

The Ill-Fated Beer Run: The Shooting of Christopher St. Louis

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Abstract

The shooting of teenager Christopher St. Louis by off-duty police officer Tenaya Webb at the Santee, California Petco shopping center the evening of February 16, 2003 is examined. Four shots were fired in one second with a Glock Model 27 .40 caliber pistol and St. Louis was hit with all four bullets: left chest, right chest, lower right abdomen and right arm. He died minutes after being shot. St. Louis was shot while running toward Webb. The shooting scene reconstruction indicates that St. Louis received the first shot approximately 30 feet (9.1 m) and the last when he was 15 feet (4.8 m) from Webb.

Keywords: forensic science, criminalistics, shooting scene reconstruction, shooting simulation

Introduction

On February 16, 2003, an officer-involved shooting occurred in the early evening in front of a small store in a strip mall associated with a Petco shopping center in Santee, San Diego County, California. The decedent, Christopher St. Louis, was shot four times by off-duty El Cajon City Police Officer, Tanaya Webb. It is the intention of this writer to review the events leading to the shooting, evaluate the scene and reconstruct this shooting event. This presentation ascribes no blame to any of the involved parties nor should any passage herein be interpreted as an attempt to pass judgment on the behavior of any party. The death of Mr. St. Louis is unfortunate and is currently viewed as an accidental shooting.

The reconstruction of this shooting is particularly complex due to multiple shots into St. Louis while he was running toward Officer Webb. Hueske (2006) notes, "Shooting incidents often occur in a very brief span of time. When they involve multiple shots, trying to determine the shot order and the exact body positions for those involved as each shot was fired is often an impossibility and usually unnecessary." This case required such a determination. Careful evaluation of statements by Officer Webb and eyewitness Nolan coupled with the physical evidence and shooting simulations provides a scenario for this shooting.

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The shooting scene images, autopsy report and images, police and scene witness reports and depositions were reviewed for this report. Reports by the San Diego County Sheriff's criminalists, L. Martini and G. Lawrence were reviewed as well as a report and the deposition of shooting scene reconstruction expert, A. Jason.



Figure 1. Aerial view of the shooting scene; the routes taken by the teenagers (dashed white lines) upon leaving the Vons with the alcoholic beverages are shown. This was reconstructed by witness accounts and a visit to the scene. The track taken by Carter with the shopping cart full of beer cases from the Submarina to the teenager's car is uncertain; he either went on the sidewalk or, more likely, by the parking lot asphalt (both possible tracks are shown). The locations and tracks of the witnesses to the shooting scene are shown. The pink filled circles are the approximate locations of the witnesses at the time of the shooting. The dashed pink lines are routes taken by the witnesses prior to the shooting. The solid pink line is witness Williams' track after the shooting. The Hamiltons were in a moving car (location uncertain). Witness McFeely stopped at the circled "M" and backtracked to a position where he was not eyewitness to the shooting, but heard the shots.

The Shooting

The following was compiled from witness accounts and scene evidence.

Events prior to the shooting. Christopher St. Louis and his teenaged associates drove into the Petco Parking lot adjoining the Vons shopping center (Fig. 1). Collins, the driver of the white Crown Victoria sedan, backed into the space nearest the Petco store and in front of the small “Smokers Outlet” store (Fig. 2). Three of the teenagers, St. Louis, Nolan and Carter, went into the Vons of the adjoining shopping center and left with a large quantity of alcoholic beverages (mainly beer). St. Louis and Nolan hand carried their alcohol around the side of the Vons, through a small parking lot, a causeway and to the parked car (Fig. 1). Carter filled a shopping cart full of beer cases and went his own way. Officer Webb, who was off duty, was alerted to the activities of the teenagers by someone in the store yelling, “beer run.” She saw Carter with a shopping cart overfilled with beer cases and followed him out of the Vons.



Figure 2. The shooting scene looking west several hours after the shooting.

Nolan and St. Louis had arrived at their car prior to Carter and stowed the cases of beer and some hard liquor in the back seat of the car. The two teenagers were waiting for Carter on the right side of the car, standing in the planter (Fig. 2). Collins was sitting in the driver's seat.

Officer Webb continued to follow Carter into the Vons parking lot. Carter was pushing his overloaded shopping cart with difficulty. He took a different route than Nolan and St. Louis, where he headed north, through the Vons parking lot, then east into the Petco parking lot and finally south toward the Petco store and the car (Fig. 1). While in the Petco shopping center parking lot, Carter apparently elected to push the shopping cart on the asphalt toward the car. Nolan, seeing Carter entering the parking lot from the north, ran to him and picked up several beer cases from Carter's shopping cart. Nolan then returned and placed those beer cases on the backseat of the car. Carter arrived at the car and immediately started unloading the remaining beer cases in the shopping cart into the backseat of the car. St. Louis assisted stacking the beer cases from the right side of the car. This operation likely took at least one minute. During this time, Officer Webb continued her approach toward the teenagers' car. Her stated intent was to get the license number of the car.

The shooting. Nolan returned to the right side of the car after assisting Carter. He became aware of the approach of Officer Webb in the shadows of the ContempoNails store front (Fig. 2) and informed St. Louis, who was helping Carter by stacking beer cases from the right side of the car. The two had a brief discussion concerning blocking their car's license number from Webb. Nolan moved from the side to the rear right of the car and St. Louis stayed at the car's side, likely partially within the right back seat of the car. There appeared to be no verbal exchanges between Officer Webb and these two teenagers. St. Louis then bolted from the right side of the car to the car's rear, initially leaning forward ("crouched" in Webb's words) and then he rapidly became erect. According to Nolan, he was trying to "scare" Webb to induce her to retreat. None of the teenagers saw Webb's gun prior to the shooting. St. Louis initially approached Officer Webb at a fast pace. Officer Webb was focused on both Nolan and St. Louis and had her pistol in hand as St. Louis rounded the right rear bumper of the car. Nolan was in the line of fire during the time of the shooting. The litigation issue was at what point in St. Louis' approach toward Officer Webb did she start shooting?

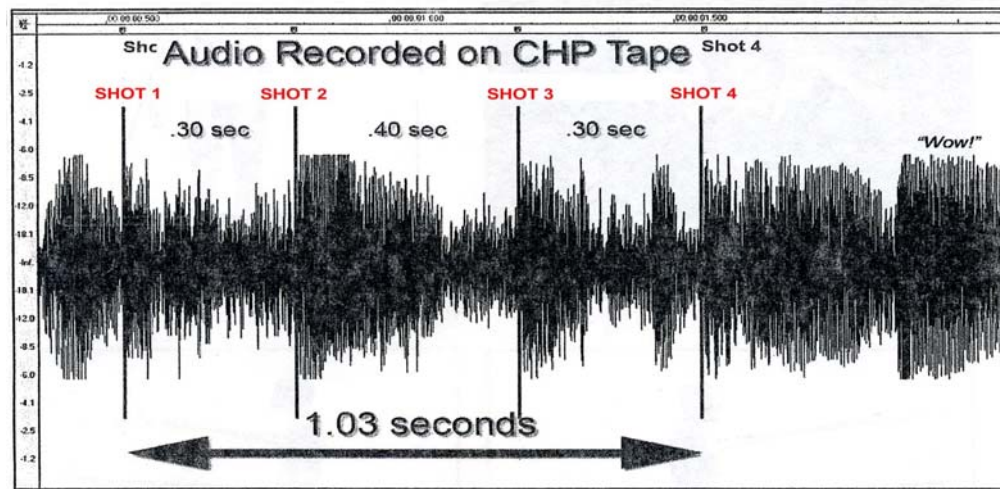


Figure 3. Sonogram presented by Jason (2005) from the recording of the 911 call by witness Shandil showing the four shots were within 1.03 seconds.

Witness Shandil, who was standing outside the Submarina store (Fig. 1), was talking to a 911 operator at the time of the shooting. The recording of that call included the sounds of the four shots. Unfortunately, Shandil was too distant from the scene for the 911 recording to pick up any other sounds from the scene other than the shooting. Jason (2005) analyzed that recording where he reports that the four shots took place within 1.03 seconds (Fig. 3).

All four shots hit St. Louis and he started dripping blood onto the sidewalk by the time he reached the ContempoNails store front, a position juxtaposed to the shooting position of Webb. The aggregation of .40 caliber casings (Fig. 4) at the storefront document Webb's report and witness reports that she did not move once the shooting started. One casing, evidence item 6, had blood on it (Fig. 5 at 6) - indicating this casing likely did not change position after coming to rest. The blood drips indicate that St. Louis momentarily stopped (Fig. 5 at 4) between Webb's shooting position and the storefront, turned around and then returned to the right side of the teenager's car. The distance from the right bumper of the car to the ContempoNails storefront where he turned around is 30 feet (9.1 m). The blood drips (Figs. 4 and 5G through 5M) document his return to the right side of the car. St. Louis collapsed in the planter and remained long enough to create a relatively large blood stain in the dirt. Moments later, St. Louis was carried into the car by Nolan assisted by Carter. The car left the scene to be stopped minutes later by police. St. Louis was likely dead by the time of the police stop.

Important for the reconstruction is a reasonable estimate of the distance that can be covered by St. Louis in one second, while receiving the four shots, starting with a run (according to Webb's account) and stopping in 30 ft (9.1 m) beside the shooting position of Webb; apparently going from "crouched" to erect (also reported by Webb).

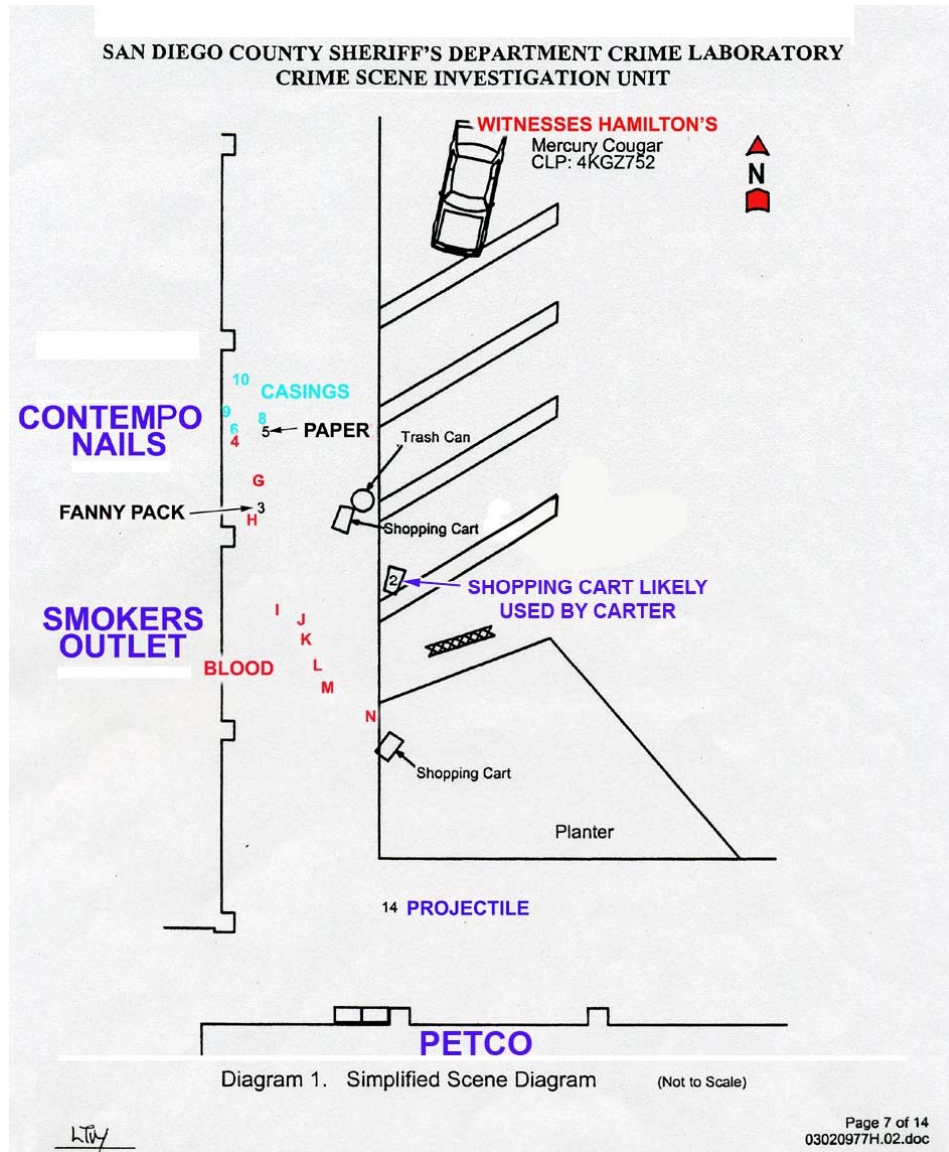


Figure 4. Diagram of the crime scene generated by the San Diego Crime Lab for the reports by Martini and Lawrence; the images of the blood trail are shown in Fig. 5.

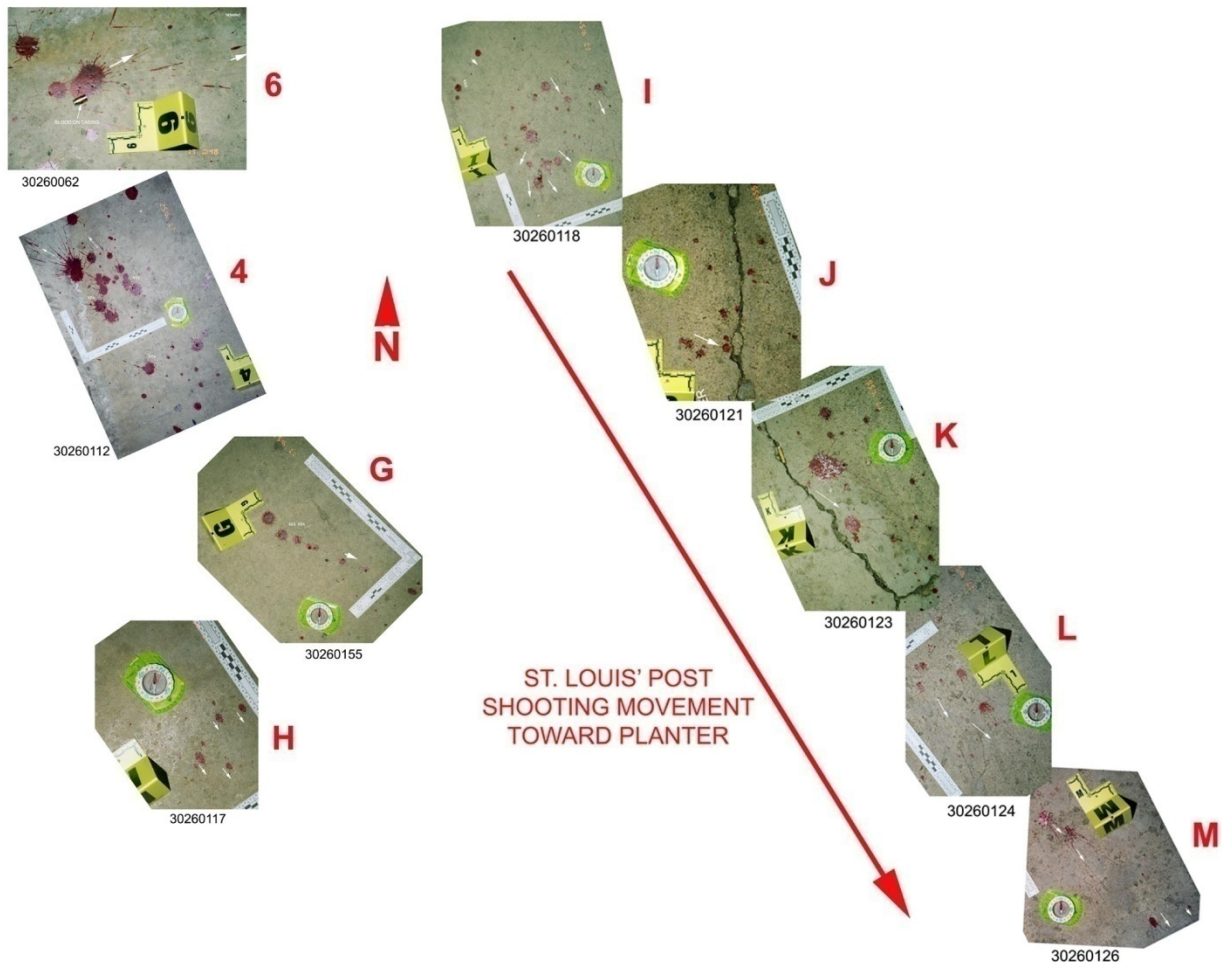


Figure 5. Blood spatter on the concrete sidewalk (see Fig. 4 for the photograph locations); many of the drops in 4 and 6 were deposited when St. Louis was momentarily stationary. Blood spatter positions G and H show the start of the return of St. Louis to the planter (Fig. 4). Positions I, J, K, L and M show a continuation (from the position of image H) of the blood spatter pattern to the planter. This confirms the conclusions in the shooting scene reports by Lawrence (2003) and Jason (2005). White arrows in the images indicate the horizontal vector direction of the blood deposit based on spatter pattern.

The Autopsy

The results of the autopsy of Mr. St. Louis were reported by Whitmore (2003) and toxicology by McIntyre (2003). For the latter report, the only significant finding was an alcohol level in the peripheral blood of 0.17%. St. Louis was legally drunk at the time of the shooting. St. Louis was 5 feet 11-1/2 (1.82 m) inches and 161 pounds (73 kg). Rigor was described as “full” at the time of the autopsy.

Images taken at the autopsy of St. Louis show the bullet path angles by rod insertions into the wounds for the four shots (Figs. 6 through 8). Included with these figures are illustrations of the horizontal-plane angles for these bullet paths found in criminalist Martini’s reports (2003A and 2003B).

Table 1. Bullet wounds of St. Louis: bullet number, wound number (assigned by the pathologist), location of entrance wound, exit wound (if present) and type of wound.

Bullet	Entrance Wound	Exit Wound	Comments
1	1 - right chest	-	penetrating
2	2 - left chest	left mid back	perforating
3	3 - abdomen	-	penetrating
4	4 - right elbow	-	penetrating

Bullet 1, penetrating. Wound 1 (Table 1, Fig. 6) was created by bullet 1 and was described by Whitmore as being, “located on the right anterior chest with a central defect 15-1/2 inches [39.4 cm] down from the top of the head and 2 inches [5.1 cm] to the right of the anterior midline. The central defect is round measuring 3/8 inch [1 cm] in diameter surrounded by a 1/8 inch [3 mm] wide dark red circumferential marginal abrasion. There is no soot deposition on the skin. There are four punctate uniform small red circular abrasions above the wound at 1 o’clock centered 1 3/4 inches [4.5 cm] away from the defect averaging less than 1/16 inch [1.5 mm] in greatest dimension.”

The path of the bullet that created wound 1 was described as, “perforating the medial right lobe of the lung, the upper right anterior pericardium, the proximal superior vena cava, aorta and pulmonary artery, multiple pulmonary veins, the left lung hilum, perforates the left upper lobe of the lung and exiting the lung through the inferior posterior left upper lob of the lung, perforates the posterior left pleura between ribs 7 and 8 and finally perforates the muscle of the left back where it is recovered.” The horizontal-plane trajectory for the bullet 1 that created wound 1, as depicted by Martini (2003B), corresponds to the anatomical description of the wound 1 bullet trajectory.

Bullet 2, perforating. The entrance wound for bullet 2 is wound 2 (Table 1, Fig. 6) and was described as, “on the left chest with a central defect centered 17-1/2 inches [44.5 cm] down from the top of the head and 3 inches [7.6 cm] to the left of the midline. The central defect is round and measures 3/8 inch [1 cm] in diameter surrounded by a 1/16 inch [1.5 mm] wide dark red circumferential margin abrasion. There is no soot deposition or powder tattooing on the skin.” The exit wound was described as, “left mid back with a central defect centered 18 inches [45.7 cm] below the top of the head and 5 inches [12.7 cm] to the left of the posterior midline.”

The path of the bullet that created wound 2 was described as perforating “the left anterior 4th rib, the anterior left lower lobe [of the lung], the posterior left lower lobe and the posteriolateral left 8th rib fracturing it, and the muscle and skin of the lateral left back exiting the body.”

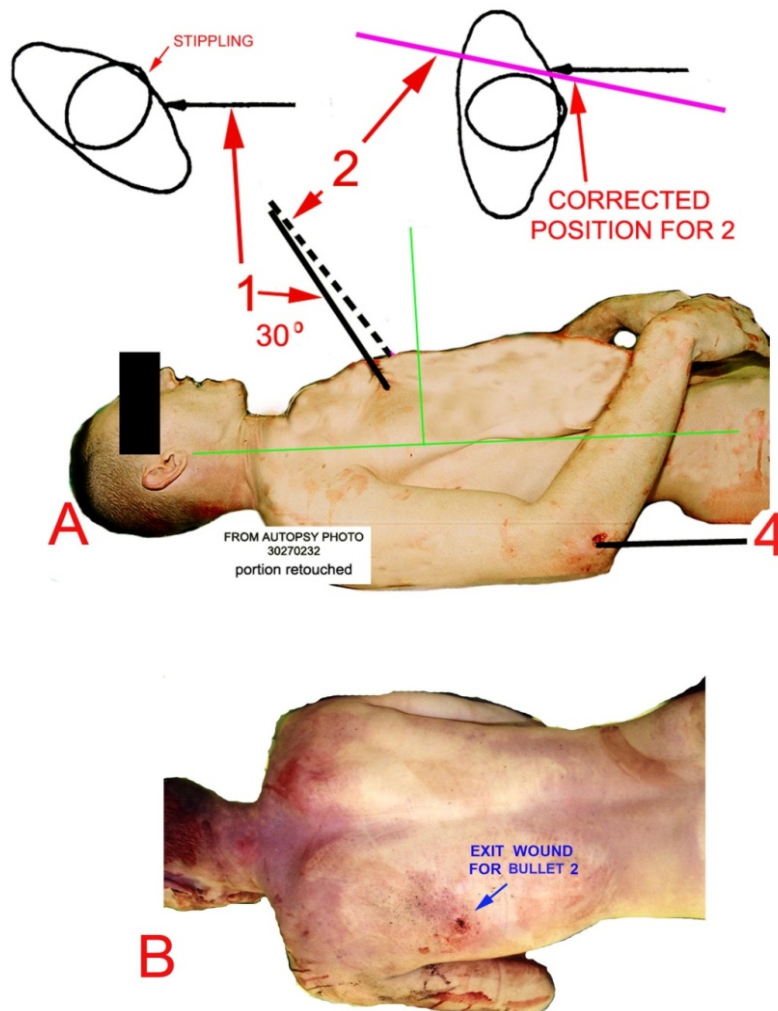


Figure 6. (A) Bullet 1 (wound 1) and bullet 2 (wound 2) trajectory rods in the chest of the victim and horizontal-plane graphics (from Martini (2005B) for these bullet trajectories at top; the measured vertical-plane angle of the rods from this image incorrectly suggest St. Louis was leaning fairly far forward when these bullets hit. Analysis with anatomical models show the forward leaning of St. Louis when these bullets hit were at lower angles (to the horizontal when the body is vertical) than indicated here. The bullet 2 trajectory dowel is shown as a dashed line. The horizontal-plane angle graphics of the trajectory for bullet 1(wound 1) is likely correct; for bullet 2, incorrect (see text). The area of alleged gunpowder stippling is shown on the horizontal graphic for wound 1. Bullet 4 trajectory rod is shown. (B) The posterior of the victim showing the exit wound for bullet 2.

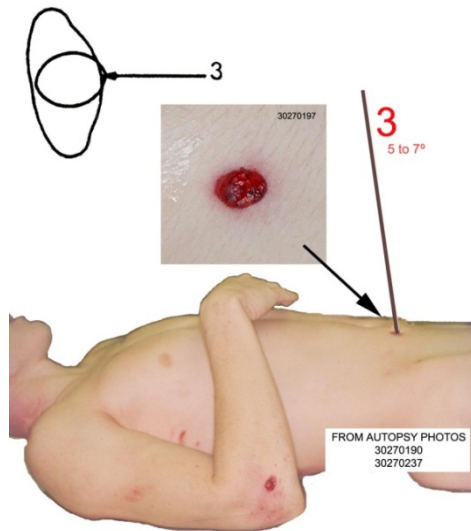


Figure 7. Bullet 3 (wound 3) trajectory rod into the lower abdomen with the horizontal-plane graphic (from Martini (2003B, Diagram 6)) at top; the vertical-plane angle of the bullet trajectory indicates that St. Louis was erect or could have been slightly leaning back when this shot occurred. This bullet trajectory corresponds to Jason's (2005) illustration for this bullet, both on the vertical and horizontal planes.

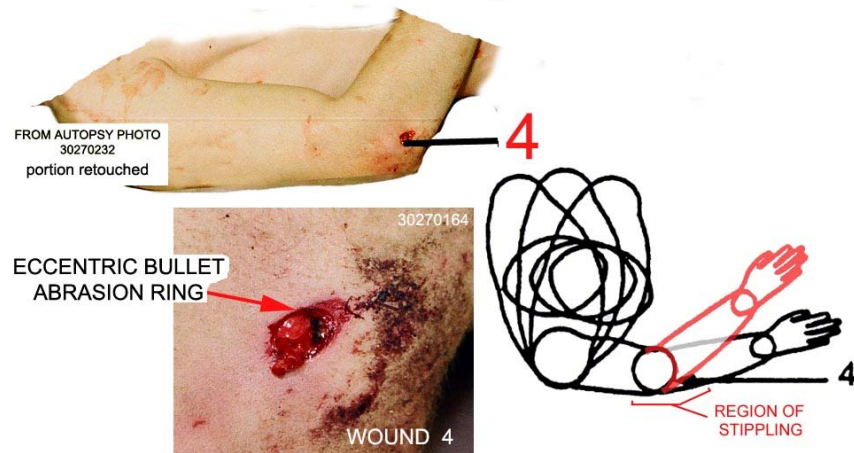


Figure 8. Bullet 4 (wound 4) is into St. Louis' right elbow and upper arm and cannot indicate body posture. The abrasion ring in wound 4 (lower left image) suggests that Martini's (2003B) arm position (black arm position, lower right graphic) is extended too far. The more likely arm position when wound 4 occurred is shown in red. The region of small abrasions (stippling) is shown in the horizontal graphic.

Bullet 3, penetrating. Wound 3 (Table 1, Fig. 7) from bullet 3 entrance into St. Louis was described as, “located on the right abdomen with a central defect centered 29-1/2 inches [75 cm] down from the top of the head and 1-3/4 inches [4.5 cm] to the right of the anterior midline. ...no soot deposition or powder tattooing on the skin.”

Bullet 4, penetrating. Bullet 4’s entrance wound (Table 1, Fig. 8) was described as “located on the posteriolateral proximal right forearm with a central defect centered 1 inch [2.5 cm] distal to the point of the elbow and 1 inch [2.5 cm] to the right of it.”

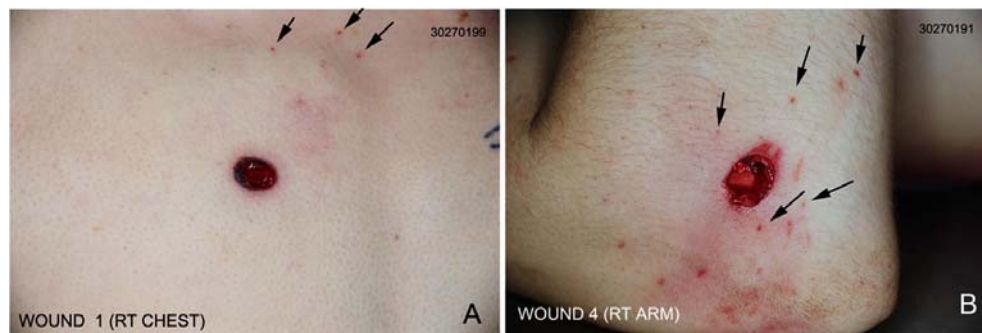


Figure 9. Comparison of the areas around wounds 1 and 4; (A) Autopsy image of wound 1 showing the “stippling” (at arrows) that Martini noted “are consistent in physical characteristics with stippling.” (B) Autopsy image of wound 4 showing similar “stippling” along with other abrasions (arrows point to the similar “stippling”) around the bullet defect. Martini’s observation (2003A) of sand on the victim’s shirt provides a more likely explanation for these small abrasions.

Lance Martini (Criminalist, San Diego Sheriff’s Crime Laboratory)

Martini generated two reports on this case (Martini, 2003A and 2003B).

Martini (2003B) provided horizontal-plane diagrams of his proposed bullet trajectories in his autopsy findings, but did not provide vertical-plane diagrams. Instead, he gives vague descriptions for the vertical-plane angles which neglected this information for three bullet trajectories: bullet 1 (wound 1): “slightly downward”; bullet 2 (wound 2): “downward”; bullet 3 (wound 3): “slightly downward.” The lack of vertical angle measurements taken at the autopsy was an area of contention for the litigation of this case.

Possible gunpowder stippling on St. Louis' chest above wound 1 (Fig. 9A, at arrows) was noted by Martini (2003B), "The four (4) 'punctate uniform small red circular abrasions above the wound at 1 o'clock' for gunshot wound #1 are consistent in physical characteristics with stippling. The distribution of these abrasions in relation to wound #1 is unusual and cannot be explained by the masking effect of the shirt being worn at the time." St. Louis fell (quite hard, according to Nolan) into the planter where he likely also acquired similar "stippling" or "punctate abrasions" on his right arm and elbow (Fig. 9B, at arrows). There are also other different-appearing abrasions in proximity to the arm wound indicating that the so-called chest and later claimed arm (Jason deposition) "punctate abrasions" did not have a firearm (gunpowder) origin. Indeed, Martini (2003A) reported, "fine grain sand is present adhering to the fabric [of the tank top shirt that St. Louis was wearing]." The lack of tattooing associated with these wounds adds support for a non-gunpowder origin of these small abrasions (Di Maio, 1999, Hueske, 2006).

Table 2. Table presented by Martini (2003B) showing the distribution of gunpowder and partially burned gunpowder from a test firing of Officer Webb's Glock Model 27 with its associated Federal ammunition (S&W .40 caliber) on a target (unknown material) versus distance.

Gunshot Residue Distance Analysis by Modified Griess Process												
Muzzle to Target Distance (inches)	12	18	24	30	36	42	48	54	60	66	72	78
GSR Vapor/Soot	yes	no	no	no	no	no	no	no	no	no	no	no
# Gunpowder Particles	30+	30+	30+	20	30+	6	1	3	1	1	0	0

Martini (2003A) tested the shirt with Modified Griess, which stains nitrite-composed materials such as gunpowder and partially-burned gunpowder. No gunpowder was detected. Gunpowder deposition on the shirt would be expected if the fine skin abrasions were created by gunpowder.

"A distance determination to establish the maximum distance of gunshot residue deposition was performed by means of the Modified Griess test using the subject firearm and ammunition" (Martini, 2003B). The table (Table 2, herein) provides "GSR Vapor/Soot" observations as well as "# Gunpowder Particles."

Martini (2003B) presents an alternative reconstruction from that proposed in this report. In reference to bullet 1 (wound 1): “It is possible that a discharge may have occurred at distances between approximately 42 and 72 inches [106.7 to 182.9 cm - from the target to the pistol’s muzzle] that would not have deposited gunpowder particles onto item #42 [St. Louis’ shirt] in the area associated with defect #1.”

Alexander Jason (Shooting Scene Reconstructionist).

Jason’s report (2005) relied on the autopsy report (Whitmore, 2003), autopsy images and the reports of Martini (2003A and 2003B). Mr. Jason’s bullet path for wound 3 (Fig. 10A) is consistent with the autopsy images (e.g., Fig. 7) and Martini’s (2003B) report. Jason’s report for the trajectory for bullet 4 (wound 4, Fig. 8) also corresponds with Martini’s report. However, his bullet trajectories for bullets 1 and 2 (Figs. 10A, 10B and 10E) differ from those indicated in the autopsy images (Fig. 6) and reported by Martini.

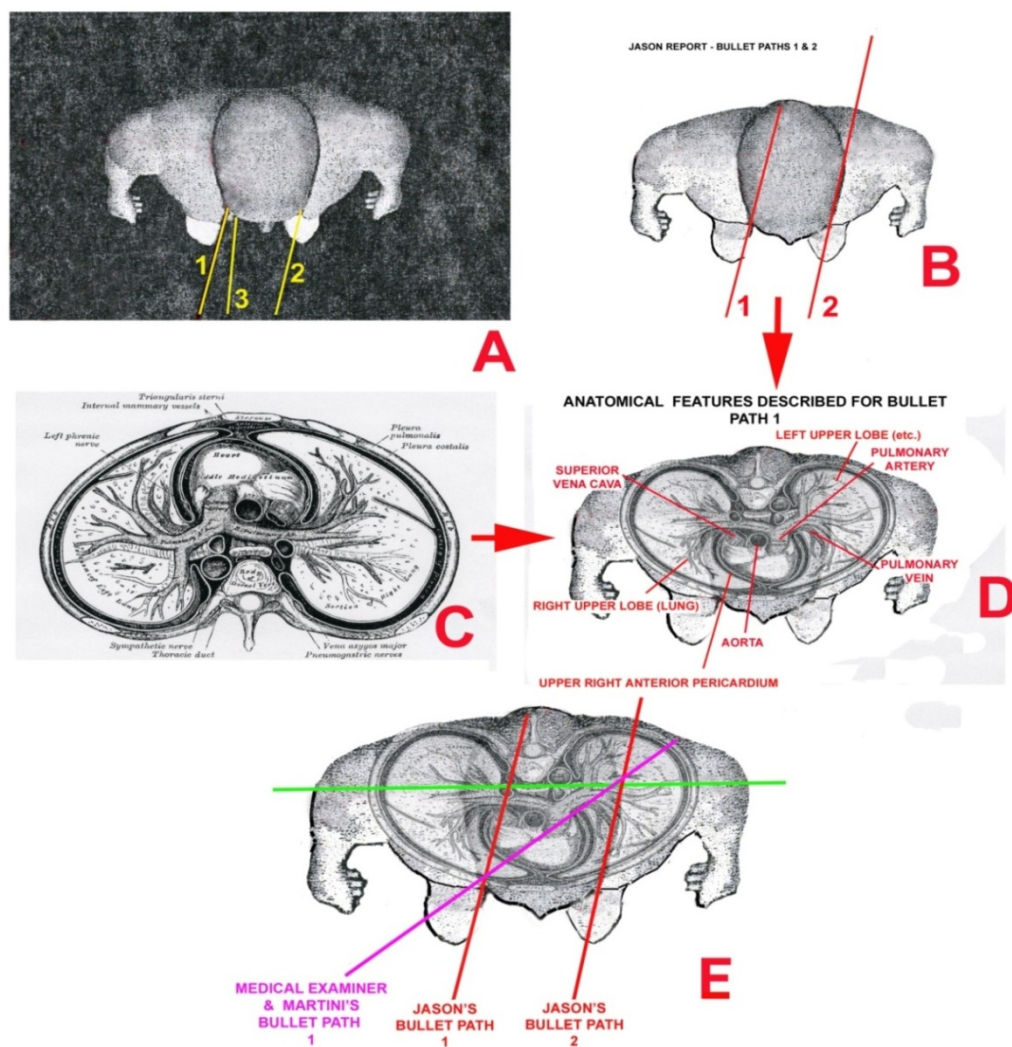


Figure 10. Bullet trajectory and organ positions on the horizontal plane, in reference to Jason's (2005) and the Medical Examiner (Whitman, 2003) reports; (A) graphic from Mr. Jason's Preliminary Report showing trajectories for bullets 1, 2 and 3; the yellow lines retrace Jason's trajectory "dowels." (B) A "cleaned up" Jason's graphic; the trajectory for Jason's bullet 1 is extended through the body to show that this bullet would hit the vertebral column (unless internally deflected) as drawn. (C) Figure 701 from Gray's Anatomy (1905); (D) figure 10C rotated 180 degrees and superimposed on Jason's graphic (Fig. 10B); Key structures in the trajectory of bullet 1 (as noted in the autopsy report) are identified. (E) As in D, except wound 1 bullet trajectory from the Medical Examiner's and Martini's report (purple) and Jason's proposed trajectories for bullets 1 and 2 (red) are shown.

Jason's reconstruction of the trajectory of bullet 2 indicates that there was an incorrect placement of the trajectory rod by the pathologist during St. Louis' autopsy (Fig. 6). Jason appears to have derived this bullet's trajectory by aligning the "rod" with the exit wound for this bullet. The horizontal-plane angle for the bullet 2 trajectory has more of a right-side angle than that shown by Martini (Fig. 6A, Jason's bullet trajectory for bullet 2 (wound 2) at top in red, the black arrow, labeled "2" is Martini's report graphic) and on the vertical plane, the angle shows that St. Louis was not leaning as far forward as originally indicated in the autopsy images (Fig. 6). This change of the bullet 2 trajectory proposed by Jason is likely more accurate than presented by Martini and is incorporated in the reconstruction of this shooting.

Jason also deviates from the autopsy images, autopsy report and Martini's representation of the bullet trajectory for bullet 1 (Fig. 10). All the structures mentioned in the autopsy report concerning bullet 1 trajectory are shown (Fig. 10C). The graphic is superimposed on Jason's rendering of the victim's body (Fig. 10D). The structures mentioned in the above quote for the path of bullet 1 are identified in Fig. 10D. The only way to damage these structures consistent with the autopsy report is by a bullet 1 horizontal trajectory shown in the autopsy images and in Martini's reports (Fig. 10E, purple line).



Figure 11. Small abrasions proximal to St. Louis' elbow that were not in the line of fire for the shot that created wound 4. Arrows point to some of these abrasions. Similar abrasions are found on the arm surface around the wound that could have been exposed to the shot's blast if close enough to the muzzle (also see Fig. 9B). These abrasions are likely from sand that resulted from St. Louis' fall into the planter upon the return from his approach toward Webb. Martini (2003A) noted sand on St. Louis' shirt.

Jason in a 2006 deposition provided more details of his opinion on this case. He modified his opinion from his “preliminary” report (Jason, 2005) by including the stippling on the right arm with the chest stippling:

Q In your analysis of this case, did you see any gunshot residue evidence?

A Yes.

Q Tell me what that is.

A There are abrasions on the decedent’s arm and chest which are consistent with stippling.

Q Can you define stippling for the record.

A Stippling is the marking of skin by burned and unburned powder particles which strike the skin and cause small abrasions, which are small punctate marks on the skin, scratches.

...

Q Where on the decedent’s body did you see evidence of the stippling?

A On his right elbow, near the entry wound on his right elbow, the bullet entry wound. And on his chest above the shot, I believe it was Number 1.

Shooting Scene Tests

Video simulation. Witnesses described St. Louis’ pace toward Webb, from running to walking and his distance from Webb from 15 feet (4.8 m) to “within feet” during the 4 shots. This report will not go into each interview transcript and deposition of these accounts; some are obviously in error and do not deserve comment. There are also significant differences from interviews taken within hours of the shooting from accounts provided in deposition two years later (e.g., the interview of Collins versus his deposition). Webb’s account of an event that could well have taken less than 3 seconds (see below) is likely more reliable than the other witness accounts. She was focused on St. Louis’ movements and was not distracted by tasks not associated with St. Louis (e.g., Carter loading the car with beer cases, Carter deposition). Nolan’s account also has more weight than the other eyewitnesses in that he was focused on Webb and then St. Louis when he started his approach toward Webb.

Webb reported that St. Louis' started his approach with his body leaning forward, "... when he [St. Louis] was coming around the car he was as low as the car" (Webb interview, page 92) and apparently at a fairly fast pace, e.g. Witness T. Hamilton: "the suspect ... sprinted toward the woman." However, other witness accounts state that the movement by St. Louis toward Webb ranged from a "walk" (Kevin Carter) and "... walking really fast toward her" (Malia Hamilton). It is likely that these latter accounts were observations of St. Louis near the end of his approach toward Webb.

Is it worthwhile to attempt a shooting reconstruction when the target (St. Louis) is in motion and in three-dimensional space (i.e., multiple body position are possible for any one shot)? If the target/person were restrained, for example, in a car seat with a seat belt, the body position variables would be considered constant for trajectory measurements. So, we are left with divergent witness accounts and Webb's account for the rapidity of St. Louis' approach and body position of St. Louis in relation to Webb at the time of the shots. These variables have reasonable estimates derived from comments by Officer Webb in the context of the physical and simulation evidence.

What I do know is this guy disappeared for a coupla seconds ... and then, he came at a crouch charging around the back [of] the vehicle ... - Officer Webb (transcript, p. 50)

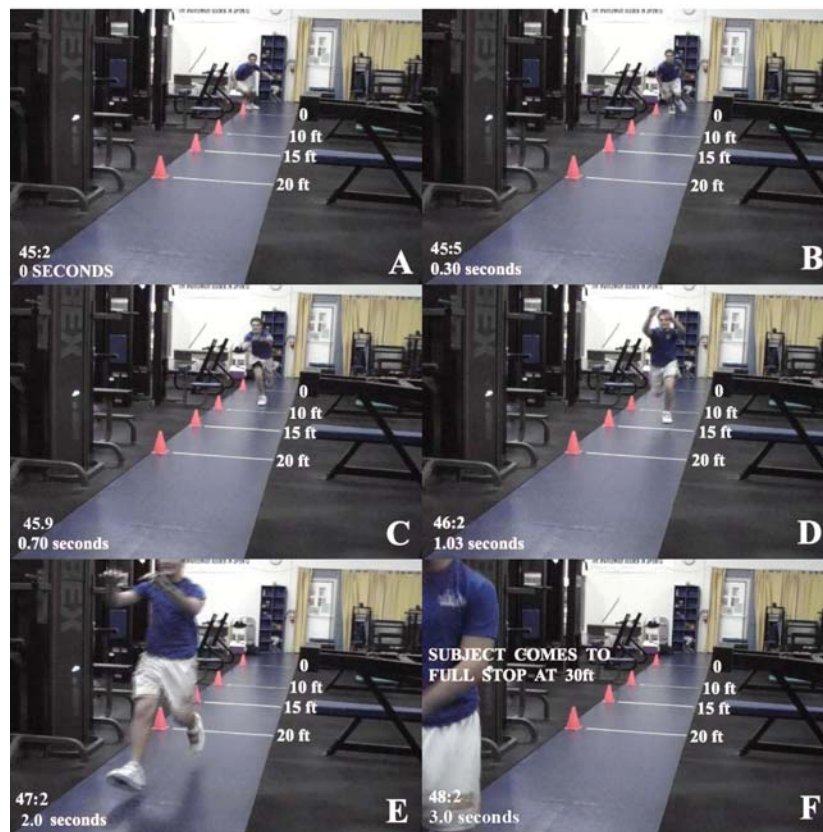


Figure 12: Simulation of St. Louis' approach toward Webb at Cardiff Gym, Cardiff California; the subject was of similar age, height and weight. The bench press apparatus to the left of the subject when he starts the simulation represents the rear of the car. The lower left of each image are the times when each image was taken. The first four images (A, B, C and D) were selected from this video clip roughly corresponds to the time intervals between shots that Jason (2005) presents in his sonogram. (A) Position of the subject corresponding to the first shot (0 seconds). This image was selected to start the series because the body position of the subject corresponded to the probable body position of St. Louis at bullet 1 (wound 1). (B) Position of the subject corresponding to the second shot at 0.30 seconds after the first shot; (C) Position of the subject corresponding to the third shot (0.40 seconds after the second shot). Note that the right arm of the subject is nearly in the position that would correspond to the arm position of St. Louis when he received bullet 4; (D) position of the subject corresponding to the fourth shot (at 0.33 seconds after the frame in Fig. 12C and 1.03 seconds after the frame in Fig. 12A). His posture now corresponds to that suggested when he received wound 3. (E) Position of the subject at 2.0 seconds after the first shot. This position would

correspond to Webb's observation that St. Louis was reaching for her gun. (F) Position of the subject stopping at approximately 3.0 seconds after the first shot. The distance covered is 30 feet (9.1 m) from the first shot to the subject's stop. At 30 ft (9.1 m), St. Louis stopped, turned around and returned to the right side of the car.

Even with uncertainties of the victim positions during the shots, which will always remain to some degree, a simulation provides for the intercalation of the physical evidence with some features of Officer Webb's account. A simulation was conducted and video recorded. Individual frames were viewed (Fig. 12). In this video, the subject was 16 years old, approximately 5'11" (1.81 m) tall and about 165 pounds (75 kg) - features similar to St. Louis. The subject was instructed to simulate the body positions of St. Louis as derived from Webb's interview and witness reports (where deemed credible):

1. As you round the right rear of the car (bench press in the simulation), run crouched (Figs. 12A and 12B).
2. Shift from crouched to erect before 15 ft (4.8 m) mark (Figs. 12B, 12C and 12D).
3. Reach for the (imaginary) "gun" after 10 ft (3.1 m) mark (Figs. 12D and 12E).
4. Start slowing down after 10ft (3.1 m) and come to a stop at the 30 ft (9.1 m) mark (Fig. 12F).

Bullet 1 horizontal trajectory derived from autopsy images and Martini reports indicates that the St. Louis received this wound while still facing the store front. He was likely leaning forward, approximately 20 degrees (vertical angle estimated from the bullet track description (Whitmore, 2003)). The most likely time St. Louis received this wound was during his turn toward Webb at the start of his approach (similar to the position shown in Fig. 12A). The bullet 2 horizontal trajectory was likely incorrectly shown at autopsy and by Martini. Jason's (2005) depiction of the bullet 2 trajectory is correct and indicates, when applied to the simulation, this was the wound that occurred at the second shot (0.30 seconds after the first shot). This second shot hit St. Louis when he was almost erect, at approximately 10 degrees (vertical angle estimated by the entry and exit wounds) and had nearly completed his turn toward Webb (approximately in the body position shown in Fig. 12B, but he would have been more erect).

Webb's interview, p. 51, (A = Webb: Q = interviewer):

A ...And he uh, he straightens up after he comes around ...

Q So he's kinda crouching and then he straightens up?

A Yeah.

...

A *His arms come up as he comes up. He comes up and then his arms come up.*

The simulation attempts to recreate St. Louis' approach toward Webb, where the subject in the simulation was able to become erect and turn to face Webb within the 1-second time frame (shot 1 is at 0 seconds, Fig. 12A). Bullet 4 (wound 4) occurred while St. Louis was in the position shown in Fig. 12C. Bullet 3 (wound 3) portrays a bullet trajectory that indicates an erect or perhaps leaning back subject as in Fig. 12D. However, in this reconstruction scenario it would be also plausible that bullets 3 and 4 were caused by shots 3 and 4, respectively.

Webb notes that St. Louis looked like he was reaching for her gun when he got within 4 feet (1.2 m) of her, "... except that his hand was probably a foot [30 cm] off the gun" (Webb interview, page 97). The arm positions shown in Figs. 12D and 12E correspond to the account provided by Webb. Required for this simulation is that the subject must stop (beside Webb's apparent shooting position at the scene, as determined by the position of the casings and blood) at about 30 ft (9.1 m) from the start of his approach. This was accomplished in this simulation. However, the subject did need to apply foot slapping (after 1 second) to counter his momentum and come to a complete stop as required at 30 ft (9.1 m, Fig. 12F). During this slowing period by the subject in the simulation, there was a leaning back (Fig. 12E) a parallel to St. Louis' body position when he received bullet 3.

Glock Model 27 test firings. Martini (2003B) suggested that the "punctate abrasions" found in the upper chest of St. Louis (Fig. 9A, at arrows) were caused by partially burned gunpowder, indicating that St. Louis was within the range of his estimated 42 to 72 inches (107 to 183 cm). This would be from the shot that created wound 1. It appears Martini assumed the gunpowder and partially burned gunpowder (as visualized by Modified Griess staining, results presented in Table 2) had sufficient momentum at 42 to 72 inches (107 to 183 cm) to penetrate skin. Martini did not conduct tests to determine the distance from the Glock muzzle as to where the unburned powder lacks momentum to penetrate skin. This distance from the muzzle can be estimated by use of the target material BenchKote (Haag, 2006).

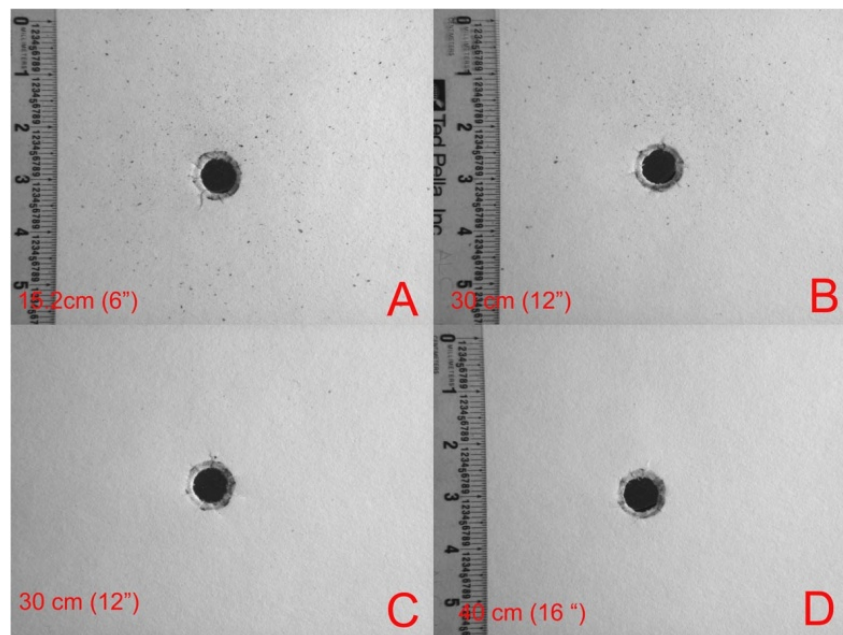


Figure 13: Test firing of a Glock Model 27, .40 caliber (different pistol than used in the shooting) into BenchKote paper ; (A) the muzzle-target distance is approximately 6 inches (15 cm). At this distance stippling (dark specks) by unburned gunpowder is significant. (B) Muzzle–target distance is 12 inches (30 cm). The density of the stippling is not as great as the 6-inch (15 cm) shot. (C) Muzzle–target distance is 12 inches (30 cm). Unlike the first 12 inch (30 cm) test, stippling and adherent power are absent. (D) Muzzle–target distance is 16 inches (40 cm). Stippling is absent.

A number of shots were made with a Glock Model 27, .40 caliber into BenchKote targets at different muzzle-target distances. The ammunition was the same as that used in the shooting: “Federal Premium 40 S&W 165 grain Hydra-Shok JHP.” Distances were 6 inches (15 cm), 12 inches (30 cm), 16 inches (41 cm), 2 feet (61 cm) and 3 feet (91 cm). Figure 13 are images of the BenchKote targets. The 12 inches (30 cm) muzzle-target distance is the approximate distance where unburned propellant ceases to have enough momentum to penetrate the paper.

One target at 12 inches (30 cm) had penetration; another at the same distance did not. Thus, a target, be it skin or BenchKote, needs to be within the muzzle–target distance of about 12 inches (30 cm) in order to cause stippling. For a center fire cartridge firearm of this caliber, this distance appears to be somewhat shorter than expected. Hueske (2006) estimates this drop off distance as an “arm length” (i.e., approximately 18 inches (45 cm)) for most center fire pistols.

According to Webb, St. Louis was not close enough to the gun at discharge to receive such stippling. Martini (2003B) did not find gunshot residue on St. Louis' shirt. It is likely that the skin abrasions on St. Louis resulted from fine-grain sand that abraded his skin when he fell into the planter near the teenager's car.

The abdominal shot (bullet 3). The interview transcript of Webb offers additional information to the shooting scene reconstruction (page 51):

A *four shots and I remember seeing blood on like, I can't tell if it's three or two...*

Q *Um-hmm.*

A *... the **last one [shot] was very close to center mass...** (boldface added)*

The final shot, according to Webb, was the shot that created the abdominal wound (bullet 3).

A *... He kept coming. And then when he, I don't know why I didn't shoot him a fifth time, because as weird as it is, **he kept coming after I stopped shooting and then he, he got within close to me with one arm extended and then he turned around...** (boldface added).*

If St. Louis was running toward Webb when he was first shot at ten to fifteen feet, it would have taken approximately 1 second to at most 1.5 seconds for physical contact. Such contact did not occur. Not only did St. Louis deviate toward the store front, but Webb had time to make observations on the approaching St. Louis and decide whether or not to fire a fifth shot. St. Louis required at least 2 seconds to come to a full stop from a run. He could not have been running at the fourth shot if that shot was within four feet of the muzzle. Even if he had deviated past Webb at a run in this proposed scenario, he would have been unable to stop where the blood spatter (Fig. 4 at 4 and 6) indicated he did stop.

If the abdominal wound (bullet 3) was the fourth shot, it follows the closer that St. Louis gets to the shooter, the larger the vertical angle of the bullet trajectory. In addition, St. Louis was noted by Webb as reaching for her gun with his hand coming within 1 foot (30 cm) of the muzzle. If St. Louis was reaching for the gun, he would have been leaning toward Webb, which would accentuate the vertical angle of the bullet trajectory that caused wound 3 even more (Fig. 14). But, the vertical angle of this shot was shown in the autopsy images and by Jason as being approximately 6 ± 1 degree. The reach for the gun likely took place approximately 1 second after St. Louis was struck by the final bullet of the four or 2 seconds from the start of St. Louis' approach toward Webb.

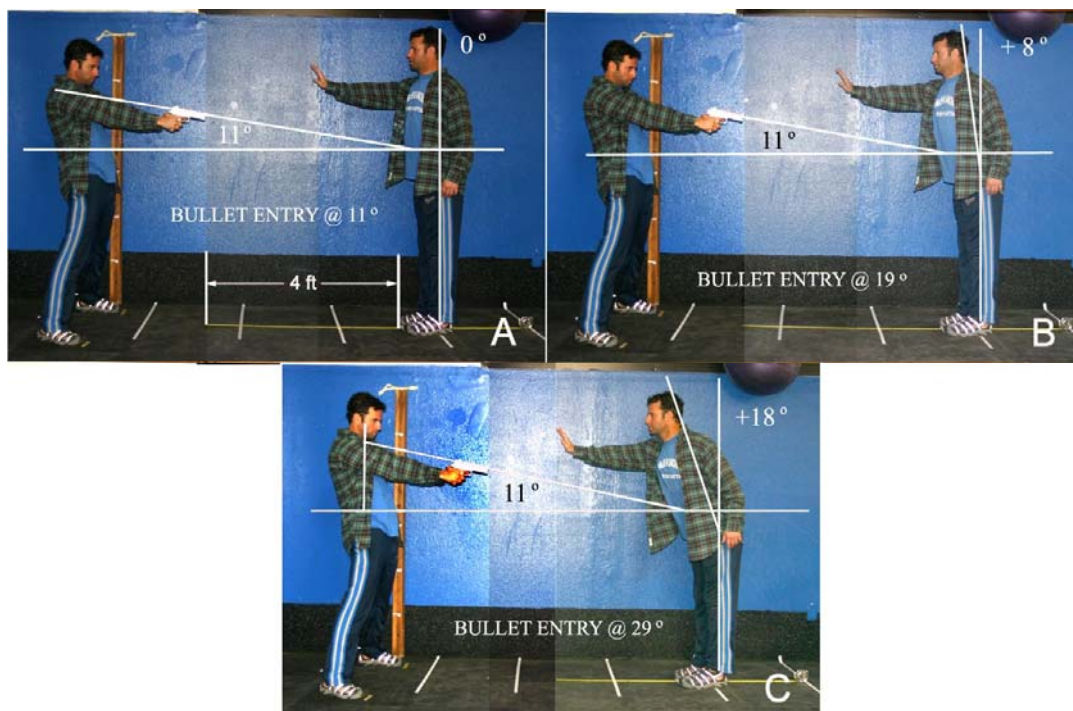


Figure 14. Illustration of the change in the vertical angle shot into the abdomen when the victim is reaching for the shooter's gun; the subject was 6 feet (1.83 m) tall - similar height to both Webb and St. Louis. According to Webb, one shot occurred when St. Louis was 4 ft (1.2 m) from her and into his "center of mass." The vertical scale bar to the left of the shooter is 6 ft (1.83 m). For the proposed reconstruction, the final shot (bullet 3) of the four-shot series is to the abdomen.

As noted above, Webb had the time following shot 4 to contemplate firing a fifth shot. This indicates that St. Louis was more distant from the pistol's muzzle than 4 feet (1.2 m) at that final shot and, thus, he was not "on top of her" by that shot, yet Webb notes (p. 51) that St. Louis "ran at me the whole time." The lack of gunshot residue/powder on St. Louis also indicates that St.

Louis was more distant from Webb during the four shots than recounted by her. Witness estimates of the distance of St. Louis at the start the shots vary greatly ranging from 15 feet (4.6 m) (Carter interview) to “nine [2.7 m] or ten feet [3.0 m]” (Webb interview), to even a shorter distance of “a couple of feet” (Shandil interview). As has been pointed out by Haag (2006) and others experienced in shooting scene reconstruction, eyewitness accounts often have little correspondence to a reconstruction scenario proposed by a thorough evaluation of the physical evidence. Indeed, Haag (2006) notes, “It is more often the exception than the rule that the physical evidence squares with the accounts of eye or ear witnesses in every respect.”

It was suggested by an investigator of this case that if wounding of St. Louis initiated approximately 30 feet (9.1 m) from Webb, he would have started dropping blood well before reaching where he stopped beside Webb’s shooting position. There is currently no authority that this author is aware that would predict when St. Louis would start dripping blood considering the nature of his wounds. He also had an overlying shirt to absorb blood. Considering the blood evidence (Fig. 5) and the simulation (Fig. 12), St. Louis started dripping blood at about 2 seconds after receiving the first shot.

Conclusion

Trajectory for bullet 1 indicates an entry at an angle showing that St. Louis was leaning forward at approximately 20 degrees (Fig. 15, left) and he was almost erect at about 10 degrees (Fig. 15, middle) for bullet 2. The horizontal shot angle of each body/bullet trajectory graphic is from Martini (2003B) and Jason’s (2005) depiction of the bullet path of wound 2. It is even more difficult to hypothesize when bullet 4 (the right arm wound) occurred in the sequence of four shots due to, as also pointed out by both Martini and Jason, multiple possible body positions with this shot. The reconstruction diagram for bullet 3 (Fig. 15, right) places this wound from Webb’s third or more likely the fourth shot. This is due to St. Louis being more erect (or even leaning slightly back) than the body positions for bullets 1 and 2. St. Louis was able, in the interval from the first shot to the fourth shot, go from a forward leaning position (bullet 1) and facing the store front to erect (bullet 3) and facing the shooter. Noteworthy is this direction and posture change was performed in one second with a travel distance of approximately 15 feet (4.8 m).

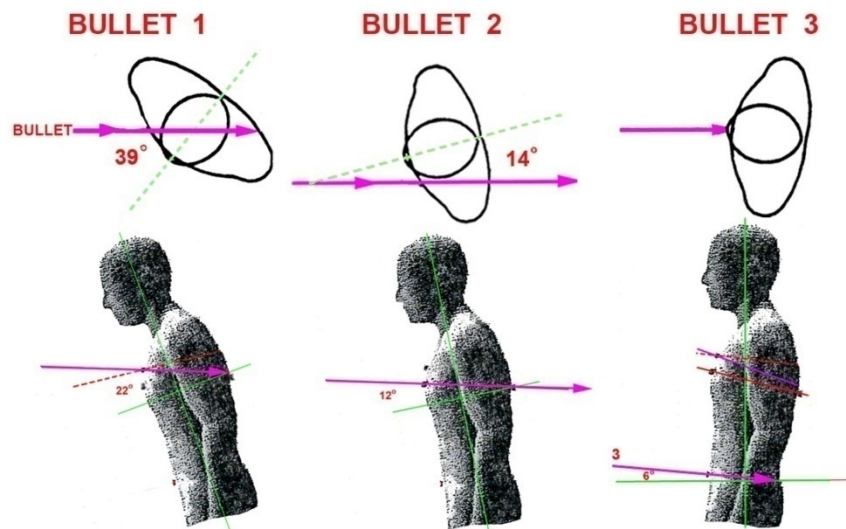
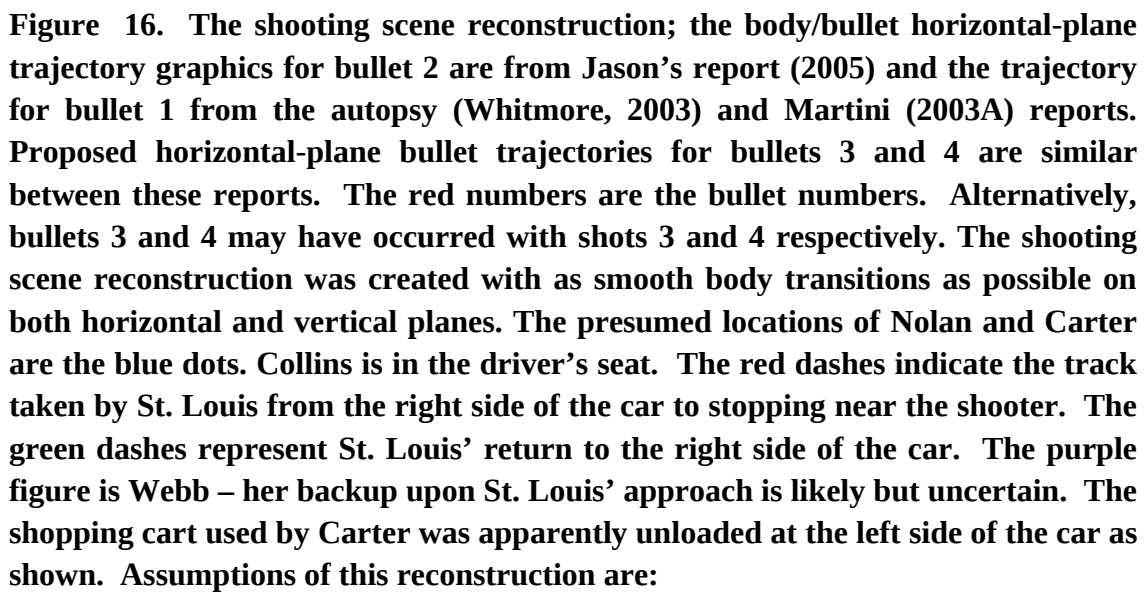


Figure 15. Proposed horizontal- (top) and vertical- (bottom) plane trajectories for bullets 1, 2 and 3. St. Louis was likely leaning slightly forward, at approximately 20 degrees, when he received the bullet that caused wound 1 and a bit more erect (approximately 10 degrees) when he received the bullet that created wound 2. As discussed by Haag (2006) and in this article, such angle estimates are fraught with uncertainties.



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The sequence of shots/wounds portrayed in the reconstruction (Fig. 16) were chosen as the most likely due to the physical evidence, criminalists' reports, witness statements and Webb's account of the shooting. St. Louis was first shot (bullet 1) as he was turning toward Webb at the right bumper of the car and the final shot (bullet 3) of the four when he was approximately 15 feet (4.8 m) from Webb.

In an alternative reconstruction (Fig. 17), Martini (2003B) places St. Louis within range to receive gunpowder "42 to 72 inches [107 to 183 cm]" from the pistol's muzzle for the wound 1 shot. Martini (2003B) concludes, "The physical evidence is consistent with St. Louis being in close proximity to Officer Webb at the time he was shot." If Martini means an intermediate range shot, then the physical evidence is not consistent with Officer Webb being in "close proximity" with St. Louis during any of the shots.

Martini's reconstruction scenario is unlikely to have occurred because it requires the final shot into St. Louis to be bullet 1. However, Webb notes that St. Louis reached for her gun at the end of his run towards her - that reach could position (both horizontal and vertical angles) St. Louis' upper body to correspond with the bullet 1 trajectory. If the shot was delivered under this circumstance, the bare inner right arm should have had evidence of gun powder deposition and the shirt would have tested positive with the Modified Griess test.

The track that St. Louis took in the shooting scene reconstruction (Fig. 16) takes into account the distance that St. Louis could have traversed during the run from a partial leaning forward to erect posture and a turn from facing the store front to facing Webb during the four shots. St. Louis covered about 15 feet (4.8 m) during the four shots within one second. The body/bullet trajectory graphic created by Jason for bullet 2 (corresponding to shot 2) lines up well with the final resting position of the bullet on the sidewalk in front of Petco (Figs. 4 and 16, at "14"). As noted, a slightly forward-leaning body is indicated when this wound occurred.

Eyewitness accounts conflict on many details of this case. Clearly teenager Nolan, who was on the right side of the car with St. Louis, had moved onto the sidewalk at the rear of the car and was facing Officer Webb at the time of St. Louis' run toward Webb. Nolan stated several times in interview and deposition that St. Louis' body obscured his view of Webb. Nolan was not preparing to get into the car even though the last beer case was being placed in the car by Carter when the shooting occurred.

Webb was watching both Nolan and St. Louis. She stated that she saw St. Louis withdraw from the back right seat of the car (where he was stacking beer cases) and duck. This was apparently enough of a signal of pending "attack" (as interpreted by Webb) for her to be ready when it did occur. Testimony by Webb along with the evidence indicates that the first shot was early in St.

Louis' approach. Webb considered firing a fifth shot as well as noting blood stains on the shirt of the approaching St. Louis. She did not fire a fifth shot because St. Louis' approach was slowing (witnesses Carter and Malia Hamilton did not see St. Louis run in his approach toward Webb) and deviating from a direct path toward her (Fig. 16). If St. Louis was at 10 to 15 feet (3.1 to 4.8 m) from Webb for the first shot, 4 feet (1.2 m) with the fourth shot, all shots within one second and was at a "full run" (according to Webb), then St. Louis' momentum would have taken him past the spot where he actually stopped. The second scenario (Fig. 17) presented by Martini (2003B) and Jason (2005 and 2006 deposition) is unrealistic.

Why is it that the trajectory rods for wounds 1 and 2 in the autopsy image (Fig. 6) were apparently inaccurate by 10 or more degrees on the vertical plane? The reasons:

- 1) The body was in rigor while the autopsy was conducted. This would exaggerate the vertical angle of the trajectory rods in chest wounds due to arching of the back. Note in Fig. 6A that St. Louis' lower back appears arched.
- 2) Haag (2006) notes that trajectory rods can be improperly inserted. It appears the trajectory rod for bullet 2 was improperly placed.
- 3) Without controlling the camera angle and elevation in relation to the body at autopsy, images misrepresent trajectory rod angles.

Mr. Joseph Orantes, former crime scene reconstructionist and former head of the San Diego Police Crime Laboratory frequently reminded the author when we were working together (1992-1996) on reconstructions (paraphrase), "Remember that a reconstruction is the putting together the physical evidence and eyewitness accounts into a meaningful scenario that best explains a crime scene. There is always uncertainty, where new or missed evidence might significantly alter that scenario."

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