

FORENSIC RECONSTRUCTION REPORT

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Examiner: Brent E. Turvey, MS, PhD

Date: March 31, 2014

Case: *Tennessee v. Ralph O'Neal*, Case No. 14164

Victim: Ronnie Dean "Boone" Cofer

PURPOSE

The purpose of this report is to provide forensic opinions resulting from an examination of crime scene and physical evidence related variables in the shooting death of 59 year old Ronnie Cofer.

BACKGROUND

Mr. Cofer's body was discovered in a ditch along Clax Gap Road, near Harriman, on the morning of August 6, 2007. He was found face up, wearing a buttoned shirt, pajama bottoms, and sandals. His wooden walking cane was also found at this location, underneath his body. At autopsy, it was determined that Mr. Cofer died as the result of multiple gunshot wounds to the head.

It is the state's position that Mr. O'Neal was, at the time, a drug dealer. At the same time, Mr. Cofer was known as a drug dealer to law enforcement. Mr. Cofer also had a pending drug charge in Roane County. It is further the state's position that Mr. O'Neal killed Mr. Cofer in order to protect his illegal enterprise. This out of fear that Mr. Cofer had been or intended to become a law enforcement informant.

MATERIALS

The examiner was provided with, and relied upon, at least the following materials relating to the shooting death of Ronnie Cofer (case material provided to this examiner's officer between October 25, 2013 and March 22, 2014):

1. Various Investigative Reports prepared by the Roane County Sheriff's Department;
2. Various Evidence Collection Reports prepared by the Roane County Sheriff's Department;
3. Crime Scene Diagram reportedly prepared by Det. Greg Scalf of the Roane County Sheriff's Department, undated and unsigned;
4. Autopsy report of Ronnie Cofer by Dynacare Tennessee, August 7, 2007;
5. Tennessee Bureau of Investigation, Official Firearms Report by analyst Alex Brodhag, August 9, 2007;
6. Tennessee Bureau of Investigation, Official Firearms Report by Criminalist Robert Royce, November 19, 2007;
7. Various Investigative Reports and prepared by the Tennessee Bureau of Investigation;
8. Various Interviews and Interview Summaries by the Tennessee Bureau of Investigation;
9. Summary of the DEA interview with Jaclyn Miller by Agent James Blanton (December 4, 2008);
10. Transcript of recorded conversation between Jaclyn Miller and Michael Currier (January 11, 2008);
11. Summary of the interview with Michael Jackson by Det. Kris Mynatt of the Roane County Sheriff's Department (August 20, 2008);
12. Summary of FBI interview with Cornelius Jennings, August 20, 2008;
13. Summary of the interview with James Murray by Det. Greg Scalf of the Roane County Sheriff's Department (May 20, 2009);

FINDINGS

The findings in this case have been made in comportment with the literature on proper scientific methodology (see generally Edwards and Gotsonis, 2009; NAS, 2002; NAS, 2009) as well as being in agreement with the education, training, research, publications, and experience of this examiner (see Chisum and Turvey, 2012).

Note: While it is acceptable to use eyewitness statements to assist with a forensic reconstruction of the physical evidence, these statements must be deemed sufficiently reliable. This requires corroboration with objective evidentiary findings. In other words, the statement must be confirmed in part by the physical or documentary evidence that it necessarily leads to (e.g., security video, blood evidence in a vehicle, a hidden murder weapon, or passive documentation of activities by digital evidence). The statements made by the police informants in this case have not been corroborated by the physical evidence, are in conflict with each other, and are therefore not considered a reliable source of information by this examiner.

1. The victim in this case, Ronnie Cofer, was shot to death at the location where he was found - in the ditch along Clax Gap Road. This finding is based on at least the following:

- A. Crime scene photographs document medium and high velocity blood spatter on the leaves of bushes adjacent to the victims body, next to the telephone pole. This evidence, and it's general height, is consistent with a gunshot wound delivered while the victim was standing very near where his body was found.
- B. Crime scene photographs document medium and high velocity blood spatter evidence on the ground around to the victim's head, along with an unknown volume of pooled blood. This evidence, and it's orientation, is consistent with at least a second gunshot wound delivered while the victim was laying on his back in the ditch as he was found.
- C. The blood evidence associated with the victim's face and body, documented at the time of discovery at the scene, is pooled and dried in accordance with gravity. There is no evidence of blood drying while the body was in another position. There is no evidence of blood smeared as the result of the body being moved.
- D. This examiner is unaware of any other physical evidence consistent with the victim's gunshot injury associated with any other scene or vehicle investigated in this case.

2. The victim was likely shot at a muzzle distance of approximately 3-8 inches, both times. This estimate is based on at least the following:

- A. As explained in Moran (2012; p.412): "When a firearm is discharged, a variety of materials are expelled from the barrel in addition to the bullet. Such firearm discharge products include fine carbonaceous particles or

soot from incomplete combustion of the propellant; unburned and partially burned powder particles; metal particles stripped from the bullet; bullet lubricant; and inorganic elements from the cartridge primer, such as lead, barium, and antimony in traditional U.S. center-fire ammunition and possibly other elements in some of the recently developed lead-free ammunition formulations. The heavier materials are propelled from the muzzle as a very fine spray within the gas cloud of lighter materials emerging from the firearm." This description is generally consistent with the forensic science literature.

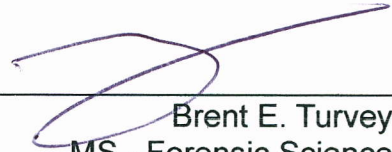
- B. As explained in Moran (2012; p.414), there are five "Zones" used to characterize the distance between the end of the muzzle and the target in shooting incident reconstruction efforts. Zone I: Contact; Zone II: Near Contact (1-4 inches); Zone III (3-8 inches); Zone IV: (6-36 inches - no visible sooting; chemical testing required to raise latent powder or gunshot residue patterns); Zone V (3-4 ft. or greater) No discernible firearm discharge products present.
- C. Moran's classification system and descriptions are based on a combination of examiner experience and repeated testing with various firearms and ammunitions.
- D. Moran's classification system and descriptions were developed using the Zone system in Haag (2004) as a general guideline.
- E. Moran's classification system and descriptions comport's with this examiner's experience with firearms, and with testing conducted by this examiner of various firearms with various ammunitions unrelated to the case at hand.
- F. There is a wide dispersion of powder burns and unburned powder around two of the projectile entry sites in this case. This is documented by the Medical Examiner and the photographs provided in this case.
- G. These findings comport with Moran's description of Zone III (3-8 inches). As provided in Moran (2012, p.414), Zone III "Causes some medium to light gray sooting with a roughly circular "shotgun" pattern of powder particles around the bullet hole."
- H. Note: The most accurate method to determine distance of muzzle to target in a particular case is to perform documented distance tests with the actual firearm involved, using similar ammunition. The result would be a record of visible and latent gunpowder patterns from multiple distances. As the weapon or weapons involved in this crime have not been found or identified, this level of testing is not possible in this case.

3. The firearms evidence in this case can be used to support a theory of either one or two shooters. This finding is based on at least the following:

- A. The victim was shot with a firearm at least twice from radically different angles - once to the top of the head, and once to the left side of his face.
- B. The ballistic evidence in this case includes a fired, jacketed bullet (Ex. 13-a) that is consistent with either a .38 cal or a .357 cal handgun. This means that it was fired from either a .38 cal or a .357 cal handgun. It is not known for certain which is the case. This bullet was recovered from the body of Ronnie Cofer.
- C. The ballistic evidence in this case includes a bullet jacket (Ex. 01-a) that is consistent with either a .38 cal or a .357 cal handgun. This means that it was fired from either a .38 cal or a .357 cal handgun. It is not known for certain which is the case. This jacket was recovered near the victim's head.
- D. Either GSW could be the result of a .38 cal or a .357 cal handgun: The totality of the ballistic evidence in this case (i.e., gunshot wound size and recovered projectile) is consistent with being inflicted by either a .38 cal or a .357 cal handgun. Neither gunshot wound is definitively associated with one caliber or the other.
- E. The murder weapon or weapons are unknown: The ballistic evidence recovered in this case cannot be associated with a single firearm to the exclusion of all other firearms.
- F. As mentioned previously, none of the firearms collected in this case have been associated with the injuries inflicted on Mr. Cofer. The firearm or firearms used to kill Mr. Cofer are currently unknown and unidentified.

4. There is no physical evidence connecting Mr. O'Neal to the crime scene, which is significant. This finding is based on at least the following:

- A. *Locard's Exchange Principle* is a cornerstone of forensic science and crime reconstruction (see Chisum and Turvey, 2012; and Thornton, 1997)¹.
- B. Given the violent interaction between the victim and the offender in this case, and the resulting physical evidence (e.g., blood evidence, ballistics evidence, and gunshot residue), an exchange of this evidence is expected between the suspect, the suspect's vehicle, the victim, and the crime scene.
- C. No physical evidence associating the crime scene with the suspect, or the suspect's vehicle, is evident in the materials provided to this examiner.



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¹ Thornton (1997) explains "Forensic scientists have almost universally accepted the *Locard Exchange Principle*. This doctrine was enunciated early in the 20th Century by Edmund Locard, the director of the first [police] crime laboratory, in Lyon, France. Locard's Exchange Principle states that with contact between two items, there will be an exchange of microscopic material."

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