of the Governor's wounds in accordance with the theory which you have outlined on Commission Exhibit No. 689?

Dr. SHAW. Assuming that it also had passed through the President's neck you mean?

Mr. SPECTER. No; I had not added that factor in. I will in the next question.

Dr. SHAW. All right. As far as the wounds of the chest are concerned, I feel that this bullet could have inflicted those wounds. But the examination of the wrist both by X-ray and at the time of surgery showed some fragments of metal that make it difficult to believe that the same missile could have caused these two wounds. There seems to be more than three grains of metal missing as far as the—I mean in the wrist.

Mr. SPECTER. Your answer there, though, depends upon the assumption that the bullet which we have identified as Exhibit 399 is the bullet which did the

damage to the Governor. Aside from whether or not that is the bullet which inflicted the Governor's wounds.

Dr. SHAW. I see.

Mr. SPECTER. Could a bullet traveling in the path which I have described in the prior hypothetical question, have inflicted all of the wounds on the Governor?

Dr. SHAW. Yes.

Mr. SPECTER. And so far as the velocity and the dimension of the bullet are concerned, is it possible that the same bullet could have gone through the President in the way that I have described and proceed through the Governor causing all of his wounds without regard to whether or not it was bullet 399?

Dr. SHAW. Yes.

Mr. SPECTER. When you started to comment about it not being possible, was that in reference to the existing mass and shape of bullet 399?

Dr. SHAW. I thought you were referring directly to the bullet shown as Exhibit 399.

Mr. SPECTER. What is your opinion as to whether bullet 399 could have inflicted all of the wounds on the Governor, then, without respect at this point to the wound of the President's neck?

Dr. SHAW. I feel that there would be some difficulty in explaining all of the wounds as being inflicted by bullet Exhibit 399 without causing more in the way of loss of substance to the bullet or deformation of the bullet.

(Discussion off the record.)

Mr. SPECTER. Dr. Shaw, have you had an opportunity today here in the Commission building to view the movies which we referred to as the Zapruder movies and the slides taken from these movies?

Dr. SHAW. Yes.

Mr. SPECTER. And what, if any, light did those movies shed on your evaluation and opinions on this matter with respect to the wounds of the Governor?

Dr. SHAW. Well, my main interest was to try to place the time that the Governor was struck by the bullet which inflicted the wound on his chest in reference to the sequence of the three shots, as has been described to us.

(At this point the Chief Justice entered the hearing room.)

This meant trying to carefully examine the position of the Governor's body in the car so that it would fall in line with what we knew the trajectory must be for this bullet coming from the point where it has been indicated it did come from. And in trying to place this actual frame that these frames are numbered when the Governor was hit, my opinion was that it was frame number, let's see, I think it was No. 36.

Mr. SPECTER. 236?

Dr. SHAW. 236, give or take 1 or 2 frames. It was right in 35, 36, 37, perhaps.

Mr. SPECTER. I have heretofore asked you questions about what possibly could have happened in terms of the various combinations of possibilities on missiles striking the Governor in relationship to striking the President as well. Do you have any opinion as to what, in fact, did happen?

Dr. SHAW. Yes. From the pictures, from the conversation with Governor Connally and Mrs. Connally, it seems that the first bullet hit the President in the shoulder and perforated the neck, but this was not the bullet that Governor Connally feels hit him; and in the sequence of films I think it is hard to say that the first bullet hit both of these men almost simultaneously.

Mr. SPECTER. Is that view based on the information which Governor Connally provided to you?

Dr. SHAW. Largely.

Mr. SPECTER. As opposed to any objectively determinable facts from the bullets, the situs of the wounds or your viewing of the pictures?

Dr. SHAW. Yes. I was influenced a great deal by what Governor Connally knew about his movements in the car at this particular time.

Mr. DULLES. You have indicated a certain angle of declination on this chart here which the Chief Justice has.

Dr. SHAW. Yes.

Mr. SPECTER. Do you know enough about the angle of declination of the bullet that hit the President to judge at all whether these two angles of declination are consistent?

Dr. SHAW. We know that the angle of declination was a downward one from back to front so that I think this is consistent with the angle of declination of the wound that the Governor sustained.

Senator COOPER. Are you speaking of the angle of declination in the President's body?

Dr. SHAW. Of the first wound?

Mr. SPECTER. Yes.

Dr. SHAW. First wound.

Mr. SPECTER. What you have actually seen from pictures to show the angle of declination?

Dr. SHAW. That is right.

Mr. SPECTER. In the wounds in the President's body?

Dr. SHAW. Yes; that is right. I did not examine the President.

Mr. DULLES. And that angle taking into account say the 4 feet difference between where the President was sitting and where the Governor was sitting, would be consistent with the point of entry of the Governor's body as you have shown it?

Dr. SHAW. The jump seat in the car, as we could see, placed the Governor sitting at a lower level than the President, and I think conceivably these two wounds could have been caused by the same bullet.

Mr. SPECTER. Do you have anything else to add, Dr. Shaw, which you think would be helpful to the Commission in any way?

Dr. SHAW. I don't believe so Mr. Specter.

Mr. SPECTER. May it please the Commission then I would like to move into evidence Commission Exhibits Nos. 679 and 680, and then reserve Nos. 681 and 682 until we get the photographs of the X-rays and I now move for admission into evidence Commission Exhibits Nos. 683 through 689.

Senator COOPER. They have all been identified, have they?

Mr. SPECTER. Yes, sir; during the course of Dr. Shaw's testimony.

Senator COOPER. It is ordered then that these exhibits be received in the record.

(The documents referred to, previously identified as Commission Exhibits Nos. 679, 680, and 683-689 for identification were received in evidence.)

Mr. McCLOY. Just one or two questions. It is perfectly clear, Doctor, that the wound, the lethal wound on the President did not—the bullet that caused the lethal wound on the President, did not cause any wounds on Governor Connally, in your opinion?

Dr. SHAW. Mr. McCloy, I couldn't say that from my knowledge.

Mr. McCLOY. We are talking about the, following up what Mr. Dulles said about the angle of declination, the wound that came through the President's collar, you said was consistent between the same bullet. I just wondered whether under all the circumstances that you know about the President's head wound on the top that would also be consistent with a wound in Governor Connally's body?

Dr. SHAW. On the chest, yes; I am not so sure about the wrist. I can't quite place where his wrist was at the time his chest was struck.

Mr. McCLOY. Now perhaps this is Dr. Gregory's testimony, that is the full description of the wrist wound, that would be his rather than your testimony?

Dr. SHAW. I think he could throw just as much light on it as I could. And more in certain aspects.

Mr. McCLOY. It did hit bone?

Dr. SHAW. Obviously.

Mr. McCLOY. And there must have been a considerable diminution in the velocity of the bullet after penetrating through the wrist?

Dr. SHAW. Yes.

Mr. DULLES. The wound inflicted on it, the chest wound on Governor Connally, if you move that an inch or two, 1 inch or the other, could that have been lethal, go through an area that could easily have been lethal?

Dr. SHAW. Yes; of course, if it had been moved more medially it could have struck the heart and the great vessels.

Mr. McCLOY. Let me ask you this, Doctor, in your experience with gunshot wounds, is it possible for a man to be hit sometime before he realizes it?

Dr. SHAW. Yes. There can be a delay in the sensory reaction.

Mr. McCLOY. Yes; so that a man can think as of a given instant he was not hit, and when actually he could have been hit.

Dr. SHAW. There can be an extending sensation and then just a gradual building up of a feeling of severe injury.

Mr. McCLOY. But there could be a delay in any appreciable reaction between the time of the impact of the bullet and the occurrence?

Dr. SHAW. Yes; but in the case of a wound which strikes a bony substance such as a rib, usually the reaction is quite prompt.

Mr. McCLOY. Yes.

Dr. SHAW. Yes.

Mr. McCLOY. Now, you have indicated, I think, that this bullet traveled along, hit and traveled along the path of the rib, is that right?

Dr. SHAW. Yes.

Mr. McCLOY. Is it possible that it could have not, the actual bullet could not have hit the rib at all but it might have been the expanding flesh that would cause the wound or the proper contusion, I guess you would call it on the rib itself?

Dr. SHAW. I think we would have to postulate that the bullet hit the rib itself by the neat way in which it stripped the rib out without doing much damage to the muscles that lay on either side of it.

Mr. McCLOY. Was—up until you gave him the anesthetic—the Governor was fully conscious, was he?

Dr. SHAW. I would not say fully, but he was responsive. He would answer questions.

Mr. McCLOY. I think that is all I have.

The CHAIRMAN. I have no questions of the doctor.

Mr. DULLES. There were no questions put to him that were significant as far as our testimony is concerned?

Dr. SHAW. No; we really don't have to question him much. Our problem was pretty clearcut, and he told us it hurt and that was about his only response as far as—

Senator COOPER. Could I ask you a question, doctor?

I think you said from the time you came into the emergency room and the time you went to the operating room was about 5 minutes?

Dr. SHAW. Yes; it was just the time that it took to ask a few simple questions, what has been done so far, and has the operating room been alerted, and then I went out and talked to Mrs. Connally, just very briefly, I told her what the problem was in respect to the Governor and what we were going to have to do about it and she said to go ahead with anything that was necessary. So this couldn't have taken more than 5 minutes or so.

Mr. DULLES. Did he say anything or did anyone say anything there about the circumstances of the shooting?

Dr. SHAW. Not at that time.

Mr. DULLES. Either of Governor Connally or the President?

Dr. SHAW. Not at that time. All of our conversation was later.

Mr. DULLES. Was the President in the same room?

Dr. SHAW. No.

Mr. DULLES. Did you see him?

Dr. SHAW. I only saw his shoes and his feet. He was in the room immediately opposite. As I came into the hallway, I could recognize that the President was on it, in the room to my right. I knew that my problem was concerned with Governor Connally, and I turned and went into the room where I saw that he was.

Mr. DULLES. Did you hear at that time or have any knowledge, of a bullet which had been found on the stretcher?

Dr. SHAW. No; this was later knowledge.

Mr. DULLES. When did you first hear that?

(At this point Senator Russell entered the hearing room.)

Dr. SHAW. This information was first given to me by a man from the Secret Service who interviewed me in my office several weeks later. It is the first time I knew about any bullet being recovered.

Senator COOPER. I think, of course, it is evident from your testimony you have had wide experience in chest wounds and bullet wounds in the chest.

What experience have you had in, say, the field of ballistics? Would this experience—you have been dealing in chest wounds caused by bullets—have provided you knowledge also about the characteristics of missiles, particularly bullets of this type?

Dr. SHAW. No; Senator. I believe that my information about ballistics is just that of an average layman, no more. Perhaps a little more since I have seen deformed bullets from wounds, but I haven't gone into that aspect of wounds.

Senator COOPER. In the answers to the hypothetical questions that were addressed to you, based upon the only actual knowledge which you could base that answer, was the fact that you had performed the operation on the wound caused in the chest, on the wound in the chest?

Dr. SHAW. That is true. I have seen many bullets that have passed through bodies or have penetrated bodies and have struck bone and I know manners from which they are deformed but I know very little about the caliber of bullets, the velocity of bullets, many things that other people have much more knowledge of than I have.

Senator COOPER. That is all.

The CHAIRMAN. Thank you very much, Dr. Shaw.

### TESTIMONY OF DR. CHARLES FRANCIS GREGORY

Senator COOPER. Do you solemnly swear the testimony you are going to give to this Commission will be the truth, the whole truth, and nothing but the truth, so help you God?

Dr. GREGORY. I do.

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

Dr. GREGORY. Doctor Charles Francis Gregory.

Mr. SPECTER. What is your profession, sir?

Dr. GREGORY. I am a physician and surgeon.

Mr. SPECTER. Would you outline your educational background briefly, please?

Dr. GREGORY. I received a bachelor of science degree from the University of Indiana in 1941, and an M.D. degree in medicine from the Indiana University School of Medicine in 1944.

Following 1-year internship and a tour of duty in the U.S. Navy, I undertook 5 years of postgraduate training in orthopedic surgery at Indiana University Medical Center.

Upon completing that training I became a member of the faculty at Indiana University Medical School, and remained so until November of 1952, when I re-entered the U.S. Navy for another 20 months.

In 1956 I was appointed professor and then chairman of the Division of Orthopedic Surgery at the University of Texas Southwestern Medical School, where I presently am.

Mr. SPECTER. Are you certificated by the American Board of Orthopedic Surgery?

Dr. GREGORY. I am, in 1953.

Mr. SPECTER. What experience, if any, have you had with bullet wounds, Doctor?

Dr. GREGORY. Beyond the rather indigenous nature of such wounds in the main teaching hospital at Southwestern Medical School, my experience has covered a tour of duty in the Navy during World War II, and a considerably more active period of time in the Korean war in support of the 1st Marine Corps Division.

Mr. SPECTER. What is your best estimate as to the total number of bullet wounds you have had an opportunity to observe and treat?

Dr. GREGORY. I would estimate that I have dealt directly with approximately 500 such wounds.

Mr. SPECTER. Are you a licensed doctor in the State of Texas at the present time?

Dr. GREGORY. I am.