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Report of Consultation
Re: MA v. David Yarde (Suffolk County Superior Court, No. 1224CR11181)

Dear Mr. Shea:

Introduction

You have asked me to review materials and to provide consultation in the field of forensic pathology, which I have practiced for more than thirty years. After receiving my MD degree from the University of Michigan in 1980, I completed training in anatomic pathology at the New York University Medical Center (1980-1983) and in forensic pathology at the Office of the Chief Medical Examiner for the State of Maryland (1983-1984). I have been certified in both anatomic and forensic pathology by the American Board of Pathology since 1985. I am currently licensed to practice medicine in four states. I spent most of my career as a government-employed medical examiner, including nine years with the Office of Chief Medical Examiner for the City of New York where I finished as First Deputy Chief Medical Examiner, and more than five years as the Chief Medical Examiner of Washington, DC. I am currently President of Arden Forensics, PC, a consulting practice in forensic pathology and medicine, and I hold a part-time appointment as a Forensic Pathologist in the Office of the Chief Medical Examiner for the State of West Virginia.

I have testified as an expert witness in various state and federal courts, as well as in grand juries and depositions, a total of more than 900 times. My fees are not contingent upon the outcome of any case in which I consult.

Materials Reviewed

I have reviewed the following materials regarding the above-captioned case:

- Report of Autopsy, with notes and diagrams and death certificate, for Deandrea Russ, from MA Office of the Chief Medical Examiner, ME Case No. 2012-13065;
- Forensic Toxicology Report for Deandrea Russ, from UMassMemorial Medical Center, Case No. CME12-13065;
- Autopsy photographs of Deandrea Russ;
- Excerpts of surveillance videos and still frames from those videos (Camera 14 and Camera 7);
- Transcript of trial testimony of Dr. Kimberly Springer;

- Crime scene sketch (computer diagram) of shooting scene, including locations of recovered spent cartridge casings;
- Photographs of shooting scene (taken at later date), demonstrating the building pillar and surrounding area in which the shooting occurred;
- Transcript of trial testimony of Detective Tyrone Camper;
- Excerpts of transcripts of trial testimony of Officer Mammone and Detective Doogan;
- Excerpts of transcript of trial testimony of Detective Zingg; and
- Excerpts of trial transcript of testimony of John Collins and of Closing Arguments.

I have also relied upon my education, training and experience as a physician, forensic pathologist and a medical examiner.

Brief Case Synopsis and Issues to be Addressed.

Deandrea Russ was a 22-year-old man who was shot in front of 1050 Tremont St., Boston, MA, in an incident that occurred at approximately 3:17 AM on 10/28/2012. Parts of the incident leading up to the moment just before the shooting were captured on surveillance videos. In brief, Mr. Russ is seen to be in a confrontation with several other men, in the area of a supporting pillar of the building. David Yarde was identified (both by the testimony of John Collins and during the Commonwealth's closing argument) as the person wearing the light-colored hat, located on the right side of the pillar (as seen in the video, Camera 14), i.e., near the end of the pillar closer to the building, while Mr. Russ was at the left side of the pillar. Other people in the group moved behind and around the pillar, placing them farther to the rear and/or to the left in the view of the Camera 14 video, i.e., they were closer to the street. (Camera 7, taken from a different angle, shows Mr. Russ coming into the camera field from the foreground by collapsing onto the sidewalk after having been shot.)

Mr. Russ was transported and admitted to the hospital. He was pronounced "brain dead" on 10/29/2012, at 9:02 AM. The Massachusetts Office of the Chief Medical Examiner ("OCME") took jurisdiction over his death, and performed an autopsy on 10/30/2012. The autopsy demonstrated that Mr. Russ had received three perforating gunshot wounds: one to the head and one to each lower extremity. The gunshot wound to the head entered on the left side of the forehead; the skin of the face (predominantly on the left side) had associated tiny marks, described in the autopsy report as "punctate abrasions with crust (scab)," but characterized in trial testimony of the medical examiner as stippling. The gunshot wound path entered the soft tissues and the skull, passed through the brain with associated hemorrhage, and then passed through the skull and scalp, exiting on the right-rear portion of the head. The wound trajectory was described as "front to back, left to right, and upward." The gunshot wound through the left thigh entered on his left. The gunshot wound to the right leg had indeterminate wound characteristics, so the direction of travel could not be established with certainty.

The crime scene investigation showed that the expended cartridge casings (which are ejected from the pistol upon firing) were grouped in an area closer to the street from the end of the pillar and where Mr. Russ was standing when he was shot. Cartridge casings are normally ejected to the right of the pistol, which was also confirmed by the testimony of Officer Mammone (Transcript 3, at page 70) and Detective Doogan (Transcript 7, at page 71). The pillar around which the events including the shooting occurred measured five feet deep and nine inches wide (per Detective Zingg, Transcript 6, at page 207).

At trial, Mr. Yarde was convicted of shooting and killing Mr. Russ during the events depicted in the videos, as described above. I shall discuss the evidence from the videos, the crime scene,

and the autopsy to offer opinions regarding what that evidence indicates as to the relative positioning of the shooter and victim, and whether that evidence is consistent with Mr. Yarde having been the shooter.

Analysis and Opinions

I shall first discuss features of gunshot wound trajectories, and of gunpowder residues that permit estimations of the range of fire, and how these can be used to reconstruct certain aspects of a shooting. The entrance wound location and the wound trajectory establish the relative positioning between the gun and the target. The trajectory of a gunshot wound is the direction the bullet wound path takes within or through the body. Being a three-dimensional description, a trajectory must be described in three planes of movement. (The directions of a wound trajectory are described at autopsy relative to the body in normal anatomical position, which is imagined as the body standing upright, facing the viewer with the arms at the sides and the palms facing forward. Thus, left, right, front and back are those of the body, and up and down indicate toward the head and toward the feet, respectively.) The location of an entrance gunshot wound, in conjunction with the known trajectory of that wound path inside the body, establishes the relative positioning between the gun and the target, in that the gun must be aimed at the entrance location, and angled such that the straight-line path of the bullet continues along the direction of the wound trajectory. In addition, the presence of gunpowder residues associated with an entrance wound is indicative of the range of fire, i.e., the distance between the muzzle of the gun and the target surface, expressed in categories of distances (i.e., not as precise measurements). The two major types of gunpowder residues that may emerge from the muzzle and be deposited on the skin associated with entrance gunshot wounds are soot and stippling. Soot is the product of well-burned gunpowder. Soot particles are very small and light, so they will not travel far before being stopped by air resistance, and are therefore deposited only at contact or close-range gunshot wounds (generally within 6-9 inches, and possibly 12 inches). Stippling is a pattern of tiny red or brown dots on the skin formed by partially burned or unburned gunpowder particles which embed just beneath the skin surface. Stippling begins at close range (approximately an inch) and commonly occurs with distances up to approximately 18-24 inches; much less frequently, sparse stippling may occur up to 36 or even 40 inches from the muzzle.

Regarding the gunshot wound to the head of Mr. Russ, the entrance wound location, the wound trajectory, and the presence of stippling all indicate the relative positioning between the gun and his head, and the approximate range of fire. The gun had to be located to the left and slightly forward of his head, aimed at his lower-left forehead, and angled such that the path of the bullet would extend from the entrance in the forehead, through his head in a direction to his right, backward and slightly upward. (Of course, the head can be turned in various directions, but if the head were to be turned on the neck, the gun would have to remain in the relative position to the left and slightly forward of the entrance location on the left forehead.) In addition, the presence of fairly sparse stippling in the absence of soot deposition indicates an intermediate range of fire, likely more than 6-12 inches but within approximately two feet or slightly further.

The ejected shell casings are also relevant to the positioning of the gun at the time of the shooting. As described above, pistols eject expended casings to the right of the gun (and some guns may also impart a degree of backward travel of the casings). In this instance, the casings were grouped in one area, indicating that the gun ejected them in a largely consistent direction, from a consistent firing location. The casings were toward the street relative to the front edge of the pillar. A gun ejecting to this area while firing at Mr. Russ, who was standing to the right of the edge of the pillar (as viewed from the street), would be located in front of and possibly slightly to the left of the edge of the pillar (as viewed from the street). The approximate location

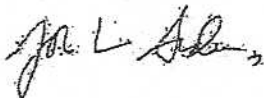
of the gun while firing, from the view of video Camera 14, is therefore farther to the background from Mr. Russ (which is off to his left side), i.e. coming at his left from around the edge of the pillar.

Note that on the video of Camera 14 Mr. Yarde is to our right of the pillar, i.e., he is at the other edge of the pillar (closer to the building), while Mr. Russ is standing to the left of the opposite edge of the pillar. We know from Detective Zingg that the pillar is 5 feet deep, so Mr. Yarde and Mr. Russ were separated by slightly more than 5 feet at the time of the shooting, and were facing each other. If Mr. Yarde had shot Mr. Russ from that distance of more than 5 feet, no stippling would have been deposited with the entrance gunshot wound. In addition, if the two men were facing each other, the trajectory of the gunshot wound to the head would be predominantly backward, without the substantial left-to-right component that it had. The images from the video do not appear to show Mr. Russ turning his head sharply to his right at the time of the shooting, which would be necessary to create the trajectory if the shooter were in front of him. Even if that had occurred, the distance is inconsistent with the presence of stippling. The left-to-right trajectory of the left thigh gunshot wound would also be inconsistent with a shooter in front of and facing him. As discussed above, the locations of the ejected casings are also inconsistent with having been fired from a gun in the location of Mr. Yarde, on the far side of the pillar, near the building.

In summary, the features of the gunshot wound (including location, trajectory and gunpowder residues) and the locations of the ejected cartridge casings are inconsistent with having been fired from a gun where Mr. Yarde was located in the videos taken immediately before the shooting. On the contrary, all of the evidence from the gunshot wound and casings is consistent with the shooter having approached Mr. Russ from his left (i.e., from behind and around the edge of the pillar), shooting him from closer range. At the time of this shooting and the subsequent trial, I was available to provide consultation on these issues, as were multiple other forensic pathologists around the country. Had I been asked to consult in this matter, I would have rendered the same opinions I have expressed in this report, and I would have testified to same at trial, if called.

All opinions are expressed with reasonable medical certainty. I reserve the right to amend any statements or opinions if presented with additional significant information, as well as the right to rebut opinions expressed within my areas of expertise.

Yours truly,
Arden Forensics, PC



By: Jonathan L. Arden, MD
President