

FILED  
AT 4:00 O'CLOCK P.M.

JUL - 2 2010

IN THE CIRCUIT COURT OF THE STATE OF OREGON FOR LANE  
COUNTY

Circuit Court For Lane County, Oregon  
BY Harbar

THE STATE OF OREGON

Plaintiff,

vs.

STEPHEN ANGIUS,

Defendant.

Case No. 200924231

OPINION RE: DEFENDANT'S  
MOTION TO EXCLUDE  
FINGERPRINT EVIDENCE

**Introduction:**

The issue before this court is whether to allow a fingerprint examiner employed by the Eugene Police Department (EPD) to testify that two latent fingerprints found in a victim's apartment are the same as the Defendant's. In particular, the Defendant asserts that such testimony is not scientifically valid and therefore is inadmissible under the standards established in *State v. O'Key*, 321 Or 285 (1995).

In years past, and perhaps in the future, some might think such a challenge frivolous. The use of fingerprints as a means of identifying individuals has been part of the judicial system for over one-hundred years. Prior to the development of DNA testing in its current form, fingerprint identification was considered by many to be the "gold standard" in forensic sciences.

To the astonishment of many, in August of 2009 the National Academy of Sciences (NAS) issued a report which found that the ACE-V method<sup>1</sup> of fingerprint identification - the predominant methodology used throughout the world - had not been scientifically validated in any study. NAS, *Strengthening Forensic Science in the United States: A Path Forward* (2009) [hereinafter NAS Report]. The NAS Report sent tremors through the fingerprint examiner community and has caused a great deal of examination of the techniques and claims of fingerprint examiners. In addition, it caused other forensic scientists, lawyers and courts to take a more rigorous look at the testimony of fingerprint examiners.

<sup>1</sup> ACE-V is an acronym which stands for Analysis, Comparison, Evaluation and Verification.

**Analysis:**

A. Is this scientific evidence?

As a threshold issue, the court must determine whether the testimony of a fingerprint examiner is scientific evidence. Oregon courts have avoided creating a precise definition of what is scientific evidence. *O'Key*, 321 Or at 290. Rather, they have chosen to state that scientific evidence is evidence that draws its convincing force from some principle of science, mathematics, and the like. *State v. Brown*, 297 Or 408 (1984). In this case, both parties agree that the proffered evidence is scientific evidence as that term is used above.

B. The Court's gate-keeping role:

Courts recognize that evidence perceived by lay jurors to be scientific in nature possesses significant increased potential to influence the trier of fact, and therefore should be supported by scientific validation. Thus, in the absence of a clear case, a case for judicial notice, or a case of *prima facie* legislative recognition, a trial court's job is to ensure that persuasive appeal is legitimate. The value of the proffered expert's testimony depends on the scientific validity of the general propositions utilized by the expert. The court must identify and evaluate the probative value of the proffered scientific evidence, consider how the evidence might impair rather than help the trier of fact, and decide whether truth finding is better served by exclusion or admission.

C. Proponent's burden

The party offering scientific evidence has the burden to establish is it admissible. They must establish admissibility by a preponderance of the evidence. To be admissible, scientific evidence must: (1) be relevant (Oregon Evidence Code 401 (OEC)); (2) possess sufficient indicia of scientific reliability and be helpful to the jury (OEC 702); and (3) have its probative value not substantially outweighed by its prejudicial value (OEC 403).

D. Relevancy:

Evidence is relevant if it has "any tendency to make the existence of any fact that is of consequence . . . more probable or less probable than it would be without the evidence. OEC 401; *see also State v. Cox*, 337 Or 477 (2004). In the case at hand, Defendant is charged with several burglaries and thefts from several residences. The State plans to offer testimony of an EPD fingerprint examiner that two (of nine) fingerprints found on items in one of the burglarized apartments matched Defendant's fingerprints. The state offers the evidence to prove that the defendant was at least being present in the one of the residences. Thus the evidence is clearly relevant, a fact both parties seem to agree upon.

F. Is the fingerprint evidence scientifically reliable and likely to be helpful to the jury:

In *State v. Brown*, the Oregon Supreme Court set forth list of factors that courts were to consider when deciding whether to allow the admission of scientific evidence. 297 Or 404 (1984). In *State v. O'Key*, 321 Or 285 (1995), the Oregon Supreme Court further refined that list, incorporating some of the factors adopted by the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals*, 509 US 579 (1993). The *O'Key* Court noted that the list was "not intended to be taken as a mechanical checklist of foundational requirements." *O'Key*, 321 Or at 300. Rather, what is important is an analysis of each factor. *Id.* (citing *Brown*).

My consideration of the factors is as follows:

1. Testability of Falsifiability: The underlying theory in making identifications of individuals via friction ridge impressions is that each person has a unique and permanent set of friction ridges, that under certain circumstances when a person touches something an image of those ridges is left behind (latent prints) and that a trained observer can, by comparing latent prints to a known sample of an individual's print, determine whether the latent print matches the known print source.

There is wide spread understanding that friction ridges are formed on the hands and feet of human beings in utero. There is also widespread acceptance of the idea that absent scarring, the patterns of those ridges do not change during a person's life. There also seems to be wide spread acceptance of the notion that each person has a unique set of fingerprints. While these understandings are based on scientific principles, there is only a small amount of scientific studies that support these beliefs. See NAS Report, 144 & 144 n.34. However, in the over one hundred years that fingerprints have been used as a method to identify individuals, no two people have been found to have the same fingerprints. This is true despite numerous studies of identical twins (and others) studies looking for the same prints. Finally, even critics of the method seem to acknowledge that it is capable of correctly identifying a person. NAS Report, 142; see also Dr. Cole's testimony acknowledging such evidence may have probative value. However, even if uniqueness and permanence are presumed, that does not guarantee that prints from two different people are sufficiently different that they cannot be confused. NAS Report, 142.

The technique used to make latent print identification in this case is referred to by the acronym ACE-V, which stands for Analysis, Comparison, Evaluation, and Verification. A detailed explanation of the process is set forth in Heidi Eldridge's affidavit and that description is incorporated herein by this reference. (Eldridge Aff. 2:20-5:11). ACE-V is a very broad framework that

relies heavily on the experience, training and skill of the examiner. It therefore is a very subjective process.

On the other hand, the technique has a built-in check, namely the verification where a "second opinion" is taken from a different examiner. Generally that examiner works through the ACE-V process himself to determine whether they agree with the conclusion of the first examiner. Further, unlike some other methods of testing, no part of the sample is destroyed, so the original latent prints are available for review by other examiners, including those hired by the defense. This method has been used extensively since the 1970s and presumably the results of individual examinations have been subject to the scrutiny of the litigation process tens of thousands of times. It is the framework used worldwide to make hundreds of thousands of comparisons every day.

2. Peer review and publication (the existence of specialized literature).

Both parties agree that there has been extensive literature about the use of fingerprints to identify people and about the use of the ACE-V technique in particular. The International Association for Identification (IAI) publishes the Journal of Forensic Identification which is dedicated to friction ridge identification. In addition to this specialized journal, there are numerous articles about fingerprinting in various law journals, forensic science journals, magazines and newspapers.

Unfortunately, not a lot of that literature has been directed at examining the scientific validity of the ACE-V technique. That may be the result of the fact that people generally considered fingerprint identification the "gold standard" of the forensic sciences. The only study addressing the accuracy of the ACE-V method that has been published after the NAS Report, was the Landenburg Performance Study.

3. The known or potential rate of error

It is true that there is not an agreed upon error rate for misidentification of fingerprints. And to be sure, any method so dependent on the subjective interpretations of the examiner is bound to have errors, and claims to the contrary are inaccurate. NAS Report, 143. However, 100% accuracy is not required for the evidence to be admissible.

The NAS Report also highlighted the fact that there were no adequate validation studies on the ACE-V methodology. NAS Report, 143. There are, however, numerous studies looking at errors and the likelihood of erroneous

associations. (See Amici Brief filed in *State of Maryland v. Bryan Keith Rose*, Case No. 03k06000545, 7 n.10-8 n.12 & 12 n.20 [hereinafter Amici Brief]). These studies support a conclusion that while the error rate has not been quantified, it is extremely low. Likewise the Landenberg study, while not technically a validation study, found fingerprint identifications made using the ACE-V methodology to be accurate and reliable. Dr. Simon Cole, defendant's expert witness and a leading critic of fingerprint identification, has estimated the false positive rate of .5%. Ms. Eldridge testified that some structured research and analysis of examiner testing (aka proficiency testing) have shown error rates of .2 to .4%. (See also AMCI Brief, 8 n.12).

Anecdotal evidence likewise suggests that the false positive rate is very low. Dr. Cole was able to identify only 23 cases (22 prior to the Mayfield case) of false identifications using the fingerprints during the last decade. All but one of those cases involved an identification that was made based on a single latent print which had been distorted in some manner (the one case that did not involve a distorted single print involved fraud). Further, he testified that of the 155 Innocence Project cases he reviewed, only one involved some sort of fingerprint evidence that had been used originally against the accused.

4. Existence and maintenance of standards governing the use of fingerprint identification

The International Association for Identification (IAI) and the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST) both have established training guidelines for examiners. Both organizations also maintain standards for certification as a latent print examiner. Finally the ACE-V technique has been widely published. See NAS Report, 137 n.19. Further, SWGFAST has published documents detailing the "Standard for Conclusions and Standards for Documentation of ACE-V." Ms. Eldridge indicated that her agency follows the SWGFAST standards. Her agency also has its own procedural manual and has made changes to that manual in light of the NAS report (i.e. increasing the amount of documentation the examiner does showing her analysis).

5. The degree of the test's acceptance in the relevant scientific community.

What is the relevant scientific community? Is it just fingerprint analysts? Is it fingerprint analysts and other forensic scientists? Or is it fingerprint examiners, forensic scientists and social scientists? I believe that the relevant scientific community in regards to fingerprint or friction ridge skin identification is not limited to fingerprint analysts, but includes forensic scientists generally.

Having made that determination, I find that within the relevant scientific community, the ACE-V method enjoys general acceptance as leading to accurate results. To be sure, there are those in the community to have questions. (Defendant's Memorandum, 8:6-15 (discussing the NAS Report, National Institute of Justice (NIJ) Report and other articles)). While it is true that more can be done to sure up the scientific basis of the ACE-V methodology, even its harshest critics have acknowledged that correct matching of latent and known fingerprints is possible using the methodology.

6. The expert's qualifications and stature.

The qualifications of the State's expert witness, Ms. Heidi Eldridge, are set forth in her affidavit and supplemented slightly during the course of her testimony. (Eldridge Aff. 1:25-2:18). She is a self-described "fingerprint nerd" and I was impressed with her depth of knowledge of the field. I find that she is qualified based upon her training and experience to make fingerprint identifications using the ACE-V methodology.

7. The use that has been made of the test (including non-judicial uses)

The ACE-V methodology for identification of persons though latent fingerprints has been in use since the late 1970s. It has been used extensively by forensic scientists, law enforcement, and the courts. It is used throughout the world on a daily basis.

Moreover, fingerprints are used as a method of identification/ investigation in a wide variety of settings, including but not limited to professional licensing, getting concealed handgun permits, background checks for those wishing to coach children, identifying bodies, and in programs designed to ensure the recovery of children who are kidnapped.

8. The extent to which other courts admit the test into evidence.

Oregon courts have long allowed and relied upon fingerprint evidence. Over 80 yrs ago the Oregon Supreme Court summarily rejected a contention that it was error to allow such evidence to be used in a criminal case. *State v. Smith*, 128 Or 515 (1929). Grand Juries are allowed to consider reports from fingerprint technicians concerning the results of a fingerprint examination. ORS 132.320 (2). Courts are required to ensure that every person convicted of a Class A misdemeanor or felony has had his or her fingerprints taken. ORS 137.074. People on probation are generally required to submit to fingerprinting if asked by a probation officer. ORS 137.540 (1)(h). Fingerprint evidence is admissible to establish that a defendant has been previously convicted for purposes of imposing

a dangerous offender sentence. ORS 161.735(7). Finally, people requesting the expungement of their criminal charges are required to submit fingerprints. ORS 137.225 (2).

Even Oregon's leading evidence scholar, Dr. Laird Kirkpatrick, believes that the testimony of fingerprint analysis is admissible in Oregon Courts. LAIRD C. KIRKPATRICK, OREGON EVIDENCE 612 (5th ed. 2007).

Nationally, all but one court has allowed the admission of fingerprint evidence in a series of challenges that have arisen since 1999. (State's Mem. 8-9). In the one case where a trial court did not allow the admission of such evidence, *Maryland v. Bryan Rose*, the case was removed to Federal District Court and that court concluded the evidence was admissible. K06 0545 (Cir. Ct. Balt. Co. 2008); *U.S v. Rose*, 672 F. Supp. 723 (D. Md. 2009). The State also points out that the Maryland Court of Special Appeals (the appellate court that would have reviewed the state court decision in *Rose*) recently ruled in a different case that fingerprint evidence could be admitted into evidence. *Markum v. State of Maryland*, 189 Md. App. 140 (2009).

9. The novelty of the test

There is nothing new or novel about latent fingerprint identification. The first article regarding the use of fingerprints as a means of personal identification was written in 1880. It has been used widely in the United States since the turn of the century and, as mentioned earlier, has been generally accepted in Oregon Courts since 1929. And, also as mentioned above, the ACE-V methodology for identification of latent fingerprints has been widely used since the 1970s while some have suggested that essentially the same methodology (although not known as the ACE-V) had been in use since 1948. All the methods of latent fingerprint identification used relied on the skill and experience of the examiner to make comparisons of two sets of prints to decide whether or not they come from the same source.

10. The extent to which the test relies on the subjective interpretation of the examiner.

This test relies heavily on a number of subjective judgments of the examiner. During the Analysis phase, the examiner must make subjective decisions about a verity of things, including the clarity of the latent print, distortions and the reasons therefore, and methods for developing the prints. During the Comparison stage, the examiner must make subjective decision about what is or is not similar in the two fingerprints. Finally, during the Evaluation phase, the examiner must make the subjective decisions about whether, based on

his or her experience and review of the two prints, he or she is willing to "stake my professional reputation" on which of three conclusion he or she has drawn: identification, exclusion, or inconclusive. All of these subjective decisions are made by a second examiner during the Verification phase.

11. Presence of safeguards in the procedure

There are several significant safeguards in the process. First, and this is relatively new, examiners document their thinking as they go through each of the stages. Second, every examiner conclusion is reviewed by a second examiner during the validation portion of the procedure to see if that second examiner reaches the same conclusions as did the first examiner. Third, as mentioned above, the latent fingerprint and the print to which it was compared are available for review and independent evaluation by experts hired by the defense. Finally, the degree of similarity or dissimilarity between the two prints can be viewed by the jury – they can look at the two prints and make their own visual comparison of the prints.

12. Other factors.

The State's witness in this case, Ms. Eldridge, did a very good job of explaining the ACE-V technique in a manner that I expect the jury will be able to understand. The technique relies heavily on one of the oldest and most time honored methods of scientific study: visual observation and side by side comparison. The methodology utilizes portions of what is generally accepted as the "Scientific method" - namely the experiment, conclusion and replication steps. I was also impressed by how forthright Ms. Eldridge was in her testimony and expect that she will not overstate her conclusions and will answer all questions put to her honestly.

Having considered the factors set forth above, I find that testimony by Ms. Eldridge that the fingerprints found in the residence of one of the victims matches the Defendant's fingerprint based on her comparison pursuant to the ACE-V methodology of the latent prints with a known standard from the Defendant meets the helpfulness requirement of OEC 702.

G. Should the fingerprint evidence be excluded under OES 403?

Relevant evidence may be excluded under OEC 403 only if its persuasive force is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or because it is cumulative. This required the probative value of the evidence to be compared to the articulated reasons for exclusion and permits exclusion only if one or more of those factors substantially outweigh the probative value. *State v. Johanesen*, 319 Or 128 (1994).

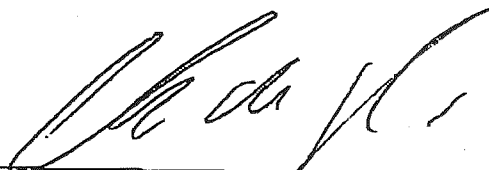
The rule generally favors admission of evidence and places the burden on the party seeking exclusion of the evidence. *O'Key*, 321 Or at 320.

Defendant in this case argues that the testimony by Ms. Eldridge regarding her analysis and the fact that she believes that the fingerprint found in the apartment matches that of the Defendant is unfairly prejudicial. In essence, the Defendant's argument is that given the highly persuasive nature of fingerprint evidence, the fact that the defense will be able to point out the various perceived shortcomings of the ACE-V method of fingerprint analysis still will not be able to overcome the prejudicial effect. I reject the argument for several reasons. First, as set forth above, the evidence has enough validity that the jury can and should be able to consider it. Secondly, the jury will be able to consider the concerns that the defense has raised regarding the evidence and decide what effect, if any, those concerns have on the validity of Ms. Eldridge's testimony. Third, while I agree the evidence will be prejudicial to the defendant – i.e. harmful to his position that he is innocent – I do not believe that it is unfairly prejudicial. Evidence is unfairly prejudicial when it has an undue tendency to suggest a decision on an improper basis – commonly, although not always, an emotional one. *State v. Pinnell*, 311 Or 98 (1991). Evidence that prints matching Defendant's fingerprints were found in one of the victims' apartments is prejudicial because it derives its persuasive power from the ability to establish a fact of consequence and not from the suggestion of an improper basis for deciding the issues.

**Conclusion:**

Having considered all the above factors, I find that the state's proffered evidence regarding fingerprints may be presented to the jury for its consideration. I trust that the jury will be able to understand some of the limitations of the testimony and will be able to weigh the evidence appropriately.

Dated this 2<sup>nd</sup> day of July, 2010.



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Judge Charles M. Zennaché  
Circuit Court Judge