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Mr. Joshua Tepfer

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## **FORENSIC FRICTION RIDGE EXAMINATION REPORT**

### **Ben Baker v. City of Chicago**

#### **INTRODUCTION**

I am a forensic consultant specializing in pattern evidence. I became certified as a latent print examiner by the International Association for Identification (IAI) in 2004. Every five years I recertify by demonstrating continuing education in the field of forensic friction ridge examinations and by passing a comparison test. I am also certified by the IAI as a senior crime scene analyst and as a forensic photographer. Over my 22-year career, I have analyzed and compared thousands of friction ridge impressions in a wide variety of cases.

I currently sit on the footwear/tire subcommittee of the Organization of Scientific Area Committees (OSAC) for Forensic Science. OSAC facilitates the development and promotion of high-quality, technically sound standards. These standards define minimum requirements, best practices, standard protocols, and other guidance to help ensure that the results of forensic analyses are reliable and reproducible.

I sit on the footwear/tire consensus body of the American Academy of Forensic Sciences (AAFS) Academy Standards Board (ASB). My work at OSAC and ASB involves drafting and publishing high-quality standards for footwear and tire examiners, as well as other stakeholders in the justice system. I also sit on the OSAC human factors task group. Our group reviews and often suggests changes to all OSAC standards when human factors (such as cognitive bias and confusing language) related to forensic science are an issue.

### **My Involvement in this Case**

I was asked to review, analyze, and report on the scientific and agency capabilities regarding the recovery of friction ridge detail from the recovered evidence in the Ben Baker matter. As part of my examination, I was provided with and reviewed documents in this case. I received the following documents which are the basis of this report:

- Chain of custody reports
- Vice case reports
- Arrest reports
- Property inventory reports
- Hearing transcripts (November 18, 2004)
- Motion to suppress hearing transcripts (November 24, 2004)
- Preliminary hearing transcript (October 27, 2004)
- Stipulation transcript of Officer Leano (undated)
- Illinois State Police (ISP) Division of Forensic Services Laboratory Report (April 4, 2005)
- Joint plea hearing transcript of Ben Baker and Clarissa Glenn (September 18, 2006)
- ISP latent print worksheet dated 6/20/97
- Deposition transcript of John Heneghan (November 7, 2023)
- Deposition transcript of Adrienne Hirsch (September 7, 2023)

I received the evidence in this case on a secure server and by email.

I am being compensated for my work on this case at a rate of \$200 per hour.

### **EXPERT TESTIMONY (over the previous four years)**

State of Maine V. Kailie Brackett, Washington County Superior Court, Machias, Maine. Motion in Limine (12/1/2023) and trial (12/14/2023) Forensic Pattern Evidence testimony

Iowa v. Donnie Lee Wyldes, Decatur County District Court, Iowa (6/27/2023) Footwear Testimony-Post conviction review

U.S. v. Janice Mason, United States District Court, Baltimore, MD. Daubert hearing on footwear methodology. 3/7/2023

Commonwealth of Massachusetts v. Kurvin Richardson. Suffolk County Superior Court, Boston, MA. Post-conviction hearing (homicide). Footwear comparison testimony, 2/21/23.

State of South Carolina v. Jejauncey Harrington, Judge Michael Nettles, Marlboro County, Florence, SC. Homicide trial, footwear impression evidence, 2/9/2023

State of Minnesota v. Jerry Westrom, Hennepin County District Court, Minneapolis, MN. Homicide trial, plantar friction ridge comparisons, 8/19/2022

Commonwealth of Massachusetts v. Patrick Lys. Suffolk County Superior Court, Boston 10/21/2021, Homicide trial- Footwear Testimony

State of Maine v. Jay Mercier, 8/19/21, Somerset County Superior Court Homicide, Post-conviction evidence review, tire testimony.

State of Florida v. Dane Abdool, 8/11/21, Ninth Judicial Circuit Court, Orange County Homicide, death penalty, post-conviction evidence review hearing, footwear methodology, and error rate testimony

State of Minnesota v. Jerry Westrom, 6/13/21-6/14/21, Hennepin County District Court Cold Case homicide evidence review hearing. Plantar friction ridge testimony

State of Florida v. Dane Abdool, 2/5/2020, Ninth Judicial Circuit Court Telephone Deposition, Homicide, death penalty, post-conviction evidence review hearing

## **CASE REVIEW**

From the review of the above-listed documents, my understanding of the relevant information for the purposes of the recovery of ridge detail are as follows:

- Mr. Baker was arrested on July 11, 2004, March 23, 2005, and on December 11, 2005
- An inventory report dated June 17, 2004, states that one Ziplock storage bag containing 6 plastic bags with 50 small Ziplock baggies and a plastic bag with 16 small Ziplock bags were seized
- An inventory report dated March 23, 2005 states that one large Ziplock baggie containing 110 smaller Ziplock baggies, one Ziplock baggie containing 68 smaller Ziplock baggies, and a money bundle were seized

- An inventory report dated Dec 11, 2005, states that one plastic sandwich bag containing 50 small Ziplock baggies was seized
- ISP Division of Forensic Services received the plastic bags suspected to contain controlled substances. They confirmed heroin was present.

From my review of the documents listed above, I find no indication that attempts were made to recover friction ridge detail from the plastic bags and baggies, nor from the bundle of currency. Such capabilities were readily available and commonly used in many laboratories at the time of the 2005 laboratory examinations in this case.

- The processes that would typically be employed on plastic bags or currency in 2005 are common processes that had been around for decades. Those processes may be as simple as standard fingerprint powder for the bags or baggies, but in a laboratory would typically involve fuming with cyanoacrylate ester (often referred to as superglue or CA glue), followed by a dye stain, possibly in conjunction with fingerprint powder in a sequential series of processes. A common process at the time for currency was Ninhydrin or Physical Developer. From the ISP latent print worksheet dated 6/20/97, it is clear that the ISP Laboratory was using these processes as early as 1997; approximately 12 years before the laboratory examinations in Mr. Baker's matter.

#### **Fingerprint Powder:**

- The earliest references to using fingerprint powder to develop latent prints dates back to **1891**.<sup>1</sup>
- The first use of a magnetic applicator and powder was in **1961**.<sup>2</sup>
- Fluorescent powders were introduced in the late **1970s**.<sup>2</sup>

#### **Cyanoacrylate Ester Fuming:**

- The commercial adhesive, super glue, was first developed in the **1950s** by researchers.<sup>1</sup>

Cyanoacrylate Ester is the active ingredient in super glue.

- The discovery of the use of cyanoacrylate fuming for latent print development can be traced back to **1977**. A trace evidence examiner in the National Police Agency of Japan observed fingerprints develop on a microscope slide using superglue.<sup>2</sup>

- In September of **1979**, the technique was demonstrated to the US Army Crime Laboratory Latent Print Examiners, who transferred the technology to the U.S. lab in Georgia. <sup>2</sup>

#### **Dye Stain:**

- In **1987**, Vachon and Sorel introduced the use of Ardrox 970-P-10 (marketed in the United States as Ardrex P113D), as a dye stain for cyanoacrylate fumed prints. <sup>2</sup>
- Rhodamine 6G was first mentioned for latent print detection by Menzel and Duff in **1979**. <sup>2</sup>

#### **Ninhydrin:**

- Ninhydrin was first described by Siegfried Ruhmann in **1910**. <sup>1</sup>
- In **1954** a procedure was published for deliberately targeting latent prints on paper with ninhydrin. <sup>2</sup>
- Following this initial report, ninhydrin rapidly became a popular tool in the detection of latent fingerprints, with widespread use among jurisdictions being documented as early as **1959**. <sup>1</sup>

#### **Physical Developer:**

- “In 1972, Collins and Thomas, from the Atomic Weapons Research Establishment (AWRE), used these relatively unstable developers to enhance metalized prints (which had been previously processed with metal vapor deposition).” <sup>2</sup>
- An article titled “Physical Developer: A Practical and Productive Latent Print Developer” was published in the Journal of Forensic Identification, Volume 40, Issue 3, Dated May/June 1990.

At the time of the laboratory examinations in the Baker matter, it was common practice in many agencies around the United States to process for latent prints those bags and baggies suspected of containing drugs; especially in instances when the possession or handling of such items by specific individuals was in question. It was also common practice in many agencies around the United States to process currency for latent prints; again, particularly in cases when the possession or handling of such items by specific individuals was in question.

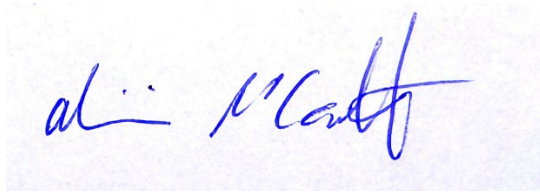
The documents that I reviewed indicate that ISP had the capabilities to process the above-listed evidence in the Baker matter for the presence of latent prints. All latent print development processes outlined in this report are specifically listed as processes on the ISP Laboratory Latent Print Worksheet provided and dated 6/21/97. In addition, I have reviewed the deposition

testimony of Evidence Technician John Heneghan taken on November 7, 2023, where he confirmed that the Chicago Police Department is aware that it is possible to test baggies for latent fingerprints but stated that the Department has never requested that such testing be conducted. I also reviewed the deposition of Adrienne Hirsch, taken on September 7, 2023, who has been with ISP since 2005, and confirmed that ISP had tested baggies for fingerprints while she was there.

I declare under penalty of perjury that the foregoing is true and correct. Executed on April 1, 2024.

Please feel free to reach out to me if you have any questions regarding this report.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read "Alicia McCarthy", is shown on a light blue background.

**Alicia McCarthy, Ph.D.**

**CLPE, CFWE, CFPH, CSCSA**

<sup>1</sup> *The Fingerprint Sourcebook*. U.S. Dept. of Justice, Office of Justice Programs, National Institute of Justice, 2011.

<sup>2</sup> Ramotowski, Robert S. *Lee and Gaensslen's Advances in Fingerprint Technology*. CRC Press, 2021.