IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA	:	
v.	:	Cr. No. 98-362-10, 11, 12
CARLOS IVAN LLERA PLAZA, WILFREDO MARTINEZ ACOSTA,	:	
and	:	
VICTOR RODRIGUEZ	:	

ORDER

For the reasons stated in the accompanying opinion dated today, this court GRANTS the government's motion for reconsideration of the January 7 order; VACATES the January 7 order; DENIES the defendants' Motion to Preclude the United States from Introducing Latent Fingerprint Evidence; and GRANTS the government's Motion in Limine to Admit Latent Prints.

Date: March 13, 2002

Louis H. Pollak

Pollak, J.

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OPINION

Pollak, J. **March 13, 2002**

In the government's list of witnesses expected to be called at the upcoming trial, on drug and murder charges, of defendants Carlos Ivan Llera Plaza, Wilfredo Martinez Acosta and Victor Rodriguez, there are four Federal Bureau of Investigation (FBI) fingerprint examiners and one FBI fingerprint specialist. To bar the testimony of these anticipated witnesses, the defendants filed a Motion to Preclude the United States from Introducing Latent Fingerprint Identification Evidence. The government responded with a Combined Motion in Limine to Admit Latent Print Evidence and Response to [Defendants'] Motion to Preclude the Introduction of Latent Fingerprint Identification Evidence. The principal question posed by the defendants' motion and the government's counter-motion was whether, as the government contended, fingerprint identification evidence is sufficiently reliable to meet the standards for expert testimony set by Rule 702

of the Federal Rules of Evidence as explicated by the Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 597 (1993) and reaffirmed in *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999). A logically antecedent – but far less difficult – question was whether, as the government also contended, the uniqueness and the permanence of fingerprints are matters that have been so clearly established as to be proper subjects of judicial notice pursuant to Rule 201 of the Federal Rules of Evidence. Resolution of these linked questions required consideration of evidence as to (1) the theoretical basis of fingerprint identification and (2) the procedures by which someone familiar with fingerprints (which, for the purposes of this opinion, include palmprints) arrives at a judgment that a fingerprint impressed on some surface (a so-called "latent" print) by an unknown person and thereafter found by and "lifted" from that surface by law enforcement technicians is – or is not – a print which "matches" a known person's "known exemplar" fingerprint (a so-called "rolled" print), thereby signifying that the person who made the latent print is – or is not – the person who made the rolled print. By stipulation of the parties, the evidence with respect to these questions consisted of a copy of the transcript of a five-day hearing addressed to the same question presided over by my colleague Judge Joyner, in 1999, in *United States v. Mitchell*, Cr. No. 96-407. While no new evidence was presented before me, the parties in the case at bar supplemented the *Mitchell* materials with extensive briefs.

On January 7, 2002, I filed an opinion and order addressed to the defendants'

motion and the government's counter-motion.

First, I concluded that, as the government had contended, it was beyond reasonable dispute that the fingerprints of each person (a) are unique to that person and (b) are (barring some serious and deeply penetrating wound to the hand that substantially alters or defaces the surface of one or more of the fingers or of the palm) permanent from birth to death. I therefore ruled that, pursuant to Rule 201, I would, for the purposes of the up-coming trial, take judicial notice of the uniqueness and permanence of fingerprints. In agreeing to take judicial notice of the uniqueness and permanence of fingerprints, I was in effect, accepting 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.

Second, I considered whether the ACE-V fingerprint identification system employed by the FBI sufficiently conforms to the *Daubert* standards of reliability laid down by the Court as guidelines in determining the admissibility of expert testimony under Rule 702. First I described the four fingerprint examination procedures – "analysis," "comparison," "evaluation," and "verification," – for which "ACE-V" is an acronym: "analysis" by an initial fingerprint examiner of the observably distinctive patterns of a latent print; "comparison" by the examiner of the latent print patterns with those of a rolled print; "evaluation" by the examiner of these compared patterns with a view to determining whether the prints are, or are not, impressions made by the same

finger or palm; and "verification" by a second examiner who repeats the analysis, comparison and evaluation steps in order to verify, or not, the initial examiner's finding. Next I identified the four *Daubert* factors of scientific reliability relied on by both the government and the defendants as touchstones of Rule 702 admissibility: (1) whether the technique on which the proffered expert testimony is premised "can be (and has been) tested"; (2) whether the technique has been "subjected to peer review and publication"; (3) "the known or potential rate of error. . .and the existence and maintenance of standards controlling the technique's operation"; and (4) "general acceptance." 509 U.S. at 593-84. Based on the *Mitchell* record, I came to the following conclusions with respect to ACE-V's conformity to the *Daubert* factors:

> The one *Daubert* factor that ACE-V satisfies in significant fashion is the fourth factor: ACE-V has attained general acceptance within the American fingerprint examiner community [footnote omitted]. But the caveat must be added that, in the court's view, the domain of knowledge occupied by fingerprint examiners should be described, in Rule 702 terms, by the word "technical," rather than by the word "scientific," the word the government deploys.
>
> Given that *Kumho Tire* establishes that the *Daubert* analysis is applicable to "technical" as well as "scientific" knowledge, it may be thought that this court's characterization of the knowledge base of fingerprint examiners as "technical" rather than "scientific" is a semantic distinction which is of no practical consequence. However, as discussed above, the court finds that ACE-V does not adequately satisfy the "scientific" criterion of testing (the first *Daubert* factor) or the "scientific"criterion of "peer review" (the second *Daubert* factor). Further, the court finds that the information of record is unpersuasive, one way or another, as to ACE-V's

> "scientific" rate of error (the first aspect of *Daubert*'s third factor), and that, at the critical evaluation stage, ACE-V does not operate under uniformly accepted "scientific" standards (the second aspect of *Daubert*'s third factor).

These conclusions did not, however, lead to a determination that fingerprint identification testimony could play no role whatsoever. The substance of my ruling was as follows:

> The *Daubert* difficulty with the ACE-V process is by no means total. The difficulty comes into play at the stage at which, as experienced specialists Ashbaugh [David Ashbaugh, of the Royal Canadian Mounted Police] and Meagher [Stephen Meagher of the FBI] themselves acknowledge, the ACE-V process becomes "subjective" – namely, the evaluation stage. By contrast, the antecedent analysis and comparison stages are, according to the testimony, "objective": analysis of the rolled and latent prints and comparison of what the examiner has observed in the two prints. Up to the evaluation stage, the ACE-V fingerprint examiner's testimony is descriptive, not judgmental. Accordingly, this court will permit the government to present testimony by fingerprint examiners who, suitably qualified as "expert" examiners by virtue of training and experience, may (1) describe how the rolled and latent fingerprints at issue in this case were obtained, (2) identify and place before the jury the fingerprints and such magnifications thereof as may be required to show minute details, and (3) point out observed similarities (and differences) between any latent print and any rolled print the government contends are attributable to the same person. What such expert witnesses will not be permitted to do is to present "evaluation" testimony as to their "opinion" (Rule 702) that a particular latent print is in fact the print of a particular person. The defendants will be permitted to present their own fingerprint experts to counter the government's fingerprint testimony, but defense experts will also be precluded from presenting "evaluation" testimony. Government counsel and defense counsel will, in closing arguments, be free to argue to the jury that, on the basis of the jury's observation of a particular latent print and a particular

rolled print, the jury may find the existence, or the non-existence, of a match between the prints.

I.

The government moved for reconsideration of the ruling. The government felt that its prosecutorial effectiveness, both in the case at bar and in other cases in which fingerprint identification could be expected to play a significant role, would be seriously compromised by the preclusion of opinion testimony at the "evaluation" stage "that a particular latent print is in fact the print of a particular person." Arguing that the analysis underlying the ruling was both factually and legally flawed, the government contended that the ruling was "at odds with Rule 702 of the Federal Rules of Evidence, and should be reconsidered and reversed." In aid of its motion for reconsideration the government sought leave to enlarge the record through the presentation of evidence that FBI fingerprint examiners achieve conspicuous accuracy on annual fingerprint identification proficiency tests.

In the defendants' view, reconsideration was not called for: there was no suggestion that the additional evidence the government wished to adduce (the proposed factual presentation relating to the FBI proficiency tests) was new, or had previously been unavailable; and it was not contended that the controlling legal principles, as laid down by the Supreme Court and the Court of Appeals for the Third Circuit, had been reconfigured since this court's January 7 decision. Further, the defendants argued, citing the Third Circuit's decision in *United States v. Kithcart*, 218 F.3d 213 (2000), that it would be error

for this court to conduct an evidentiary hearing in aid of a motion for reconsideration.

Kithcart, so it seemed to me, was without application. In *Kithcart* the Third Circuit, on an initial appeal, had concluded that the district court should reexamine a suppression motion which the district court had previously denied. On remand, the district judge (a judge to whom the case had been assigned after the original judge had been elevated to the Third Circuit) conducted an evidentiary hearing to hear witnesses the government had not called at the prior suppression hearing and, on the basis of the enlarged record, adhered to the prior ruling denying the motion to suppress. On a renewed appeal, the Third Circuit held that it had been error for the newly assigned district judge, on remand, to hear testimony; the remand order, the Third Circuit explained, had contemplated that the suppression motion would be reconsidered by the district court on the original record unless the government, on remand, offered an adequate explanation why it had not presented the additional witnesses at the prior hearing – a showing the government, on remand, did not make. *Kithcart*, in sum, involved a construction by the appellate court of its procedural directive to a district court. No such scenario was presented in the case at bar.

Although *Kithcart* offered no support for the defendants' contention that I should decline to reconsider the January 7 ruling, the defendants were on sound ground in contending that neither of the circumstances conventionally justifying reconsideration – new, or hitherto unavailable, facts or new controlling law – was present here. It seemed

to me, nonetheless, that there was a factor peculiar to this case which militated in favor of agreeing to reconsider the January 7 ruling. That factor was that the record underlying the January 7 opinion did not consist of testimony by witnesses I had actually seen and heard; my field of vision was a transcript of testimony presented in another courtroom more than two years ago. Therefore, it seemed prudent to hear such live witnesses as the government wished to present, together with any rebuttal witnesses the defense would elect to present.

Accordingly, I agreed to reconsider the January 7 ruling. The parties required a period of time to prepare for the evidentiary hearing requested by the government. The hearing was held on February 25, 26 and 27.

II

The Witnesses

At the hearing five witnesses gave testimony. The government presented two witnesses: Stephen Meagher, Unit Chief of Latent Print Unit 3 of the Forensic Analysis Section of the FBI Laboratory; and Kenneth O. Smith, Senior Forensic Latent Print Analyst of the U.S. Postal Inspection Service. The defendants presented three witnesses: Allan Bayle, a London-based consultant on fingerprint identification, with lengthy prior service as a fingerprint examiner at New Scotland Yard; Janine Arvizu, a laboratory quality auditor serving as Senior Technical Consultant at Consolidated Technical Services, Inc., a New Mexico firm; and Dr. Ralph Norman Haber, a psychometrician at

Human Factors Consultants, a California firm.

A. <u>The Testimony of the Government Witnesses</u>

Stephen Meagher:

The first portion of Mr. Meagher's testimony was a run-through of the ACE-V process, visually illustrated by overhead projections of fingerprints whose distinctive patterns of "friction ridges" are frequently given further distinctive character by markings commonly termed "loops," "whorls," "arches," and "deltas."

[*Historical Note* (*not drawn from testimony*): "Galton points" take their name from Francis Galton, the multi-talented English scientist who was a cousin of Darwin's and a major figure in his own right. Starting in the late 1880s, Galton undertook to appropriate much of, and then to build upon, the pioneering fingerprint identification efforts of (1) another Englishman, William Herschel, serving in the Indian civil service, and (2) Henry Faulds, a Scottish physician serving as a medical missionary in Japan. Galton's efforts were brought into the mainstream of criminal investigation by Edward Henry, the Inspector General of Police in Bengal, who, in 1901, was called back to England as Assistant Commissioner (later, Commissioner) of Scotland Yard and promptly established the Yard's Fingerprint Branch. Galton and Henry have customarily been celebrated as the principal progenitors of fingerprint identification, with Herschel given an approving nod – while the foundational work of Faulds has, until very recently, been

largely ignored. *See generally* COLIN BEAVAN, FINGERPRINTS (2001), "an elegantly written slim volume," Paul Shechtman, *New York Law Journal,* August 7, 2001 at 2 (book review); *see also* NICHOLAS WRIGHT GILLHAM, A LIFE OF SIR FRANCIS GALTON 231-249 (2001).[1] Fingerprinting was not, however, the most significant of Francis Galton's many lines of inquiry: The versatile, and indefatigably enterprising, Galton, did important work in fields as disparate as, *inter alia*, geography, biometrics and meteorology; but his most influential scientific contributions proved to be profoundly malign – an early student of genetics, Galton became the high priest of eugenics.]

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[1]In 1905 Faulds published a *Guide to Finger-Print Identification.* There shortly appeared, in the journal *Nature,* an anonymous review of Faulds's *Guide.* The review, written by Galton, announced that Faulds "overstates the value of his own work, belittles that of others . . ." Colin Beavan, at pages 189-190 of FINGERPRINTS, after quoting from Galton's review, goes on to observe that:

> Four years after writing this review, in 1909, Galton was knighted for his service to science. One year later, Faulds wrote repeatedly to the Home Secretary, Winston Churchill, asking for some similar recognition for his fingerprint contributions. The Home Secretary did not reply.
>
> Faulds made his last desperate plea through his Member of Parliament. On April 19, 1910, the Member stood up in the House of Commons, and asked Winston Churchill whether he had received correspondence from Faulds and what he intended to do about it. Churchill answered: "So far as the Home Office is concerned, I am informed that the adoption of the Finger Print System in 1904 was entirely due to the labours of Mr., now Sir, Francis Galton."

Although the observation of Galton points that are common to the latent print and the rolled print has traditionally been one of the mainstays of the "comparison" and "evaluation" stages of ACE-V, Mr. Meagher emphasized in his testimony that no minimum number of Galton points is required in order to achieve a reliable identification. In support of this, Mr. Meagher cited a 1973 pronouncement of the International Association for Identification, a similar pronouncement at an international conference held in Nurum, Israel, in 1995, and guidelines promulgated in 1997 by the Scientific Working Group on Friction Ridge Analysis Study and Technology. Mr. Meagher's testimony on this point is of some significance, because in my January 7 opinion, in concluding that the ACE-V process appeared to lack uniformly controlling standards, I noted that, on the basis of what I had gleaned from the *Mitchell* record, here and abroad there appeared to be a lack of uniformly controlling identification standards. What I said in the January 7 opinion was as follows:

> Various witnesses at the Mitchell hearing testified that the ACE-V process is the method in general use among fingerprint examiners in the United States. However, the application of this method, in particular whether a minimum number of Galton points must be identified before a match can be declared, varies from jurisdiction to jurisdiction. Sergeant Ashbaugh testified that the United Kingdom employs a sixteen-point minimum, Australia mandates that twelve points be found in common, and Canada uses no minimum point standard. Test. Ashbaugh, Tr. July 7, 1999, at 144–45. In the United States, state jurisdictions set their own minimum point standards, while the FBI has no minimum number that must be identified to declare an "absolutely him" match, Test. Meagher, Tr. July 8, 1999, at 105, but does rely

> on a twelve-point "quality assurance" standard, id. at 104. As described by the Havvard court, "there is no single quantifiable standard for rendering an identification opinion because of differences in both the quantity of characteristics shown in the latent print and the quality of the image." Havvard, 117 F. Supp. 2d at 853. While there may be good reason for not relying on a minimum point standard—or for requiring a minimum number, as some state and foreign jurisdictions do—it is evident that there is no one standard "controlling the technique's operation," Daubert, 509 U.S. at 594.

The bulk of Mr. Meagher's testimony was a description and assessment of the proficiency tests administered annually to certified FBI fingerprint personnel (as I understand it, only *certified* examiners are presented by the government as fingerprint identification witnesses in court)[2] in the years 1995-2001. Each person tested received a packet containing copies of a number of latent prints (whose source, although unknown to

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[2]To become an FBI fingerprint examiner one must have a bachelor's degree – preferably as a science major – and then successfully complete a two-year in-house training program culminating in a three-day certifying examination. The rigorous qualification regime described by Mr. Meagher establishes the inapplicability to certified FBI fingerprint examiners of the recital in the January 7 opinion that "[t]here are no mandatory qualifications for individuals to become fingerprint examiners [footnote omitted], nor is there a uniform certification process." Mr. Meagher did not present testimony as to the standards – very likely quite varied – that govern qualification as a fingerprint examiner in state and local law enforcement agencies. Nor was there any occasion for him to give such testimony, since the question before this court involves the admissibility of fingerprint identification testimony by FBI fingerprint personnel. The January 7 opinion did, however, identify an apparent lack of uniform qualification standards as a factor cutting against satisfaction of *Daubert*'s concern for "the existence and maintenance of standards controlling the technique's operation." 509 U.S. at 594.

the test-taker, was known to the test-makers) and copies of a smaller number of known exemplars; the test-taker would then undertake to determine identities, or non-identities, between the latent prints and the known exemplars. Between 55 and 71 persons were tested each year. The tests, while the same in structure from year to year, varied in content. The tests taken by almost all personnel were administered internally – *i.e.*, within the FBI Laboratory framework – by supervisory fingerprint specialists who acted as test-makers. The test-makers (usually two each year, of whom Mr. Meagher was always one) were themselves tested annually, through a test similar in form to the internal test, which was created externally by the Collaborative Testing Service, a private entity which constructs tests for numerous American and foreign laboratories.

Mr. Meagher presented a tabulation of the proficiency test results for the seven years 1995-2001. According to that tabulation (Government Exhibit R-15), the aggregate test population was 447 (not, of course, 447 different people, since each certified FBI fingerprint examiner takes the proficiency test each year).

Sixteen of the 447 test takers were supervisory personnel who, having administered the internal test, took the external test. In the course of the seven years, one error was recorded on an external test: In 1995, the external test called for assessment of seven latent fingerprints and four known exemplar ten-print cards (i.e., cards containing prints of all ten fingers); one person mistakenly identified a latent print as matching one

of the known exemplars – a "false positive." All errors on the FBI fingerprint proficiency tests are inquired into; but a false positive – being mistakenly inculpatory – is thought by the FBI to call for particularly demanding scrutiny. The inquiry conducted with respect to the 1995 error on the external test led Mr. Meagher to conclude that the error was not one of faulty evaluation but of faulty recording of the evaluation – *i.e.*, a clerical rather than a technical error.

The internal tests taken over the seven years numbered 431. These tests generated three errors, two in 1995 and one in 2000. Each of the three errors was a missed identification – *i.e.*, a failure by the test taker to find a match between a latent print and a known exemplar which in fact existed; such an error is a "false negative" which, being mistakenly exculpatory, is regarded by the FBI as considerably less serious than a false positive.

In sum, the 447 proficiency tests administered in the seven years from 1995 through 2001 yielded four errors – a proficiency error rate of just under 1%.

Mr. Meagher was asked on direct examination whether, in the course of his career, he had learned, either directly or through conversations with colleagues, of any instances in which FBI fingerprint identification testimony presented in court had turned out to be false. The question was objected to – on the ground that an answer in the negative would not be probative that the identification testimony was in fact accurate – but I overruled the

objection. Mr. Meagher did respond in the negative. At a later point in the hearing I recalled Mr. Meagher to the stand so that I could pursue a couple of issues about which he had given testimony. One of the questions I put to Mr. Meagher was whether he knew if, in any of the many criminal trials in which he had given testimony of a match (some sixty or more trials, it would appear), the defendant had been acquitted. Not surprisingly, Mr. Meagher responded that he couldn't really provide any information on that score since, after giving his testimony, he frequently had no occasion to learn of the outcome of the trial. I then asked Mr. Meagher whether he was aware of instances in which "identification testimony turned out to be mistaken" in instances of "criminal prosecutions in the United States not involving FBI fingerprint identification testimony." "[T]he answer to that," responded Mr. Meagher, "is I believe so, yes, and to cite an exact case, I can't do that for you, but when those kinds of things occur, they certainly do make the rounds within the community, and the practitioners are very aware of it, and the answer to that is yes. Yes there have been erroneous identifications testified to in court here in the United States by those other than the FBI. I certainly don't want to imply that there's many, but I am aware of a few." Mr. Meagher then recalled a case "right here in Philadelphia in which ultimately the prints did come to the FBI for confirmation verification or for us to render our own independent decision." On further questioning by counsel it appeared that the instance of mistaken fingerprint identification recalled by Mr.

Meagher was the prosecution of Ricardo Jackson in the Court of Common Pleas in Delaware County, not in Philadelphia.

Kenneth O. Smith:

Mr. Smith's testimony addressed the preparation and content of the external fingerprint identification proficiency tests distributed to and graded by CTS for numerous forensic laboratories, both domestic and foreign, including the FBI Laboratory. Mr. Smith has been an adviser to CTS on these matters for several years and thus is very familiar with the CTS tests. CTS does not supervise the manner in which the tests are taken at the various laboratories, so one could not tell from the test results the conditions under which a test would have been taken in any particular laboratory (whether, for example, the test would have been taken collaboratively or individually by those tested). Mr. Smith was of the view that the difficulty of the CTS tests corresponds reasonably closely to the difficulty presented to fingerprint examiners by their day-to-day work.

B. <u>The Testimony of the Defense Witnesses</u>

Allan Bayle:

Mr. Bayle is "a fingerprint examiner and a forensic scene examiner." He served at New Scotland Yard for twenty-five years until June of last year when he moved to the private sector as a consultant. Mr. Bayle is a Fellow of the (UK) Fingerprint Society and, like Mr. Meagher, a member of the International Association for Identification. He has

testified in English courts as a fingerprint expert "[h]undreds of times." Mr. Bayle had reviewed copies of the internal FBI proficiency tests before taking the stand. He found the latent prints utilized in those tests to be, on the whole, markedly unrepresentative of the latent prints that would be lifted at a crime scene. In general, Mr. Bayle found the test latent prints to be far clearer than the prints an examiner would routinely deal with. The prints were too clear – they were, according to Mr. Bayle, lacking in the "background noise" and "distortion" one would expect in latent prints lifted at a crime scene.[3] Further,

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[3]Q Sir, could you explain background noise and distortion to the Court?
A Background noise is what we call the susbtrate. And it's like if you leave your mark [fingerprint] on a grain surface, the grain surface will show in the background, and that's interference. And that's what you'll get at most scenes of crime when you obtain them and actually lift the marks from that particular substrate.
Q Let me put it to you this way, if I put my marks or my fingerprints on the table, correct?
A Right.
Q The background noise would be the table, correct?
A The grain of the table, yes.
Q And the distortion would be the pressure that I've applied to my fingers – the tips of my fingers, correct?
A That's right.
Q And that's the distortion, is that right?
A That's part of the distortion, yes.
Q Okay. So is the background noise or distortion that's represented in those latent prints that you're taking a look at, is that representative of what you would find at a crime scene?
A No.
Q All right. Now, sir, at a crime scene, would you expect to see background noise and distortions?

Mr. Bayle testified, the test materials were deficient in that there were too few latent prints that were not identifiable; according to Mr. Bayle, at a typical crime scene only about ten per cent of the lifted latent prints will turn out to be matched. In Mr. Bayle's view the paucity of non-identifiable latent prints:

> makes the test too easy. It's not testing their ability. It doesn't test their expertise. I mean I've set these tests to trainees and advanced technicians. And if I gave my experts these tests, they'd fall about laughing.

On cross-examination, Mr. Bayle was shown Government Exhibit R-13 – a latent print the government expects to introduce at the upcoming trial. (Mr. Bayle had seen Government Exhibit R-14, a blow-up of R-13, the day before). ". . .[I]sn't it correct," government counsel asked, "that what you're looking at right there is much easier than the latents that are in the test?" "Yes."

On cross-examination Mr. Bayle acknowledged his commitment to ACE-V:

> Q . . .[I]n your field and what you teach is the methodology that has been spoken about in this Court and in *Mitchell,* as you know, ACE-V?
> A That's correct.
> Q Okay, and that is a methodology that you believe in. Correct?
> A It is.

> A Yes, I do.
> Q Now, sir, are the latent prints in the materials that you're looking at, are they difficult to match?
> A No.

Q You believe it's reliable. Correct?
A It is.
Q And you use it day in and day out in your work assignments. Correct?
A That's correct.

After calling Mr. Meagher back to the witness stand, I also recalled Mr. Bayle. I asked whether it was not the case that "there have been some instances . . . in the U.K. experience, even in recent years, of mistaken identifications presented in court?" In reply, Mr. Bayle described the current case of Scottish Police Officer Shirley McKie who was charged with perjury for giving testimony that a fingerprint lifted from a door frame at a murder scene was not hers. Four fingerprint experts testified that the print was Officer McKie's, but two American fingerprint experts – Pat Wertheim and David Grieve – gave contrary testimony and Officer McKie was acquitted. Also, according to Mr. Bayle, there was another misidentification in the same underlying case. The matter is not yet fully resolved: an inquiry is under way to try to find out what went wrong, and Mr. Bayle is lending his expertise to that inquiry. On further cross-examination of Mr. Bayle, government counsel noted that Messrs. Wertheim and Grieve had been witnesses in the *Daubert* phase of the *Mitchell* case.

Janine Arvizu and Ralph Norman Haber:

Ms. Arvizu's expertise is in the area of laboratory quality assessment. Dr. Haber is a psychometrician. Neither one professed any familiarity with fingerprint

identification. But both appeared to be quite knowledgeable about the principles of effective skills testing. They were highly critical of the FBI proficiency tests. The test materials and uninformative attendant literature, taken together with the ambiguity as to the conditions governing the taking of the tests (e.g., may the test takers consult with one another? to what extent is taking the test perceived to be competitive with, or subordinated to, the performance of concurrent work assignments?), gave few clues as to what the test makers intended to measure. For both Ms. Arvizu and Dr. Haber, the stratospheric test success rate was hardly reassuring; to the contrary, it raised "red flags."

As to ACE-V itself, Dr. Haber offered the thought that "verification" was a misnomer for the final stage: a procedure in which a second fingerprint examiner knows the result arrived at by a previous examiner, and is asked to go over the same ground, would be better described as "ratification."

The Stipulation

Shortly before the close of testimony, government counsel presented, by stipulation, a correction of certain figures recited in the January 7 opinion. In that opinion I stated that:

> Mr. Meagher had conducted a survey in which he sent Byron Mitchell's ten-print card and alleged latent fingerprints to state agencies. The ten-print card was to be compared with the state fingerprint records: the result – that only Pennsylvania, the state in which Mitchell had been

> incarcerated, reported a 'hit'– was significant confirmation of the uniqueness of fingerprints. The other aspect of the Meagher survey – a request that state agencies determine whether the latent prints matched the known Mitchell prints – offered scant support for the accuracy of fingerprint identification. Nine of the thirty-four responding agencies did not make an identification in the first instance. . . . While the survey results fall far short of establishing a "scientific" rate of error, they are (modestly) suggestive of a discernible level of practitioner error.

The stipulation establishes that my statement that "[n]ine of the thirty-four responding agencies did not make an identification in the first instance" was erroneous in two respects: *First,* there were *thirty-nine* responding agencies, not *thirty-four*, each of the thirty-nine responding agencies having been sent Mitchell's ten-print card and two latent prints. *Second* (and more important), the recital that "[n]ine of the . . . responding agencies did not make an identification" was materially misleading: thirty of the thirty-nine responding agencies correctly identified – *i.e.*, achieved a proper match with respect to – both latent prints; of the remaining nine, four in fact did correctly identify one of the two latents, but failed to identify the other; only five of the responding agencies did not identify either of the two latent prints.

The corrected figures call for some amendment of my conclusory observation, in the sentences quoted above from the January 7 opinion, that "the survey results . . . are (modestly) suggestive of a discernible level of practitioner error." If one were

undertaking to calculate the "level of practitioner error," the figures reflected in the stipulation signify a larger denominator and a smaller numerator than my January 7 statement implied. Furthermore, as bearing on the issues before this court, it is important to note that whatever practitioner errors Mr. Meagher's survey may have been the catalyst of, those errors would have been those of examiners working for state agencies, not errors of FBI fingerprint examiners.

III

(1) Is ACE-V a "Scientific" Technique?

The opinion of January 7, which was based on the *Mitchell* record, undertook to respond to the parties' competing arguments as to whether ACE-V meets *Daubert*'s requirements. Characterizing ACE-V as "scientific" in the Rule 702 and *Daubert* sense, the government argued that the *Mitchell* record established that ACE-V met all four of the *Daubert* guidelines: (1) that "the theory or technique" is one that "can be (and has been) tested"; (2) that "the theory or technique has been subjected to peer review and publication"; (3) "in the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error . . . and the existence and maintenance of standards controlling the technique's operation"; and (4) "general acceptance" in the "'scientific community.'" 509 U.S. at 593-594. The defendants, reading the *Mitchell* record and *Daubert* differently, argued otherwise. In the January 7

opinion I accepted the battleground as the parties had defined it, and on that basis I concluded that: (1) and (2), ACE-V was not supported by "testing" or by "peer review" in the "scientific" sense contemplated by *Daubert*; (3) the rate of error was "in limbo" and consensus on controlling standards was lacking; and (4) while there was "general acceptance" of ACE-V in the fingerprint identification community, that community was not a "'scientific community'" in *Daubert*'s use of the term. But in reaching these conclusions I voiced some skepticism about the vocabulary that informed counsel's and my various analyses. "[T]he caveat must be added," I wrote, "that, in the court's view, the domain of knowledge occupied by fingerprint examiners should be described, in Rule 702 terms, by the word 'technical,' rather than by the word 'scientific,' the word the government deploys."

What is science? Science has to do with propositions that can be "tested or verified by observation or experiment."[4] ACE-V – the system of fingerprint identification that links Stephen Meagher of the United States, Allan Bayle of England, David Ashbaugh of Canada, and their counterparts in other countries – is not, in my judgment,

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[4]Freeman J. Dyson, *Science & Religion*: *No Ends in Sight,* XLIX THE NEW YORK REVIEW OF BOOKS (March 28, 2002) p. 4. Professor Dyson notes that "[t]he way a scientific argument goes is typically as follows: We have a number of theories to explain what we have observed. Most of the theories are probably wrong or irrelevant. Then somebody does a new experiment or a new calculation that proves that Theory A is wrong. As a result, Theory B now has a better chance of being right."

itself a science. But its claim on the attention of courts derives from the fact that it is rooted in science – in the two propositions of which this court, in its January 7 opinion, relying primarily on the testimony of Dr. William Babler,[5] took judicial notice: namely, that fingerprints are unique and are permanent. Principal credit for the initial observations and experiments supporting these propositions belongs to the four remarkable investigators and public officials whom I referred to in the historical note in section II of this opinion – Francis Galton, Edward Henry, William Herschel and, most particularly, Henry Faulds.[6]

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[5]With respect to uniqueness, some reliance was also placed on the corroborative testimony of Donald Ziesig.

[6]The observations and experiments of Henry Faulds, while serving as a medical missionary in Japan, are admirably described by Colin Beavan, at pages 69-73 of his recent work, FINGERPRINTS, to which I have previously referred:

> One day, while turning over ancient pottery fragments in his hands, Faulds noticed minute patterns of parallel lines impressed in the clay. He examined them closely, trying to discern their source. Some months earlier, Faulds had lectured his medical students on each of the five senses. During preparation for the lecture on touch, he had noticed the swirling ridges on his own fingertips. In a flash, he realized that the 2,000-year-old impressions he now examined in clay came from the ridges on the fingers of ancient potters.
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> Did modern potters leave such marks, too? Faulds scoured the contemporary markets of Tokyo, closely examining the surfaces of current-day pottery. The marks were everywhere. On China tea sets in one market stall he

noticed how "one peculiar pattern of lineations would reappear with great persistency, as if the same artist had left her sign-mark on her work." Suddenly it occurred to him that a piece of pottery could be matched to a particular potter by the ridge markings left in the clay. He had begun to suspect that finger-ridge patterns were unique to each individual, the basis for their use in identification. At first, Faulds paid little attention to this detail.

At that time, Faulds did not fancy himself as a detective wanting to identify criminals, but as an anthropologist wishing to throw light on the origins of humanity. Since the 1860s, anthropologists had sought to classify populations according to their physical attributes. Among them, Paul Broca, who founded the Anthropological Society of Paris in 1859, had used measurements of the bony portions of the head and face to distinguish one group from another. By careful analysis, Broca showed, for example, that northern Europeans were distinctively more long-headed that central Europeans. Faulds hoped populations might be similarly classified by finger-ridge patterns. He thought the patterns might differ by race, era, and geography, much like Broca's facial characteristics.

The Scottish doctor studied the fingerprints of his friends, his family, his grocers, even the workmen who came to his house. At first, Faulds examined their finger ridges directly, making sketches for his records. Next, he began recording their fingertips in wax. Finally, he hit on the technique of inking the fingertips and recording their impressions on paper. Twenty years earlier, William Herschel, unknown to Faulds, had begun collecting the prints of the thumb and first two fingers of his acquaintances. Now, Faulds began a similar practice, except for one crucial difference – he insisted on inking and printing all ten of his subjects' fingers, a move that would one day make fingerprint

sets easier to differentiate in large criminal registers.

Faulds's collection of prints swelled to the thousands, but they all came from European and Japanese fingers. He needed a greater variety to determine whether finger-ridge patterns differed from race to race and area to area as he had postulated. In an effort to expand his data, he wrote more than a hundred letters to scientists around the world, asking their assistance in collecting fingerprints and including copies of specially created ten-digit fingerprint forms. Faulds received almost no response. "Some thought I was an advocate of palmistry . . . most took no notice whatever." Faulds's fingerprint studies had come to a dead end.

Coincidentally, during this period, the supply of medical alcohol at Faulds's hospital, kept in a bottle in a locked cabinet, ran inexplicably low. It had to be restocked again and again before Faulds finally realized that the bottle was emptying itself into some thirsty person's gullet. When he found a makeshift cocktail glass in the form of a laboratory measuring beaker, he examined its surface and discovered a nearly complete set of sweaty finger marks. Faulds searched his collection of fingerprint cards for a match, and found one. It belonged to one of his medical students – culprit discovered.

At first, Faulds did not recognize the new use for fingerprints he had unwittingly stumbled upon. Then, a month later, someone attempted to burgle the hospital by climbing up a wall and through a window. Local police accused a favorite member of Faulds's staff, but the ridge patterns in a sooty handprint found on the wall, Faulds found, did not match those of the accused. He showed his evidence to the police and exonerated the staff member.

This time Faulds saw the light. He remembered the

crowds he had seen outside the Old Bailey, waiting for news of the trial of the Claimant. A filed set of the shipwrecked Roger Tichborne's fingerprints, Faulds realized, would have destroyed the Claimant's case in a moment. [Tichborne, the "Claimant" in a celebrated nineteenth century case was an imposter who claimed to be the long-lost heir of an aristocratic family]. Similarly, a fingerprint register of habitual criminals would foil their attempts to use false names and get lighter sentences. Faulds's conception was similar, in a way, to that of William Herschel, who, unknown to Faulds had one year earlier introduced fingerprints' official use in Hooghly, India. Herschel, however, used fingerprints only as a form of signature to authenticate documents. Faulds's idea had much farther-reaching ramifications. He realized fingerprints could solve the problem of identification that so troubled the British legal system.

Faulds was loath at first to publish his idea. He was plagued by a "most depressing sense of moral responsibility and danger. What if someone were wrongly identified and made to suffer innocently through a defective method? It seemed to me that a great deal had to be done before publicly proposing the adoption of such a scheme." Faulds first set out to prove conclusively that fingerprints were unique to each individual and, second, that they stayed the same throughout a person's life.

In one experiment, Faulds and his medical students shaved off their finger ridges with razors until no pattern could be traced. The ridges grew back, without exception, in exactly the same patterns. They repeated the experiment, removing the ridges by any number of methods – by "pumice-stone, sand paper, emery dust, various acids, caustics and even spanish fly" – and each time the results were the same.

Next, Faulds studied infants to see if growth affected

(2) **ACE-V as a "Technical" Discipline: *Daubert* Through the Prism of *Kumho Tire***

In adjusting the focus of inquiry from ACE-V's status as a "scientific" discipline to its status as a "technical" discipline, one modifies the angle of doctrinal vision. As noted in the January 7 opinion, the Court in *Kumho Tire* concluded that – contrary to the ruling of the Eleventh Circuit under review – *Daubert*'s pronouncements with respect to "scientific" expert testimony are also applicable to "technical" expert testimony. The *Kumho Tire* Court "also conclude[d] that a trial court *may* consider one or more of the more specific factors that *Daubert* mentioned when doing so will help determine that testimony's reliability. But, as the Court stated in *Daubert*, the test of reliability is

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> their fingertip patterns the way it dramatically changed the rest of their bodies. It didn't. Over a period of two years, he also examined the hands of large numbers of Japanese children and some thirty-five European children between the ages of five and ten. In no case did the ridge patterns vary. When an epidemic of scarlet fever swept through Japan, causing severe peeling of skin, Faulds again studied the fingerprints and found no before-and-after change.
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> "Enough had been observed," Faulds decided, "to enable me confidently, as a practical biologist, to assert the invariableness, for practical identification purposes, of the patterns formed by the lineations of human finger-tips." Fingerprints were permanent. Meanwhile, the many thousands of fingerprint sets collected and mutually compared by Faulds satisfied him that each person's fingerprint set was truly unique. He was finally ready to go public.

'flexible,' and *Daubert*'s list of specific factors neither necessarily nor exclusively applies to all experts or in every case. Rather, the law grants a district court the same broad latitude when it decides *how* to determine reliability as it enjoys in respect to its ultimate reliability determination." 526 U.S. at 141-142 (emphasis in original). Later in its opinion, the *Kumho Tire* Court, in explaining its rejection of the Eleventh Circuit's limitation of *Daubert* as applicable only to "scientific" evidence, stated: "We do not believe that Rule 702 creates a schematism that segregates expertise by type while mapping certain kinds of questions to certain kinds of experts. Life and the legal cases it generates are too complex to warrant so definitive a match." *Id.* at 151. The Court went on:

> To say this is not to deny the importance of *Daubert*'s gatekeeping requirement. The objective of that requirement is to ensure the reliability and relevancy of expert testimony. It is to make certain that an expert, whether basing testimony on professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field. Nor do we deny that, as stated in *Daubert*, the particular questions that it mentioned will often be appropriate for use in determining the reliability of challenged expert testimony. Rather, we conclude that the trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable. That is to say, a trial court should consider the specific factors identified in *Daubert* where they are reasonable measures of the reliability of expert testimony.

Id. at 152.

The *Kumho Tire* Court's injunction that the gatekeeping requirement is designed to insure "that an expert . . . employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field" serves as a reminder that fingerprint identification is not a discipline that is confined to courtroom use. It is a discipline relied on in other settings – e.g., in identifying the dead in mass disasters. Properly to determine whether an FBI fingerprint examiner operates at a proper level of intellectual rigor when she comes to court as an expert witness, it becomes necessary, on this motion for reconsideration of my January 7 ruling, to reexamine the grounds on which I found that ACE-V did not satisfy three of the *Daubert* factors and only marginally met the fourth ("general acceptance" by the fingerprint community, which I deemed not a "scientific community"). In this reexamination there are two points to be addressed. One is the extent to which the several *Daubert* factors "are reasonable measures of the reliability of expert testimony." The other is whether the recent enlargement of the record – the three days of hearings on the motion for reconsideration – alters in some significant way the pertinent facts drawn from the *Mitchell* record.

(a) "peer review" and "general acceptance":

First I consider the "peer review" and "general acceptance" factors. The fact that fingerprint specialists are not "scientists," and hence that the forensic journals in which

their writings on fingerprint identification appear are not "scientific" journals in *Daubert*'s peer review sense, does not seem to me to militate against the utility of the identification procedures employed by fingerprint specialists, whether on the witness stand or at the disaster site. By the same token, I conclude that the fingerprint community's "general acceptance" of ACE-V should not be discounted because fingerprint specialists – like accountants, vocational experts, accident-reconstruction experts, appraisers of land or of art, experts in tire failure analysis,[7] or others – have "technical, or other specialized knowledge"(Rule 702), rather than "scientific . . . knowledge" (*id.*), and hence are not members of what *Daubert* termed a "scientific

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[7]Dennis Carlson, Jr., the proposed expert witness in *Kumho Tire*, was "an expert in tire failure analysis." 526 U.S. at 142.

> "[N]o one denies that an expert might draw a conclusion from a set of observations based on extensive and specialized experience. Nor does anyone deny that, as a general matter, tire abuse may often be identified by qualified experts through visual or tactile inspection of the tire. . . . As we said before . . . the question before the trial court was specific, not general. The trial court had to decide whether this particular expert had sufficient specialized knowledge to assist the jurors 'in deciding the particular issues in the case.'" *Id.* at 156. The district court declined to let Mr. Carlson testify. According to the Supreme Court, the district court "ultimately based its decision upon Carson's failure to satisfy either *Daubert*'s factors or any other set of reasonable reliability criteria. In light of the record as developed by the parties, that conclusion was within the District Court's lawful discretion." *Id.* at 158.

community."

(b) "testing":

Next I consider the "testing" factor. The key to the admissibility of expert testimony under *Daubert* and *Kumho Tire* is reliability, and this, of course, derives directly from the text of Rule 702, which contemplates that "(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." Bearing this in mind, one would welcome "testing" in the *Daubert* sense as a criterion of reliability. Disagreeing with contentions that the "verification" phase of ACE-V constitutes *Daubert* "testing," or, in the alternative, that a century of litigation has been a form of "adversarial" testing that meets *Daubert*'s criteria, I concluded in the January 7 opinion that *Daubert*'s testing factor was not met, and I have found no reason to depart from that conclusion.

(c) "rate of error" and "standards controlling the technique's operation":

The last *Daubert* question to be addressed is whether *Daubert*'s third factor – "the known or potential rate of error . . . and the existence and maintenance of standards controlling the technique's operation" – offers support for fingerprint identification testimony. In the January 7 opinion, on the basis of the *Mitchell* record, I answered this question in the negative: I found no persuasive information with respect to rate of error.

And with respect to "the existence and maintenance of [controlling] standards" I found (1) "whether a minimum number of Galton points must be identified before a match can be declared, varies from jurisdiction to jurisdiction. Sergeant Ashbaugh testified that the United Kingdom employs a sixteen-point minimum, Australia mandates that twelve points be found in common, and Canada uses no minimum point standard. . . . In the United States, state jurisdictions set their own minimum point standards, while the FBI has no minimum number that must be identified to declare an 'absolutely him' match"; (2) there appeared to be no uniformly accepted qualifying standards for fingerprint examiners; and (3) the identification judgments made by fingerprint examiners at ACE-V's "evaluation" stage – *i.e.*, in determining whether there is a "match" – are "subjective."

What new light – if any – is shed upon rate of error, or upon controlling standards, by the recent three days of hearings?

(i) "rate of error":

The factual case presented by the government was chiefly devoted to demonstrating, through the testimony of Mr. Meagher, that certified FBI fingerprint examiners have scored spectacularly well on the in-house annual proficiency tests conducted by Mr. Meagher and his fellow supervisors from 1995 to date. (The testimony of Mr. Smith with respect to the CTS tests prepared for certain personnel (such as Mr.

Meagher and his fellow FBI supervisors) at numerous forensic laboratories, while of some interest, added little to the government's case.) The evident theory of the government's demonstration was that, in the absence of actual data on rate of error, proficiency test scores of those who would be expert witnesses should be taken as a surrogate form of proof: if certified examiners rarely make a mistake on ACE-V proficiency tests, it stands to reason (so the theory would have it) that they rarely make a mistake when presenting ACE-V testimony in court.[8] To rebut the government's proof, the defense witnesses undertook to demonstrate that the proficiency tests were inadequate. Ms. Arvizu and Dr. Haber, knowing nothing about fingerprints but a good deal about skills-testing, gave pertinent testimony. But the full weight of the defense case rested with Mr. Bayle, a fingerprint specialist as knowledgeable and experienced as Mr. Meagher. In Mr. Bayle's view, the internal proficiency tests presented little challenge, principally because (a) the latent prints in the tests were, by and large, of substantially greater clarity than one would normally harvest from a crime scene, and (b) the latent

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[8]The testimony with respect to FBI proficiency tests may also be taken as countering certain defense evidence, adduced on the *Mitchell* record (Def. Exhibits 2 and 3), referred to in footnote 24 of the January 7 opinion – evidence which seemed to show poor-to-mediocre results on proficiency tests taken in 1995 and 1998, and with respect to which the footnote opined that "these proficiency examination results may be taken as somewhat suggestive of practitioner error." But since it appears that those who took the proficiency tests referred to in the footnote were not FBI fingerprint examiners, any suggested relation between those test results and possible practitioner error would have no bearing on the fingerprint identification capabilities of FBI examiners.

prints in the tests included far fewer instances of non-identifiability than an examiner would routinely meet up with. "If I gave my experts these tests," said Mr. Bayle, "they'd fall about laughing." The government did get Mr. Bayle to acknowledge that one of the latent prints that is to figure in the upcoming trial is of very high clarity – a clarity exceeding that of most of the test latent prints. But that single example did not, in my view, blunt the larger point made by Mr. Bayle. On the record made before me, the FBI examiners got very high proficiency grades, but the tests they took did not.

The defense witnesses succeeded in raising real questions about the adequacy of the proficiency tests taken annually by certified FBI fingerprint examiners. It may be that further inquiry by qualified forensic specialists and persons versed in skills-testing will answer those questions in the FBI's favor. But on the present record I conclude that the proficiency tests are less demanding than they should be. To the extent that this is the case, it would appear that the tests can be of little assistance in providing the test makers with a discriminating measure of the relative competence of the test takers. But the defense witnesses offered not a syllable to suggest that certified FBI fingerprint examiners as a group, or any individual examiners among them, have not achieved at least an *acceptable* level of competence. The record shows that over the years there have been at least a few instances in which fingerprint examiners, here and abroad, have made identifications that have turned out to be erroneous. But Mr. Meagher knew of no

erroneous identifications attributable to FBI examiners. Defense counsel contended that such non-knowledge does not constitute proof that there have been no FBI examiner errors. That is true, but nothing in the record suggests that the obverse is true. It has been open to defense counsel to present examples of erroneous identifications attributable to FBI examiners, and no such examples have been forthcoming. I conclude, therefore, on the basis of the limited information in the record as expanded, that there is no evidence that the error rate of certified FBI fingerprint examiners is unacceptably high.

(ii) "standards controlling the technique's operation":

The January 7 opinion found that three aspects of ACE-V manifested an absence of generally accepted controlling standards: (a) there appeared to be no agreed qualification standards for fingerprint examiners; (b) jurisdictions varied widely with respect to the minimum number of Galton points required for finding a "match"; (c) the ultimate "evaluation" judgment was termed "subjective." On reviewing these issues on the basis of the expanded record I reach the following conclusions:

(a) Whatever may be the case for other law enforcement agencies, the standards prescribed for qualification as an FBI fingerprint examiner are clear: To be hired by the FBI as a fingerprint trainee, one must be a college graduate, preferably with some training in one of the physical sciences; to become a certified fingerprint examiner, the trainee must complete the FBI's two-year in-house training program which winds up with a

three-day certifying examination. The uniformity and rigor of these FBI requirements provide substantial assurance that, with respect to certified FBI fingerprint examiners, properly controlling qualification standards are in place and are in force.

(b) As previously noted, the *Mitchell* record pointed to wide disagreements, from jurisdiction to jurisdiction, with respect to the minimum number of Galton points required to permit an examiner to find a "match": sixteen points in the United Kingdom, twelve in Australia; no minimum number in Canada or in FBI fingerprint identification testimony in the United States. The absence of a Galton minimum under FBI auspices, as against maintenance of a high Galton threshold in the United Kingdom, the jurisdiction whose police first systematized fingerprint identification for law enforcement purposes, could be perceived as troublesome – *i.e.*, connoting a lack of rigor in FBI standards. However, it appears that the July 7, 1999 *Mitchell* testimony with respect to the United Kingdom did not accurately reflect the then state of United Kingdom law and is now entirely out of date.

The *Mitchell* testimony failed to take account of a leading case decided some two months earlier – *Regina v. Buckley,* 143 SJ LB 159 (April 30, 1999), in which the Court of Appeal (Criminal Division) stated that "[i]f there are fewer than eight similar ridge characteristics, it is highly unlikely that a judge will exercise his discretion to admit such evidence and, save in wholly exceptional circumstances, the prosecution should not seek

to adduce such evidence," whereas "[i]f there are eight or more similar ridge characteristics, a judge may or may not exercise his or her discretion in favour of admitting the evidence." The Court of Appeal then proceeded to list elements that should inform the trial judge's exercise of discretion:

> How the discretion is exercised will depend on all the circumstances of the case, including in particular:
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> (i) the experience and expertise of the witness;
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> (ii) the number of similar ridge characteristics;
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> (iii) whether there are dissimilar characteristics;
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> (iv) the size of the print relied on, in that the same number of similar ridge characteristics may be more compelling in a fragment of print than in an entire print; and
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> (v) the quality and clarity of the print on the item relied on, which may involve, for example, consideration of possible injury to the person who left the print, as well as factors such as smearing or contamination.
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> In every case where fingerprint evidence is admitted, it will generally be necessary, as in relation to all expert evidence, for the judge to warn the jury that it is evidence opinion only, that the expert's opinion is not conclusive and that it is for the jury to determine whether guilt is proved in the light of all the evidence.

Id. Notably, the *Buckley* opinion prefaced its holding by succinctly narrating the history of

English fingerprint identification jurisprudence – with special reference to changing standards with respect to minimum numbers of "similar ridge characteristics" (what we know as "Galton points). Excerpts from that history follow:

> It has long been known that fingerprint patterns vary from person to person and that such patterns are unique and unchanging throughout life. As early as 1906, in R v Castleton 3 Cr App R 74, a conviction was upheld which depended solely on identification by fingerprints. At that time there were no set criteria or standards. But, gradually, a numerical standard evolved and it became accepted that once 12 similar ridge characteristics could be identified, a match was proved beyond all doubt.
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> In 1924, the standard was altered by New Scotland Yard, but not by all other police forces, so as to require 16 similar ridge characteristics. That alteration was made because, in 1912, a paper had been published in France by a man called Alphonse Bertillon. It was on the basis of his paper that the 16 similar ridge characteristics standard was adopted. However, in recent times, the originals of the prints used by Bertillon have been examined and revealed conclusively to be forgeries. It is therefore apparent that the 16 point standard was adopted on a false basis.
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> * * * *
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> During the passage of time, there have, of course, in this area, as in the realms of much other expert evidence, been developments in knowledge and expertise. Of course, in practice, many marks left at the scene of a crime are not by any means perfect; they may be only partial prints; they may be smudged or smeared or contaminated. However, a consensus developed between experts that considerably fewer than 16 ridge characteristics would establish a match beyond

any doubt. Some experts suggested that eight would provide a complete safeguard. Others maintained that there should be no numerical standard at all. We are told, and accept, that other countries admit identifications of 12, 10, or eight similar ridge characteristics and, in some other countries, the numerical system has been abandoned altogether.

* * * *

. . . . In 1988, the Home Office and ACPO (The Association of Chief Police Officers) commissioned a study by Drs Evett and Williams into fingerprint standards. They recommended that there was no scientific, logical or statistical basis for the retention of any numerical standard, let alone one that required as many as 16 points of similarity.

In consequence, ACPO set up a series of committees to consider regularising the position and to ensure that, if fingerprint identifications based on less than 16 points were to be relied upon, there would be clear procedures and protocols in place to establish a Nationwide system for training of experts to an appropriate level of competence, establishment of management procedures for the supervision, recording and monitoring of their work and the introduction of an independent and external audit to ensure the quality of the work done. In 1994 an ACPO report produced under the chairmanship of the Deputy Chief Constable of Thames Valley Police recommended changing to a non numerical system and the Chief Constable's Council endorsed that recommendation in 1996. Further discussions followed between the heads of all the Fingerprint Bureau in this country and ACPO. In consequence, a Fingerprint Evidence Project Board was established with a view to studying exhaustively the systems needed before moving nationally to a non numerical system. The first report of that body was presented on 25 March 1998 and recommended that the national standard be changed entirely to a non numerical

> system: a target date of April 2000 was hoped for, by which the necessary protocols and procedures would be in place. If and when that occurs, it may be that fingerprint experts will be able to give their opinions unfettered by any arbitrary numerical thresholds. The courts will then be able to draw such conclusions as they think fit from the evidence of fingerprint experts.
>
> It is to be noted that none of this excellent work by the police and by fingerprint experts can be regarded as either usurping the function of a trial judge in determining admissibility or changing the law as to the admissibility of evidence.

As the *Buckley* opinion pointed out, the Fingerprint Evidence Project Board recommended in 1998 that by April of 2000 "the national standard be changed entirely to a non numerical system." April of 2000 turned out to be too ambitious a target date. But the projected change – based upon the consensus referred to in *Buckley* that there is no scientific basis for insisting on any given minimum of "similar ridge characteristics" – was accomplished as of June 11, 2001. The new regime was described in some detail in the House of Lords on February 25, 2002, in answers given by Lord Rooker on behalf of Her Majesty's Government to questions that had previously been 'put down,' in conformity with Parliamentary practice, by Lord Lester of Herne Hill:[9]

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[9]Lord Lester of Herne Hill (Anthony Lester QC), a leading barrister and also a leading public law scholar (*see*, e.g., LORD LESTER OF HERNE HILL QC & DAVID PANNICK QC, HUMAN RIGHTS LAW AND PRACTICE (1999)), has been a good friend of the undersigned for some thirty years, and so he seemed the logical person to ask about the current state of English fingerprint jurisprudence; as a result of that query I

Lord Lester of Herne Hill asked Her Majesty's Government:

What standards are prescribed for fingerprint identification to be used in evidence in criminal trials. [H.L. 2699]

Lord Rooker: The current standard prescribed for fingerprint identification is the non-numerical system which was introduced from 11 June 2001. This was after extensive consultation with the Lord Chancellor, the Attorney-General and other criminal justice system stakeholders.

Although there is no set numerical standard to be satisfied before experts make a decision that a mark or impression left at a crime scene and a fingerprint were made by the same person, there are objective criteria which must be satisfied and must be capable of demonstration, eg in a court, before any such decision is made. There are also prescribed verification procedures which must be adhered to at all times before that decision is communicated to an investigating police officer and eventually to the courts.

Lord Lester of Herne Hill asked Her Majesty's Government:

What qualifications are prescribed for individuals to become fingerprint examiners for the purpose of giving evidence of identity in criminal trials. [H.L. 2700]

Lord Rooker: All fingerprint experts commence their

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learned about *Buckley* and about the going into force on June 11, 2001 of the new fingerprint identification regime. What I certainly did not anticipate was that Lord Lester would undertake to enlarge his (and, by extension, my, and, by further extension, counsels') knowledge base by formally addressing questions to Her Majesty's Government. This is a method of legal research to which I could cheerfully become accustomed. And it was gratifying to be able to present to counsel and place on the record, in a Philadelphia courtroom on February 26, 2002, the research results provided by Lord Rooker to Lord Lester in the House of Lords on February 25, 2002.

training with a foundation course of four weeks. They then need to complete five modules which should normally be completed within 12 to 18 months and are followed by a short assessment. Twelve months later, after a consolidation of skills and work experience on the job, they attend a two-week advanced course in which the emphasis is on court presentation and preparation of evidence. Even after the advanced course has been passed successfully, which is usually not less than three years after entering the training programme, the person will be permitted to attend court to give expert testimony only with the approval of their head of fingerprint bureau and chief constable.

Lord Lester of Herne Hill asked Her Majesty's government:

Whether they consider that the determination that a fingerprint examiner makes when comparing a latent fingerprint with a known fingerprint for the purpose of establishing identity in criminal proceedings is a subjective determination in that no objective standard has been scientifically tested and no subjective process has been objectively tested; and, if not, what is the objective standard that is applied. [H.L. 2701]

Lord Rooker: 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. It is the method which is of universal application by practitioners on behalf of either prosecution or defense, and has been in use from the first application of fingerprint/mark identification. Once the first fingerprint examiner has reached a conclusion that the mark or impression at the crime scene and a fingerprint have been made by the same person, that decision is subject to verification by two other fingerprint experts before the investigating officer is informed of the result. Any

> identification evidence presented in court will have been subject to these procedures.
>
> Instructing solicitors or barristers representing defendants can and regularly do ask that finger identification evidence be subjected to scrutiny by nominated fingerprint experts from outside the Police Service. Details of those experts can be obtained from registers maintained by the Law Society, the Expert Witness Institute or through the services of private companies who undertake independent forensic examinations. This is an external examination of Police Service practice and procedures which has been on going for many years.

The answers of Lord Rooker to the questions put by Lord Lester establish that there is no longer any significant lack of harmony between the FBI's fingerprint identification standards and those that prevail in English courtrooms. Further, the *Buckley* description of how, over the course of years, a consensus was arrived at in the United Kingdom that there was no scientific rationale for insisting on some minimum number of "similar ridge characteristics," offers weighty corroboration of the FBI's position as articulated by Mr. Meagher from the witness stand. In sum, I conclude that the minimum-Galton-point issue discussed in the January 7 opinion is now moot. Though a number of other countries may still observe Galton point minima, the fact that England has, after many years of close study, moved to the position which prevails in Canada and which the FBI has long subscribed to, leads me to conclude that there is sufficient uniformity within the principal common law jurisdictions to satisfy *Daubert*.

(iii) In the January 7 opinion, the aspect of the *Daubert* inquiry into "the existence and maintenance of standards controlling the technique's operation," 509 U.S. at 594, that was of greatest concern was the acknowledged subjectivity of the fingerprint examiner's stated opinion that a latent print and a known exemplar are both attributable to the same person. Government witnesses Meagher and Ashbaugh both described the "match" opinion as "subjective," and defense witness Dr. David Stoney agreed. I concluded that "[w]ith such a high degree of subjectivity, it is difficult to see how fingerprint identification – the matching of a latent print to a known print – is controlled by any clearly describable set of standards to which most examiners prescribe." On further reflection, I disagree with myself. I think my assessment stopped with the word "subjective" when I should have gone on to focus on the process the word describes. There are, to be sure, situations in which the subjectiveness of an opinion properly gives rise to reservations about the opinion's reliability.[10] But there are many situations in which an expert's manifestly subjective opinion (an opinion based, as Sergeant Ashbaugh

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[10] *Kumho Tire* may be regarded as one such situation. The Supreme Court, in the course of discussing several factors which might very properly have entered into the district court's decision (a decision the Supreme Court deemed "reasonable," 526 U.S. at 153) not to admit the testimony of plaintiff's expert in tire failure analysis, observed that the district court's "concerns might have been augmented by Carlson's repeated reliance on the 'subjective[ness]' of his mode of analysis in response to questions seeking specific information regarding how he could differentiate between a tire that actually had been overdeflected and a tire that merely looked as though it had been." 526 U.S. at 155.

said of the opinions of fingerprint examiners, on "one's personal knowledge, ability and experience") is regarded as admissible evidence in an American courtroom: a forensic engineer's testimony that a bottom-fire nailer's defective design caused an unintended "double-fire," resulting in injury to the plaintiff, *Lauzon v. Senco Products*, 270 F.3d 681 (8th cir. 2001); an electrical engineer's testimony that fire in a clothes drier was caused by a thermostat malfunction, *Maryland Casualty Co. v. Therm-O-Disc*, 137 F.3d 780 (4th Cir., 1998); a marketing researcher's testimony as to consumer interpretations of advertising claims, the testimony being based on a market survey of consumers. *Southard Sod Farms v. Stover Seed Co.*, 108 F.3d 1134 (9th Cir., 1997)."[11] In each instance the expert is operating within a vocational framework that may have numerous objective components, but the expert's ultimate opining is likely to depend in some measure on experiential factors that transcend precise measurement and quantification. As compared with the degree of subjectiveness inherent in one or more of the foregoing examples of

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[11]As to expert testimony about handwriting, note the limitations imposed by the district court in *United States v. Hines*, 55 F. Supp. 2d 62 (D. Mass. 1999), quoted from in the January 7 opinion; *but cf. United States v. Velasquez*, 64 F. 3d 844 (3d Cir. 1995). The handwriting case which was the mother of all handwriting cases was the *Howland Will Case (Robinson v. Mandell, 20 F. Cas.* 1027 (Cir. Ct. D. Mass. 1868)), in which Hetty Howland Robinson (later, Hetty Howland Robinson Green) sought a determination that she was the rightful heir of her aunt, Sylvia Ann Howland, under a will two copies of whose "second page" were signed with the aunt's name – by signatures asserted by the estate's executor to be forgeries. The fascinating tale of the trial was compellingly told by Louis Menand in *She Had To Have It*, THE NEW YORKER, April 23 & 30, 2001, p. 62, and retold by Menand in a chapter of THE METAPHYSICAL CLUB (2001).

expert opinion testimony, the subjective ingredients of opinion testimony presented by a competent fingerprint examiner appear to be of substantially more restricted compass. The defined characteristics of such testimony are illumined by the following exchange in the House of Lords on March 11, 2002:

> **Lord Lester of Herne Hill** asked Her Majesty's Government:
>
> Further to the Written Answers by Lord Rooker on 25 February (*WA 172-73*), what are the objective criteria and prescribed verification procedures for fingerprint identification used in evidence in criminal trials. [HL3041]
>
> **Lord Rooker**: To determine whether or not a crime scene mark and a fingerprint impression have been made by the same person, the fingerprint examiner must carry out a process of analysis, comparison and evaluation by determining whether in each impression friction ridge features are of a compatible type; they are in the same relative positions to each other in the ridge structure; they are in the same sequence; there is sufficient quantitative and qualitative detail in each in agreement; and there are any areas of apparent or real discrepancy. The examiner must address all these issues before declaring that both mark and impression have been made by the same person.
>
> The next stage is verification. The examiner's conclusion must be verified independently by two other officers who must both be fingerprint experts. Any mark/impression identification notified to investigating officers and presented in court will have, and must have, been subject to the above procedures.

In sum, contrary to the view expressed in my January 7 opinion, I am now persuaded that

the standards which control the opining of a competent fingerprint examiner are sufficiently widely agreed upon to satisfy *Daubert*'s requirements.

(3) Completing the *Daubert/Kumho Tire* Assessment

Having re-reviewed the applicability of the *Daubert* factors through the prism of *Kumho Tire,* I conclude that the one *Daubert* factor which is both pertinent and unsatisfied is the first factor – "testing." *Kumho Tire,* as I have noted above, instructs district courts to "consider the specific factors identified in *Daubert* where they are reasonable measures of the reliability of expert testimony." 526 U.S. at 152. Scientific tests of ACE-V – *i.e.*, tests in the *Daubert* sense – would clearly aid in measuring ACE-V's reliability. But, as of today, no such tests are in hand. The question, then, is whether, in the absence of such tests, a court should conclude that the ACE-V fingerprint identification system, as practiced by certified FBI fingerprint examiners, has too great a likelihood of producing erroneous results to be admissible as evidence in a courtroom setting. There are respected authorities who, it appears, would render such a verdict. In a recent OpEd piece in *The New York Times*, Peter Neufeld and Barry Scheck, who direct Cardozo Law School's Innocence Project, have this to say:

> No one doubts that fingerprints can, and do, serve as a highly discriminating identifier, and digital photographic enhancement and computer databases now promise to make fingerprint identification more useful than ever before. But to what degree incomplete and imperfect fingerprints can be

> reliably used to identify individuals requires more scientific examination. . . . Forensic science has rarely been subjected to the kind of scrutiny and independent verification applied to other fields of applied and medical science. Instead, analysts testifying in courts about fingerprint analysis, bite marks, handwriting comparisons and the like have often argued that in their field the courtroom itself provided the test. . . . As the National Institutes of Health finance basic scientific research, the National Institute of Justice should put money into verification and validation before a technique of identification is admitted into court.[12]

As explained in Part II of this opinion, I have found, on the record before me, that there is no evidence that certified FBI fingerprint examiners present erroneous identification testimony, and, as a corollary, that there is no evidence that the rate of error of certified FBI fingerprint examiners is unacceptably high. With those findings in mind, I am not persuaded that courts should defer admission of testimony with respect to fingerprinting – which Professors Neufeld and Scheck term "[t]he bedrock forensic identifier of the 20th century" – until academic investigators financed by the National Institute of Justice have made substantial headway on a "verification and validation" research agenda. For the National Institute of Justice, or other institutions both public and private, to sponsor such research would be all to the good. But to postpone present in-court utilization of this "bedrock forensic identifier" pending such research would be

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[12] *Will Fingerprinting Stand Up in Court?*, N.Y. TIMES, March 9, 2002, § A, p. 15, col. 1. The stated point of departure for the OpEd piece was the January 7 opinion in this case.

to make the best the enemy of the good.

IV

English and American trial courts have accepted fingerprint identification testimony for almost a century. The first English appellate endorsement of fingerprint identification testimony was the 1906 opinion in *Rex v. Castleton*, 3 Cr. App. R. 74. In 1906 and 1908, Sergeant Joseph Faurot, a New York City detective who had in 1904 been posted to Scotland Yard to learn about fingerprinting, used his new training to break open two celebrated cases: in each instance fingerprint identification led the suspect to confess[13] – important early indices of the reliability of fingerprint identification

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[13]Sergeant Faurot's two cases are described by Colin Beavan in FINGERPRINTS:

> Towards midnight on April 16, 1906, Detective Sergeant Joseph Faurot of the New York City Police was on patrol by the luxurious Waldorf-Astoria hotel, when he decided to make a quick tour of the Waldorf's corridors to see if the wealthy guests had attracted any thieves. By sheer luck, on the third floor, Faurot came across a British man sneaking out of someone else's suite in stockinged feet. Faurot arrested the Brit, who identified himself as James Jones and insisted that he was a gentleman of the highest social standing.
>
> At police headquarters, protesting that there was a perfectly innocent explanation for his behavior, Jones demanded his release. Faurot's colleagues advised him to accept Jones's explanation and let him go, or risk the disciplinary consequences of the British Consul's potential involvement. But Faurot, on a hunch, charged Jones as a hotel thief, put him in a cell, and sent his fingerprints to

Scotland Yard, requesting a check for identification and possible criminal records. If Jones was the gentleman he said he was, Faurot would be in a lot of trouble. Until then, the Brit would have to dine on bread and water while Faurot waited for his reply.

Before being transferred to sidewalk duty, Faurot had worked in the criminal records office at police headquarters, unsuccessfully trying to establish a workable identification system based on anthropometry. In 1904, when word of the Yard's fingerprint success reached New York, Police Commissioner William McAdoo shipped Faurot to London to study the new science. Faurot came home a zealous fingerprint convert, but he was not allowed by McAdoo's successor to set up a system. Nevertheless, Faurot's experience at London's Fingerprint Branch led him to send "Jones's" fingerprints to the Yard.

Fourteen days later, the Yard sent word that the prints matched those of Daniel Nolan, a known hotel thief with twelve convictions to his credit, who was wanted for stealing £800 from the house of a famous writer. The Yard's letter included two photographs of Nolan, the spitting image of the prisoner. Faurot had his man and, confronted with the evidence, Nolan admitted his true identity, and was sentenced to seven years in prison. Faurot's fingerprint identification, New York City's first, made a big splash across the front page of the *New York Evening Post*. "Police Learn Lesson from India," the headline proclaimed.

Faurot's second, more important fingerprint victory came in 1908, after the bloody body of Nellie Quinn was found in a rooming house on East 118th Street. Under Quinn's bed, Faurot found a bottle covered with fingerprints that did not belong to the girl. He suspected he might find a match among one of Quinn's "man friends," each of whom

techniques when responsibly practiced. The first American court of last resort to consider the admissibility of such evidence was the Illinois Supreme Court: in *People v. Jennings*, 96 N.E. 1077 (1911), the court concluded that such evidence was admissible and affirmed appellant's murder conviction. The identification testimony in *Jennings* came from William M. Evans and Michael P. Evans of the Chicago Police Department's Bureau of Identification; Inspector Edward Foster of the Dominion Police in Ottawa, who "had studied the subject at Scotland Yard"; and Mary E. Holland, who "began investigation of finger print impressions in 1904, studied at Scotland Yard in 1908, passed an examination on the subject, and started the first bureau of identification in this country for the United States government at Washington." *Id.* at 1082. The court ruled:

> From the evidence in this record we are disposed to hold that the classification of finger print impressions and their method of identification is a science requiring study. While some of the reasons which guide an expert to his conclusions are such as may be weighed by any intelligent person with good eyesight from such exhibits as we have here in the record, after being pointed out to him by one versed in the study of finger prints, the 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

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> Faurot tracked down and fingerprinted, until he came across George Cramer, a plumber. Cramer's prints matched those on the bottle. Confronted with the fingerprint evidence, Cramer confessed that he had killed the girl in a drunken rage.

Pp. 190-191.

> and jury were properly aided by witnesses of peculiar and special experience on this subject.

Id. at 1083.

The *Jennings* opinion and Sergent Faurot's cases illustrate the extent to which American fingerprint identification programs depended, in their infancy, on lessons learned from Scotland Yard.[14]

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[14]The primacy of English endeavors is implicit in the succinct four paragraphs in which the fabled Eleventh Edition of the Encyclopedia Britannica, in 1913, gave fingerprint identification its blessing:

> The use of finger-prints as a system of identification (*q.v.*) is of very ancient origin, and was known from the earliest days in the East when the impression of his thumb was the monarch's sign-manual. A relic of this practice is still preserved in the formal confirmation of a legal document by "delivering" it as one's "act and deed." The permanent character of the finger-print was first put forward scientifically in 1823 by J.E. Purkinje, an eminent professor of physiology, who read a paper before the university of Breslau, adducing nine standard types of impressions and advocating a system of classification which attracted no great attention. Bewick, the English draughtsman, struck with the delicate qualities of the lineation, made engravings of the impression of two of his fingertips and used them as signatures for his work. Sir Francis Galton, who laboured to introduce finger-prints, points out that they were proposed for the identification of Chinese immigrants when registering their arrival in the United States. In India, Sir William Herschel desired to use finger-prints in the courts of the Hugli district to prevent false personation and fix the identity upon the executants of documents. The Bengal police under the wise administration of Sir E. R. Henry, afterwards chief

commissioner of the London metropolitan police, usefully adopted finger-prints for the detection of crime, an example followed in many public departments in India. A transfer of property is attested by the thumb-mark, so are documents when registered, and advances made to opium-growers or to labourers on account of wages, or to contracts signed under the emigration law, or medical certificates to vouch for the persons examined, all tending to check the frauds and impostures constantly attempted.

The prints depend upon a peculiarity seen in the human hand and to some extent in the human foot. The skin is traversed in all directions by creases and ridges, which are ineradicable and show no change from childhood to extreme old age. The persistence of the markings of the finger-tips has been proved beyond all question, and this universally accepted quality has been the basis of the present system of identification. The impressions, when examined, show that the ridges appear in certain fixed patterns, from which an alphabet of signs or a system of notation has been arrived at for convenience of record. As the result of much experiment a fourfold scheme of classification has been evolved, and the various types employed are styled "arches," "loops," "whorls" and "composites." There are seven subclasses, and all are perfectly distinguishable by an expert, who can describe each by its particular symbol in the code arranged, so that the whole "print" can be read as a distinct and separate expression. Very few, and the simplest, appliances are required for taking the print – a sheet of white paper, a tin slab, and some printer's ink. Scars or malformations do not interfere with the result.

The unchanging character of the finger-prints has repeatedly helped in the detection of crime. We may quote the case of the thief who broke into a residence and among other things helped himself to a glass of wine, leaving two

In due course – as much of the testimony of Stephen Meagher, David Ashbaugh and Allan Bayle, and also the pronouncements of the Court of Appeal in *Buckley* and of Lord Rooker in the House of Lords, suggest – the techniques of North American fingerprint identification specialists appear to have reached a level of sophistication paralleling that of their English counterparts.

The opinion of the Court of Appeals in *Buckley* adumbrated the fingerprint identification regime which Her Majesty's Government has now put into force – an ACE

> finger-prints upon the tumbler which were subsequently found to be identical with those of a notorious criminal who was arrested, pleaded guilty and was convicted. Another burglar effected entrance by removing a pane of glass from a basement window, but, unhappily for him, left his imprints, which were referred to the registry and found to agree exactly with those of a convict at large; his address was known, and when visited some of the stolen property was found in his possession. In India a murderer was identified by the brown mark of a blood-stained thumb he had left when rummaging amongst the papers of the deceased. This man was convicted of theft but not of the murder.
>
> The keystone to the whole system is the central office where the register or index of all criminals is kept for ready reference. The operators need no special gifts or lengthy training; method and accuracy suffice, and abundant checks exist to obviate incorrect classification and reduce the liability to error.

10 ENCYC. BRIT. 376 (1913).

V regime which, stripped of any required minimum number of Galton points, corresponds almost exactly with the ACE-V procedures followed by the FBI.[15] It is to be expected that English trial judges, in accordance with *Buckley*, (1) will require a showing (or an agreement of the parties) that (a) a fingerprint examiner called as an expert witness is properly credentialed and (b) any prints presented in evidence will, at least arguably, possess the characteristics referred to by Lord Rooker as predicates for determining the existence, or the non-existence, of a match; and (2) will, subject to such a showing (or agreement of the parties), permit the examiner to give testimony before the fact-finder. The ACE-V regime that is sufficiently reliable for an English court is, I conclude, a regime whose reliability should, subject to a similar measure of trial court oversight, be regarded by the federal courts of the United States as satisfying the requirements of Rule 702 as the Supreme Court has explicated that rule in *Daubert* and *Kumho Tire*.

Conclusion

Motions for reconsideration are not favorites of the law. It is an important feature of a judge's job to arrive at a decision and then move on to the next issue to be decided, whether in the pending case or the case next to be addressed on the judge's docket. This

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[15]One seeming difference between the two systems, which should be noted but may not be of great moment, is that the ACE-V procedure described by Lord Rooker calls for verification by two examiners, while the FBI's ACE-V procedure apparently does not, at least as a formal matter, require more than one verification in ordinary circumstances.

judicial convention has special force for trial judges, for if a trial judge's ruling is mistaken it can, and if need arises will, be corrected on appeal. But there are occasions when a motion for reconsideration has its uses. This is such an occasion.

By agreeing to reconsider my prior ruling, I had the opportunity to acquire information not previously presented, or that I had not fully digested, on the record made in another courtroom more than two years ago. Through the efforts of government counsel, Stephen Meagher, heretofore a name in a transcript, became a real person, and through his live testimony I was able to get a substantially more rounded picture of the procedure – the FBI's ACE-V process of fingerprint identification – whose degree of reliability for expert evidentiary purposes it is my responsibility to determine. And, through the efforts of defense counsel, I had the opportunity to learn from Allan Bayle, a senior English fingerprint specialist, that one aspect of the FBI's system – the annual proficiency testing of FBI fingerprint examiners – may have shortcomings. But I also learned from Allan Bayle's testimony two more important truths: namely, that the ACE-V process employed by New Scotland Yard is essentially indistinguishable from the FBI's ACE-process, and that this formidably knowledgeable and experienced veteran of the Yard – the legendary and actual source of the systematic and comprehensive utilization of fingerprint identification as an instrument of law enforcement – believes in ACE-V without reservation. Reopening the record also led me to educate myself about

the legal framework with respect to the receipt in evidence of expert fingerprint identification testimony that has just been put into effect in England by Her Majesty's Government. That new legal framework – which departs very significantly from the regime I had read about in the *Mitchell* record – turns out to be substantially the same as the legal framework that our government, in the case at bar, has contended is appropriate for FBI fingerprint identification evidence.

Based on the foregoing considerations, I have concluded that arrangements which, subject to careful trial court oversight, are felt to be sufficiently reliable in England, ought likewise to be found sufficiently reliable in the federal courts of the United States, subject to similar measures of trial court oversight. In short, I have changed my mind. "Wisdom too often never comes, and so"– as Justice Frankfurter admonished himself and every judge – "one ought not to reject it merely because it comes late." *Henslee v. Union Planters Bank*, 335 U.S. 595, 600 (1949) (Frankfurter, J., dissenting); *cf.*, *Wolf v. Colorado*, 338 U.S. 25, 47 (1949) (Rutledge, J., dissenting).

Accordingly, in an order filed today accompanying this opinion, this court GRANTS the government's motion for reconsideration of the January 7 order; VACATES the January 7 order; DENIES the defendants' Motion to Preclude the United States from Introducing Latent Fingerprint Evidence; and GRANTS the government's Motion in Limine to Admit Latent Prints.

At the upcoming trial, the presentation of expert fingerprint testimony by the government, and the presentation of countering expert fingerprint testimony by any of the defendants (*see United States v. Velasquez*, 64 F.3d 844, 848-852 (3d Cir. 1995)), will be subject to the court's oversight prior to presentation of such testimony before the jury, with a view to insuring that any proposed expert witness possesses the appropriate expert qualifications and that fingerprints offered in evidence will be of a quality arguably susceptible of responsible analysis, comparison and evaluation.