

## **AFFIDAVIT OF ALICIA B. WILCOX, PH.D**

Alicia B. Wilcox hereby declares under penalty of perjury as follows:

1. I have nearly twenty years' experience as a forensic scientist and consultant, principally for law enforcement agencies. One of the forensic science disciplines in which I specialize and teach -- and in which I frequently conduct forensic examinations and provide expert testimony -- is the area of footwear examination. I have been a Certified Footwear Examiner since 2006.
2. My educational and professional background, professional associations, certifications, awards and training are detailed in the Curriculum Vitae attached here as Exhibit A.
3. In addition to my forensic consulting, expert testimony, and academic work in the field, I am currently a member of the Footwear and Tire Subcommittee of the Organization of Scientific Area Committees ("OSAC"), convened by the National Institute of Science and Technology (NIST). OSAC works to strengthen the use of forensic science by facilitating the development of technically sound standards and promoting their adoption. Part of OSAC's work involves the consideration and adoption of recommended national standards for each forensic discipline. These standards are written documents that define minimum requirements, best practices, standard protocols, and other guidance to help ensure that the results of forensic analysis are reliable and reproducible. As part of my work with OSAC's Footwear and Tire Subcommittee, I have been working for the last two years with leading experts in the field to develop and codify a revised and updated set of rigorous national standards for footwear examination.
4. I have been retained by attorneys representing the family of Ledell Lee to review footwear impressions, testimony, and other evidence regarding shoe impressions left at the scene of the 1993 murder of Debra Reese, for which Mr. Lee was convicted and sentenced to death in 1995. I have been advised by counsel that Mr. Lee was executed for the crime in April 2017, but that his family wishes to continue to pursue an investigation into his longstanding claim of innocence.
5. My expert evaluation of the footwear examinations relied on by the State of Arkansas to convict Mr. Lee of murder included a review of documents, including the testimony of and report by Berwin Monroe, the expert for the State who testified at Mr. Lee's 1994 and 1995 trials; as well as high-resolution photographs of the footwear impressions on pieces of paper, autopsy photographs and other crime scene photographs that were collected from the scene of the murder. A complete list of the materials I reviewed is attached to this affidavit as Exhibit B.
6. In addition, as part of my review, I traveled to Jacksonville, Arkansas in October, 2018 to examine and make additional test impressions of the pair of Converse sneakers (State's Exhibit 47) owned and worn by Mr. Lee at the time of his arrest in February 1993. This examination and test-impression-preparation was done in the presence of the City Attorney of Jacksonville as well as additional personnel from the Jacksonville Police

Department. I also prepared new, high-quality transparent test impressions from Mr. Lee's shoes, as well as new transparencies made from high-resolution photographs of the Crime Scene Impressions ("CSIs") introduced into evidence at Mr. Lee's trials. The procedures followed are detailed in this affidavit, and the physical evidence is also detailed in the list of materials set forth in Exhibit B to this affidavit.

### **Scope of Analysis**

7. I was asked by counsel to review the report and testimony of the State's trial expert, the Crime Scene Impression evidence, Mr. Lee's pair of Converse shoes, and the photographs and impressions prepared from the original physical evidence. I was informed by counsel that the Crime Scene Impressions contained what were previously believed to be partial shoe impressions left on paper recovered from the scene of Ms. Reese's murder; that Mr. Lee did not dispute ownership of the Converse shoes he was wearing upon arrest on the day that Ms. Reese was killed, but denied committing the murder or being present in Ms. Reese's home; and that the State had relied upon a prior comparison of the CSI's and Mr. Lee's shoes conducted by its own expert to obtain and defend Mr. Lee's conviction and death sentence. I was then asked to independently review the evidence and consider the following questions:
  - (1) Do the trial transcripts indicate that the State's expert, Berwyn Monroe, possessed the necessary qualifications, training, and experience in footwear examination to compare Mr. Lee's shoes to the Crime Scene Impressions and offer reliable expert testimony on that comparison?
  - (2) Was Mr. Monroe's analysis performed according to scientific standards and procedures in the field of footwear examination?
  - (3) Was Mr. Monroe's testimony at trial that, in his expert opinion, Mr. Lee's size 10.5 Converse shoes were "the same size" as the CSI's from the scene of Debra Reese's murder [R. 2330, 2335]<sup>1</sup> supported by the data he reviewed?
  - (4) Does the forensic evidence indicate what biological (or other) substance, if any, may have been present on the bottom of the shoes worn by the individual who left the impressions on the pieces of paper from the crime scene?
  - (5) Does an independent analysis of the footwear impression evidence in this case, under the methodology and standards used by Certified Footwear Examiners today, reveal any other data or information that may be important to the question whether Mr. Lee's shoes did or did not make the Crime Scene Impressions in this case – including any notable similarities or differences between Mr. Lee's shoes and the CSI's -- but which the jury that convicted Mr. Lee did not hear?

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<sup>1</sup> For purposes of this affidavit, I refer to document pages with the Bates number that I understand to be the number assigned to that document's page in the Record on Appeal (R. \_\_\_\_\_).

8. My conclusions regarding these issues, to the extent they can be answered by the available data, are set forth below.

**Qualifications and Methodology of State's Expert Berwin Monroe**

9. It is my view that the state's proffered footwear impressions expert, Berwin Monroe, did not possess the minimum qualifications, training, or experience necessary to conduct a reliable and accurate footwear impression examination at the time he testified at Mr. Lee's trials in 1994 and 1995.<sup>2</sup>
10. Mr. Monroe held the title of Chief Firearms and Toolmark Examiner for the Arkansas State Crime Laboratory at the time he testified. Footwear examination is a pattern-impression forensic discipline similar in some respects to tire and toolmark examinations (including ballistics), but there are important differences, and reliable footwear impressions analysis requires the analyst to have particular training and experience that Mr. Monroe did not possess.
11. At the time he testified, the vast majority of Mr. Monroe's training, experience, and casework was in other disciplines besides footwear analysis. When asked about his relevant experience relating to the shoe impressions analysis he conducted in this case, he stated that his experience "dates back many years of this type of work" – because, he said, he was involved "quite a bit in this type as a hunter, as a farm boy." (R.1273) (Trial 1). He proceeded to explain that as a young boy growing up on a farm, he had to become familiar with "the track of each one of our cows and each one of our horses" and the impressions their hooves appeared to make in mud on an open range, so that they could try and find any animals that strayed and were separated from the herd. He also cited his experience tracking his young playmates when "we used to play games . . . either barefoot or with our shoes," presumably by locating his friends based on impressions their feet made in the dirt or mud. (R.1274).
12. Mr. Monroe's childhood experience tracking farm animals by their hoof prints and tracking his friends while playing games is quite different than the work that forensic footwear examiners are required to perform in law enforcement matters. That experience is no substitute for careful study, training, and supervision of the forensic discipline. It also involves an entirely different type of analysis than what Mr. Monroe was asked to perform in Mr. Lee's case: examining shoe prints on paper and determining whether it was possible to reach a conclusion as to whether a particular pair of shoes (either a class or subclass of shoes from a certain manufacturer, or an individual pair of those shoes) is or is not the potential source of those impressions.
13. It also appears that Mr. Monroe's training in the field of footwear examination was quite limited. He cited only one training program he had taken that included footwear

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<sup>2</sup> The information upon which I based my opinion was limited to the transcripts of Mr. Lee's trials, at which Mr. Monroe described his training and experience as of 1994 and 1995.

examination even in part – a one-week course at the FBI academy in Quantico, Virginia. (R.1274-75). I am familiar with that course (and have taken it myself). And while the FBI's course is a useful introduction to the theory and practice of footwear examinations, it is not sufficient to train and prepare an analyst as an expert in the field who is capable of performing accurate and detailed examinations in forensic casework. The one-week FBI course addresses numerous topics besides footwear impressions. And although sample casework in footwear impressions are given to attendees at the end of the course (typically, anywhere from two to three cases), the instructors do not give the attendees feedback on their work – that is, they are not told if they made correct comparisons, nor are they briefed on any errors they may have made.

14. The single one-week training course that in part covered the topic of footwear examinations taken by Mr. Monroe as of 1995, even when combined with the on-the-job experience cited by Mr. Monroe, does not meet minimum standards for experts in the field. To establish minimum expertise and competency, an analyst should have a formal written training program that includes written examinations to measure a trainee's knowledge and competency. The guidelines also require a period of casework supervision and training under the guidance of an experienced CFE (typically for 1-2 years or more) before the analyst is deemed qualified to conduct his or her own, independent casework. All analysts in accredited laboratories are also required to take and pass competency examinations, which are reviewed and scored by an experienced examiner, before they are permitted to conduct independent casework. There is no indication in Mr. Monroe's testimony that he ever took such an examination before conducting his own casework.
15. There is no indication from his trial testimony that after this one-week FBI course, Mr. Monroe ever apprenticed with or was supervised by an experienced footwear examiner in actual casework. (As the head of the toolmark unit at the Arkansas State Crime Laboratory in the mid-1990s, it appears that he himself was the most senior analyst in that unit.) Mr. Monroe also cited his experience watching Medical Examiners perform "thousands" of forensic autopsies and learning about the impressions that toolmarks make on human bodies through that process; however, the mechanism through which marks from tools are made on human skin is entirely distinguishable from the manner in which footwear impressions are made on paper or other surfaces, and the method of analysis of those two different kinds of marks is wholly distinguishable. It also does not appear that Mr. Monroe, at the time of his testimony, had ever toured a shoe factory to observe the process through which shoes are made and the mechanisms in which class characteristics, subclass characteristics, and individual characteristics that can be visible in pattern impressions are made on the shoe's mold or a given pair of shoes – which is critical to an analyst's understanding of the methodology behind forensic footwear examinations.
16. As for his prior experience, Mr. Monroe did not recall any specific cases in which he previously qualified as an expert in shoe impression analysis. At one point he indicated that there was "one" case in which he believed he had testified in on this subject in Pulaski County. He kept no records of his prior testimony and had "no idea" when he had testified in that case and/or other cases, nor how many times he had done so, or in

which courts. (R. 1276, 1283-84). At Mr. Lee's second trial, Mr. Monroe stated that he had testified "over a hundred times" when asked about prior testimony in the area of "shoe and tire impressions" (emphasis supplied). But he did not specify or even estimate what percentage of those cases involved footwear impressions. (R.2313).

17. As for prior casework, Mr. Monroe stated only that he had reviewed "many" shoe prints on paper to see if they "match[ed]" a known shoe (R.1284), but did not give an estimate as to how many times he had done so. Nor did he state whether his analyses had ever been independently reviewed by any other experts or whether he had ever taken proficiency tests in the field of footwear examination. (R. 1284).
18. Importantly, even if Mr. Monroe had done a large number of footwear examinations as of 1994-95 (and there is no indication that he did so), the sheer number of comparisons an analyst has attempted to conduct does not mean those comparisons are necessarily complete or accurate. In other words, volume is not a proxy for the analyst's skill and judgment in making those comparisons -- particularly if the analyst did not first receive the necessary training and supervision and does not have a detailed understanding of the discipline and its nuances. Mr. Monroe stated that he and one or two other analysts typically "work" around "600 cases per year" in all disciplines covered. (R.2313). An extremely high caseload may also create its own risk of error, particularly if a laboratory does not have the resources to have a second analyst independently review the first analyst's work, as national guidelines for CFE's have long required.

#### **Methodology Used by State's Expert at Trial**

19. Some of the methodology used by Mr. Monroe also raises concerns about the reliability of his conclusions. Mr. Monroe did appear to follow appropriate standards and techniques when it came to his initial examination of the evidence and preparation of additional exhibits to assist him with viewing the impressions and making a comparison to Mr. Lee's shoes. For example, he began with a non-destructive method (first examining the CSI's with the aid of an ultraviolet light), and only then proceeding to spray the paper with a reagent (Ninhydrin) to further develop the impressions.
20. Although I do not have Mr. Monroe's bench notes, based on the description of his process stated in his testimony, the procedure he used to prepare the transparencies of the CSI's and the test impressions of Mr. Lee's shoes also appear to follow standard methods in the field.
21. On the other hand, when Mr. Monroe conducted his actual comparison of the shoe impressions against the CSIs -- and specifically when he attempted to determine the exact size of each shoe impression -- his methodology he followed was not appropriate, in that it did not provide sufficient data for him to determine the exact size of the shoe that made the CSIs. He compared the CSIs to only a single pair of shoes (Mr. Lee's), rather than to a range of shoes of varying sizes made by the same manufacturer. Examination of additional shoes beyond the single pair reviewed by Mr. Monroe is necessary before reaching the definitive opinion he testified to about the size of the shoes.

22. There is also no indication in the record that Mr. Monroe ever examined the shoes and/or CSI's for any distinguishing "subclass characteristics" – distinctive markings that are made on the outsoles of all shoes from the same manufacturer's mold at the time of production -- which are a core element of footwear examination. Depending on the quality of the CSI images and other factors, subclass characteristics can, in some cases, wholly distinguish a known pair of shoes from crime scene impressions, or provide evidence that the shoes and CSIs likely came from the same manufacturer's mold. Yet it appears that Mr. Monroe may not have even considered subclass characteristics when conducting his comparison. His testimony refers solely to (1) his examination of a "patterned design" on the shoe, which fall into the category of class characteristics (typically shared by a wide range of shoes from a given manufacturer) and (2) his attempt to locate "sufficient individual markings and impressions" for comparison (a term that typically refers to unique or distinctive features on an individual pair of shoes, which can potentially distinguish impressions made by these shoes from those made by other shoes of the same size and from the same manufacturer's mold) (R. 1301, 2330).
23. The significance of Mr. Monroe's apparent failure to compare the CSI's to a range of shoe sizes or inspect the evidence in this case for subclass characteristics is discussed later in this affidavit, at paragraphs 36-51.

**Mr. Monroe's Testimony Regarding Size of Shoes that Made the Crime Scene Impressions**

24. At the 1995 trial that resulted in Mr. Lee's murder conviction and death sentence, Mr. Monroe testified that, in his opinion, the shoes recovered from Mr. Lee and the shoes that made the CSIs were "the same size." (R.2330). He did not limit his testimony to stating that CSIs were made by shoes in the same size *range* or of the same *approximate* size as Mr. Lee's. Instead, Mr. Monroe informed the jury that he was certain that the CSIs were made by shoes of a men's size 10.5 – the same size reflected on the label of the sneakers worn by Mr. Lee. *See* R. 2330 (Mr. Monroe "determined that these [the CSI's and Mr. Lee's shoes] are the same size"); R. 2335 (stating that he was "very confident" that the shoes were "consistent" with the size of the shoes that made the CSIs); R. 2329-30 (stating that Mr. Lee's shoes are "size 10-1/2," and that the shoes that made the marks on the pieces of papers at the crime scene (State's Exhibits 29-A and 29-B) were "the same size as these shoes").
25. Mr. Monroe's assertion that the Crime Scene Impressions on paper were made by shoes of the exact same size (men's 10.5) as Mr. Lee's shoes was not supported by the data he reviewed. Instead, it is likely that a broad range of men's shoe sizes – potentially millions of shoes manufactured by Converse in the early 1990s -- could have made the impressions on State's Exhibits 29-A and 29-B.
26. This is so for several reasons. First, Mr. Monroe did not follow accepted practices in the field of footwear examination when he made this size estimation. It is rare for a footwear examiner to offer an opinion as to the exact size or, more commonly, a narrow range of

shoe sizes from a given brand of shoes that could have made an impression on paper or another surface. But in order to do so, Mr. Monroe would have needed to obtain representative Converse sneakers *across a range of sizes*, in order to carefully compare each of them to the CSIs in this case. He did not do so. Instead, he compared one and only one pair of shoes – Mr. Lee’s size 10.5 sneakers – to the CSIs, and offered a definitive opinion based on that single comparison. (R.2339).

27. An examiner simply cannot reliably determine the size of the shoe that made an impression based on an examination of a single known shoe standard. There is typically only a three-millimeter (0.12 of an inch) difference between a size 10.5 and a size 10 or 11 men’s shoe, which is spread across the length of an entire shoe. These very small distinctions between sizes prevent an analyst from reliably determining the exact size of a shoe with just a single size of that shoe to compare to the CSIs.
28. Rather than just examining Mr. Lee’s sneakers, Mr. Monroe should instead have obtained and made test impressions of Converse sneakers across a far broader range of sizes to more closely and precisely compare their sizing to the CSIs. Ideally he would have obtained and compared Converse shoes ranging from size 8 to size 12, or even just from size 9 to 11 if the 10.5 shoes appeared, upon initial inspection, to be extremely close in size to the CSIs.
29. Even with a range of sizes for comparison, such precise size determinations are extremely difficult to make, and should be offered by footwear examiners in rare circumstances where the data is extremely strong. In my 17 years of experience as a footwear examiner, having conducted hundreds of individual comparisons, I myself have only offered an expert opinion as to the exact size of a shoe that likely made a given impression on two occasions. And I did so in those cases only after following the methods described above.
30. It is, unfortunately, not entirely uncommon for less experienced footwear examiners to make this mistake, and incorrectly offer an opinion about the size of a shoe that made a CSI based on a single comparison. I have previously consulted on other cases where I observed such erroneous methodology and conclusions. For example, in the case of Curtis Flowers, who was convicted of murder and sentenced to death in Mississippi, the State’s trial expert told the jury that the shoes that made the CSI’s at the scene were a size 10.5 men’s shoe (coincidentally, the same estimation made in Mr. Lee’s case). As in this case, the examiner did so based on a single comparison to a size 10.5 Fila sneaker. However, when I reexamined the crime scene evidence in the Flowers case and obtained a broader range of sizes of Fila sneakers for comparison, I determined that a sneaker of that brand *ranging in size from 8.5 to 11* could have made the CSIs.
31. Moreover, in the Debra Reese case, the difficulty in reliably determining the precise size of the shoes that made the CSIs is compounded by the fact that (1) the impressions are only partial (not full heel-to-toe) and (2) there is some visible movement (what Mr. Monroe observed and referred to as a “shift”)) on the CSIs, indicating that the person who wore these shoes stepped on the paper more than once and/or moved his feet while stepping on them.

32. In short, Mr. Monroe had nothing close to the data he needed in this case to support his “very confident” opinion at Mr. Lee’s 1995 trial that the CSIs were made by a size 10.5 sneaker. (R. 2335.) His testimony that he could reliably determine the size of the shoes that made the crime scene impressions on these pieces of paper from the single comparison he made was highly misleading.
33. It should also be noted that Mr. Monroe was not asked by the lawyers for either side to give any sort of estimate as to how many Converse sneakers of this size – or size range -- were in circulation at the time. These numbers vary by brand, but the most popular brands of sneakers may have one million or more of a single men’s size in circulation at any given time.
34. In addition, size 10-11 shoes are the most common men’s size of all. At one sneaker factory I toured with other footwear examiners, I was informed that the manufacturer typically makes extra molds for the shoes in sizes 10 to 11 to keep up with the higher demand for these sizes.
35. Thus, even if Mr. Monroe happened to be correct in his opinion that the CSIs were made by a size 10.5 shoe (and, as noted earlier, the data does not support that conclusion), that is far from a unique or even likely identification of the shoe as belonging to Mr. Lee.

#### **Subclass Characteristics Present on Mr. Lee’s Shoes Yet Not Seen on the CSI’s**

36. In general, footwear examiners consider three categories of characteristics that may be present when making a comparison between CSIs and a questioned pair of shoes. The first category consists of “class characteristics.” Class characteristics are those features in a shoe that result from the manufacturing process, such as physical size and design, and which are common to a broad range of shoes of a given brand and type. Because they are common to so many shoes, they can be useful for narrowing down the brand, style and general size of a shoe that left a particular impression, but cannot alone be the basis of an individual identification.
37. The second category, “subclass characteristics,” refers to distinctive marks or patterns left on shoes that were created from a single manufacturer’s mold. All shoes created from that particular mold (for example, all size 10 shoes created from a specific mold at a Reebok factory) will typically share those subclass characteristics, at least before the shoe is worn and those features are smoothed out or worn down. These subclass characteristics can also be extremely useful in narrowing down the range of shoes that could have left a particular impression, and in some cases, for conclusively *eliminating* shoes that otherwise were of the same size, style, and brand as a crime scene impression but which did not share these subclass characteristics. Texturing (discussed in further detail below) is one type of subclass characteristics.



38. Finally, footwear examiners review impressions for what are called “individual characteristics,” sometimes referred to as “randomly acquired characteristics” (“RACs”). These are imperfections or marks on an individual shoe that are caused through wear or other incidental alterations to that particular shoe. In some cases, individual characteristics present on a person’s shoe will be sufficiently distinctive to permit an examiner to offer an opinion that either identifies or eliminates the shoe as having caused a particular impression (*i.e.*, because those individual characteristics are present on the shoe and the shoe’s test impressions, but not the crime scene impressions; or where the examiner observes the exact same distinctive individual characteristics on both sets of impressions). For example, individual characteristics may be seen where a portion of the outsole of a shoe has fallen off, or there is a notable scratch to the shoe’s outsole.
39. Mr. Monroe testified that the shoes were consistent in “pattern” and “sole design” with Mr. Lee’s Converse sneakers. (R.2330-31). My own examination and test impressions of the CSIs and Mr. Lee’s shoes is consistent with Mr. Monroe’s conclusion on this point.
40. However, the pattern and design of the shoe soles are “class characteristics” – the most general category of footwear comparison features. Class characteristics can narrow down the range of shoes to those made by the same manufacturer. However, class characteristics do *not* distinguish among the thousands or even millions of shoes made of the same brand and style, and they certainly do not provide any basis for making an individual identification. The kinds of details discussed by Mr. Monroe regarding the shoe “pattern” and “design,” which I also observed, were shared by Mr. Lee’s shoes – but were also likely shared by many thousands of other Converse sneakers in circulation at that time. It does not appear that Mr. Lee’s jury was informed about the limited value for identification purposes of the pattern similarities observed in these widely shared class characteristics.
41. In addition to reviewing Mr. Monroe’s report and trial testimony, I also conducted my own independent reexamination and comparison of the shoes belonging to Mr. Lee and the Crime Scene Impressions from the Debra Reese murder.
42. As part of this reexamination, I took the following steps: (1) I requested and received high-resolution scans (taken at 2400 pixels per inch) of the Crime Scene Impressions (which were labeled as E-1, E-28, and State’s Exhibit 29-A on the first piece of paper; and E-2, E-27, and State’s Exhibit 29-B); (2) I prepared new transparencies from the CSI scans, using the same methodology (printing the images to scale, on transparency paper) that was followed by Mr. Monroe; (3) I traveled to Jacksonville, Arkansas in October 2018 to personally examine Mr. Lee’s shoes, at which time I took a series of new test impressions of Mr. Lee’s shoes; and (4) I created transparencies to scale of the new impressions from Mr. Lee’s shoes, suitable for overlay onto the CSI transparencies, to which I have assigned the item numbers ABW-1A, ABW-1B for the right shoe, and ABW-2A and ABW-2B for the left shoe. As part of this reexamination, I also reviewed a series of crime scene photographs for any additional information that may be relevant to the manner in which the crime scene impressions were made on these pieces of paper.

43. Ultimately, my review did not permit me a definitive conclusion as to whether Mr. Lee's shoes were excluded (or identified) as the source of the CSIs. However, I observed subclass characteristics present on the outsoles of Mr. Lee's shoes and which were also clearly visible in the test impressions made from those shoes; these characteristics were notably not present on the CSIs.
44. Specifically, I observed the presence of what is known in the field of forensic footwear examination as "texture" in numerous places on the outsoles of Mr. Lee's shoes. Yet when I examined the corresponding areas of the Crime Scene Impressions, none of these texture details on Mr. Lee's shoes were present on the CSIs. In other words, there was a notable dissimilarity in this specific area between the two sets of footwear impressions.
45. Texture is one well-recognized type of subclass characteristic. It refers to a shallow pattern added to some mold surfaces after the basic metal mold design has been created by the manufacturer. Texture is commonly found (chiefly for aesthetic reasons) on the soles of athletic shoes and other rubber outsole designs. The patterns are typically added in one of two ways. First, they may be created through "stippling," which is a mechanical method of adding textured patterns through striking the mold with a steel die tool, sometimes by hand. Second, texture can be created through "acid etching," which transfers texture patterns to a mold surface by using an acid bath on select places on the mold, which permits the transfer of a certain design from specialized paper onto the mold. Some sample photographs of molds that contain texture are shown below:



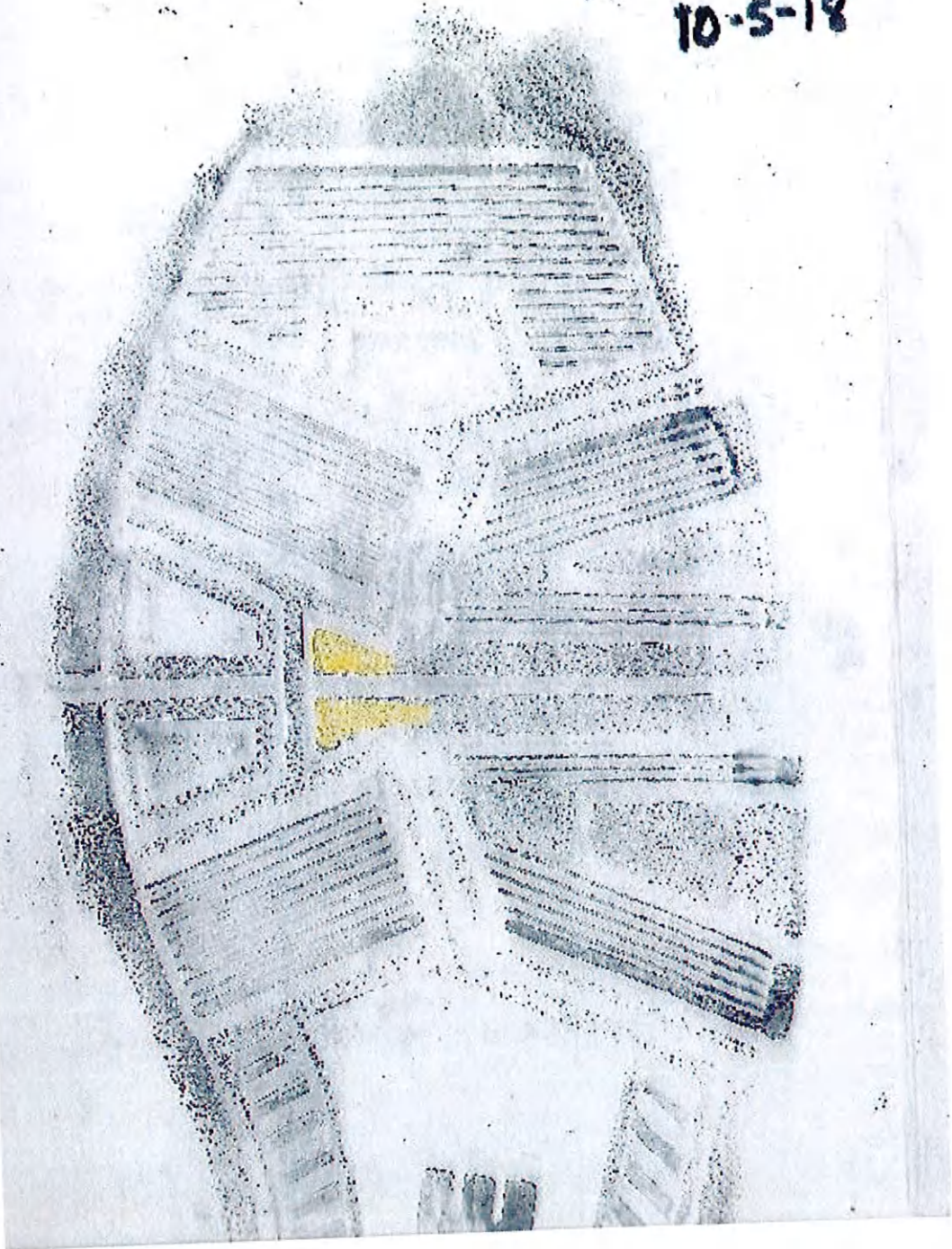


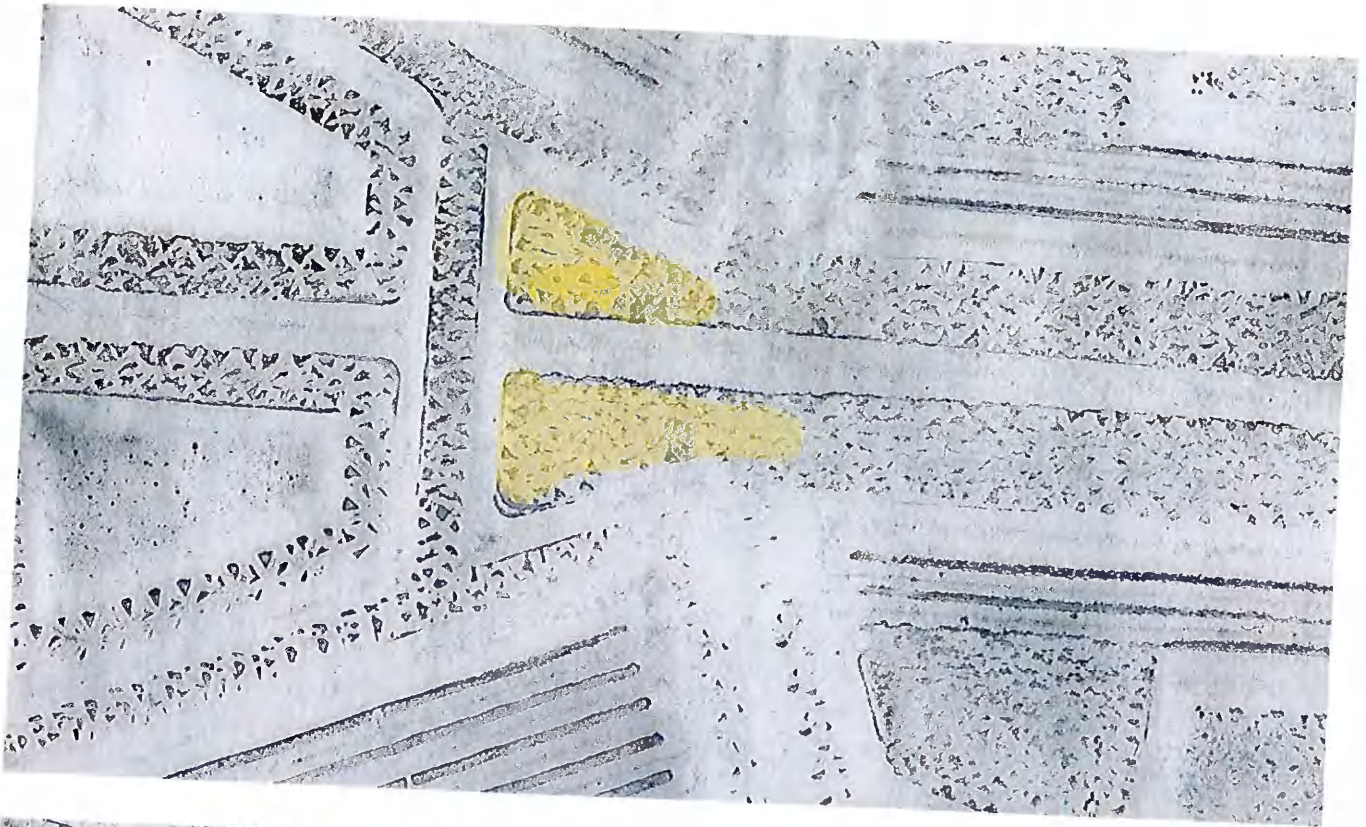
46. When I examined Mr. Lee's shoes at the Jacksonville Police Department, I noted the presence of texturing in the soles of both shoes. Moreover, the shoes appeared to be quite new, showing few signs of wear on the outsoles, including the areas where texturing was present. This makes it easier for an examiner to see texture that may be present on the shoes, in both crime scene impressions and in test impressions of the shoes themselves.
47. When I examined the test impressions of Mr. Lee's shoes, texturing was visible. This texture was present not just in one area of the test impressions, but in numerous areas. I have highlighted below some of the areas where this texture was seen on the test impressions, shown in the full impression as well as in close-up for each area:

Left Test  
Impression  
ABW 2A  
10-5-18



Right Test  
Impression  
ARW 1A  
10-5-18





48. By contrast, when I examined the corresponding areas of the shoe soles in the transparencies made from the Crime Scene Impressions, the texturing present on Mr. Lee's shoes was not present on the CSIs. I attempted to locate these texture marks first through a visual observation of the CSI's, and then by the overlay method: placing the CSI transparencies on top of the transparencies of Mr. Lee's shoes, in numerous positions of possible correspondence. In many of the areas of clear texturing on Mr. Lee's shoes, I did not observe corresponding texturing on the CSIs.
49. If Mr. Lee's shoes had made the Crime Scene Impressions, one would typically expect to find these subclass characteristics (texturing) present on the CSIs. The likelihood that the CSI's in this case would reveal texturing from the wearer of the shoes is further strengthened by the fact that the pieces of paper on which the CSIs were found were on carpet at the crime scene. Carpet is a pliable surface, which makes it easier to detect finer details of the shoes that come into contact with that surface (or an item, such as paper, that is directly on top of the surface).
50. There are two possible explanations for the fact that I observed numerous areas of texturing on Mr. Lee's shoes, but which I did not observe on the corresponding areas of the Crime Scene Impressions. One explanation is that Mr. Lee's shoes did not make these impressions – that is, that someone other than Mr. Lee wore sneakers inside the Reese home, and stepped on the pieces of paper recovered by police. If all of the details from the shoes that stepped on these pieces of paper were accurately recorded on the CSIs (including, specifically, any subclass characteristics present on the shoes), then Mr. Lee's shoes did not make these impressions.
51. The other possible explanation is that Mr. Lee's shoes could have made these impressions, but the CSI's did not pick up the texturing present on the shoes. Even where a known pair of shoes contains texturing, it is possible for a crime scene impression not to pick up all of those details when the impression is made on paper or another surface. In this case, Mr. Monroe testified that he enhanced the CSIs with Ninydrin – a substance most often used to enhance fingerprints from a crime scene. Ninydrin reacts with amino acids and thus is specific to biological fluids (such as blood, sweat, or urine). Typically only those portions of the shoes that still had traces of fluids on them at the time contact was made with the paper would later react with the Ninydrin. Thus, if the person who wore these shoes stepped in a biological substance, but some of that substance came off the shoes before he or she stepped on these pieces of paper (by wiping his or her feet on the carpet or other fabric, for example), then the visible portions of the CSIs would be limited to those portions of the shoe sole on which some of the biological material remained at the time of contact with the paper. It is also possible that the areas of the shoes containing the texturing did not make full contact with the paper. Finally, adding to the difficulty of making a conclusive determination in this case is the fact that I observed dots and “noise” on the background of the CSIs, which reduces the clarity of the impressions.

### **Date and Time the Impressions Were Made is Unknown**

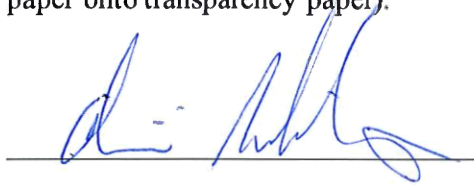
52. Finally, it bears noting that Mr. Monroe was not asked by any of the lawyers at trial about the length of time that shoe impressions can remain detectible on paper. While the impressions on paper in this case are referred to as the Crime Scene Impressions because they were, in fact, recovered at the scene of the crime, it is not possible for a footwear examiner to determine how recently the impressions were made on the paper relative to the time of collection. The CSIs here could have been made at the time of the murder. Conversely, they could have been made several days or weeks before the murder, or even longer. It is simply not possible to determine a time frame or otherwise “date” the impressions here.

### **Summary of Conclusions: Information Mr. Lee’s Jury Did Not Hear**

53. Regardless of whether a conclusive identification or exclusion can be made, it is clear that the jury did not have complete information about certain differences between the CSIs and Mr. Lee’s shoes at the time of Mr. Lee’s trial in 1995. When Mr. Monroe testified for the State that Mr. Lee’s shoes had the “same pattern” (R.2331) as the shoes that made the Crime Scene Impressions, he did not explain nor account for the texture that is clearly present in the pattern of Mr. Lee’s shoe soles. He did not even explain to them what subclass characteristics are and how they are used in footwear examinations. Thus, the jury did not hear that important information, nor did the jury have the opportunity to evaluate potential explanations for the differences observed between the CSIs and Mr. Lee’s shoes. While I cannot, based on the data available, eliminate Mr. Lee’s shoes as the source of the Crime Scene Impressions, in my opinion, these features of the shoes would have been important information for the jury to hear and consider.
54. It is also my opinion that Mr. Monroe’s testimony at Ledell Lee’s trial that the shoes had “the same design” or a “consistent” design (R.2330, 34) as the CSIs was misleading, or at least incomplete. Texturing is a feature of the design of the specific mold that made Mr. Lee’s shoes. And in at least this one respect, the features visible on the CSIs and Mr. Lee’s shoes were not “consistent.”
55. It is also my opinion that at the time he testified, Mr. Monroe lacked the necessary qualifications and experience to conduct this footwear examination. His limited understanding of the discipline was demonstrated in his failure to follow appropriate procedures before reaching his conclusions based on extremely limited data, and in his failure to note and inform the jury about the subclass characteristics present on Mr. Lee’s shoes which were not seen on the CSIs. Mr. Monroe’s “very confident” opinion that the CSI’s could only have been made by someone wearing a men’s size 10.5 sneakers was not supported by the data. (R. 2335)
56. Had I been consulted by any of Mr. Lee’s counsel and asked to conduct this examination prior to his 2017 execution, I would have stated the above observations and conclusions. The significance of texturing has been well recognized in the field of footwear examination for decades, and advanced technology is not required to detect its presence.



In fact, the method I used to take test impressions and prepare transparencies is virtually identical to that utilized by Mr. Monroe in the early 1990s (the only difference being that I prepared my transparencies from high-resolution scans of the evidence which I then printed onto transparency paper, whereas he prepared his by printing photographs of the paper onto transparency paper).



Alicia B. Wilcox

Sworn to before me this 16<sup>th</sup> date of October, 2019



Lynda L. Quirion, Notary Public  
State of Maine  
My Commission Expires July 19, 2024

Notary Public

