# AFFIDAVIT OF FACT

STATE OF TENNESSEE

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BEFORE ME, the undersigned authority, on this day personally appeared RICHARD L. JANTZ, a person whose identity is known to me, who, being by me duly sworn on his oath, stated the following:

``1. My name is Richard L. Jantz and I am fully competent to make this affidavit. I have previously executed an affidavit regarding my analysis of State's Exhibit 85J from the case styled The State of Texas v. Darlie Lynn Routier.

2. I have reviewed the State's response to my previous affidavit filed in this case and I believe that the State has misunderstood or misrepresented my analysis of the latent print shown in State's Exhibit 85J in the following respects.

3. The State's claim that my analysis is 'flawed' is unsupported and appears to be based on a misunderstanding of anthropology, dermatoglyphics, and/or probability. Dermatoglyphics is a branch of anthropology (anthropological dermatoglyphics), medical genetics, and genetics. This science is distinct from that used by criminalists when they identify a latent print as that of a particular suspect.
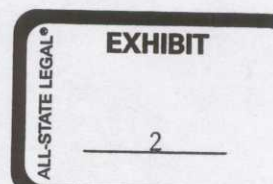
4.   The methodology that I used to analyze Exh. 85J is commonly used by forensic anthropologists.   That methodology uses biological systems that are correlated with chronological age to estimate chronological age.   Forensic anthropologists, for example, routinely assess the age of skeletal remains from dental development, bone length, or bone development.   My report therefore is in line with the standard practice of forensic anthropologists.

5.   Although less is known about age changes in length of the terminal phalanx or the breadth of ridges than is known about other age indicators, it is well established in the scientific literature that these ridges grow as a child gets older.   The following articles discuss this issue: (1) **Loesch, DZ (1983) Quantitative Dermatoglyphics: Classification, Genetics and Pathology. Oxford University Press, pp. 118-119** (contains a discussion of growth in breadth of ridges from 0 to 13 years of age); **David, T. J. (1981) Distribution, Age and Sex Variation of the Mean Epidermal Ridge Breadth. Human Heredity, 31 (5): 279-282.**

6.   Although the fingerprint study I conducted on Exh. 85J is not typically used by forensic anthropologists, conceptually it lends itself to the circumstances of this case where you are trying to determine the characteristics of the

source of a latent fingerprint. Specifically, I was tasked with determining the probability that the source of the fingerprint in Exh. 85J was an adult male, adult female, or child.

7. The State's claim that my methodology is not accepted by fingerprint examiners (*see* Resp. Ans. p. 24) is beside the point; fingerprint examiners use an altogether different method to identify fingerprints. My methodology is accepted by anthropologists. Anthropologists accept that physical characteristics known to change with age can be used to estimate the age of a particular subject. Anthropologists also accept that fingers increase in size with age, and that ridges get wider to keep pace with the growing finger. There is some literature on growth in ridge-width.

8. The State mistakenly suggests (*see* Resp. Ans. pp. 23-24) that my analysis 'does not account for stretching or compression of the skin.' In my analysis, I measured ridge breadth in the accepted way, and it has never been shown that stretching or compression significantly alters that measure.

9. There are two possible sources of error with my methodology: (1) misclassification due to overlapping distributions of different classes of people, males, females, children, and adults; and (2) distortion of the actual finger

configuration by the latent print. However, neither source of error significantly impacted my conclusion.

    a. The first error source is embedded in the posterior probabilities, which show that, in general, State's Exhibit 85J cannot be excluded from any class with 100% certainty. The probabilities are reliable guides to likely misclassification and hence constitute an assessment of error. As reflected in my report, the probabilities are between 0.767 and 0.985 that State's Exhibit 85J is the fingerprint of an adult, depending upon which characteristic is being used;

    b. The second error source is unknowable, but is unlikely to have played a large role because the results from three entirely different measurements converge onto a common answer. It is unlikely that distortion would have the same effect on these different measurements in the same way. There is also evidence of the unlikelihood of error because the technique was able to correctly classify the two known children whose prints were taken in entirely different ways, Devon's right thumb from a postmortem photograph and Damon's right IV from a school print card.

10. Contrary to the State's representation (*see* Resp.Ans. 25), my report does not identify applicant as the most likely
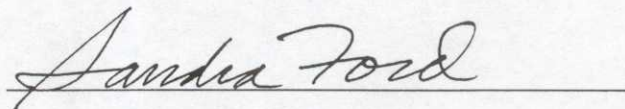
source of the print. My report does not rule in or out any particular adult female, or any particular adult male.

11. Pat Wertheim's suggests that my report raises 'suspicion' because probabilities are reported in my analysis as either a percentage or decimal. They are in fact the same thing, percent/100 = decimal.

The statements in this affidavit are true and correct and within my personal knowledge."

RICHARD L. JANTZ

SUBSCRIBED AND SWORN to before me on this the 26th day of February, 2003.

NOTARY PUBLIC, State of Tennessee

My Commission Expires on September 4, 2006

SANDRA FORD
NOTARY
PUBLIC
AT
LARGE
KNOX CO., TENN.