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Fear Mr. Weisberg: Of course it would, doubtless, be possible to find a dozen spots from which Mr. Kennedy could have been shot - except for the fact that the spots would have to be such that the wounds as inflicted could have been made by shots fired from them. That rigidly limits the selection.

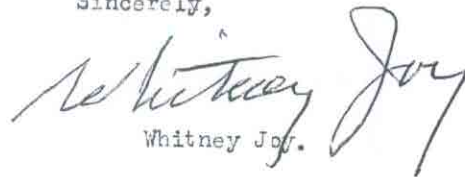
One reason against firing from beneath the picket fence would be that there was and, I believe, still is a masonry wall  $2\frac{1}{2}$  to 3 feet high extending south toward Elm Street Incline from the southeast corner of the pergola for a distance of 25 feet or so which would completely block the fire. It was on a wing of this wall that Zapruder was standing when he made his film.

Until about 2 weeks ago it had not occurred to me to ~~make~~ the enclosed analysis. It is rather brief but can be made completely rigorous with a little more space.

It is unfortunate that the learned counsel, editors, judges, writers of various kinds and professors as well as graduate students who have written more than a score of books and God knows how many articles on the Warren Report have not known even a little highschool mathematics and physics. It just could be that the learned counsel, judges and what not are not so learned after all.

Six editors have turned down my article on the angles of the neck wound~~xxx~~ and what those angles show and the seventh probably will soon. Some of them, to my knowledge, had plumped for the Warren Report despite criticism by their own writers as early as December, 1964 even though admitting that they did not have sufficient information without the documents. Even in this they were mistaken. Those portions of the Report involving the angles of the wounds and the re-enactment of the crime contain all the information needed to show that they are false...if one knows enough to understand and use that information. The one thing lacking is Mr. Kennedy's shoulder width which is not difficult to find for so normal a man as he was when his height and weight are known.

Sincerely,

  
Whitney Joffe

Not that it really matters since the mathematics of the crime preclude anything else, but the UPI book FOUR LAYS shows Kennedy sitting with his coat bunched up in just such fashion as to produce the ~~wound~~ wound as given in the Autopsy Report and O'Donnel said that, when hit, "he was waving, or maybe, he was lowering his arm."

W.J.

AN ANALYSIS OF THE KENNEDY WOUNDS BASED ON ELEMENTARY  
PLANE TRIGONOMETRY AND ELEMENTARY PHYSICS

I

The weapon used in inflicting the body wounds on President Kennedy was, as testified by Phillip Willis and others familiar with such weapons, a high power rifle whether or not it was the Oswald rifle. Bullets fired from such weapons have no difficulty in passing entirely through the normal human body, particularly when the range is short. It may be taken, then, that there was no entry wound on the body without a corresponding wound of exit.

There were only two gunshot wounds on the body below the head. One of these was almost on the midline of the throat at about the level of the collar bone on the left front. The other was in the back at one of two positions, first, the position claimed by some to have been indicated by the holes in the President's shirt and coat as they would have been if he had been standing or they had not been pushed up. This second wound would then have been about six (6) inches below the collar of the coat and about two (2) inches to the right of the midline of the body.

With this assumption, that there was one (1) entry wound and one (1) exit wound both made by the same bullet, it is further assumed for the moment that the throat wound was one of entry. The bullet, then, must have been travelling downward at a substantial angle to make exit six (6) inches below the collar of the coat. Since the throat wound was no more than about two (2) or two and one half ( $2\frac{1}{2}$ ) inches below the top of the collar it must have been three and one half ( $3\frac{1}{2}$ ) or four (4) inches above the wound of exit. Thus the bullet in its passage through the body travelled about three and one half ( $3\frac{1}{2}$ ) inches downward while travelling about seven (7) inches through the body. We thus have a downward angle the sine of which is  $3\frac{1}{2}$  over 7 or 0.5000 which is the sine of 30 degrees. There is also an angle to the left the sine of which is 2 over 7 or a little less than 0.3 which is the sine of 17 degrees.

To inflict a wound with a downward angle of 30 degrees, the weapon, if 100 feet distant in the line of fire, would have to have been 50 feet above the President's throat; if 50 feet away in the same line, it would have had to have been 25 feet above the President's head and so on, the height half the distance. But, after the turn into the Elm Street incline had been made there was neither earth nor any other kind of structure to the President's left front which was even 10 feet high and within or near the Plaza until he approached the underpass well beyond where the fatal shot was fired. It follows, then, that no bullet could have entered the throat at a downward angle of 30 degrees from the left front or at anything like that angle. It also follows that the wound in the back portion of the body could not have been six (6) inches below the collar of the coat.

The only other alternative location for the wound on the back portion of the body is that given by the Autopsy Report and testified to by witnesses of the Secret Service. This wound was located at  $5\frac{1}{2}$  inches from the point of the right shoulder and  $5\frac{1}{2}$  inches below the small protuberance back of the right ear or, as Secret Service Agent Kellerman put it, "under that big muscle between the neck and shoulder." This wound was "just over the collar bone" and no more than 5 or 6 tenths of an inch above the throat wound. This makes the angle in the vertical plane about  $5\frac{1}{2}$  or  $6\frac{1}{2}$  degrees.

If the throat wound, then, was one of entry, the shot inflicting it must have been fired from a point about 11 feet below the President's throat if the gun was 100 feet distant or  $5\frac{1}{2}$  feet below the throat if it was 50 feet away. A man lying down on the street or the grass and firing from that position could have achieved such an angle but, certainly, there was no such man. It, therefore, follows that a bullet with a  $6\frac{1}{2}$  degree upward angle was not fired from the front.

Moreover, the vertical angle of the wound is not the only one to be satisfied. There was a wide horizontal angle which was completely disregarded by the Commission. The size of this angle is calculated as follows: The throat wound was at the centerline of the throat or, as indicated by the nick in the collar band, possibly  $1/8$  inch to the left. The shoulder wound was  $5\frac{1}{2}$  inches from the point of the shoulder



and  $3 \frac{5}{8}$  inches from the midline of the body since Mr. Kennedy's shoulder width was  $18 \frac{1}{2}$  to  $18 \frac{3}{4}$  inches. If the  $\frac{1}{8}$  inch is added to the  $3 \frac{5}{8}$  inches to allow for the nick in the collar band, the distance between the centerlines of the two wounds measured along the shoulder line is  $3 \frac{3}{4}$  inches. The length of the wound is given in the Autopsy Report as  $5 \frac{1}{2}$  inches. The angle, then, is one the sine of which is  $3 \frac{3}{4}$  over  $5 \frac{1}{2}$  or 0.682 approximately which is the sine of 43 degrees. This angle might have been somewhat less than 43 degrees or as much as 45 degrees.

To satisfy this angle, the bullet inflicting the wound, if fired from the left front to enter the throat, must have been fired from a point approximately 45 degrees to the President's left. The Elm Street incline is built on a reverse curve but the main line of the street from approximately Road Strips 2 to Road Strips 8 is at an angle of approximately 45 degrees to Houston Street. A line at an angle of 45 degrees from the President's throat toward the south would then have been just a few degrees away from a parallel to Houston Street and no point on such a line could be ten (10) feet below the President's throat or even six (6) feet below it except, possibly, some point on the pavement of Main or Commerce Street. As has been said before, a man lying on the pavement or some spot on the grass might have made the shot but there was no such man. Thus the throat wound could not have been inflicted by a shot from the front and could not have been a wound of entry.

This, of course, adequately disposes of the knoll as a firing point but, to go a step further: The knoll was to the President's right front at all points after the first road stripe from Houston Street until he was far along on the reverse curve to the underpass. Thus a bullet fired from the knoll and entering near the midline of the throat would necessarily have been travelling to the President's left and would have made exit to the left of the midline of the body. As shown by the shirt and the coat, there was no such wound. Therefore the throat-shoulder wound was not and could not have been inflicted by a shot fired from the knoll.

From all this, it follows that the throat wound was not and could not have been a wound of entry but could only have been a wound of exit. The angles remain, however, and they are: approximately  $6 \frac{1}{2}$  degrees for the angle in the vertical plane and approximately 43 degrees for the angle in the horizontal plane. If a line is drawn from the President's right shoulder at an angle of 43 degrees to the right from Zapruder frames 210, 190 or 225 position, it will intersect the south line extended of the Depository building at some point west of the building and within the 20 foot space occupied by the garage. This garage has its east side formed by the west wall of the building and its west side formed by a wall extending northward about 70 feet from the structure referred to by people mentioned in the Report as "the wall." The wall is about 45 feet long along the Elm Street extension and it extends a number of feet above the second floor level of the Depository. The garage has double doors opening on Elm Street extension. These doors are each about 10 feet wide and 12 feet high, made of heavy wire mesh on a heavy pipe frame. The trees across Elm Street Extension are cleared of low branches and underbrush and there is an excellent view of almost the entire length of Elm Street Incline from the garage. This space offers ideal cover, or very nearly that, and has an easy escape route through the man door at the back. This door leads into a woody, rubbish filled space through which a man could escape either to Elm Street on the west or to Houston Street on the east with but little chance of being seen.

To sum up: 1). The throat wound was not and could not have been a wound of entry but could only have been a wound of exit.

2). The wound in the back portion of the body was not and could not have been 6 inches or anything like that below the collar line and neither could it have been only 2 inches from the midline of the body.

3). No shot fired from the knoll struck the President in the throat or anywhere else.

## II

Passing on to the head wound: The Zapruder film frames are quite clear and do not show any crossfire striking the President's head but show only one wound, that made by

a bullet from a high power rifle striking the President's head from the right rear and on the right rear portion of the head. This wound is clearly visible on all frames after ~~313~~ 315 except 318 which is obscured by what appears to have been a swirl of dust. The wound shows throughout as a white V unwarred by any cross marks. The rifle which fired the bullet to inflict this wound was located at a point about 38 degrees to the right of the car's line of travel and about 4 degrees above the President's head, that is from ~~the~~ the sniper's post inside the garage.

The President's head was indeed knocked to his rear and toward the back of the seat of the car as well as to his left. This does not require two simultaneous ~~shots~~ <sup>shots</sup> and from the right front, but only one bullet fired at from an angle to the right rear. Anyone who has ever played pool or billiards should understand this. The bullet coming from the right rear was travelling at an angle to the left and knocked the head at an angle to the left of its own line of travel, that is, to the President's rear and toward the seat back and also knocked it toward the President's left at the same time. A force applied at an angle is equivalent to two forces applied in two directions as those physicists who have commented on the case should have known. There is in elementary physics a section called "Composition and Resolution of Forces" which explains. Of course the head was not a free body but an appendage to the body as a whole so the results were not exactly as they would have been had the head been a free body. Nevertheless, an angular shot fired from the right rear could and did knock the head to the left of the bullet's line of travel while, at the same time, driving the head toward the President's left. One head movement may have been seen as very slightly before the other though the two movements, had the head been a free body, would have been simultaneous.

One shot and only one struck the head as the Zapruder film shows very clearly - unless there was a shot fired after Zapruder frame 334.

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