

CHAPTER

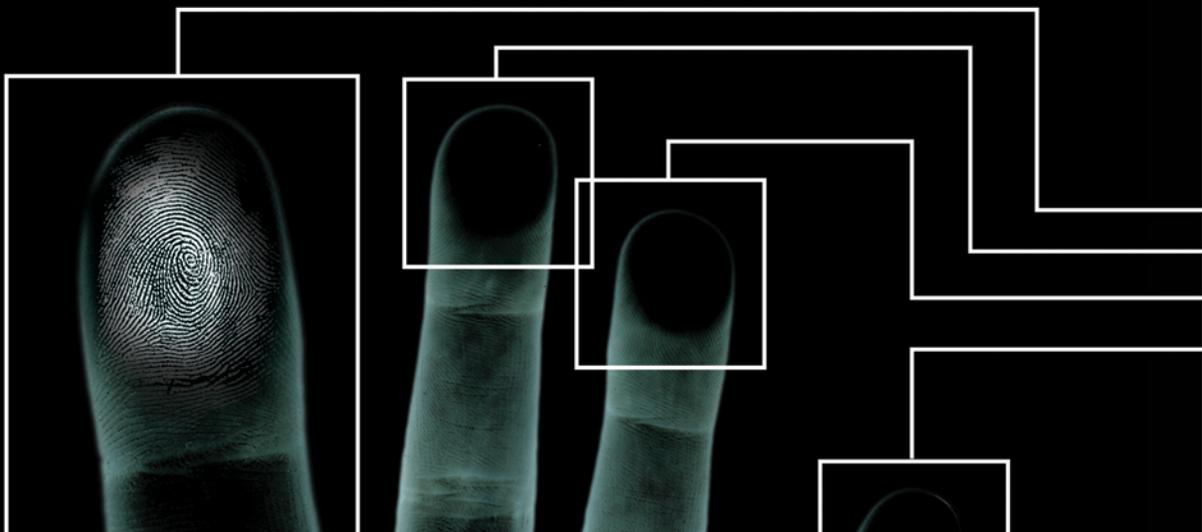


FINGERPRINTS AND THE LAW

ANDRE A. MOENSSENS AND
STEPHEN B. MEAGHER

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CHAPTER 13

FINGERPRINTS AND THE LAW

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13.1 Introduction

Fingerprints, palmprints, and impressions of bare soles have been widely recognized and accepted as a reliable means to identify a person. A reproduction of the friction ridge arrangements on a fingerprint, palmprint, or footprint may be left on an object when it is touched. This permits the impression to be used for the personal identification of individuals in criminal investigations. Thus, the forensic science of fingerprints, palmprints, and footprints is utilized by law enforcement agencies in support of their investigations to positively identify the perpetrator of a crime. This forensic science is also used for exculpatory or elimination purposes.

This chapter will address the laws and rules of evidence as they apply to friction ridge impression evidence. Historical court decisions and recent appellate and United States Supreme Court rulings will be addressed. This chapter will primarily address federal court decisions and the Federal Rules of Evidence, which may not be applicable to all states.

The term “friction ridge impression” will be used to refer to any impression made from human friction ridge skin (e.g., the skin on the palm side of fingers and hands and the soles of the feet). There are two different types of friction ridge impressions: those of known individuals intentionally recorded, and impressions from one or more unknown persons on a piece of evidence from a crime scene or related location; the latter are generally referred to as latent prints.

The scope of this chapter will include legal aspects associated with experts and evidence, and legal challenges to the admissibility of friction ridge impression evidence. The basis of the material will be the U.S. legal system at the federal level. The text makes occasional references to laws or court decisions of specific states or foreign countries when notable. The reader is strongly encouraged to consult those legal sources that more particularly govern the jurisdiction in which the expert will be testifying.

13.2 The Expert and the Rules of Evidence

13.2.1 Introduction

The term “forensic science” implies the use of a scientifically based discipline as it intersects with and provides evidence for legal proceedings. The Federal Rules of Evidence (FRE) set out the framework within which evidence is admitted into court. The primary rules that apply to expert witnesses are FRE 702, Testimony by Experts; and FRE 703, Bases of Opinion Testimony by Experts.

FRE 701, Opinion Testimony by Lay Witnesses, permits a better understanding of the distinction between opinion testimony offered by an expert and those instances where even a lay witness may offer opinions in a court of law.

How these rules affect examiners of friction ridge impressions will be discussed later. At this point, the discussion is limited to defining the terms the law of evidence uses in connection with legal proceedings.

13.2.2 Federal Rules of Evidence — Rule 702

The definition and uses of expert testimony, which are also applicable to persons performing forensic friction ridge impression examinations, are expressed in FRE 702. Currently, the rule provides:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case. (As amended Apr. 17, 2000, eff. Dec. 1, 2000.) (FRE, 2004, p 13)

The rule encompasses a number of issues. In the order of their mention in the rule, each will be discussed, first in a general sense, and then as they apply to the expert in friction ridge impression examinations. The key purpose of Rule 702 is to determine whether a witness warrants expert status and will be permitted to offer opinion testimony.

13.2.2.1 Qualifications of the Expert Witness. A witness who will be offering opinion testimony must first be shown to be qualified as an expert. That step involves the expert taking the stand, being sworn to tell the truth, and providing answers to questions posed by an attorney relating to the witness’s competence. At the conclusion of direct testimony, the counsel proffering the witness will ordinarily move that the witness be recognized by the court as an expert. Opposing counsel is given an opportunity to question the witness to challenge his or her expert qualifications. At the conclusion of this process, the judge decides whether the witness may offer opinion testimony as an expert. In deciding, the judge may limit the extent to which the expert will be permitted to testify. The jury has no role in this preliminary step; the determination whether a proffered witness qualifies as an expert is a legal decision. (The process is sometimes referred to as the *voir dire* of an expert.)

13.2.2.2 Testimony about the Facts of a Case. It is only after the preliminary stage of qualifying the witness as an expert is completed that the witness can offer opinions about the case in which the witness was called to court. In a jury trial, the jurors act as the arbiters of the facts. When facts are in dispute, the jurors decide what they believe happened. When the experts testify, the jurors ultimately decide also whether they will accept the opinions expressed by the experts as true facts. Before the jury deliberates, the judge will instruct them that they are free to either believe or disbelieve, in whole or in part, the testimony of any witness, including an expert. The credibility instruction on lay and expert witnesses shows how important it is for the expert to offer concise, credible, understandable, and convincing testimony.

13.2.2.3 Is the Examination of Friction Ridge Impressions a Science? The first seven words of FRE 702, “If scientific, technical or other specialized knowledge...”; evoke an immediate question for the expert: Is a forensic friction ridge impression examination scientific, technical, specialized knowledge, or a combination of two or three of these choices? The question can be logically followed with several more: Is it important to distinguish between them and choose just one? Does the court require the expert to state under which aspect of the rule the expert purports to testify?

These questions have been answered by the U.S. Supreme Court in its decision in *Kumho Tire Co. v Carmichael*, 526 U.S. 137, 119 S. Ct. 1167 (1999). The court clearly stated



that the same criteria used in *Daubert v Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S. Ct. 2786 (1993), to determine whether testimony offered as scientific knowledge is reliable should also govern the admissibility of testimony under the “technical” and “other specialized knowledge” prongs of Rule 702 to the extent these criteria may be applicable to them. (*Daubert* and *Kumho Tire* are discussed more in depth in sections 13.3.1.3 and 13.3.1.4.) Therefore, distinguishing between science, applied science, technology, or experience-based expertise is not paramount or even required. (These two important cases will be revisited later in a discussion of challenges to the admissibility of fingerprint evidence.)

Though the “science versus experience” issue may not be important under Rule 702, it is nevertheless an intriguing question that warrants further discussion. If one postulates that the discipline of forensic friction ridge impression examination represents “science,” then *Daubert* requires a showing of the scientific underpinnings that make the discipline reliable. Is forensic friction ridge impression examination a scientific endeavor such as, for instance, chemistry or biology? Or is it more of an applied technical field based in several sciences?

The Scientific Working Group on Friction Ridge Analysis, Study, and Technology (SWGFAST), a recognized body charged with formulating guidelines for the friction ridge impression examiners’ discipline, posits that forensic friction ridge impression examination “is an applied science based upon the foundation of biological uniqueness, permanence, and empirical validation through observation” (SWGFAST, Press Kit). This is logical when one understands that the fundamental premises on which friction ridge impression “individualizations” (identifications) rest are (1) friction ridge uniqueness and (2) persistence of the friction ridge arrangements. Without an understanding of the biological aspects underlying the formation of friction ridges prenatally, experts would never be justified in reaching a conclusion, reliable or otherwise, that an individualization has been effected (i.e., a positive identification of one individual who was the source of an impression to the exclusion of all other possible persons). The SWGFAST position thus supports the claim that forensic friction ridge impression examination is scientific.

But is it possible that forensic friction ridge impression examination is also technical? Furthermore, does it also require specialized knowledge and training on the part of the expert? Any expert trained to competency in forensic

friction ridge impression examinations will certainly admit that, in addition to its scientific underpinnings, the task at hand also requires specialized technical knowledge if one is to achieve a reliable conclusion. Therefore, forensic friction ridge impression examinations can be proffered as any or all three of the prongs contained in FRE 702.

13.2.2.4 Whom Must the Expert Convince? The next phrase in FRE 702 indicates whom the expert, through testimony, is expected to assist: it is the “fact finder.” Because the Federal Rules of Evidence, and therefore FRE 702 as well, apply whether the expert testifies at a pretrial hearing or at the trial itself, the expert must understand that at a pretrial admissibility hearing based on a *Daubert* challenge, the judge also acts as the fact finder. The expert testimony at such a hearing is provided solely to assist the judge in determining whether the *Daubert* challenge will be sustained or rejected.

The expert testimony given at trial, by contrast, is initially directed to the judge for the determination of whether the witness qualifies as an expert and, once found to be qualified, then to the jury, if any, for the purpose of presenting the results, conclusions, and expert opinions obtained during the examination process. In a nonjury (bench) trial, the judge will also act as the fact finder.

13.2.2.5 Testifying about Qualifications. The next phrase in FRE 702 states, “a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.” This phrase describes how courts are to determine whether one is an expert as proffered. The expert needs to be prepared to identify specific information for each of the five criteria listed in the rule: knowledge, skill, experience, training, and education. A well-prepared expert should have the pertinent details for these criteria set out in a curriculum vitae.

The direct testimony on the qualifications typically includes a recital of the person’s education (formal and otherwise); specialized training received, including detailed information of the nature, length, and detail of that training; the professional certifications obtained; continuing education pursued; membership and activities in professional societies; awards received; written materials prepared and courses taught; and previous expert testimony offered.

Persons seeking to qualify as expert witnesses need to continually update their curriculum vitae so that lawyers seeking to present their testimony will have an accurate copy available for the court. A well-written, professional

curriculum vitae goes a long way to shorten what can otherwise be a lengthy qualification process and possibly avert some cross-examination questions by opposing counsel regarding the expert's qualifications. An impressive curriculum vitae may actually result in the defense offering to stipulate to the expert's qualifications. Under this scenario, the opposing counsel makes a conscious strategic decision to stipulate so that the judge and jury will not be overly influenced by impressive credentials. There are other reasons the defense may stipulate to the expert's qualification (e.g., a simple desire to save time; no intent to aggressively contest the expert's testimony in an effort to downplay its significance; or, when the fingerprint identification is uncontested, as in a self-defense or insanity defense case).

13.2.2.6 Is Expert Opinion Testimony Warranted? The ultimate question on whether expert testimony is warranted at all in a particular case requires the judge to determine, from a common sense perspective, whether an untrained lay person (judge or juror) presented with factual evidence can determine what happened alone, without an expert's assistance. If so, then expert opinion testimony is not warranted. But if the expert's opinion would be helpful to the fact finder in understanding the significance of factual data, then the expert witness is essential and opinion evidence is admissible.

13.2.2.7 Further Requirements of Revised FRE 702.

Once the judge determines that an expert is qualified to give opinion evidence under FRE 702, then the expert can so testify. In April 2000 (effective December 2000), the Federal Rules of Evidence were amended to include three further requirements which must also be met. They are "(1) the testimony (must be) based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case." These three requirements were added by the FRE committee to conform opinion testimony to the mandates of the *Daubert* and *Kumho Tire* decisions. The revision makes it easier to present effective scientific and technical expert testimony whenever such evidence is warranted and also provides a basis for excluding opinion testimony that cannot be said to be based on a reliable methodology.

The first one of these three requirements necessitates that the expert's testimony rest on a sufficient basis that supports a reliable conclusion. Under ideal conditions, known facts or data would present themselves with clear-cut answers and would be totally based upon objective

measurements. The reality is that this rarely occurs. In fact, it is in the nature of science that some premises remain in a gray area where a degree of subjectivity is unavoidable. How many data and facts are needed to allow the judge to find a "sufficient" basis for the opinion? That question is still being debated among legal scholars.

What does the forensic science of friction ridge impression examinations offer to the court on that same issue of sufficiency? It has been established by sound and repeated studies that friction ridge examination evidence permits the uncontroverted association of a particular individual with a particular scene or object. If the scene or object is part of a crime, the individualization evidence would certainly offer a logical connection to a case, permitting a jury to draw conclusions as to guilt or innocence of the individualized person.

The second requirement asks whether the testimony will be the product of reliable principles and methods. Here, the expert must not only be able to state the principles and the methods used but be familiar with any research or testing that has demonstrated the reliability. In this regard, friction ridge examination follows an established SWGFAST-approved methodology designed to lead to reliable and verifiable conclusions if the prescribed methodology is followed by a competent examiner.

The third requirement mandates that the witness has applied the principles and methods reliably to the facts of the case. Here the court must determine whether everything the witness testified to previously in connection with the first and second requirements was adhered to in the particular case. It would be a blunder of monumental proportions for an expert to lay out the details of the specific process in satisfying the first and second requirements and then completely abandon that process for the case at hand.

It must be recognized, however, that occasionally exceptions to the use of recommended processes are warranted, indeed required, by the particular circumstances of a case. Methodologies and examination protocols are designed to deal with the normal course of an investigation to the extent that a "normal" course can be anticipated. The nature of criminal activity occasionally does not always follow anticipated paths. Deviating from recommended "standard" processes requires a lot of thought and experience on the part of an examiner, but the justification for the deviation must always be clearly documented in the examiner's notes.



13.2.3 Federal Rules of Evidence — Rule 703

FRE 703, the basis of opinion testimony by experts, states:

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by the experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence in order for the opinion or inference to be admitted. Facts or data that are otherwise inadmissible shall not be disclosed to the jury by the proponent of the opinion or inference unless the court determines that their probative value in assisting the jury to evaluate the expert's opinion substantially outweighs their prejudicial effect.

This rule describes the different types of testimony experts can offer.

13.2.3.1 Testimony about First-Hand Knowledge; The Hypothetical Question. An expert, like any ordinary fact witness, may testify to observations the expert made in examining evidence, the methods used and factual data found, and then express an opinion derived from such first-hand knowledge possessed by the expert. That is one of the traditional forms of expert testimony. But in addition, the first sentence of FRE 703 also permits an expert to offer opinions on facts of which the expert may not have known prior to coming to court, but of which the expert was apprised at the hearing or trial. That is what is known as the typical "hypothetical question" wherein an expert is asked to assume a series of facts stated by the direct examiner (or cross-examiner) and, after these facts have been stated, the expert is asked whether he or she has an opinion based on these facts. These two forms of expert evidence have long been sanctioned by the common law of evidence.

13.2.3.2 Testimony Based on Reports or Examinations Made by Others. The second sentence of Rule 703 represents a change from what previously was the law. It is a change that even today is not followed in all jurisdictions. Normally, if an expert has arrived at an opinion based on facts that the expert was told by someone else, the basis for that opinion is "hearsay," and, at one time, such an opinion was inadmissible in most state and federal jurisdictions.

When the Federal Rules of Evidence were written, the drafters decided to do away with this long-standing prohibition

and to permit opinion testimony based on hearsay, provided the hearsay is of the kind that experts in the particular field rely on to make ordinary professional decisions in their careers. Under this portion of the rule, for instance, doctors are now permitted to testify to X-ray reports received from an X-ray technician or information contained in nurses' reports without first having to call the X-ray technician or nurse to court. In or out of hospitals, doctors do rely on such reports to make life and death decisions, and the drafters of the FRE decided to focus on the reliability of such evidence as *determined by the practitioners in the field* rather than as determined simply by technical rules such as the common law prohibition against the use of hearsay evidence. Thus, the FRE significantly broadened the potential scope of expert testimony. FRE 703 now permits professionals to rely upon reports of others without first having to call any of these "others" as witnesses, as long as to do so is a recognized practice in their discipline.

The final sentence of FRE 703 states that the information provided to the expert by third parties who are not in court need not even be shown to be independently admissible in evidence. But the judge decides whether the jury may be informed about that potentially inadmissible evidence. For example, a crime scene investigator develops a latent print at a crime scene, submits a lift or photograph of the latent print to the laboratory, and then advises the expert as to how and what method was used to process the evidence. In such a case, the expert may testify to the development method used by the investigator even though the expert was not present when the latent print was made visible. Such inadmissible hearsay may be presented to the jury if, in the judge's estimation, its probative value in assisting the jury to evaluate the expert's opinion substantially outweighs any prejudicial effect it may have.

13.2.4 Federal Rules of Evidence—Rule 701

FRE 701 on opinion testimony by lay witnesses states:

If the witness is not testifying as an expert, the witness' testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness, and (b) helpful to a clear understanding of the witness' testimony or the determination of a fact in issue, and (c) not based on scientific, technical, or specialized knowledge within the scope of Rule 702.



The intent of FRE 701 is to provide a contrast for a better understanding of FRE 702. FRE 701 outlines the conditions under which even a nonexpert may testify to an opinion or draw a conclusion from known facts.

Generally speaking, lay (nonexpert) witnesses may offer opinion testimony in those cases where their opinions are (1) rationally based on their perception and (2) when to do so would be helpful to the jury. Thus, nonexpert witnesses may offer the kind of opinions that ordinary persons would make in their daily lives. Lay witnesses who testify can utter opinions like, “he was drunk,” or “he was going way too fast,” or “I could hear everything through the wall and they were having an argument.”

The law prohibits lay persons, however, from offering opinions on the ultimate issue to be determined. For example, an opinion that “the defendant was grossly negligent” is not considered to be “helpful” to the jurors in forming their own conclusions (rather, it attempts to draw the conclusion for them) and is therefore not permitted. It may be that all persons witnessing the same occurrence would have come to the same conclusion, and therefore the opinion was rationally based on perception. Nevertheless, the type of opinion by a lay witness that goes to the ultimate issue is not permitted under Rule 701. The law is different for expert testimony. Rule 704(a) of the FRE specifically provides that “testimony in the form of an opinion or inference otherwise admissible is not objectionable because it embraces an ultimate issue to be decided by the trier of fact.” This provision effectuated a change from the common-law prohibition against “ultimate issue” opinions of all witnesses. That prohibition had already been eroded significantly in many jurisdictions, at least for expert testimony, at the time the FRE were drafted. There is only one exception where FRE 704 on expert testimony retains the prohibition on ultimate issue testimony and that is for behavioral experts testifying to the mental state of an accused in criminal cases. This exception was added as FRE 704(b) in 1984 after a battle of psychiatric experts in the trial of John Hinckley, accused of attempting to assassinate President Reagan, resulted in Hinckley’s acquittal.

The last provision of FRE 701, section “c,” makes clear that the need to prove the reliability of true expert opinion testimony under *Daubert* and *Kumho Tire* cannot be avoided by seeking to offer the opinion as a lay opinion under FRE 701. Although a person can offer testimony both as an expert and as a lay person in the same case, the 2000 amendment to FRE 701, which added section “c,” makes clear

that any part of the testimony that is based on “scientific, technical, or other specialized knowledge” will be governed by FRE 702, and not by FRE 701. The admissibility of expert opinion testimony by a friction ridge examiner and about friction ridge examinations will be governed by Rule 702. It cannot qualify as a lay opinion.

13.2.5 The Judge’s Instructions to the Jury

During litigation, each side will have an opportunity to request what jury instructions should be sent to the jury. The judge will decide what final instructions will be presented to the jury. These instructions will cover many topics appropriate for the testimony provided and the charges proffered. If expert witness testimony is provided, it is almost certain that the judge will include instructions regarding this type of testimony as well. The following is a typical jury instruction related to expert witness testimony:

You have heard the testimony of experts in this case. The credibility or worth of the testimony of an expert witness is to be considered by you just as it is your duty to judge the credibility or worth of the testimony of all other witnesses you have heard or evidence you have seen. You are not bound to accept expert testimony as true, and you may weigh and credit testimony of expert witnesses the same as that of other witnesses, and give it the weight to which you think it is entitled. (Adapted from Pattern Jury Instructions approved by several jurisdictions.)

Such an instruction will typically be given to the jury after it has been instructed that it is the sole judge of the credibility of all the evidence it has heard and that it may accept or reject the testimony of any witness, in whole or in part, if the jury finds such evidence (or any part of it) to be unconvincing or not worthy of belief. One or more additional instructions on the duty of the jury in weighing evidence may be given.

It is also permissible for the judge to supplement the standard expert witness jury instruction with special provisions more applicable to a particular case. However, in charging the jury, the judge may not refer to the testimony of any particular witness and may not single out certain testimony or evidence.

Training courses for fingerprint experts should include an awareness of these jury instructions because it may result in altering how the expert articulates certain information



during his or her testimony, especially if a defense expert will also be testifying.

13.2.6 The Expert and Potential Impeachment Information

There are three significant cases that mandate what information the prosecution must provide to the defense. Two of these cases apply uniformly across the country as a matter of constitutional law; the third was decided by the 9th Circuit Court of Appeals in an unpublished decision, which is therefore technically not entitled to precedential value. The first two cases are *Brady v Maryland*, 373 U.S. 83 (1963) and *Giglio v United States*, 405 U.S. 150 (1972). The third is *United States v Henthorn*, 930 F.2d 920 (9th Cir. 1991), affirming *United States v Henthorn*, 931 F.2d 29 (9th Cir. 1991).

In *Brady v Maryland*, the U.S. Supreme Court ruled that anyone accused of a criminal matter has the right to be informed of any potentially exculpatory information within the prosecutor's control that may be favorable to the accused and may be material to either guilt or punishment. Materiality of the evidence means that there is a reasonable probability that had the evidence been disclosed in a proceeding, the result of the proceeding would have been different. If the prosecution is uncertain whether certain materials requested by the defense must be disclosed, it may ask the court to inspect the material in chambers to make that determination.

In effect, if a fingerprint expert knows of any information from an examination of the evidence that could be considered exculpatory to the accused, such information must be provided to the prosecutor and, ultimately, to the court and defense.

In *Giglio v United States*, the U.S. Supreme Court ruled that the government is constitutionally required to disclose any evidence favorable to the defense that may impact a defendant's guilt or punishment, including any information that may bear on the credibility of its witnesses, even if the defendant fails to request such information.

In *United States v Henthorn*, the Circuit Court of Appeals for the 9th Circuit ruled that the government has a duty to review the personnel files of its testifying officers and to disclose to the defense any information which may be favorable to the defendant that meets appropriate standards of materiality. Obviously, this is information that would go to the qualifications of the experts. Such matters as past

errors, required retraining, or any actions that may reflect on the integrity or credibility of the expert are susceptible to this ruling. Although this is not a U.S. Supreme Court rule, it is being followed widely by other jurisdictions.

13.2.7 Federal Rules of Criminal Procedure—Rule 16

The Federal Rules of Criminal Procedure set forth guidelines for a wide range of issues. One of these rules of special interest to fingerprint expert witnesses is Rule 16, Discovery and Inspection, and specifically, Rule 16(a)(1)(F), *Reports of Examinations and Tests*, and (G) *Expert Witnesses*. Unlike the material constitutionally required to be disclosed by the decisions in the preceding section (*Brady* and *Giglio*), these disclosure provisions apply only in federal courts. The various states may or may not have similar discovery provisions in their rules of procedure.

Rule 16(a)(1)(F), *Reports of Examinations and Tests*, states:

Upon a defendant's request, the government must permit a defendant to inspect and to copy or photograph the results or reports of any physical or mental examination and of any scientific test or experiment if:

- (i) the item is within the government's possession, custody or control;
- (ii) the attorney for the government knows—or through due diligence could know—that the item exists, and;
- (iii) the item is material to preparing the defense or the government intends to use the item in its case-in-chief at trial.

Rule 16(a)(1)(G), *Expert Witnesses*, states:

At the defendant's request, the government must give to the defendant a written summary of any testimony that the government intends to use under Rules 702, 703, or 705 of the Federal Rules of Evidence during its case-in-chief at trial. If the government requests discovery under subdivision (b)(1)(C)(ii) and the defendant complies, the government must, at the defendant's request, give to the defendant a written summary of testimony that the government intends to use under Rules 702, 703, or 705 of the Federal Rules of Evidence as evidence at trial on the issue of the defendant's mental condition. The summary

provided under this paragraph must describe the witness's opinions, the bases and reasons for those opinions, and the witness's qualifications.

It is apparent from the wording in these two subsections to Rule 16 that fingerprint experts must be prepared to provide copies of their examination documents and to provide a written report setting forth the bases for their conclusions and opinions. Generally, most forensic laboratory reports set forth the conclusions but seldom are the bases for the conclusions included. Therefore, expert witnesses should be aware of Rule 16 and be prepared to respond to discovery requests under Rule 16.

Recently, defense attorneys submitting requests for Rule 16 discovery regarding fingerprint identification and expert testimony have included not only disclosure of the basis for the identification but also information on the scientific bases for the fingerprint discipline. This, of course, goes directly to the *Daubert* issue, which is discussed later in this chapter. The expert will need to be prepared to concisely present the *Daubert*-related information in a succinct report.

Lastly, subsection (G) states the need to provide accurate information on the witness' qualifications. As previously discussed under FRE 702, the fingerprint expert would be well served in maintaining an up-to-date curriculum vitae that could be quickly provided in compliance with a Rule 16 request.

A third subsection of Rule 16 also has direct application to fingerprint expert witnesses. This is Rule 16 (a)(1)(D), *Defendant's Prior Record*, and states:

Upon a defendant's request, the government must furnish the defendant with a copy of the defendant's prior criminal record that is within the government's possession, custody, or control if the attorney for the government knows—or through due diligence could know—that the record exists.

Because most of the law enforcement agencies in the United States rely on fingerprint records to assimilate prior arrest activity, this subsection of the rule is quite important to the booking officer and the fingerprint expert. Often, the arrest record is provided to the defendant and little regard is given to the fact that fingerprints are the basis for this individual's arrest record. However, with the advent of *Daubert* challenges to latent print examinations, it is

possible that similar challenges may come to this aspect of the fingerprint discipline as well. It is believed that tenprint fingerprint records will easily withstand such a challenge because these fingerprints are obtained under controlled conditions with the individual arrested being present for each recording or arrest. Recent activities within the fingerprint discipline are being undertaken to further bolster the discipline in these matters. For example, the International Association for Identification has implemented a Tenprint Fingerprint Examiner Certification program for those individuals who would be testifying to such arrest records. This testimony would be based on the defendant's fingerprints being recorded during the booking process after each arrest to demonstrate that the same person was arrested in each instance, regardless of alias names or other false documentation the person may have provided. This certification of tenprint fingerprint examiners will provide the courts with a meaningful measure of competence for the expert's qualifications.

13.2.8 Other Federal Rules of Evidence as They Pertain to Fingerprints and Related Expert Testimony

The conclusions reached by the expert performing a forensic latent print examination ordinarily cannot be stated until the evidence has been admitted. Although the responsibility for presenting the expert's testimony in court lies with the prosecuting attorney to ensure that the foundation of the evidence is properly established, the expert witness, in testifying, must stay within the limits of permissible court testimony.

Forensic laboratories should have standard operating procedures along with a quality assurance program that provides for the integrity of the evidence. Such matters as chain of custody and evidence security from the time it is initially received to the time it leaves the laboratory are crucial for ensuring that evidence will be admitted in court.

FRE 401 demands that the evidence be relevant to the case at hand. Although this may seem obvious, its intent is to preclude the introduction of evidence that serves no benefit in determining the ultimate questions in the case. FRE 401 defines relevant evidence as "evidence having any tendency to make the existence of any fact that is consequence to the determination of the action more probable or less probable than it would be without the evidence."



FRE 403 allows a judge to exclude certain relevant evidence as a matter of judicial discretion. The rule states: "... [R]elevant[] evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence." And FRE 402 rounds out the matter by simply stating that any irrelevant evidence is inadmissible.

FRE 201 addresses the issue of judicial notice of adjudicative facts. When the court takes judicial notice of a certain fact, the proponent of that fact is excused from proving the fact. Judicial notice of a certain fact adds considerable weight to the evidence because it is typically accompanied by an explanation for the jury that it may take the noted fact as proven and that no further evidence on that point is required. There are, however, limitations on the type of evidence that a judge may judicially note. FRE 201 states:

A judicially noticed fact must be one not subject to reasonable dispute in that it is either (1) generally known within the territorial jurisdiction of the trial court or (2) capable of accurate and ready determination by resort to sources whose accuracy cannot be reasonably be questioned.

In *United States v Mitchell* (discussed more in depth in section 13.3.2.1), the first *Daubert* hearing challenging the science of fingerprints, Judge J. Curtis Joyner took judicial notice that friction ridge skin is unique and permanent, even for small areas. This ruling was stated to be in error by the appellate court. Although the uniqueness of full finger patterns of friction skin may be properly noted judicially and the fact is supported by sound biological evidence—indeed, even the defense ordinarily no longer challenges it—the issue in *Mitchell* was whether small areas of a latent impression were also unique. That fact was found not to be established with certainty because its proof required presentation of conflicting evidence over the better part of a week. Therefore, the uniqueness of incomplete and partially distorted friction ridge impressions is not one that a court could judicially notice. Therefore, it is important that the uniqueness of partial latent prints be thoroughly explained by the expert because it is critical in establishing the rationale for stating that conclusions from even partial fingerprints can only have the three possible answers as set forth by the SWGFAST Standards for Conclusion:

individualization, exclusion, or inconclusive comparison (SWGFAST, 2004, 358–359).

Article X, Rules 1001 through 1008, of the FRE addresses the contents of writings, recordings, and photographs. These rules set forth the definitions and requirements regarding what constitutes originals or duplicates and the admissibility of each, even if the original is lost or destroyed. A fingerprint expert's case examination documentation is governed by these rules, as well as any photographs of the latent prints, AFIS searches, and known exemplars from an arrest record (see also FRE 902 (4), Self-Authentication, *Certified Copies of Public Records*).

The FRE govern most aspects of presenting evidence and getting it successfully admitted. A fingerprint experts' training program should include a discussion of these rules. This knowledge will certainly assist the examiner in having the evidence and the resulting testimony regarding the evidence admitted.

13.3 Daubert Challenges to "Fingerprinting"

13.3.1 The Legal Origins

13.3.1.1 *Frye v United States*. Early in the past century, a researcher came up with the idea to combine people's instinctive notion about bodily changes that occur when one attempts to deceive with a medical device that was designed to measure blood pressure. The device was a systolic blood pressure cuff; the man was William Marston, who, in 1917, claimed to be able to tell—in an objective fashion and by applying a "scientific" method—whether a person was engaged in verbal deception.

After James Adolphus Frye was charged with murder in the District of Columbia and maintained he was innocent, Marston was asked to examine Frye. After attaching the systolic blood pressure cuff and asking Frye a number of questions, Marston was prepared to testify that Frye spoke truthfully when he denied knowledge of the crime and professed his innocence. The "systolic blood pressure deception test," essentially a rather crude precursor of the modern polygraph, had revealed this fact to the purported expert. But the court would not let Marston testify. On appeal, the issue was whether the trial court had erred

in refusing to permit Marston to testify about the test result. The appellate decision became the basis for a most important legal principle that continues to have an impact on expert opinion testimony of types very different from lie detection: it is the case of *Frye v United States*, 293 F. 1013 (D.C. Cir. 1923).

The court in *Frye* suggested how courts contemplating whether to admit novel expert testimony ought to proceed:

Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while the courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made *must be sufficiently established to have gained general acceptance in the particular field in which it belongs.* (Emphasis added.)

The court went on to conclude that the polygraph test had not yet gained such general acceptance in the disciplines of human physiology and psychology; these were the fields wherein the court believed the “lie detector” belonged.

One might wonder what test courts used in deciding whether to admit novel expert testimony prior to *Frye*. The admissibility of scientific evidence in reality depended on whether the person offered as a witness wanting to express opinion testimony was qualified as an expert. If the witness was, then that person was typically competent to render expert opinion testimony. And, prior to the 1923 *Frye* decision, that competence was largely measured by the expert’s success in real life. If a person earned a living selling his or her knowledge in the marketplace, then that person would be considered an expert who could testify at trial. Although not very sophisticated, this early principle of “marketplace acceptance” (a concept we might in the post-*Daubert* parlance equate to some early form of peer review) served the law in a more or less acceptable manner for a great number of years.

Initially, the *Frye* rule evoked little interest. Cited only as the rule that held that “lie detector” (polygraph) evidence was inadmissible, the opinion was ignored by most other courts, which is not surprising considering it was only two pages in length and contained no citations of authority

or other court precedents supporting the startling new principle that was announced.

When, however, the crime laboratories of the 1960s, fueled by massive federal assistance programs, began to flood the courtrooms with novel types of expert testimony in the post-World War II era, *Frye* was suddenly rediscovered and was applied to a wide variety of different types of expert opinion testimony. *Frye* was, however, applied mainly in criminal cases; at the time of the *Daubert* decision, the *Frye* test had only been discussed in two civil cases: *Christopher v Allied-Signal Corp.*, 503 U.S. 912 (1992) and *Mustafa v United States*, 479 U.S. 953 (1986). But in criminal cases, it reigned supreme. In short order, the *Frye* test was used to determine the admissibility of opinions derived from voiceprints, neutron activation analysis, gunshot residue tests, bite mark comparisons, questioning with sodium pentothal (“truth serum”), scanning electron microscope analysis, and many other fields.

13.3.1.2 The Adoption of Federal Rule 702. With the approval of the U.S. Supreme Court, Congress passed the FRE in 1975. They became effective July 1, 1975, for all federal courts. The rules thereafter served as a model for law reform and for departing from the fairly rigid common law rules of evidence in a significant number of states as well. FRE 702 deals particularly with expert testimony. It provided, at the time of its passage:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise. (Federal Rule of Evidence 702, as first enacted in 1975.)

This rule of Evidence, when taken in conjunction with other Federal Rules, was sometimes referred to as being based on a liberal “general relevance” standard of admissibility. It treated novel scientific evidence the same as any other evidence: evidence was admissible as relevant, under FRE 401, if it had “any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence” (FRE, 2004, p 3).

Thus, the FRE contained no special rule that, when dealing with “scientific” evidence, novel or otherwise, ensured that science-based testimony is reliable and, therefore, admissible. All evidence was admissible if relevant, provided its use



in court was not outweighed by undue prejudice, misleading of the jury, or requiring an undue consumption of time.

The FRE also did not distinguish between the admissibility of expert opinion evidence in criminal as opposed to civil cases. They applied the same standard of admissibility except in a few situations that are specifically earmarked or shaped by constitutional principles.

The next step in legal developments occurred in 1993, when the U.S. Supreme Court handed down a momentous decision that would drastically change the landscape of expert evidence. That decision was *Daubert v Merrell Dow Pharmaceuticals, Inc.* *Daubert* was later followed by another important court case, *Kumho Tire v Carmichael*. Both *Daubert* and *Kumho Tire* arose out of civil lawsuits.

[Author's note: As the following discussion of case law appears in a nonlegal document, internal citations for all quotations will not be provided in order to aid readability.]

13.3.1.3 *Daubert v Merrell Dow Pharmaceuticals.* In *Daubert*, two infants sued the defendant pharmaceutical company, alleging that they suffered limb reduction birth defects as a result of their mothers' ingestion of the drug Bendectin, manufactured by the defendant. The drug was administered to the plaintiff-mothers during their pregnancy in order to combat morning sickness.

The defendant, Merrell Dow Pharmaceuticals, Inc., moved for summary judgment in the trial court, contending that Bendectin does not cause birth defects in humans. In support of their motion, Steven H. Lamm, a physician and epidemiologist with impressive credentials who had served as a birth-defect epidemiology consultant for the National Center for Health Statistics, stated that he had reviewed *all* the relevant literature and that no study found that Bendectin caused human birth defects.

Interestingly, the plaintiffs did not dispute Dr. Lamm's characterization of the medical literature or his conclusion on the lack of a causal connection between the drug and birth defects. However, the plaintiffs responded by offering the testimony of eight equally well-credentialed experts of their own, who had concluded that Bendectin *can* cause birth defects. Their conclusions were based on animal cell studies, live animal studies, and chemical structure analyses. They also based their conclusions on recalculations of data in the studies upon which the defendant's argument rested.

The district court agreed with the defendant and granted the motion for summary judgment. The court concluded that, based on the enormous amount of epidemiological data which had concluded that Bendectin did not cause birth defects, plaintiffs' contrary expert opinion was not admissible to establish causation because the expert's methodology was not "sufficiently established to have general acceptance in the field to which it belongs" (U.S. District Court opinion, reported at 727 F. Supp. 570, 572 (S.D. Cal. 1989)). Furthermore, plaintiffs' experts' recalculations were held to be inadmissible because they had been neither published nor subjected to peer review.

The U.S. Court of Appeals for the Ninth Circuit affirmed the district court's ruling because plaintiffs' evidence was "generated solely for use in litigation" rather than based on published and peer-reviewed scientific knowledge (*Daubert v Merrell Dow Pharmaceuticals, Inc.*, 951 F.2d 1128 (9th Cir. 1991)). The U.S. Supreme Court agreed to review this decision because of the "sharp divisions among the courts regarding the proper standard for the admission of expert testimony".

A unanimous court held, simply, that *Frye* did not survive the enactment of the Federal Rules of Evidence and that the admissibility of scientific evidence should be judged according to the FRE evidentiary standard of relevance. The court stated that *Frye's* "rigid" general acceptance standard was in conflict with the "liberal thrust" of the FRE and their "general approach of relaxing the traditional barriers to 'opinion' testimony". The court found that *Frye's* "austere standard" of general acceptance, being "absent from and incompatible with the Federal Rules of Evidence," is no longer to be considered as the guide to admitting testimony based on novel "scientific knowledge".

In interpreting FRE 702, the *Daubert* court stated that if a litigant challenges the admissibility of scientific evidence, it is the function of the trial court to act as a gatekeeper to determine whether the proffered opinion evidence is "relevant" and "reliable".

To guide the district courts, the U.S. Supreme Court articulated several "flexible" factors that they ought to consider in deciding whether a scientific field was sufficiently reliable to warrant admission of opinion evidence based on the discipline.

In 1999, the U.S. Supreme Court applied the *Daubert* requirement of proof of reliability to all forms of expert

opinion testimony—whether based on science, applied science, technology, skill, or experience—when it decided *Kumho Tire*.

13.3.1.4 *Kumho Tire Corp. v Carmichael*. Plaintiff Carmichael brought a products liability action against a tire manufacturer (Kumho Tire) and a tire distributor (Samyang Tires, Inc.) for injuries he sustained when the right rear tire on his vehicle failed and the vehicle overturned, killing a passenger and injuring others. Plaintiff sought to prove the causal connection between the accident and the defective tire by presenting the testimony of a “tire failure analyst” who wanted to testify that in his opinion a defect in either the tire’s manufacture or its design had caused the blowout. He had subjected the tire to a “visual and tactile inspection” to formulate his conclusion. Defendant Kumho Tire moved to exclude the expert’s testimony on the ground that the witness’ methodology failed to satisfy FRE 702 and the *Daubert* decision. The district court excluded the evidence because it found insufficient indicia of reliability in the expert’s methodology. At the same time, the court, as had the trial court in *Daubert*, also granted defendants’ motion for summary judgment.

The intermediate appellate court reversed, however, reviewing the question of whether the trial court’s decision to apply *Daubert* to this case was appropriate. It did not think it was, and said that the U.S. Supreme Court had intended to apply *Daubert* only to “scientific knowledge” and not to “skill- or experience-based observation”.

Whether *Daubert* should be applied to all expert testimony was an issue that had divided trial courts interpreting it and had sparked intense debate on what constituted science and what did not qualify as scientific knowledge. Co-defendant Kumho Tire petitioned for review by the U.S. Supreme Court, which agreed to decide whether *Daubert* applied to experts in the “technical” or “other specialized knowledge” fields as well. FRE 702 includes expert opinions in those areas.

The court held that the *Daubert* requirement of proof of reliability was not limited to scientific knowledge, though that was the way the issue had been presented in *Daubert*. It stated, “Th[e] language [of FRE 702] makes no relevant distinction between ‘scientific’ knowledge and ‘technical’ or ‘other specialized’ knowledge.” The court added that *Daubert* and the rules of evidence make clear that all experts may testify to opinions, including those not based on firsthand knowledge or observation.

Thus, without equivocation, the court held that the obligation imposed on trial judges by *Daubert* to act as gatekeepers on the reliability of expert opinion evidence applies equally to all expert opinion testimony, even in areas where the expert opinion was based more on skill and experience, and—this is important—even in cases dealing with fields of expertise that had already been judicially recognized as yielding admissible expert opinion testimony. The court said that to require trial judges to draw a distinction between scientific knowledge and technical or other specialized knowledge would make their job of “gatekeeper” difficult, if not impossible. The court explained:

There is no clear line that divides the one from the others. Disciplines such as engineering rest upon scientific knowledge. Pure scientific theory itself may depend for its development upon observation and properly engineered machinery. And conceptual efforts to distinguish between the two are unlikely to produce clear legal lines capable of application in particular cases (*Kumho Tire Co. v Carmichael*, 526 U.S. at 148, 119 S. Ct. at 1175).

Does this also mean that all of the *Daubert* factors should be applied to technical or experience-based expertise? The court answered that question by saying the factors may be applied to such expert knowledge. That much is obvious from the *Daubert* court’s description of the factors of testing, peer review, known error rates, and general acceptance, commanding use of a flexible inquiry. But the court further stressed, “We agree with the Solicitor General that the factors identified in *Daubert* may or may not be pertinent in assessing reliability, depending on the nature of the issue, the expert’s particular expertise, and the subject of his testimony.” By the same token, the *Daubert* factors may be useful in assessing the reliability of some forms of expertise. Here is a very significant quotation from the *Kumho Tire* opinion for forensic scientists:

Daubert is not to the contrary. It made clear that its list of factors was meant to be helpful, not definitive. Indeed, those factors do not all necessarily apply in every instance in which the reliability of scientific testimony is challenged. It might not be surprising in a particular case, for example, that a claim made by a scientific witness has never been the subject of peer review, for the particular application at issue may never previously have interested any scientist. Nor, on the other hand, does the presence of *Daubert*’s general



acceptance factor help show that an expert's testimony is reliable where the discipline itself lacks reliability, as, for example, do theories grounded in any so-called generally accepted principles of astrology or necromancy (*Kumho Tire Co. v Carmichael*, 526 U.S. at 151, 119 S. Ct. at 1175).

The court expounded on the latitude that trial courts have in deciding *how* to test an expert's conclusion and to decide whether or when appropriate hearings ought to be conducted to investigate the claims of reliability. The court instructed that a trial judge's inquiry is a flexible one and that the gatekeeping function, of necessity, must be tied to the particular facts of a case. The factors identified in *Daubert* are not supposed to be talismanic, nor do they constitute a definite checklist or a litmus test. Whatever decision a trial court makes on either the admissibility or inadmissibility of proffered opinion evidence, or indeed on whether the evidence is relevant, will be judged by the standard of "abuse of discretion."

In making this point, the court was emphasizing that after *Daubert*, but before the *Kumho Tire* decision was handed down, the U.S. Supreme Court had already applied the abuse-of-discretion standard as the test to use when reviewing the decision of a district court to either admit or deny admission of expert testimony. The case was *General Electric Co. v Joiner*, 522 U.S. 136, 118 S.Ct. 512 (1997). (That decision raises the specter that the issue of reliability of a technique might be decided differently in separate district courts, and that, on appeal, both seemingly inconsistent holdings will have to be affirmed if, on the record, the trial court did not abuse its discretion in arriving at its decision.)

What do the decisions in *Daubert* and in *Kumho Tire* mean to forensic scientists beyond the obvious holdings already discussed? There are at least two additional points to be made:

1. It means that the definition of science, the scientific method, and scientific evidence can no longer be used as loosely as experts have been doing. It is no longer sufficient to call yourself a forensic scientist in order to be considered a scientist. It is no longer sufficient to say that something is a subject of forensic science in order for a court to agree that it is dealing with science. Simply saying it does not make it so. The courts may, and many will, require the experts to show that they know what the scientific method consists of and provide the scientific basis for their conclusions. By the same token,

each discipline will be judged by its own standards and upon its own experience. The DNA model of expertise, much vaunted for its scientific basis by critics of the forensic sciences, may not be the basis by which other disciplines need or should be judged.

2. It also means that forensic scientists can no longer expect to rely on the fact that courts have long accepted and admitted evidence of their expert conclusions. The court can relitigate the admissibility of a certain type of expert evidence if a litigant can make a credible argument that there has been no previous scientific inquiry of the validity of the assumptions on which a forensic field has long rested. Decades of judicial precedent no longer preclude reviewing whether existing precedent satisfies *Daubert* and *Kumho Tire*. Long-recognized forensic disciplines have been and are being challenged, with more to come.

13.3.1.5 The *Daubert* Factors and Their Relation to the *Frye* Test of "General Acceptance". How *Daubert* "reliability" is to be established still remains an issue of some controversy. The court explained this requirement in these words:

Ordinarily, a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested. Scientific methodology today is what distinguished science from other fields of human inquiry ... [internal citations of the court omitted].

Another pertinent consideration is whether the theory or technique has been subjected to peer review and publication. Publication (which is but one element of peer review) is not a *sine qua non* of admissibility; it does not necessarily correlate with reliability ... Some propositions, moreover, are too particular, too new, or of too limited interest to be published. But submission to the scrutiny of the scientific community is a component of "good science," in part because it increases the likelihood that substantive flaws in methodology will be detected. [Internal citations omitted.] The fact of publication (or lack thereof) in a peer reviewed journal thus will be a relevant, though not dispositive, consideration in assessing the scientific validity of a particular technique or methodology on which an opinion is premised.

Additionally, in the case of a particular scientific technique, the court ordinarily should consider the known or potential error, . . . [internal citations omitted] and the existence and maintenance of standards controlling the technique's operation [internal citations omitted].

Finally, "general acceptance" can yet have a bearing on the inquiry. A "reliability assessment does not require, although it does permit, explicit identification of a relevant scientific community and an express determination of a particular degree of acceptance within that community." (*Daubert v Merrell Dow Pharmaceuticals Inc.*, 509 U.S., 509; 593–594)

Looking at the *Daubert* factors more closely, it is evident that one factor in determining whether evidence is "scientific knowledge" is whether a theory or technique can be or has been tested by a scientific body. However, this aspect became less important—perhaps even totally irrelevant—after the decision in *Kumho Tire*, wherein the court applied *Daubert's* required proof of reliability to all expert testimony, including technological as well as skilled and experience-based expert testimony.

After the U.S. Supreme Court decided *Daubert*, Congress enacted an amendment to FRE 702 in 2000 to incorporate the concerns expressed in the *Daubert* case as well as in the *Kumho Tire* case. At the conclusion of the original text of FRE 702 (quoted above in section 13.3.1.2), Congress added the following language (replacing the period after "otherwise" with a comma, and continuing as follows):

if (1) the testimony is based on sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case. (As amended, April 17, 2000, effective December 1, 2000.)

13.3.1.6 Effect of *Daubert* on Criminal Prosecutions in the Various States. The FRE apply to all proceedings in federal courts. Because the matter of what the rules of evidence mean does not involve federal constitutional rights, the *Daubert* decision was intended to apply only as an interpretive guide to the FRE in federal courts. Nevertheless, the U.S. Supreme Court decisions on expert testimony have had a significant impact on state evidence law as well. Many states have evidence codes or rules of evidence patterned on the FRE. Most—though not all—of

these states chose to follow the *Daubert* and *Kumho Tire* interpretations as a way of interpreting their own state-law equivalent of FRE 702.

Some states that followed the *Frye* rule of general acceptance before 1993 disagreed with the new U.S. Supreme Court decisions even though those states did have FRE-based rules of evidence. These states rejected, post-*Daubert*, the latter's more flexible standards and mandated a strict adherence to *Frye* as the standard for admissibility of novel scientific evidence. Indeed, some states that never explicitly followed the *Frye* rule in the past have since been persuaded to adopt it. In many of the states that do not have FRE-based evidence rules and where case law had adopted the *Frye* test for the admissibility of expert evidence prior to 1993, the *Frye* standard remains alive and well as a stand-alone test for admissibility.

Of course, even though *Frye* was nominally discarded in the federal courts, *Frye* survives as one of the four main *Daubert* factors. The only difference in the application of the "old" standard and its modern-day equivalent is that some state and federal courts still tend to analyze the admissibility decision in terms of pre-*Daubert* case law.

The reasons for rejecting the *Daubert* principles and choosing to retain general acceptance as the sole criterion for admissibility may be found in the firm belief that *Daubert's* general relevancy concepts are too flexible, too lenient, or too easy to satisfy—a proposition that has not proven true in the interpretation of the law in some *Daubert* jurisdictions—and that the more conservative approach of general acceptance as the sole standard is better designed to screen out unreliable evidence. Thus, in *State v Bible*, 175 Ariz. 549, 589, 858 P.2d 1152, 1181 (1993), the court stated that *Frye* was more likely to avoid placing the difficult task of evaluating the worth of scientific testimony on nonscientist judges or jurors and leaving the decision on the scientific validity of expert opinion testimony upon the shoulders of the expert's peers.

Representative of the states rejecting *Daubert* expressly and choosing to adhere to the *Frye* rule were Arizona, Colorado, Florida, Illinois, Kansas, Missouri, Nebraska, New Hampshire, and Washington. Some other states (e.g., California) retained their *Frye*-like rule without expressly rejecting *Daubert*. Yet others (e.g., Massachusetts) equally retained the venerable *Frye* standard but added a *Daubert*-like inquiry for some cases (as is explained in the discussion of the 2005 *Commonwealth v Patterson* decision in section 13.3.2.5).



It is clear that those who expounded in the aftermath of the *Daubert* decision that *Frye* was dead were premature in their assessment. The *Frye* rule, indeed, lives on as an independent principle in some states and as one of the *Daubert* factors in other states and in the federal system.

Daubert, without a doubt, has encouraged a continuation of the trend toward greater judicial scrutiny of scientific evidence. If there was ever a belief that rejection of *Frye* by the U.S. Supreme Court would signify a reduction in the number of pretrial hearings to determine admissibility of novel scientific evidence, that belief has been convincingly shown to be in error. Trial courts hold as many, or more, and as lengthy, or lengthier, hearings on in limine motions challenging admissibility of expert opinions as they did prior to 1993.

That the *Daubert* factors are more lenient and will admit more expert opinion testimony than was the experience under *Frye*—a suggestion the U.S. Supreme Court itself made—has not been shown to be the way the Court's decisions are being interpreted. Even though the Court declared the new standard to be a more flexible and easier-to-meet test than *Frye*, experience has shown so far that trial courts tend to be more rigid in judging the validity of expert opinion testimony in the post-*Daubert* era. Lawyers presenting novel scientific testimony have sought to introduce evidence crossing all the "t"s and dotting all of the "i"s by presenting evidence on all factors of *Daubert*. Opponents of such evidence, likewise, have sought to present testimony to dispute all of the arguments of their adversaries. Courts bound by the new rules are likely to engage in lengthier hearings to determine admissibility and write longer opinions justifying their decisions to admit or deny admission than was the case heretofore.

13.3.2 Daubert Challenges Against "Fingerprints" After 1993

13.3.2.1 Challenges to the Admissibility of Friction Ridge Individualizations. The first challenges to forensic evidence were brought against forensic document examiners (FDEs). A few U.S. District Court decisions wherein the admissibility of expert testimony of handwriting identification was challenged had resulted in partially prohibiting experts from testifying to the ultimate conclusion that a defendant had written, or did not write, a questioned document in issue. In most cases, though, the admissibility challenges were soundly rejected by trial courts and handwriting identification evidence was found to satisfy

Daubert. Even when partially successful, judges generally did not exclude the FDE testimony altogether. It is significant that, to date, no federal court of appeals has held that handwriting identification testimony is inadmissible for failure to satisfy the *Daubert* and *Kumho Tire* requirements.

Perhaps emboldened or encouraged by the partial success in a few trial court cases wherein district court judges prohibited forensic document examiners from offering their opinions that a questioned writing was authored by the defendant, academic critics of the forensic sciences in general next turned their attention to fingerprinting. There are four important cases with which all friction ridge impression examiners should be familiar.

13.3.2.2 United States v Mitchell. The first serious *Daubert* challenge occurred in the 1999 case of *United States v Mitchell* (Cr. No. 96-407-1), in which Judge J. Curtis Joyner denied the defense's motion in limine to bar the government's fingerprint experts from testifying. The trial court's decision was not officially reported. Pennsylvania U.S. District Court Judge Joyner had conducted a 5-day *Daubert* hearing in 1999, at the conclusion of which the judge ruled that fingerprint evidence satisfied all *Daubert* factors. He also took judicial notice that "human friction ridges are unique and permanent throughout the area of the friction ridge skin, including small friction ridge areas, ..." With the pretrial evidentiary issues settled, Mitchell was thereafter tried and convicted in 2000.

Not surprisingly, he appealed. On April 29, 2004—2 years after the *Llera Plaza* trial court decision by a judge in the same district (discussed below) had taken the fingerprint world by storm—the U.S. Court of Appeals for the Third Circuit, in an opinion written by Circuit Judge Edward R. Becker, decided Mitchell's appeal and upheld the conviction as well as Judge Joyner's conclusion that fingerprinting evidence was admissible. The reviewing court, however, did hold that Judge Joyner improperly took judicial notice of the uniqueness and permanency aspects of fingerprints. The appeals court decision is reported as *United States v Mitchell*, 365 F.3d 215 (3rd Cir. 2004), *cert. denied* 125 S. Ct. 446 (2004). It did affirm the trial court's admission of fingerprint evidence on the ground that the discipline satisfied the *Daubert* validity factors.

In its opinion, the court of appeals ignored an issue that had been hotly debated at the *Daubert* hearing—whether fingerprint identification was a science. Recall that the 1999 U.S. Supreme Court decision in *Kumho Tire* had made

it unnecessary to draw a distinction between scientific and nonscientific expert testimony, inasmuch as *Kumho Tire* had held that the gatekeeper role of the trial judge in keeping unreliable opinion evidence out of court applied to all expert opinions, whether deemed scientific, technical, or experience-based.

The appeals court in *Mitchell* explored each one of the *Daubert* factors. In doing so, the court's decision, although ultimately favorable to the prosecution, was not overwhelmingly laudatory.

The First Factor — Testability. Testability refers to “whether the premises on which fingerprint identification relies are testable—or, better yet, actually tested.” The court concluded that the premises that friction ridge arrangements are unique and permanent, and that a positive identification can be made from fingerprints containing sufficient quantity and quality of detail, were testable and had been tested in several ways. In that regard, the court referred to the FBI's AFIS computer comparison of 50,000 left-sloped patterns against a database of another 50,000 sets of tenprints, a process involving 2.5 billion comparisons. The experiment showed there were no matches of prints coming from different digits. The court referred to several other tests, such as those involving the prints of identical twins, and the fact that an FBI survey showed no state identification bureaus had ever encountered two different persons with the same fingerprint.

The second part of the testability factor involved the fact that making a positive identification depends on “fingerprints containing sufficient quantity and quality of detail.” The court was somewhat troubled that the standard of having a point system had been abandoned and that the FBI relied on an “unspecified, subjective, sliding-scale mix of ‘quantity and quality of detail’”; but because the FBI expert testifying at the hearing had identified 14 points of level 2 detail when matching Mitchell's right thumbprint to the crime scene latent, the court saw the issue in this case as simply whether having 14 points of level 2 detail was enough for a positive identification. Referring again to the AFIS computer check with simulated latents (exhibiting only 1/5 of the size of a rolled fingerprint) and the survey that showed no identification bureau had ever found two matching prints on different digits, the court found this to be “the strongest support for the government on this point.” It concluded that the “hypotheses that undergird the discipline of fingerprint identification are testable, if only to a lesser extent actually tested by experience.”

The Peer Review Factor. The court did not seem overly impressed by the government's argument that the verification step of ACE-V constitutes effective peer review. Dr. Simon Cole, testifying for the defense, had suggested that fingerprint examiners have developed an “occupational norm of unanimity” that discourages dissent. Although acknowledging that the “cultural mystique” attached to fingerprinting may infect the verification process, the court nevertheless concluded that when looking at the entire picture, “the ACE-V verification step may not be peer review in its best form, but on balance, the peer review factor does favor admission” of friction ridge comparisons and individualizations.

The Error Rate. This is where the experts on both sides had waged the greatest battle at the *Daubert* hearing. The appeals court distinguished between two error rates: false positives and false negatives. The defense included and emphasized errors where examiners had failed to make identifications that could and should have been made. In that regard, the court recognized that a high false negative rate may not be desirable as a matter of law enforcement policy, but said that “in the courtroom, the rate of false negatives is immaterial to the *Daubert* admissibility of latent fingerprint identification offered to prove positive identification because it is not probative of the reliability of the testimony *for the purpose for which it is offered* (i.e., for its ability to effect a positive identification” (italics in the original).

False positives, on the other hand, would be most troublesome. But the court concluded that, “where what is sought to be proved is essentially a negative (i.e., the absence of false positives) it seems quite appropriate to us to use a burden-shifting framework.” Where the government experts testify to being unaware of significant false positive identifications, the burden of producing contrary evidence may reasonably be shifted to the defense. Although the error rate may not have been precisely quantified, the court was persuaded that the methods of estimating it showed it to be very low. (This testimony occurred before the FBI misidentification of Brandon Mayfield in the Madrid, Spain, train bombing terrorist attack (Stacey, 2004, pp 706–718; OIG report, 2006).)

The Maintenance of Standards. The *Mitchell* appeals court found this standard to be “lacking in some measure.” The procedural standards of ACE-V were deemed to be “insubstantial in comparison to the elaborate and exhaustively refined standards found in many scientific and technical



disciplines” and the court found that this factor did “not favor admitting the (fingerprint) evidence”.

As an aside, the question often arises, not surprisingly, whether subjectivity plays a part in the ultimate decision that two impressions were produced by the same skin, and the related question, whether subjectivity negates reliability. In comparing latent impressions of unknown origin with prints of known origin to determine whether a “match” exists, some subjectivity is involved, but the factors that guide the exercise of judgment are clearly spelled out in the detailed observations that are required to be made when going through the first three steps of ACE-V. The view, often advocated by critics, that fingerprinting is unscientific simply because some subjective judgment is involved in declaring a match, had already been rejected by Judge Louis H. Pollak in the *Llera Plaza II* case. He quoted a statement by the United Kingdom’s Lord Rooker, who said, “In determining whether or not a latent mark or impression left at a crime scene and a fingerprint have been made by the same person, a fingerprint examiner must apply set criteria in carrying out their comparison. The criteria are objective and can be tested and verified by other experts” (*Llera Plaza II*, 188 F.Supp.2d at 569). And although sometimes critical of fingerprint identification techniques, the second opinion in *Llera Plaza* nevertheless concluded that ACE-V satisfied the *Daubert* and *Kumho* Tire requirements of proof of reliability (*Llera Plaza II*, 188 F. Supp. 2d at 575).

But the rhetorical question remains: Can an opinion obtained without statistical probability studies be said to be scientific? Defense expert Dr. David Stoney joined scientific expert witnesses testifying for the government in *Mitchell* and *Llera Plaza II* in expressing the view that a profession can engage in science despite the absence of statistical support. This is not new to the scientific community, in which the absence of statistical probability studies does not necessarily characterize the process as unreliable or unscientific. Stoney stated that valid science is something that is capable of being proven wrong, and that ACE-V can easily be tested by review of the evidence by other qualified individuals.

The General Acceptance Factor. Little needs to be said on this factor, which the court found to be clearly weighing in favor of admitting the evidence.

To conclude, the *Mitchell* appeals court’s decision was that, on the record presented to it, an analysis of the *Daubert*

factors showed that “most factors support (or at least do not disfavor) admitting the government’s” evidence on friction ridge individualizations. Thus, it held that the district court did not abuse its discretion in admitting it.

This is by no means a strong endorsement, even though it may be seen as such in the practical effect the opinion will likely have. The *Mitchell* decision addressed several other issues:

Individual Error Rates of Examiners. The first and perhaps most important issue deals with the court’s recommendation that, in future cases, prosecutors seek to show the individual error rates of expert witness examiners. The National Academy of Sciences has adequately addressed the issue of confusing practitioner error rates and methodological error rates in its discussion of this issue with regard to DNA. As its position is well-stated and is applicable to any of the forensic sciences, no further discussion is required here. What must be understood is the distinction between how the academic scientific community wants to define error rate and what *Daubert* requires may not be one and the same. It has been argued that the U.S. Supreme Court got it wrong and should modify its ruling to ensure the practitioner is included. Others oppose such a change because it would complicate the judge’s gatekeeping responsibility even further.

The Critics’ Voices. An additional comment by the court suggested there be no limitation placed on the defense’s right to present expert testimony. In that regard, the court noted, “Experts with diametrically opposed opinions may nonetheless both have good grounds for their views, and a district court may not make winners and losers through its choice of which side’s experts to admit when all experts are qualified.” (Emphasis added.) But the court went further and said that if there were any question about a proffered expert’s competence on a given issue, the court should err on the side of “admitting any evidence having some potential for assisting the trier of fact.” A lot of space was devoted in the latter part of the court’s opinion to a discussion of the limitations believed to have been imposed on the testimony of some defense experts. No limitations should be imposed, the court said. What saved the case from a reversal on that point was perhaps the failure of the defense to effectively preserve its objections.

Will Daubert Hearings Continue? The *Mitchell* court further addressed the question of whether there will be more or fewer *Daubert* hearings in the future. On that issue, the

court's opinion was somewhat obscure. First, it said that its *Mitchell* decision did not announce "a categorical rule that latent fingerprint identification evidence is admissible in this Circuit." But then it also said that nothing in the opinion "should be read to require extensive *Daubert* hearings in every case involving latent fingerprint evidence." Further muddling (or perhaps clarifying) what went before, the opinion then stated that "a district court would not abuse its discretion by limiting, in a proper case, the scope of *Daubert* hearings to novel challenges to the admissibility of latent fingerprint identification evidence—or even dispensing with the hearing altogether if no novel challenge was raised." What this probably means is that District Courts of the Third Circuit will now refuse to conduct *Daubert* hearings unless the defense raises arguments not considered in the *Mitchell* litigation.

Judicial Notice of the Reliability of Fingerprint Identification. At the pretrial hearing, District Judge Joyner had taken judicial notice that "human friction ridges are unique . . . including small friction ridge areas . . ."

What does taking judicial notice really mean? Instead of requiring the parties to present proof of a given fact, a court is permitted to take judicial notice of that fact without requiring proof thereof if the fact is "not subject to reasonable dispute" or "is capable of ready determination" by reference to existing studies or reports. Although there have been reviewing court decisions by state appellate or supreme courts going back 40 or more years taking judicial notice of the uniqueness of fingerprints, the court found these decisions not only not binding on the court, but clearly distinguishable, since the decisions dealt with the uniqueness of complete fingerprints.

Uniqueness of each fingerprint was not the issue here; the issue was uniqueness of small areas of friction skin such as are typically visible in a latent impression. As to that issue, the appellate court felt that the very fact that it took 5 days of testimony to establish the uniqueness of small areas of friction skin showed that the fact was by no means generally known or capable of ready determination. Therefore, Judge Joyner's judicial notice ruling was in error. Because it was not deemed to likely have altered the outcome of the case, it was considered to be harmless error not requiring a reversal.

13.3.2.3 *United States v Llera Plaza*. The second very significant case that all friction ridge examiners should be cognizant of is the *Llera Plaza* case. Perhaps the case has

lost some of its persuasive effect because it was followed in short order by the appeals court decision affirming *Mitchell*, but defense attorneys continue to argue that the criticism leveled toward fingerprinting expertise by Judge Louis H. Pollak in *Llera Plaza* remains valid.

After first ruling, on January 7, 2002, that the government's expert testimony on the ultimate issue of whether there was a match between defendant's known print and a crime scene print would be inadmissible, (*United States v Llera Plaza*, 179 F. Supp. 2d 492 (E.D. Pa., 2002) (*Llera Plaza I*)) Judge Pollak, of the U.S. District Court for the Eastern District of Pennsylvania, reconsidered and reversed his earlier decision 2 months later in what is now frequently referred to as *Llera Plaza II* (*United States v Llera Plaza*, 188 F. Supp. 2d 549 (E.D. Pa., 2002)).

Why did he reverse himself? "In short," he wrote, "I have changed my mind."

When he decided *Llera Plaza* originally, the judge had not held an evidentiary hearing. Both parties had stipulated that the judge could consider the record generated in the *Mitchell* case as well as some written submissions of the attorneys. In his first order, the judge took judicial notice of the uniqueness and permanency of fingerprints and accepted "the theoretical basis of fingerprint identification—namely, that a showing that a latent print replicates (is a 'match' of) a rolled print constitutes a showing that the latent and rolled prints are fingerprints of the same person." However, Judge Pollak also held, in his *Llera Plaza I* order, that the ACE-V method generally used to arrive at match or nonmatch conclusions did not meet the first three *Daubert* factors, and only met the general acceptance factor in the technical as opposed to scientific community of fingerprint examiners. He therefore would allow fingerprint experts for both prosecution and defense to testify to all of the examinations they had performed in an individual case, but would preclude them from testifying that the latent and inked prints were, or were not, from the same person.

The government moved not only for reconsideration of the judge's January 7, 2002, order, but also petitioned for leave to enlarge the record through the presentation of additional evidence. The district judge granted the motion and hearings were held on February 25–27, 2002. Both sides presented additional expert testimony, after which the judge made his now famous statement, "I have changed my mind."



Judge Pollak admitted that the rehearing offered new information or information he had not “previously digested.” It appears he was particularly impressed by the FBI expert, Stephen Meagher; and defense expert, Allan Bayle, formerly with New Scotland Yard and now a fingerprint consultant. Meagher, whose testimony in the *Mitchell* case the judge had already read, now became not merely a name in a transcript but “a real person.” Allan Bayle, while seeking to aid the defense’s arguments by pointing to shortcomings in the FBI’s annual proficiency testing method, ended up confirming that the FBI’s fingerprint methodology was “essentially indistinguishable” from Scotland Yard’s ACE-V methodology. Bayle, to whom the judge deferentially referred as “this formidably knowledgeable and experienced veteran of the Yard,” testified that he believed in the reliability of the ACE-V methodology “without reservation.” Clearly, the defense’s “formidably knowledgeable” Allan Bayle in *Llera Plaza II* ended up aiding the prosecution’s case.

Despite Judge Pollak’s continuing reservations on the “science” controversy as it pertains to fingerprint methodology when tested against the *Daubert* standards, he decided that by applying the legal mandates expressed in the *Daubert* and *Kumho Tire* cases, (1) judicial notice would be taken of the permanence and individuality of friction skin (fingerprint) patterns, and (2) experts in the field would be permitted to express their opinions on a match of two impressions. This occurred after he heard or read the explanations of law enforcement-trained examiners and university-based scientists in genetics, histology, and fetal development regarding the biological and physiological factors that result in ultimate pattern uniqueness during the prenatal development of friction skin.

If the contention remains that there are shaky parts in the friction ridge examination methodology, the argument does not support exclusion or limitation of testimony, but falls squarely within the U.S. Supreme Court’s *Daubert* admonition, “Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” (*Daubert v Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. at 596)

An interesting footnote to Judge Pollak’s March 2002 *Llera Plaza II* decision is that in considering the *Daubert* factor of “publication and peer review,” none of the scientific books and other publications by scientists were quoted or relied on. Judge Pollak stated that the “writings to date” do not

satisfy *Daubert*’s publication prong because the voluminous fingerprint literature was not peer reviewed. This no doubt came as a tremendous surprise to those highly credentialed and respected scientists who published studies and to the editors of the refereed journals in which many of these publications occurred.

13.3.2.4 *United States v Havvard.* The third case of note in the admissibility battles is *United States v Havvard*, 117 F. Supp. 2d 848 (D.C. Ind. 2000), holding that fingerprint identification meets all *Daubert* and *Kumho Tire* requirements. That decision was affirmed in *United States v Havvard*, 260 F.3d 597 (7th Cir. 2001). Because the decision is “older” than the previous two cases, and the opinion is readily available on the Internet, it will not be discussed here. Suffice it to say that this was the first federal circuit court of appeals case after *Daubert* that gave an unqualified seal of approval to friction ridge impression evidence.

13.3.2.5 *Commonwealth v Patterson.* *Commonwealth v Patterson*, 445 Mass. 626 (2005), was decided by the Massachusetts Supreme Judicial Court on December 18, 2005. Like the first *Llera Plaza* opinion of Judge Pollak, the *Patterson* case caused significant concern throughout the community of friction ridge evidence examiners. *Patterson* differs from *Llera Plaza* in at least four significant aspects: (1) *Patterson* is a decision by a state’s highest appellate tribunal, and therefore is a binding precedent only on Massachusetts courts; (2) the decision was unanimous and therefore not likely to be altered unless significant progress in scientific research on the issues involved can be demonstrated to the court in another case on the same issues; (3) Massachusetts is a *Frye* jurisdiction but, in deciding the issue before it, the high court applied the *Daubert* factors as well as the general acceptance test; (4) *Patterson* affected only one specialized application of friction ridge examination methodology, that is, simultaneous latent impressions, and gave unqualified approval to normal individualization evidence of latent impressions.

Although critical of one specialized aspect of friction ridge examinations, the court found much of which it approved. Fingerprint individualizations, as well as the ACE-V method, were given a broad seal of approval as meeting both the *Frye* test and the *Daubert* factors. Furthermore, the state high court recognized SWGFAST as a guideline-setting authority in the field of friction ridge examinations. What did



not pass muster was the admissibility of what are known as identifications based on “simultaneous prints” when none of the individual impressions contain enough information to justify individualization independently.

Factually, the case is unremarkable. *Patterson* was identified as the maker of four latent impressions on a car that were said to have been simultaneously impressed. Although none of the latent prints contained sufficient detail for individualization on its own, the Boston Police Department’s latent print examiner testified that collectively, in his opinion, they could be identified as having been made by the defendant. *Patterson* had been convicted in a first trial, but the conviction was reversed on grounds unrelated to the fingerprint evidence and a retrial was ordered.

Before the retrial could occur, the defense moved to bar the admission of fingerprint evidence in general and simultaneous prints evidence in particular. A hearing was held in 2005, as a result of which the trial court denied the defense motions in all regards. On review to the Supreme Judicial Court of Massachusetts, that tribunal affirmed two parts of the trial judge’s order and reversed one part.

Fingerprint identification and ACE-V methodology were held to have satisfied the general acceptance test of the *Frye* decision as well as the reliability assessment dictated by *Daubert*, and therefore those parts of the trial judge’s order were affirmed. The high court held, however, that the state had not fulfilled its burden of showing that the process of individualizing latent prints on less than the normal quantum of needed data, solely because they had been said to have been impressed simultaneously, was generally accepted in the profession; nor had the state shown that the process was otherwise validated because no studies dealing with simultaneous impressions had been shown to exist.

Why did the court, while expressing the determination to continue to adhere to *Frye*, consider whether individualizations based on simultaneous prints satisfied the *Daubert* factors? It held that if a technique cannot meet the *Frye* standard for lack of proven general acceptance, a court can still consider whether the expert’s findings ought to be admitted, and such admission depends on whether the technique can satisfy a more lenient assessment of reliability—in other words, a *Daubert*-type of inquiry. When it did engage in such a *Daubert* analysis, the court found simultaneous print individualizations wanting.

The court also decided that the verification part of ACE-V, although a generally accepted methodology under *Frye*, nevertheless could not satisfy the *Daubert* factor of peer review because the verifiers know that an identification has already been effected and also know the name of the party who has been identified. The court said, “We share the (trial) judge’s consternation with the current verification process.”

One important aspect of the decision rejects a mantra upon which critics have relied in the past. Critics of forensic identification evidence have asserted repeatedly that general acceptance must be conferred by a community of scientists, not by users of the technique. That assertion was rejected. The Massachusetts high court held that the community of professionals who judge the reliability and general acceptance of a technique need not contain either academics or research scientists. As long as the community is sufficiently broad so that critics or dissenters within the group have an opportunity to be heard and their arguments considered, the community’s approval will suffice to confer general acceptance. The court added, “A technical community, or a community of experts who have some other specialized knowledge, can qualify as a relevant *Daubert* community in the same way as a scientific community can.” The fingerprint community was found to meet that requirement.

13.3.2.6 Afterthoughts in the Wake of the Challenges.

Although there are ways in which some aspects of friction ridge impression comparisons can be legitimately challenged, as has been seen in *Commonwealth v. Patterson*, challenges after 2005, if any, will probably be focused closely upon specific applications and narrow issues. Broad-brush generalizations and condemnations of everything connected with fingerprint identification are perhaps the clearest examples of unscientific analyses that are unlikely to merit court approval.

13.4 Historical Account of Fingerprints, Palmprints, and Footprints in U.S. Courts

The following brief synopsis of early friction ridge impression evidence decisions is presented to provide an historical account of some of the early United States court cases. Most of these cases are from state trials, because



fingerprints were utilized generally by state law enforcement agencies prior to their wide utilization by federal law enforcement. Although fingerprints were first utilized by the Federal Bureau of Investigation in 1924 for establishing prior arrest records, it was not until 1933 that fingerprints were used by the FBI as a forensic tool in support of criminal investigations. This portion of the chapter seeks to recognize, as well as possible, a few of the earliest occasions in which specific aspects of friction ridge impression evidence were first approved by the courts.

13.4.1 The First Appellate Decision Admitting Fingerprint Evidence in American Courts

People v Jennings, 252 Ill. 534, 96 N.E. 1077 (1911)

The defendant Thomas Jennings was arrested for murder when four impressions of his left-hand fingers were discovered impressed in fresh paint at the rear of the victim's home near the window through which entry had been gained. The freshly painted railing had been removed by the Chicago Police Department. Jennings was identified using fingerprints on file at the Chicago Police Department, recorded when he had been arrested and returned to the penitentiary for violation of his parole. After his arrest, he was fingerprinted again and, along with other evidence, enlarged fingerprint exhibits were used as evidence at his trial. Four expert witnesses testified that, in their opinion, the impressions on the railing were made by Jennings. After conviction, Jennings appealed, arguing basically that the field of fingerprinting was too novel to support a conviction.

The Illinois Supreme Court, in an exhaustive opinion, rejected defendant's contentions related to fingerprinting and affirmed the conviction, holding that persons experienced in the matter of fingerprint identification may testify to their opinion on whether fingerprints found at the scene of a crime correspond with those of the accused. Justice Orrin N. Carter's opinion also stated:

We are disposed to hold from the evidence . . . and from the writings we have referred to on this subject, that there is a scientific basis for the system of finger-print identification, and that the courts are justified in admitting this class of evidence; that this method of identification is in such general and common use that the courts can not refuse to take judicial notice of it. . . .

From the evidence in this record we are disposed to hold that the classification of finger-print impressions is a science requiring study. . . .

[T]he evidence in question does not come within the common experience of all men of common education in the ordinary walks of life, and therefore the court and jury were properly aided by witnesses of peculiar and special experience on this subject.

13.4.2 Admissibility of Palmprints as Proof of Identity

State v Kuhl, 42 Nev. 195, 175 P. 190 (1918)

A United States mail stage driver was killed in Elko County, Nevada. A key piece of evidence against Defendant Kuhl was an envelope, secured from one of the rifled mail sacks, on which there was a bloody impression of the palm of a human hand. After Kuhl and another were arrested, experts determined that the palmprint was made by Kuhl. He was convicted of murder in the first degree and appealed. His argument, like that of Jennings in the preceding case, contended that it was improper to use the palmprint evidence and also for expert witnesses to use a "projectoscope" and enlarged photographic images to illustrate their testimony.

The Nevada Supreme Court recognized that the papillary ridges which form the basis of individualization in fingerprint impression extend over the entire palm of the hand and, indeed, over the soles of the feet. The original research done on the individuality of friction skin was not confined to an examination of the finger skin, but also included the skin on the palmar surfaces of the hands and the plantar surfaces of the feet. In rejecting defendant's arguments and affirming Kuhl's conviction, the Nevada Supreme Court, speaking through Justice Patrick McCarran, stated:

We have gone at length into the subject of palm print and finger print identification, largely for the purpose of evolving the indisputable conclusion that there is but one physiological basis underlying this method of identification; that the phenomenon by which identity is established exists, not only on the bulbs of the finger tips, but is continuous and coexisting on all parts and in all sections and subdivisions of the palmar surface of the human hand.

13.4.3 Admissibility of Footprints as Proof of Identity

Commonwealth v Bartolini, 299 Mass. 503, 13 N.E.2d 382, cert. denied 304 U.S. 562 (1938)

Bartolini had been identified as the maker of a bare sole print found on the linoleum floor of the bathroom where a murder was committed. The courtroom battles about the admissibility of this type of evidence were fierce. Several pioneers in friction ridge impression evidence were called as expert witnesses to buttress the testimony of the Massachusetts State Police expert who, although qualified as a fingerprint expert, was not found to have sufficient experience with footprints.

Bert Wentworth, co-author of the influential and scholarly book *Personal Identification*, and Fredrick Kuhne of New York, who had served as an expert in cases involving the footprints of babies in hospitals, testified that the friction skin on the soles of the feet was as unique as that on the fingers and palms. After hearing Wentworth and Kuhne's testimony, Bartolini was convicted. The conviction was affirmed in a relatively brief opinion. The Massachusetts Supreme Judicial Court stated, in part:

There was no error in permitting the expert Wentworth to testify that footprints of a naked foot on the linoleum of the bathroom at the house of the deceased were made by the same person who had made prints at the police station identified as those of the defendant. There was ample evidence of special study and knowledge by this witness of the subject of footprints as well as of finger prints. . . . There was also ample evidence that footprints, like finger prints, remain constant throughout life and furnish an adequate and reliable means of identification.

13.4.4 Admissibility of Photographs of Latent Impressions

State v Connors, 87 N.J.L. 419, 94 Atl. 812 (1915)

It was permissible to show, by photographs, the fingerprints found upon the columns or balcony posts of a house without the columns being produced in court. See also the case of *State v Kuhl*.

13.4.5 Fingerprinting Not a Violation of Constitutional Rights

In a number of early cases, courts held that requiring a lawfully arrested defendant to submit to fingerprinting did not violate the defendant's constitutional rights. Perhaps one of the earliest ones was *State v Cerciello*, 86 N.J.L. 309, 90 Atl. 1112 (1914), a case involving bloody fingerprints found on a hatchet at the scene of a murder. In affirming the conviction, the court held that the defendant's rights had not been violated. The most influential relatively early decision on that issue, however, was *United States v Kelly*, 55 F.2d 67 (2d Cir. 1932).

After being arrested upon the misdemeanor charge of having sold gin to federal prohibition agents, Kelly was fingerprinted. A U.S. District Court judge held, however, that the taking of fingerprints, in the absence of a statute, violated defendant's constitutional rights and ordered that Kelly's fingerprints be returned to him. The government appealed this order and, in an exhaustive opinion, the Second Circuit Court of Appeals, speaking through influential Judge Augustus N. Hand, reversed the district court, deciding that the taking of fingerprints upon a lawful arrest, even in the absence of a statute so authorizing, does not violate the arrestee's constitutional rights. Judge Hand said:

We find no ground in reason or authority for interfering with a method of identifying persons charged with crime which has now become widely known and frequently practiced both in jurisdictions where there are statutory provisions regulating it and where it has no sanction other than the common law.

[Kelly] argues that many of the statutes and the decisions in common law states have allowed fingerprinting only in cases of felonies. But, as a means of identification it is just as useful and important where the offense is a misdemeanor, and we can see no valid basis for a differentiation. In neither case does the interference with the person seem sufficient to warrant a court in holding fingerprinting unjustifiable. It can really be objected to only because it may furnish strong evidence of a man's guilt. It is no more humiliating than other means of identification that have been universally held to infringe neither constitutional



nor common law rights. Finger printing is used in numerous branches of business and of civil service, and is not of itself a badge of crime. As a physical invasion it amounts to almost nothing, and as a humiliation it can never amount to as much as that caused by the publicity attending a sensational indictment to which innocent men may have to submit.

13.4.6 Fingerprint Evidence Alone is Sufficient to Support a Conviction

Stacy v State, 49 Okl. Crim. 154, 292 P. 885 (1930)

Defendant was convicted principally on his identification as the person who left his latent prints on the door of a vault that was breached. He argued that a conviction based on evidence of fingerprints found in the place where the crime was committed, and not corroborated by other facts or circumstances, was insufficient to support a conviction. The court disagreed and affirmed. After going through a detailed account of the historical studies on fingerprints and their use as evidence of identity, the court stated:

From an examination of the authorities cited and others, it appears that an allusion to finger print impressions for the purposes of identification is referred to in writings as early as 600 A.D., and they are traced back to a period some 100 years before Christ. Finger prints were first used as a manual seal to give authenticity to documents. They are found on Assyrian clay tablets of a very early date in the British Museum, and they were also used in the same way by the early Egyptians. From the literature on the subject and from the reported cases, we learn that finger prints have long been recognized as the strongest kind of circumstantial evidence and the surest form of identification. . . .

We have no doubt but that the finding of the finger prints of the defendant on the door of the vault, with the further proof that defendant did not have access to and had not been at the place burglarized so that the prints could be accounted for on any hypothesis of his innocence, is a circumstance irresistibly pointing to his guilt. . . .

13.4.7 Fingerprints to Identify Individual as a Habitual Criminal

State v Smith, 128 Or. 515, 273 P. 323 (1929)

A person who had been previously convicted of a burglary and similar offenses between 1906 and 1920 was charged with the crime of receiving stolen property—a misdemeanor when committed by a first offender—and was sentenced to life imprisonment as a fourth felony offender under the Habitual Criminal Act. The Supreme Court of Oregon, interpreting an Oregon Habitual Criminal Act statute patterned on the one upheld by New York's highest court in *People v Gowasky*, 244 N.Y. 451, 155 N.E. 737, held that it was appropriate to use fingerprints for the purpose of identifying him as the perpetrator of the earlier felonies.

As early as 1917, the New York court, in *People v Shallow*, 100 Misc. 447, 165 N.Y. Supp. 915 (1917), held that the use of fingerprints to establish that a defendant had been previously convicted and was therefore eligible for increased punishment violates neither the Fifth Amendment's privilege against compelled self-incrimination nor its state constitutional equivalent. The case was noted in the *Columbia Law Review* and the *Yale Law Review*. The court stated, in part:

By the requirement that the defendant's finger prints be taken there is no danger that the defendant will be required to give false testimony. The witness does not testify. The physical facts speak for themselves; no fears, no hopes, no will of the prisoner to falsify or to exaggerate could produce or create a resemblance of her finger prints or change them in one line, and therefore there is no danger of error being committed or untruth told.

13.5 Conclusion

Friction ridge impression examinations, whether tenprint to tenprint comparisons or latent print to tenprint comparisons, have been utilized in support of legal proceedings within the United States as well as worldwide since the early 1900s. Latent print evidence, known exemplars of fingerprints and palmprints, and the expert must each individually and collectively pass muster under the scrutiny of the legal requirements in order to be meaningful and useful in assisting the court in determining guilt or innocence. Just as science progresses and changes occur over time, so has the legal system.

13.6 Reviewers

The reviewers critiquing this chapter were Donna Brandelli, William F. Leo, James L. May III, and Lisa J. Steele.

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