

EXPERT QUALIFICATIONS & TESTIMONY

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- I. **FEDERAL EVIDENCE RULE 702** provides that a witness may qualify as an expert by reason of “knowledge, skill, experience, training, or education.”
 - A. **Fed. R. Evid.** 104(a)(determining qualifications is a matter for the trial court).
 - B. **Appeals.** Trial court’s decision is reviewable only for an abuse of discretion. *Hamling v. United States*, 418 U.S. 87, 108 (1974) (“[T]he District Court has wide discretion in its determination to admit and exclude evidence, and this is particularly true in the case of expert testimony.”); *Salem v. United States Lines Co.*, 370 U.S. 31, 35 (1962) (Trial judge has “broad discretion in the matter of the admission or exclusion of expert evidence, and his action is to be sustained unless manifestly erroneous.”).

- II. **RULES OF THUMB**
 - A. **Wigmore: witness’s** expertise “may have been attained, so far as legal rules go, in any way whatever; all the law requires is that it should have been attained.” 2 J. Wigmore, *Evidence* § 556, at 75 1 (Chadbourn rev. 1979).
 - B. **Fed. R. Evid. 702 advisory committee’s note:** “[T]he expert is viewed, not in a narrow sense, but as a person qualified by ‘knowledge, skill, experience, training or education.’ Thus within the scope of the rule are not only experts in the strictest sense of the word, e.g. physicians, physicists, and architects, but also the large group sometimes called ‘skilled’ witnesses, such as bankers or landowners testifying to land values.”
 - C. “[T]he rule uses the disjunctive, a person may qualify to render expert testimony in any one of the five ways listed: knowledge, skill, experience, training, or education.” *Kopf v. Skyrn*, 993 F.2d 374,377 (4th Cir. 1993).

- D. Academic degrees.** “Qualifications which may satisfy the requirements of Evid. R. 702 are multitudinous. . . . [T]here is no ‘degree’ requirement, *per se*. Professional experience and training in a particular field may be sufficient to qualify one as an expert.” State v. **Mack**, 653 N.E.2d 329 (Ohio 1995).
- E.** Expert need not be an “**outstanding practitioner** in the field in which he professes expertise.” United States v. Barker, 553 F.2d 1013, 1024 (6th Cir. 1977) . “An expert need not have certificates of training, nor memberships in professional organizations Comparisons between his professional stature and the stature of witnesses for an opposing party may be made by the jury, if it becomes necessary to decide which of two conflicting opinions to believe. But the **only** question for the trial judge who must decide whether or not to allow the jury to consider a proffered expert’s opinions is, ‘whether his knowledge of the subject matter is such that his opinion will most likely assist the trier of fact in arriving at the truth.’” *Id.*
- F. Similar qualifications** between experts testifying on the same issue are not required. United States v. Madoch, 935 F. Supp. 965,972 (N.D. Ill. 1996) (“[O]ne expert need not hold the exact same set of qualifications to rebut another expert’s testimony.... This Court need not analyze, as Defendant contends it should, whether a psychologist or psychiatrist is more qualified to testify as to the psychological condition of a patient at the time of the offense.”).
- G. Titles.** Expert’s qualifications should be based on the nature and extent of the witness’s knowledge and not on the witness’s “title.” Jenkins v. United States, 307 F.2d 637, 643-44 (D.C. Cir. 1962) (reversing trial court’s ruling that psychologists were not qualified to testify on the issue of insanity because they lacked medical training) (“[W]e must examine the reality behind the title ‘psychologist.’”).
- H. Criminals.** United States v. Williams, 81 F.3d 1434, 1441 (7th Cir. 1996) (“There was no pretense that he was impartial, or a member of a learned profession. Neither condition is required to qualify a person as an expert witness under the current rules of evidence.... There is not even a paradox in the suggestion that the biggest experts on crime are, often, criminals.”), cert. *denied*, 118 S. Ct. 723 (1998); United States v. Johnson, 575 F.2d 1347, 1360-61 (5th Cir. 1978) (experienced marijuana smoker qualified to testify that certain marijuana came from Colombia), cert. *denied*, 440 U.S. 907 (1979).
- I. Licensing** in a field is usually not determinative, but in one case, the court held that a witness not licensed to investigate fires under a state statute was not qualified to testify about the cause of a fire in an arson prosecution. People v. West, 264 Ill. App. 3d 176,636 N.E.2d 1239 (1994).

- J. Certification: Voiceprints.** United States v. Williams, 583 F.2d 1194, 1198 (2d Cir. 1978), *cert. denied*, 439 U.S. 1117 (1979) (“existence and maintenance of standards”, citing the certification procedures of the International Association of Voice Identification. **As the** National Academy of Sciences Report later noted, this Association “as presently constituted does not possess the broad base of representation usually considered appropriate and perhaps essential for a national certifying board.” National Research Council, *On the Theory and Practice of Voice Identification* 65 (1979). *Williams* cited in *Daubert*.
- K. Stipulation.** “We conclude that an offer by the State to stipulate to the qualifications of an expert witness called by the defendant is merely an offer unless accepted by the defendant. Absent such acceptance, the defendant has the right to present the witness’ qualifications to the jury.” State v. Colwell, 790 P.2d 430,434 (1990).

III. LAY & EXPERT TESTIMONY DISTINGUISHED

- A. Overlap.** “[T]he lay witness is using his opinion as a composite expression of his observations otherwise difficult to state, whereas the expert is expressing his scientific knowledge through his opinions.” Ladd, *Expert Testimony*, 5 **Vand. L. Rev.** 414,419 (1952). See *also* United States v. **Carlock**, 806 F.2d 535,552 (5th Cir. 1986) (“Unlike expert opinion, where the opinion is the product of applying special skill in some art, trade, or profession acquired apart from the case, lay opinion expresses a conclusion drawn from observations in circumstances where it is impractical, if possible at all, to recount the observed ‘factual’ components of the opinion. The common illustrations are an expression of opinion by a lay observer of a car’s speed or a person’s expression or emotional state (he was furious). Because these opinions draw upon the facts in the case itself, they are more easily confronted than are expert opinion, whose source is often extraneous to the case at trial. As such, receipt of lay opinion is much less likely to be prejudicial, especially where its role is cumulative and is not essential to the sufficiency of the evidence, as here.”), *cert. denied*, 480 U.S. 949 (1987).
- B. Blurring the line between lay and expert testimony.** “No longer is lay opinion testimony limited to areas within the common knowledge of ordinary persons. Rather, the individual experience and knowledge of a lay witness may establish his or her competence, without qualification as an expert, to express an opinion on a particular subject outside the realm of common knowledge.” United States v. Paiva, 892 F.2d 148, 157 (1st Cir. 1989).
- C. But see** United States v. Riddle, 103 F.3d 423,428 (5th Cir. 1997) (“However, with each new trial day the government pushed to squeeze as much as possible

from this 'lay witness.' The result is clear, certainly now, that during [the witness's] two-and-half days on the stand, he wielded his expertise as a bank examiner in a way that is incompatible with a lay witness.“).

- D. **Fed. R. Evid. 701 (1998 proposed amendment)** would clarify the distinction by adding a third requirement-“(c) not based on scientific, technical or other specialized knowledge.”
- E. **Discovery.** Federal Rule Criminal Procedure 16(a)(1)(E) requires pretrial disclosure of a summary of the expert's testimony. Classification of the evidence as lay opinion denies the adverse party the benefit of this rule. The prosecution should not “subvert” the expert discovery rule by offering expert opinion on drug trafficking as lay opinion testimony. *United States v. Figueroa-Lopez*, 125 F.3d 1241, 1246 (9th Cir. 1997), cert. denied, 1998 U.S. Lexis 3300.
- F. **Fed. R 704(b)** prohibits ultimate issues concerning an accused's mental condition. This provision does not apply to lay witnesses.

IV. FALSE CREDENTIALS

- A. Serologist testified that he had a master's degree in science, “whereas in fact he never attained a graduate degree.” *Doepel v. United States*, 434 A.2d 449,460 (D.C. App.), cert. **denied**, 454 U.S. 1037 (1981).
- B. Death penalty vacated when it was discovered that a prosecution expert, who “had testified in many cases,” had lied about her professional qualifications: “she had never fulfilled the educational requirements for a laboratory technician.” *Commonwealth v. Mount*, 435 Pa. 419, 422, 257 A.2d 578, 579 (1969).
- C. Serologist testified falsely about his academic credentials. *Maddox v. Lord*, 8 18 F.2d 1058, 1062 (2d Cir. 1987).
- D. Psychologist convicted of perjury for claiming he had a doctorate during the Ted Bundy trial. *Kline v. State*, 444 So.2d 1102 (Fla. Ct. App. 1984).
- E. Arson expert testified falsely about his academic credentials. *People v. Alfano*, 95 Ill. App.3d 1026, 1028-29, 420 N.E.2d 1114, 1116 (1983).
- F. Lab technician convicted of perjury for misrepresenting his educational background. *State v. Elder*, 199 Kan. 607,433 P.2d 462 (1967).

- G. Lab analyst pleaded guilty to 8 counts of falsification for misstating his academic credentials. *State v. DeFronzo*, 394 N.E.2d 1027, 1030 (C.P. 1978).
- H. Firearms expert took some credit for “the development of penicillin, the ‘Pap’ smear, and to top it all off, the atomic bomb.” Starrs, “Mountebanks Among Forensic Scientists,” in 2 *Forensic Science Handbook* 1, 7, 20-29 (R. Saferstein ed. 1988). See also Saks, *Prevalence and Impact of Ethical Problems in Forensic Science*, 34 *J. Forensic Sci.* 772 (1989) (listing other cases).

V. QUALIFICATIONS: LACK OF EXPERTISE

- A. **Drug Expert with 43 years** experience and more than 2500 court appearances: “[The expert] admitted that not only did he not have a college degree, but that he had never even finished high school. He claimed that heroin was an alkaloid, which it is, but did not remember what an alkaloid was. He could not draw the structure of heroin or benzene, one of the commonest and simplest organic molecules. . . . In addition, he could not explain any single chemical reaction about which he had testified.” Stein, Laessig & Indriksons, *An Evaluation of Drug Testing Procedures Used by Forensic Laboratories and the Qualifications of Their Analysts*, 1973 *Wis. L. Rev.* 727, 728.
- B. **Neutron Activation Analysis**
 - 1. **Ward v. State**, 427 S.W.2d 876 (Tex. Crim. App. 1968)(witness employed by a city crime laboratory accepted as an expert). Comment, *The Evidentiary Uses of Neutron Activation Analysis*, 59 *Cal. L. Rev.* 997, 1009, 1036 n.2 16 (1971)(questioning the qualifications of the expert in *Ward as well as his conclusions*).
 - 2. Also, the qualifications necessary to conduct NAA differ from the qualifications necessary to interpret the results of the analysis. The “qualifications of the expert as an analytical chemist do not necessarily establish his competence to interpret the legal relevance of his measurements.” *Id.*
- C. **Questioned Document Examiners.** *United States v. Bourgeois*, 950 F.2d 980, 986 (5th Cir. 1992), upheld a trial court’s exclusion of the testimony of an “expert” who was not a member of the American Board of Forensic Document Examiners, who practiced graphotherapy in addition to handwriting comparison, and who acquired a masters degree in graphoanalysis and a Ph.D. in metaphysics and religion by *correspondence*.

D. Hypnosis Expert

1. **Gee v. State, 662 P.2d 103** (Wyo. 1983): Even the prosecutor had difficulty in listing the expert's qualifications. The majority held that the hypnotist did not need any qualifications. The dissent replied:

“It follows, therefore, that a hobo passing through town or a derelict in the county jail could hypnotize a potential witness, and the witness' testimony would be admissible at trial.... There is a man in Oakland, California, who is the dean and lone 'professor' at 'Croaker College.' For the sum of \$150 each, this man trains frogs to jump.... As part of his rigid training curriculum, the 'professor' claims that he hypnotizes the frog; while they are in their hypnotic trance, he plays an attitude-improvement tape to them. Under our present standards the dean of 'Croaker College' would be over-qualified as a hypnotist.”

2. **Haselhuhn v. State, 727 P.2d 280** (Wyo. 1986), cert. *denied*, 479 U.S. 1098 (1987). According to majority, the hypnotist was a “non-professional with meager training in hypnotic techniques.” From the dissent: the “**meagre** training” was a 32-hour home course; the hypnotist was a maintenance man [**janitor?**] at the Pacific Power and Light Company.

VI. QUALIFICATIONS: BEYOND EXPERTISE

- A. **Maguire, Evidence: Common Law and Common Law 30-3 1 (1947)** (“It goes without saying that an expert qualified to testify upon one topic may be completely unqualified to testify about another as to which he lacks special knowledge, skill, experience, or training, but some applications of this principle take the unwary by surprise.”).
- B. **State v. Adams, 481 A.2d 718, 727-28** (R.I. 1984) (pathologist's testimony that a bruise discovered during an autopsy was consistent with a bite mark was struck, in part, because he was not qualified in forensic dentistry).
- C. “**Technician**” Issue. Courts must “differentiate between ability to operate an instrument or perform a test and the ability to make an interpretation drawn from use of the instrument.” *People v. King*, 72 Cal. Rpt. 478,491 (Cal. App. 1968).
- D. **Breathalyzer. French v. State, 484 S.W.2d 716,719** (Tex. Crim. App. 1972) (“an officer may administer a breath test even though he is not otherwise qualified to interpret the results.”).

- E. **Horizontal Gaze Nystagmus Test.** “[The officer’s] opinion that appellant was under the influence of alcohol, to the extent it was based on the nystagmus test, rests on scientific principles well beyond his knowledge, training, or education. Without some understanding of the processes by which alcohol ingestion produces nystagmus, how strong the correlation is, how other possible causes might be masked, what margin of error has been shown in statistical surveys, and a host of other relevant factors, [the officer’s] opinion on causation, notwithstanding his ability to recognize the symptom, was unfounded.” *People v. Williams*, 3 Cal. App. 4th 1326, 1334, 5 Cal. Rpt. 2d 130, 135 (1992).

VII. EXPERT BIAS

- A. **English judge** wrote that “skilled witnesses come with such a bias in their minds to support the case in which they are embarked that hardly any weight should be given to their evidence.” *Tracy Peerage Case*, 10 Cl. & F. 154, 191 (1884).
- B. **Minnesota Supreme Court** observed that “[t]here is hardly anything, not palpably absurd on its face, that cannot now be proved by some so-called ‘expert.’” *Keegan v. Minneapolis & St. Louis R.R. Co.*, 76 Minn. 90, 95, 78 N.W. 965,966 (1899).
- C. “[E]xperts whose opinions are available to the **highest bidder** have no place testifying in a court of law.” *In re Air Crash Disaster at New Orleans*, 795 F.2d 1230, 1234 (5th Cir. 1986)(it “is time to take hold of expert testimony in federal trials.”).
- D. **Serologist Fred Zain.** In West Virginia, the former head serologist of the State Police crime laboratory, Trooper Fred Zain, falsified test results in as many as 134 cases from 1979 to 1989. *In re Investigation of the W. Va. State Police Crime Lab., Serology Div.*, 438 S.E.2d 501 (W. Va. 1993).
1. **ASCLD** team found that “when in doubt, Zain’s findings would always inculcate the suspect.” *Id.* at 5 12 n. 9.
 2. **After Zain left** to accept a position in the San Antonio crime lab, prosecutors had evidence sent to him for retesting because the West Virginia serologists apparently could not reach the “right” results. “[Serologist] Bowles also testified that at least twice after Zain left the lab, evidence on which Bowles had been unable to obtain genetic markers was subsequently sent to Texas for testing by Zain, who again was able to identify genetic markers.” *Id.* at 5 12.

- E. **Dr. Ralph Erdmann.** Texas pathologist convicted of faking autopsies. Special prosecutor remarked: **“If the prosecution theory was that death was caused by a Martian death ray, then that was what he reported.”** Fricker, *Pathologist’s Plea Adds to Turmoil: Discovery of Possibly Hundreds of Faked Autopsies Helps Defense Challenges*, 79 A.B.A.J. 24 (March 1993)(quoting Tommy J. Turner, appointed to investigate). See **also** Chip Brown, *Pathologist Accused of Falsifying Autopsies, Botching Trial Evidence*, L.A. Times, April 12, 1992, at A24 (“[F]ormer Dallas County assistant medical examiner Linda Norton was quoted as saying Erdmann routinely performs ‘made-to-order autopsies that support a police version of a story.’”).
- F. **Gary Dotson** was convicted of the rape of **Cathleen Webb**. Six years later she recanted, stating that she had fabricated the rape charge. Subsequent DNA tests excluded **Dotson** as the source of the crime-scene semen. Edward Connors et al., *Convicted by Juries, Exonerated by Science: Case Studies in the Use of DNA Evidence to Establish Innocence After Trial* 5 1-52 (1996). At **Dotson’s** 1979 trial, Timothy Dixon testified that seminal material found in **Webb’s** panties matched **Dotson’s** blood type. **He failed to disclose, however, that Webb’s own vaginal discharges, not necessarily semen, could have caused the stains.** Years later when a Washington Post reporter asked Dixon why he had not spoken up. He replied: “I guess I wasn’t asked.” Blake Fleetwood, *From the People Who Brought You the Twinkie Defense; The Rise of the Expert Witness Industry*, 19 Washington Monthly 33 (June 1987). A DNA scientist later remarked that “Dixon’s trial testimony was ‘exceedingly misleading and, in my judgment, dishonest.’” Mark Thompson, *DNA’s Troubled Debut, Cal. Lawyer* 43 (June 1988) (quoting Edward Blake, Forensic Sciences Associates).
- G. **Jones’v. City of Chicago, 856 F.2d 985, 991-93** (7th Cir. 1988) (“[A] frightening abuse of power by members of the Chicago police force”) (“police lab technician . . . discovered that [defendant] George Jones had different semen and blood types from the types found in [the victim’s vagina]. [She] failed to include this information in the lab report . . .” after talking to detectives).
- H. **Cruz Prosecution**
- “The first lab guy says it’s not the boot. . . . We don’t like that answer, so there’s no paper [report]. We go to a second guy who used to do our lab. He says yes. So we write a report on Mr. Yes. Then Louise **Robbins** arrives. This is the boot, she says. That’ll be \$10,000. So now we have evidence.” Barry Siegal, *Presumed Guilty; An Illinois Murder Case Becomes a Test of Conscience Inside the System*, L.A. Times, Nov. 1, 1992, (Magazine) at 18 (quoting former detective John Sam).

Pam Belluck, *Officials Face Trial In an Alleged Plot To Thwart Justice*, N.Y. Times, Mar. 9, 1999 (“In a case being closely watched by lawyers and investigators, a group of seven prosecutors and sheriffs deputies will go on trial on Tuesday for conspiring to frame an innocent man.”). Robbins testified against Stephen Buckley, the third defendant in the case.

- I. **The Abuse of Scientific Evidence in Criminal Cases: The Need for Independent Crime Laboratories**, 4 Virginia Journal of Social Policy & Law 439 (Spring 1997).

VIII. FALSE REPORTS

- A. **State v. Ruybal**, 408 A.2d 1284, 1285 (Me. 1979) (Analyst “reported results of lab tests that he did not in fact conduct.”).
- B. **State v. DeFronzo**, 394 N.E.2d 1027, 1031 (Ohio C.P. 1978) (Expert represented that certain lab tests were conducted, when “no such tests were ever conducted.”).
- C. **Zain Hearings**. In re Investigation of the West Virginia State Police Crime Laboratory, Serology Division, 438 S.E.2d 501 (W. Va. 1993). Judicial report on “willful false testimony” of the head serologist of the state police crime laboratory: “The acts of misconduct on the part of Zain included (1) overstating the strength of results; (2) overstating the **frequency** of genetic matches on individual pieces of evidence; (3) misreporting the **frequency** of genetic matches on multiple pieces of evidence; (4) reporting that multiple items of evidence had been tested, when only a single item had been tested; (5) reporting inconclusive results as conclusive; (6) repeatedly altering laboratory records; (7) grouping results to create the erroneous impression that genetic markers had been obtained **from** all samples tested; (8) failing to report conflicting results; (9) failing to **conduct** or to report conducting additional testing to resolve conflicting results; (10) implying a match with a suspect when testing supported only a match with the victim; and (11) reporting scientifically impossible or improbable results.” *Id.* at 503 (quoting report).
- D. **“Maguire Case.”** Accused of possessing explosive in IRA’s terrorism campaign. The government built its case on the traces of [nitroglycerine] under the fingernails of six of the defendants and on the plastic gloves belonging to Mrs. Maguire. “‘The evidence was almost entirely scientific.’ The prosecution made much of the fact that [thin layer chromatography] will identify [nitroglycerine] to the exclusion of other substances, explosive and non- explosive. The tests were said to be as conclusive and irrefutable as fingerprints. The entire underpinnings for this assertion was proved not only to be scientifically false but also known to

be so by all concerned parties and scientists by the trial's eleventh hour discovery of an intra-[lab] memorandum dated six months prior to the Maguires' arrest." Starrs, *The Forensic Scientist and the Open Mind*, 3 1 J. Forensic Sci. Soc'y 111, 141-42 (1991).

- E. **Gordon v. Thornberg**, 790 F. Supp. 374,375 n. 1 (D.R.I. 1992). The accused's "shoes had been sent to the FBI laboratory for analysis; the FBI noted no presence of flammable substances on the shoes. Subsequently, the shoes were sent to the University of Rhode Island's crime laboratory. The URI crime lab found gasoline on the shoes. When the existence of the negative FBI lab report became known, the state granted Mr. Gordon's motion for a mistrial."

IX. PROSECUTION MISCONDUCT

- A. **Pressuring Experts to Change Opinions.** U.S. Supreme Court noted that the "District Court **further** concluded that one of the prosecutors improperly argued with an expert witness during a recess of the grand jury after the witness gave testimony adverse to the government." *Bank of Nova Scotia v. United States*, 487 U.S. 250 (1988).
- B. **Black Panther Case. 1970 federal grand jury (Chicago) investigating deaths of Black Panther leaders in a police raid:** "[T]he testimony of the firearms examiner that he could not have refused to sign what he believed was an inadequate and preliminary report on pain of potential discharge is highly alarming. If true, it could undermine public confidence in all scientific analysis performed by this agency." Bradford, *Problems of Ethics and Behavior in the Forensic Sciences*, 21 J. Forensic Sciences 763,767 (1976), quoting Report of January 1970 Grand Jury, U.S. District Court, Northern District of Illinois, Eastern Div., at 121.
- C. **Misleading Jury.** In controversial Sacco and Vanzetti case defendants were charged with murder during a payroll robbery in 1921. Firearms identification evidence was critical. Professor Morgan:

"On October 23 Captain Proctor made an affidavit indicating that he had repeatedly told [the prosecutor] that he would have to answer in the negative if he were asked whether he had found positive evidence that the fatal bullet had been fired from Sacco's pistol. The statement which Proctor made on the witness stand was: 'My opinion is that it is consistent with being fired by that pistol.'" L. Joughin & E. Morgan, *The Legacy of Sacco & Vanzetti* 15 (1948).

- D. **Hilliard v. Williams**, 5 16 F.2d 1344, 1346 (6th Cir. 1975). Tennessee prosecutor deliberately suppressed an exculpatory FBI forensic report, which concluded that the “devastating” blood stains in a murder case were *not* blood stains.
- E. **Bell v. Coughlin**, 820 F. Supp. 780, 786-87 (S.D.N.Y.), *aff’d*, 17 F.3d 390 (2d Cir. 1993). Prosecution failed to turn over FBI ballistics test results to the defense. “The results of the FBI tests were mixed. The lab positively matched a cartridge shell (B3) to the .45 caliber pistol but reported that no conclusion could be reached with respect to the two bullets (J/R2 and J/R4) in its possession. . . . Thus, although the results of the FBI tests may be characterized as mixed, they clearly contained exculpatory material.”

X. INEFFECTIVE ASSISTANCE OF COUNSEL

- A. **Rickey Ross**. In 1989 the L.A. Police arrested Rickey Ross for the murder of three prostitutes. Head of the Department’s Firearms Identification Division made a positive identification after comparing the murder bullets and a bullet fired from Ross’ 9 mm Smith & Wesson. However, a defense expert reached the opposite conclusion-Ross’ gun could *not* have fired the fatal bullets. Two independent experts came to yet another conclusion: there was insufficient evidence to draw any conclusions. The case against Ross was dropped.”

One of the defense attorneys later admitted, “**I suppose I was like the average citizen. They said it was a match, I thought it was like a fingerprint.**” Baker & Lieberman, *Faulty Ballistics in Deputy’s Arrest; Eagerness to Wake” Gun Cited in LAPD Lab Error*, L.A. Times, May 22, 1989, at 1.

- B. **Troedel v. Wainwright**, 667 F. Supp. 1456, 1461 (S.D. Fla. 1986) (ineffectiveness where defense counsel knew that gunshot residue testimony was “critical” but “[n]evertheless, he failed to depose..., the State’s expert witness, nor bothered to consult with any other expert in the field.“).
- C. **United States v. Tarricone**, 996 F.2d 1414, 1418 (2d Cir. 1993) (failure to consult handwriting expert made out a viable claim of ineffectiveness).
- D. **Sims v. Livesay**, 970 F.2d 1575, 1580 (6th Cir. 1992) (failure to have quilt examined for gunshot residue).
- E. **Giles v. State**, 1989 Tex. App. Lexis 2562: “did not cut himself badly, as he would have done if the knife had been sharp.”

XI. LIMITATIONS OF SCIENTIFIC TECHNIQUE

- A. **Problem:** “[F]ew experts have used appropriate care in limiting their testimony.” Comment, *The Evidentiary Uses of Neutron Activation Analysis*, 59 Cal. L. Rev. 997, 1024 (1971).
- B. **Gunshot Residue Test.** State v. Spencer, 298 Minn. 456, 461, 216 N.W.2d 131, 134 (1974): “We are concerned . . . about the sweeping and unqualified manner in which [the expert’s] testimony was offered An expert witness could be permitted to testify that in his opinion the chemicals present on defendant’s hand may have resulted from the firing of a gun. He should not have been permitted to state, as he did, that this defendant had definitely fired a gun.”
- C. **State v. Warden**, 592 P.2d 836,837 (Idaho 1979) (expert indicated that the defendant had fired a handgun “not more than two hours before the time of the analysis.”).
- D. **Brown v. State**, 601 P.2d 221,224 (Alaska 1979) (NAA expert testified that two bullets “had been made by the same manufacturer on the same day and at the same hour.”).
- E. **Fingerprints. Criminologist testified that the absence of fingerprints resulted from the fact that gloves were used or the prints were wiped away:** “The government has failed to show that [the expert’s] training qualifies him as an expert with respect to the reason no fingerprints were found . . .” United States v. Booth, 669 F.2d 1231, 1240 (9th Cir. 1981).

XII. MISLEADING & AMBIGUOUS CONCLUSIONS

- A. **Neutron Activation Analysis (NAA) Cases**
 - 1. Samples “were of the same type and same manufacture,” United States v. Stifel, 433 F.2d 431,436 (6th Cir. 1970), *cert. denied*, 401 U.S. 994 (1971).
 - 2. Hair samples “came from the same source,” People v. Collins, 43 Mich. App. 259, 264, 204 N.W.2d 290,293 (1972).
 - 3. Blood analysis revealed a “match of the materials,” State v. Stout, 478 S.W.2d 368,368 (Mo. 1972).
 - 4. Samples had “common origin or source,” State v. Coolidge, 260 A.2d 547,

560 (N.H.1969), *rev'd on other grounds*, 404 U.S. 443 (1972).

5. Hair samples “were identical and probably came from the same person.”
Ward v. State, 427 S.W.2d 876, 884 (Tex. Crim. App. 1968).

B. People v. Collins, 204 N.W.2d 290 (Mich. App. 1972), cert. *denied*, 419 U.S. 866 (1974).

1. Prosecution expert testified that there was “a distinct and high level of probability” that hair samples had a common source. *Id.* at 264,204 N.W.2d at 293. The defense objected to the method of testing.

2. Case criticized because “[n]either the court nor, apparently, the defense, considered the question of how unique the hairs were.” The crucial issue was “the validity of the reasoning that leads to the conclusion that an identification has been made, rather than . . . the analytical technique used to make the comparison.” Black, A *Unified Theory of Scientific Evidence*, 56 Ford. L. Rev. 595,636 (1988).

C. Williamson v. Reynolds, 904 F. Supp. 1529, 1558 (E.D. Okl. 1995), federal habeas corpus case, expert testified that hair samples were “microscopically consistent.” However, the “expert did not explain which of the ‘approximately’ 25 characteristics were consistent, any standards for determining whether the samples were consistent, how many persons could be expected to share this same combination of characteristics, or how he arrived at his conclusions.” Moreover, “[t]his court has been unsuccessful in its attempts to locate *any* indication that expert hair comparison testimony meets *any* of the requirements of *Dauber-r*.” *Id.* at 1557.

1. The court further observed: “Although the hair expert may have followed procedures accepted in the community of hair experts, the human hair comparison results in this case were, nonetheless, scientifically unreliable.” *Id.* at 1558. Finally, the prosecutor exacerbated the problem by stating in closing argument, “[T]here's a match.” The state court also misinterpreted the evidence, writing that the “hair evidence placed [Petitioner] at the decedent's apartment.” The “prosecutor's mischaracterization of the hair evidence misled the jury . . .” *Id.* at 1557.

2. Reversed on other grounds. *Williamson v. Ward*, 110 F.3d 1523, 1522 (10th Cir. 1997) (due process, not *Dauber-t*, standard applies in habeas proceedings).

XIII. SUBJECTIVITY

- A. **Firearms Identification.** Although based on objective data (striation marks on bullet), the conclusion about a match comes down to examiner's subjective judgment.
- B. **E.g.,** questioned documents, bite marks, and even fingerprints fall into the same category.
- C. **Instrumentation.** Polygraph technique, although employing an instrument, involves a large dose of subjectivity. Some courts reject polygraph results because of this factor: the polygraph technique "albeit based on a scientific theory, remains an art with unusual responsibility placed on the examiner." *People v. Anderson*, 637 P.2d 354,360 (Colo. 1981). Another court spoke of the "almost total subjectiveness surrounding the use of the polygraph and the interpretation of the results." *People v. Monigan*, 390 N.E.2d 562, 569 (Ill. App. 1979).

XIV. TECHNOLOGY TRANSFER

- A. **DNA Evidence.** "Technology transfer" first used in DNA cases. Simply put: Just because DNA is valid for some purposes does not necessarily mean that it is valid for a different purpose.
- B. **Hypnotically-refreshed Testimony.** AMA recognized hypnosis as an accepted medical technique for psychotherapy, treatment of psychosomatic illnesses, and amnesia. Council on Mental Health, *Medial Use of Hypnosis*, 168 J.A.M.A. 186 (1958). In this context, hypnosis can be "therapeutically useful, [and yet] it need not produce historically accurate memory." *State v. Mack*, 292 N.W.2d 764,768 (Minn. 1980).
- C. **Rape Trauma Syndrome**
 - 1. **As Proof of Rape.** Initial research on RTS was developed to aid rape victims: "[R]ape trauma syndrome was not devised to determine the 'truth' or 'accuracy' of a particular past event- i.e., whether, in fact, a rape in the legal sense occurred- but rather was developed by professional rape counselors as a therapeutic tool, to help identify, predict and treat emotional problems experienced by the counselor's clients or patients." *People v. Bledsoe*, 36 Cal. 3d 236, 249-50, 681 P.2d 291, 300, 203 Cal. Rpt. 450,459 (1984).

2. **As Explanatory of Behavior.** This research may still, however, be useful at trial. RTS evidence may be helpful if the defendant suggests to the jury that the conduct of the victim after the incident, such as a delay in reporting the assault, is inconsistent with the claim of rape. In this situation, “expert testimony on rape trauma syndrome may play a particularly useful role by disabusing the jury of some widely held misconceptions about rape and rape victims, so that it may evaluate the evidence free of . . . popular myths.” *Id.* at 247-48,681 P.2d at 298,203 Cal. Rpt. at 457.

XV. DESTRUCTION OR LOSS OF EVIDENCE

- A. **Due Process Violation.** *California v. Trombetta*, 467 U.S. 479 (1984); *Arizona v. Youngblood*, 488 U.S. 51 (1988).
- B. Drugs, bullets, blood, urine, trace metal detection results, as well as physical evidence of arson, rape, and homicide have not been preserved for examination. 1 Giannelli & Imwinkelried, *Scientific Evidence* ch. 3 (2d ed. 1993) (collecting cases).
- C. “[T]he critical DNA evidence in the case is now missing It was checked out six years ago by . . . the assistant state’s attorney who prosecuted Willis, but searches of the state’s attorney’s evidence vault, as well as the Chicago police evidence section, failed to turn up the original, which could be subjected to another DNA test.” Maurice Possley & Jeremy Manier, *Police crime lab on the hot seat*, *Chicago Tribune*, Oct. 9, 1998, at 1.
- D. **People v. Morgan**, 199 Colo. 237,606 P.2d 1296 (1980). A severed fingertip was found at the scene of a homicide. The defense moved pretrial to examine the fingertip. The fingertip, however, could not be located. Accordingly, the Colorado Supreme Court held that the prosecution could not use the fingertip evidence at trial.

“The refrigerator where the evidence was stored was apparently not cold enough to prevent decay and the police refused to move the fingertip to the refrigerator where they stored their ‘brown bag lunches.’ So someone—the police haven’t been able to determine who—threw the fingertip away.” Moya *The Case of the Missing Fingertip*, *Nat’l L.J.*, Dec. 21, 1981, at 11.

XVI. CHAIN OF CUSTODY

- A. **“In the post-O.J. Simpson era, the** handling of evidence until it reaches the crime laboratory will be as important as the laboratory technology, conditions, or procedures themselves.” E. Connors et al., *Convicted by Juries, Exonerated by Science: Case Studies in the Use of DNA Evidence to Establish Innocence After Trial* xxvi (1996) (Matt L. Rodriguez, Superintendent of Chicago Police).
- B. **JonBenet Ramsey** investigation a detective **“further** contaminated the crime scene by placing a blanket over the body and by allowing **10** people to mill through the house.” Brooke, *Bungled JonBenet Case Bursts a City’s Majesty*, *N.Y. Times*, Dec. 5, 1997, at A10.
- C. **Attorney General Janet Reno** has cautioned that **“[a]mong** the tasks ahead are .. . maintaining the highest standards for the collection and preservation of DNA evidence.” E. Connors et al., *supra*, at iii.
- D. **E.g.**, *United States v. Panczko*, 353 **F.2d** 676,679 (7th Cir. 1965) (“There is no evidence as to where or from whom Lieutenant Remkus got the keys.”), *cert. denied*, 383 U.S. 935 (1966); *Novak v. District of Columbia*, 160 **F.2d** 588,589 (D.C. Cir. 1947) (evidence failed “to identify the sample **from** which the analyses were made as being that sample taken **from** the appellant”); *Smith v. United States*, 157 **F.2d** 705 (D.C. Cir. 1946) (witness testified that watch presented in court had been handed to him by police officer at scene but he did not see where officer obtained watch); *United States v. Lewis*, 19 M.J. 869 (A.F.C.M.R. 1985) (prosecution failed to show that urine sample analyzed at lab was the sample taken from the defendant).
- E. **Discrepancies** concerning the weight, number, date, and labeling of evidence are common. 1 **Giannelli & Imwinkelried**, *Scientific Evidence* ch. 7 (Lexis-Michie Co. 2d ed. 1993).
- F. **United States v. Logan**, 949 **F.2d** 1370, 1377 (5th Cir. 1991), *cert. denied*, 504 U.S. 925 (1992) (four-day delay, during which drugs and a gun remained in a police officer’s car trunk, did not result in exclusion of the evidence).
- G. **DNA.** In a civil paternity action filed by the state, the court rejected a **chain-of-custody** challenge to DNA results because a laboratory supervisor testified:

“The [chain of custody] document was developed in order to allow the supervisor to confirm the chain of custody without having to bring numerous laboratory personnel to court. Dr. Harmon thoroughly discussed the document and its safety devices. She testified in detail as to her laboratory’s procedures for

drawing blood samples and assuring proper identification of both the individuals having the test and the blood samples drawn from those individuals. She testified that once the blood samples were received by the laboratory they were checked for any sign of tampering.” J.E.B. v. State, 606 So.2d 156, 157 (Ala. Civ. App. 1992), cert. **denied**, 1992 Ala. Lexis 1296 (Ala. Oct. 12, 1992), **rev'd and remanded**, J.E.B. v Alabama ex rel. T.B., 114 S. Ct. 1419 (1994).

- H. **Fed. R. Evid. 406** (habit evidence).
- I. **Fed. R. Evid. 803(6)**(business records) & **Fed. R. Evid. 803(8)** (public records) (documentary evidence).

XVII. RIGHT OF CONFRONTATION

- A. **Delaware v. Fensterer, 474 U.S. 15 (1985)**, confrontation challenge involving the basis of expert testimony. Fensterer was charged with the strangulation murder of his live-in fiancée. Her body was discovered in her car, which was left in a shopping center parking lot. The prosecution contended that Fensterer strangled the victim with a cat leash in their apartment. The entire case rested on circumstantial evidence. Two hairs on the leash were similar to the victim’s hair, and an FBI analyst testified that one of the two hairs had been “forcibly removed.” He testified: “As to the exact manner in which this particular hair was forcibly removed, I don’t know. I have no indication in my notes other than the fact it was forcibly removed.” A defense expert challenged the proposition that the presence of a follicular tag indicated forcible removal, maintaining that “scientific authority contradicted” this theory. The defense expert further testified that he had telephoned the FBI expert who had stated that his opinion rested on the “follicular tag” theory.”
 1. Court: “[T]he Confrontation Clause is generally satisfied when the defense is given a full and fair opportunity to probe and expose . . . infirmities through cross-examination, thereby calling to the attention of the factfinder the reasons for giving scant weight to the witness’ testimony.”
 2. On remand, the Delaware Supreme Court again held the opinion inadmissible but on evidentiary, rather than constitutional, grounds. According to the court: “While a witness’s mere lack of memory as to a particular fact may go only to the weight of that evidence, an expert witness’s inability to establish a sufficient basis for his opinion clearly renders the opinion inadmissible under D.R.E. 705.” Fensterer v. State, 509 A.2d 1106, 1109-10 (Del. 1986).

XVIII. BASIS OF EXPERT TESTIMONY

- A. **Fed. R. Evid. 703:** “The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to the expert at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions and inferences upon the subject, the facts or data need not be admissible in evidence.”
- B. **Reardon v. Manson, 806 F.2d 39 (2d Cir. 1986)**, cert. *denied*, 48 *1* U.S. 1020 (1987). A toxicologist testified about the identity of a seized substance (marijuana) based on tests performed by chemists working under his supervision. The Second Circuit upheld the practice: “Expert reliance upon the output of others does not necessarily violate the confrontation clause where the expert is available for questioning concerning the nature and reasonableness of his reliance. ... This is particularly true where the defendants have access to the same sources of information through subpoena or otherwise.” 806 **F.2d** at 42.
1. In 1983 Saks and Duizend published a study on the use of scientific evidence. Part of their investigation involved case studies of different forensic techniques. The drug case in their study is the *Rear-don* prosecution. They comment: “In this case, the laboratory in question had three doctorate-level toxicologists and 22 or 24 less-credentialed chemists. The volume of tests performed (about 20,000 annually) left the toxicologist an average of only a few minutes per day to attend to any given test. Is this adequate involvement to justify testifying to the findings?” Michael J. Saks & Richard Van Duizend, *The Use of Scientific Evidence in Litigation* 49 (1983).
 2. In other words, the toxicologist was “supervising” 50 cases a day. **Reardon v. Manson**, 617 F. Supp. 932,936 (D. Corm. 1985) (“[I]t strains credulity to assert that Dr. Reading could personally ‘supervise’ some 50 of these cases daily.”).

XIX. POLICE “MODUS OPERANDI” EXPERTS

- A. **Counterfeiting.** United States v. **Burchfield**, 719 **F.2d** 356, 358 (1 lth Cir. 1983).
- B. **Bookmaking.** United States v. Scavo, 593 **F.2d** 837, 843-44 (8th Cir. 1979).
- C. **Pickpocketing.** United States v. Jackson, 425 **F.2d** 574, 576-77 (D.C. Cir. 1970).
- D. **Fraud.** United States v. Alonso, 48 **F.3d** 1536, 1541 (9th Cir. 1995) (credit card

fraud) (police testimony concerning counter-surveillance techniques and defendant's conduct as consistent with techniques; "consistent with" testimony admissible); *United States v. Hutchins*, 757 F.2d 11, 13 (2d Cir.) (confidence schemes), cert. **denied**, 742 U.S. 103 1 (1985); *People v. Singh*, 44 Cal. Rpt. 2d 644 (Cal. App. 1995) (staged automobile accidents for fraudulent insurance recovery).

- E. **Organized crime.** *United States v. Amuso*, 21 F.3d 1251, 1263 (2d Cir.) (FBI agent's testimony concerning common *cosa* nostra terminology necessary to explain tape recorded evidence), cert. **denied**, 5 13 U.S. 932 (1994); *United States v. Locascio*, 6 F.3d 924,936 (2d Cir. 1993) ("inner workings of the Gambino Family" in the John Gotti trial), cert. **denied**, 5 11 U.S. 1070 (1994).
- F. **Gang-related crimes.** *People v. Gardeley*, 14 Cal. 4th 605, 617, 927 P.2d 713, 721, 59 Cal. Rpt. 356,364 (1996) ("The subject matter of the culture and habits of criminal street gangs, of particular relevance here, meets [the expert witness] criterion.") , cert. **denied**, 118 S. Ct. 148 (1997); *People v. Valdez*, 58 Cal. App.4th 494, 506, 68 Cal. Rpt.2d 135, 142 (1997) ("In general, where a gang enhancement is alleged, expert testimony concerning the culture, habits, and psychology of gangs is permissible because these subjects are 'sufficiently beyond common experience that the opinion of an expert would assist the trier of fact.'").
- G. **Operation of clandestine laboratories.** *United States v. Anderson*, 61 F.3d 1290, 1297-98 (7th Cir.) (PCP laboratory), cert. **denied**, 5 16 U.S. 1000 (1995).
- H. **Street value of drugs.** *United States v. Nobles*, 69 F.3d 172, 183 (7th Cir. 1995) (DEA agent "explained that the 774.9 grams of 94% pure cocaine that Nobles was carrying in his bag, when processed for retail sale, would result in approximately 3 kilograms of 24% pure cocaine, which would sell for roughly \$300,000 on the street, and would be enough to provide over 24,000 individual doses of cocaine. [The agent] opined that this large quantity of cocaine could only have been intended for distribution, and not for personal use.").
- I. **Amount of drugs consistent with distribution rather than personal use.** *United States v. Valle*, 72 F.3d 210,214 (1st Cir. 1995) (expert testified that "so large a quantity of crack was consistent with distribution as opposed to personal use . . . [and] listed the visible characteristics of the prototypical crack addict, and noted that the appellant manifested none of these symptoms"); *United States v. Cotton*, 22 F.3d 182, 185 (8th Cir. 1994) (admitted detective's "expert opinion that the amount of crack cocaine seized was indicative of distribution"); *United States v. Brown*, 7 F.3d 648,653 (7th Cir. 1993) (based on large amount of drugs seized and other circumstances, DEA agent permitted to testify that drugs possessed for sale, not use).

- J. **Strategies of deception.** United States v. Garcia, 86 F.3d 394,400 (5th Cir. 1996) (“The average juror may not be aware that the presence of 166.9 kilograms of cocaine is indicative of a large drug trafficking organization, and may not be aware that large drug trafficking organizations commonly use ‘car swaps,’ ‘stash houses’ and conduct ‘heat runs.’”), **cert. denied**, 117 S. Ct. 752 (1997); United States v. Penny, 60 F.3d 1257, 1265 (7th Cir. 1995) (marshal testified that “drug dealers place coffee beans in door frames in order ‘to throw off the dogs for the scent of drugs or cocaine.’”), **cert. denied**, 516 U.S. 1121 (1996).
- K. **Beepers.** United States v. Solis, 923 F.2d 548, 550 (7th Cir. 1991).
- L. **Code words.** United States v. Griffith, 118 F.3d 318,321 (5th Cir. 1997) (“we now have, by one count, 223 terms for marijuana”); United States v. Hoffman, 832 F.2d 1299, 1309-10 (1st Cir. 1987).
- M. **Weapons.** United States v. Conyers, 118 F.3d 755,758 (D.C. Cir. 1997) (sort of packaging used “consistent with distribution in District of Columbia” and “.357 Magnum is the revolver of choice among local drug dealers”).
- N. **Duct tape.** United States v. Moore, 104 F.3d 377,384 (D.C. Cir. 1997) (“duct tape such as that found under the hood of Moore’s car is often used by people in the drug world to bind hands, legs, and mouths of people who are either being robbed in the drug world or who need to be maintained”).
- O. **Other aspects of drug trade.** United States v. Sparks, 949 F.2d 1023, 1026 (8th Cir. 1991) (use of street gangs to distribute drugs), **cert. denied**, 504 U.S. 927 (1992); United States v. Foster, 939 F.2d 445, 451-52 (7th Cir. 1991); United States v. Monu, 782 F.2d 1209, 1210-11 (4th Cir. 1986) (narcotics “tool of the trade”); United States v. Boney, 977 F.2d 624, 631 (D.C. Cir. 1992) (police expert testimony about the roles and behavior of drug traffickers-who was a “runner,” who was a “holder,” and who was going to “make the sale” -admitted); State v. Berry, 140 N.J. 280,658 N.E.2d 702 (1995) (testimony that drug dealers often use juveniles as drug “mules” and use a “money man” to hold drug proceeds admissible); United States v. Parker, 32 F.3d 395,400 (8th Cir. 1994) (admitted agent’s testimony that certain entries in a notebook were “drug notes”).

XX. PROBLEMS WITH POLICE M.O. TESTIMONY

- A. **United States v. Garcia, 994 F.2d 1499 (10th Cir. 1993)**, involved the testimony of an FBI language specialist who translated ten telephone conversations and gave his opinion about the meaning of certain phrases used in the conversations. The specialist also testified that the phrase “your old man” referred to the defendant.

The Tenth Circuit ruled this testimony improper: “Unlike [the expert’s] opinion as to jargon used in the drug trade which may be explained by expert opinion testimony, . . . no specialized knowledge is necessary to understand the phrase ‘your old man.’ Therefore, expert testimony on this point was unnecessary.” *Id.* at 1506 (evidence admitted as lay opinion testimony).

- B. **United States v. Cruz, 981 F.2d 659 (2d Cir. 1992)**, the expert testified about the use of intermediaries or brokers in the drug trade. The D.C. Circuit questioned whether such testimony was useful: “That drug traffickers may seek to conceal their identities by using intermediaries would seem evident to the average juror from movies, television crime dramas, and news stories.” *Id.* at 662. Moreover, the court believed that the expert’s testimony was directed at another purpose: “[T]he credibility of a fact-witness may not be bolstered by arguing that the witness’s version of events is consistent with an expert’s description of patterns of criminal conduct, at least where the witness’s version is not attacked as improbable or ambiguous evidence of such conduct.” *Id.* at 663.
- C. **United States v. Catlett, 97 F.3d 565,571 (D.C. Cir. 1996)** (“[E]very federal court to consider the issue of dual testimony as both a fact and expert witness has concluded that the Federal Rules of Evidence permit such testimony”).
- D. **United States v. Romero, 57 F.3d 565,571 (7th Cir. 1995)**(“Nor do jurors necessarily require assistance in drawing conclusions from the presence of scales and baggies, although that is a closer issue. But our society has not progressed (or rather, descended) to the point where the tools of the drug trade are familiar to all”).
- E. **People v. Kelsey, 194 A.D.2d 248, 253, 606 N.Y.S.2d 621,624 (1994)** (officers recitation of street dealers’ modus operandi crossed the line between providing useful background and tarring the defendant with the crimes of others).
- F. **Headley v. Tilghman, 53F.3d 472,476 (2d Cir.), cert. denied, 517 U.S. 1162 (1995)** (distinguished *Cruz*)(The “testimony concerning the operation of a typical ‘distribution house,’ however, was introduced, not to demonstrate a pattern of conduct, but to show that the physical evidence seized from the apartment was consistent with evidence that might be found at a distribution house.”).
- G. **United States v. Thomas, 74 F.3d 676, 682-83 (6th Cir.)** (expert testified that “drug dealers who sell crack at the ‘street’ level normally do not keep written records, front drugs to their customers, or use scales, and that they generally do use pagers and carry ‘rocks’ that sell for approximately twenty dollars each”), cert. *denied*, 517 U.S. 162 (1996):

[W]hen a police officer testifies in two different capacities in the same case, there is a significant risk that the jury will be confused by the officer's dual role.... Although the government should exercise caution when using the same officer as an expert and a fact witness, we refuse to adopt a per se prohibition of this practice. We note that both the district court and the prosecutor should take care to assure that the jury is informed of the dual roles of a law enforcement officer as a fact and an expert witness, so that the jury can give proper weight to each type of testimony. In the instant case, the prosecutor did delineate the transition between the examination of Todd as an expert witness and questions relating to his role as a fact witness.

- H. Note, *The Admissibility of Ultimate Issue Expert Testimony by Law Enforcement Officers in Criminal Trials*, 93 Colum. L. Rev. 231 (1993).

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