

John H. Ebersole, the radiologist who had taken the autopsy X-rays, and subsequently Dr. Pierre A. Finck, one of the pathologists who assisted in the autopsy. The pertinent portions of their testimony is summarized in section III of this report.

(214) During the early evening of Saturday, Mar. 11, members of the forensic pathology panel met with members of the photographic evidence and firearms panels, other experts, and members of the select committee staff to discuss and present each panel's findings and observations.

(215) On Sunday, March 12, members of the panel once again met at the House Office Building, Annex II, and discussed joint observations and the report previously prepared by Dr. Loquvam. During the discussion, Dr. Finck was interviewed at his request because of his concern that the views he expressed during his deposition the previous day may have been misunderstood. The panel adjourned in midafternoon on that date with the understanding that members of the photographic panel, assisted by either or both Drs. Petty and Coe, if necessary, would attempt to enhance further selected photographs of the President's posterior head and neck, anterior neck, and back, while Dr. Weston would represent the panel at a preliminary review of the computer-assisted image enhancement of selected photographs* and X-rays. It was further agreed that Dr. Weston would prepare a second draft of the panel's report on behalf of the entire panel, using Dr. Loquvam's earlier draft and incorporating new information and suggestions from panel members and the committee.

PART II: RECOMMENDATIONS FOR ADDITIONAL EXAMINATIONS, PROCEDURES, AND CONSULTATIONS BY NONPATHOLOGY DISCIPLINES

(216) The initial review of evidence available, listed in addenda A and B, led members of the subpanels and then the panel as a whole to offer the following suggestions for additional procedures, examinations and consultations to be conducted by specialists in nonpathology disciplines, with the understanding that such evidence might have significance in the panel's final observations and conclusions:

(217) 1. Photographic experts should examine the individual photographs to insure that none of them has been retouched or otherwise altered.

(218) 2. The X-rays identified as those taken of President Kennedy prior to and during the course of the autopsy, and of Governor Connally during his hospitalization, should be examined by a photographic expert and subsequently by a forensic odontologist* and a radiologist for the following purposes:

- To insure validity of the identity of these X-rays by comparison with in-life* films;
- To insure that the X-rays have not been altered since being taken, except as otherwise noted.
- To evaluate more completely, in order to determine their significance, the somewhat randomly distributed, small, radiopaque particles visible in the X-ray of the soft tissues lateral to the right, lower cervical spine of John F. Kennedy;
- To provide interpretation by a radiologist with experience in the examination of gunshot wounds.

(219) 3. The X-rays of particular importance should be examined to determined the desirability of subjecting all, or portions of them to a computer-assisted image enhancement process which might make possible more definitive interpretation, particularly of fracture lines. These X-rays include: the anterior-posterior * and lateral views of the skull (numbered 1, 2, and 3 on the films); those of the thoracolumbar * region (7 and 11); the chest anterior-posterior * view (9); the right hemithorax,* shoulder and upper arm, anterior-posterior * view (8); and the left hemithorax, shoulder and upper arm, anterior-posterior * view (10).

(220) 4. Those photographs considered most important should be considered for photographic enhancement.* One procedure, re-graphy for definition,* with varying degrees of exposure, might increase contrast. Computer-assisted image enhancement* could be used to modify the photographs, rendering recognizable the variations in color or shade otherwise imperceptible to the human eye.

(221) These photographs include: the entrance wound in the upper back (4- by 5-inch positive color transparency* No. 38. or 39 or correspondingly numbered 8- by 10-inch prints); the entrance wound at the back of the head (4- by 5-inch positive color transparency No. 42 or 43 or correspondingly numbered 8- by 10-inch color prints); the exit defect on the anterior neck (4- by 5-inch positive color transparency No. 40 or 41 or correspondingly numbered 8- by 10-inch black and white positive prints No. 13 or 14); and the area of the exit defect on the skull showing a semicircular defect in the bone (4- by 5-inch positive color transparency No. 44 or 45 or correspondingly numbered 8- by 10-inch color prints).

(222) 5. Soft X-ray * and energy dispersive X-ray * examination of pertinent portions of the clothing of President Kennedy and Governor Connally, particularly around the entrance and exit wounds, should be conducted to determine if they reveal particles of metal deposited by the missile. Any particles found should then be examined by neutron activation analysis * to correlate their composition with missiles suspected of having perforated the clothing in these areas.

(223) 6. The panel should interview each member of the pathology team that conducted the original autopsy: Drs. Humes, Finck, and Boswell, and the radiologist assisting with the examination, Dr. Ebersole. These interviews are suggested as a means of elucidating the circumstances surrounding the autopsy, the restrictions, if any, perceived by the prosecutors, and the apparent discrepancy between the findings of the panel and the original pathologists as to the location of the entrance wound of the head. The interviews would also help in evaluating more fully the entire autopsy examination and report.

(224) 7. The panel should meet with Dr. J. Lawrence Angel, a forensic anthropologist at the Smithsonian Institution, to review the X-rays and photographs of the skull and skull bones to assist it in simulating a repositioning of the skull fragments within the defect of the right side of the skull and in locating more precisely the missile exit defect indicated by the beveling* on two separately recovered skull fragments. (This meeting occurred on Sept. 17, 1977.)

(225) 8. Members of the panel or the committee or both should interview the surgeons who provided emergency care to President Kennedy

to determine more precisely the characteristics of the wounds as first noted on the President and to ascertain that medical information was not overlooked. It was further suggested that similar interviews be conducted with the surgeons and radiologists who provided treatment to Governor Connally in anticipation that such interviews might provide more precise and detailed information on the Governor's injuries, both external and internal, than had been documented in previous testimony or available reports.

(226) 9. The panel considered the potential value of additional ballistics tests with cadavers to simulate the wounds suffered by President Kennedy and Governor Connally, particularly because the panel determined that the entrance wound in the head was located considerably above the point described in the autopsy report, which had been used as the point of aim in previous experimental shootings. The actual, higher entrance location is on a more convex superior portion of the head, which would be an important fact to know to replicate more accurately the known injuries to the scalp and underlying skull than was accomplished in previous experiments. The panel considered experiments, using a comparable weapon, ammunition and target distance, wherein a wound or wounds would be inflicted in the upper back of cadavers, in an attempt to simulate the damage, angle and bullet track of the missile(s) which proceeded through President Kennedy and Governor Connally.

(227) The majority of the panel concurs that the difference between the effects of missiles on cadavers and living persons, the inability to duplicate completely all the factors that were present in the original shooting, and the limitations of information concerning the location of the entrance and exit wounds and the precise bullet track, would render such an experiment of limited and controversial value. While the experiment might eventually replicate the conditions of impact on the bodies of President Kennedy and Governor Connally, many attempts might have to be made before a valid replication could be obtained. To determine whether the replication was in fact valid or fortuitous would be difficult and might itself generate controversy.

(228) One panel member, Dr. Wecht, does not concur, but urges that such additional experiments be conducted, directed at the approximate wound locations, with several cadavers appropriately arranged so as to simulate the possible bullet track through the body. It is Dr. Wecht's opinion that without such tests, the single bullet theory cannot be scientifically defended; hence, he cannot but continue to reject this conclusion of the Warren Commission.

(229) 10. The panel requested a new medical examination of Governor Connally relative to the injuries he received in 1963. The panel considered the possibility that there might still be missile fragments in the Governor. The panel also requested consideration by experts in the field of neutron activation analysis* as to any potential value of an analysis of such fragments at this date.

(230) 11. The panel members discussed the possible value of disinterring the remains of President Kennedy. All agreed that such examination could confirm the exact entrance point of the bullet that struck the back of the President's head, initially a point of disagreement between the pathologists who conducted the autopsy and the panel. (Subsequently, in his public testimony, Dr. Humes agreed with the panel's conclusion as to the location and disagreed with his

Warren Commission testimony and his earlier statement to the forensic pathology subpanel.) In addition, an examination of the remains would probably permit determination of both the nature and extent of the bony injury and skull defects, thus enabling, through reconstruction, a more precise determination of the location of the exit wound from the skull. Further, it might be possible to pinpoint the entrance wound in the upper back and the exit wound in the anterior neck with reference to fixed body landmarks and thus enable more precise determination of the angle of the bullet track through the thorax* (back) relative to the body's axis. The majority of the panel concurs, however, that in the absence of photographic documentation of the body's precise position at the moment the missile struck the back, more accurate wound locations would be of limited value in determining the bullet's point of origin.

(231) Dr. Wecht, in disagreeing, points out that in the Zapruder film, the Stemmons Freeway sign obstructed the President from view for an interval of only approximately 0.9 second, during which Wecht assumes the shooting occurred. In his opinion, this interval was too short for there to have been sufficient movement to result in an alinement consistent with one bullet passing through both men.

(232) Neither the autopsy pathologists nor the panel, at this time, can determine the exact pathway and angle of this missile track in the President for reasons discussed subsequently in this report.

(233) 12. The panel strongly suggested that the committee undertake a vigorous effort to determine the fate of the missing microscopic slides, paraffin blocks,* tissues from which they were prepared, and brain, and make these available to the panel for review. (A search was conducted, as described in an attached staff report.)

PART III: OBSERVATIONS AND CONCLUSIONS DERIVED FROM THE EXAMINATION OF THE AVAILABLE EVIDENCE, INTERVIEWS, SPECIFICALLY REQUESTED ANCILLARY PROCEDURES, AND CONSULTATIONS

(234) The following is the consensus of the panel as to the medical facts of this homicide, based on the evidence available, listed in addenda A and B and developed from interviews and examinations.

DESCRIPTION OF PRESIDENT KENNEDY'S WOUNDS

(235) The President sustained two wounds from behind, caused by two missiles, one entering the upper right back and exiting the anterior (front) neck, the second entering high on the back of the head, partially fragmenting in the head, and exiting from the right side, front-parietal* region, of the head. Documentation of these wounds is as follows:

Entrance (inshoot) wound of the upper back and neck

1. Clothing—Suit jacket (back)

(236) The suit is made of a lightweight, gray fabric that resembles a tropical worsted in a sack weave. The jacket collar, back and upper sleeves are stiff and stained with a dark brown substance resembling dried blood. The sleeves are slit, as are the front panels across the nipple line; this was done to facilitate rapid removal in the Parkland emergency room.