

# COMMENTS

## COURT-APPOINTED SCIENTIFIC EXPERT WITNESSES: UNFETTERING EXPERTISE

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### INTRODUCTION

"Shopping"<sup>1</sup> for a scientific expert<sup>2</sup> is relatively easy. A lawyer searching for an expert looks not only for a qualified person, but for an expert who can and will support his or her client's position. The lawyer tests to see if the prospective expert's views are "correct" and discards those experts with "incorrect" views.<sup>3</sup> This selection of viewpoint occurs because the lawyer is an advocate—one who pleads the cause of another.<sup>4</sup> This manipulation adds another layer of strategy that successful trial attorneys can "mold" to their advantage.<sup>5</sup> However, while easy to do, expert shopping and the subsequent "battle of the experts" introduces significant costs into the adversary system.<sup>6</sup>

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1. Van Dusen, *A United States District Judge's View of the Impartial Medical Expert System*, 32 F.R.D. 498, 500 (1962).

2. The type of expert I focus on is the scientific expert, for example, a physicist testifying in a nuclear energy case, a biochemist consulting in a genetic engineering case, or a computer specialist testifying in a microcode patent infringement dispute. I focus on scientific experts, whose opinions rest mainly on objective components, because their opinions are often sought in important cases. See *infra* notes 22-25 and accompanying text.

3. Van Dusen, *supra* note 1, at 499.

4. The word "advocate" comes from the latin root "advocatus," meaning "to summon, call to one's aid," and is related to the latin word "vocare," which means "to call." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 32 (P. Grove ed. 1981).

5. See Foster, *Expert Testimony, —Prevalent Complaints and Proposed Remedies*, 11 HARV. L. REV. 169 (1897) (recounting anecdote of lawyer who said there are three kinds of liars: "the common liar, the d-d liar, and the scientific expert"); Gerber, *Victory vs. Truth: The Adversary System and its Ethics*, 19 ARIZ. ST. L.J. 3, 11 (1987) (lawyers prefer partisan to objective experts and commonly refer to partisan experts as "whores"); Langbein, *The German Advantage in Civil Procedure*, 52 U. CHI. L. REV. 823, 835 (1985) (noting that lawyers sometimes call experts "saxophones"—the lawyer calls the tune and the expert plays accordingly); Sink, *The Unused Power of a Federal Judge to Call His Own Expert Witness*, 29 S. CAL. L. REV. 195, 197 (1956) (noting extensive shopping for experts in an attempt to find the most favorable witness); cf. *In re Air Crash Disaster at New Orleans, Louisiana*, 795 F.2d 1230, 1233 (5th Cir. 1986) (suggesting trial judge should insist that experts offer more to the factfinder than couching the attorney's argument in the language of expertise).

6. See Van Dusen, *supra* note 1, at 500 (partisan selection and use of experts leads to often unconscious bias in testimony).

Although our adversarial trial system<sup>7</sup> is not regarded as a highly efficient truth-seeking enterprise,<sup>8</sup> one of its functions is nevertheless to uncover the truth that is entwined in a dispute.<sup>9</sup> Scientific experts are used in the search for truth in many cases where the costs of inaccurate decisions may include frustrating technological innovation,<sup>10</sup> imposing large economic burdens on corporations to comply with overly strict safety standards, or exposing individuals to life-threatening conditions. Take for example, a utility company's proposal to build a nuclear power plant in California. For economic, political, and strategic reasons, the company chooses a site that is near an active earthquake fault. A suit to block the project would raise the issues of safety, cost, and the growing need for power, requiring a court to consider complex scientific factors.<sup>11</sup> Geologists who specialize in earthquakes, structural engineers who understand steel and concrete stresses, and nuclear engineers who understand radioactive materials would necessarily be consulted for their opinions by attorneys for both sides. Overly optimistic predictions could allow an unsafe project to go forward, possibly with disastrous results. Yet overestimating the risks involved could make a project too expensive because of excessive safety precautions. Abandoning a project because of overestimating safety risks would involve its own costs.<sup>12</sup>

7. "[A] common law trial is and always should be an adversary proceeding." *Hickman v. Taylor*, 329 U.S. 495, 516 (1947).

8. Gerber, *supra* note 5, at 4; see also J. FRANK, COURTS ON TRIAL: MYTH AND REALITY IN AMERICAN JUSTICE 86 (1949) (inadvertent witness coaching); Frankel, 123 UNIV. PA. L. REV. 1031, 1038 (1975) (adversary system limits development of the truth); Swift, *Abolishing the Hearsay Rule*, 75 CALIF. L. (REV. 495, 518 (1987) (hearsay rule excludes relevant, non-prejudicial evidence).

9. For example, one of the goals of the Federal Rules of Evidence is "the promotion of [the] growth and development of the law of evidence to the end that the truth may be ascertained and proceedings justly determined." FED. R. EVID. 102; see Fuller, *The Forms and Limits of Adjudication*, 92 HARV. L. REV. 353, 382-85 (1978) (adversary system promotes impartial judgment by combating human tendency to prejudice situations according to familiar patterns).

However, truth is not the only goal of the Federal Rules of Evidence. Others include the growth of the law, "fairness in administration [of the rules]," and "elimination of unjustifiable expense and delay." FED. R. EVID. 102. Professor Hazard makes the observation that an advocate is not specifically concerned with the truth: "The morality of a seriously moral person includes concern for the truth of the matter in things of consequence. The advocate, however, must be concerned with presentation to others of evidence that will be taken as the equivalent of truth." Hazard, Book Review, 95 YALE L.J. 1523, 1527 (1986) (reviewing K. MANN, *QUIS CUSTODIET IPSOS CUSTODES? DEFENDING WHITE COLLAR CRIME* (1985)). A necessary implication of the advocate's role as presenter of "the equivalent of truth" is that our adversary system also cherishes values other than truth. But this debate over how central a value truth-seeking is to the adversary system is largely philosophical and thus has little impact on the actual practice of law. While disagreeing about whether truth-seeking is the primary function of the system, most people do agree that it is a function of the system. See Sink, *supra* note 5, at 197.

10. For example, uninformed decisions denying patent protection may lead inventors to resort to trade secret protection of their inventions. This lack of disclosure may hamper technological innovation. See, e.g., Paepke, *An Economic Interpretation of the Misappropriation Doctrine: Common Law Protection for Investments in Innovation*, 2 HIGH TECH. L.J. 55, 62 (1987).

11. See, e.g., *San Luis Obispo Mothers for Peace v. United States Nuclear Regulatory Comm'n*, 799 F.2d 1268 (9th Cir. 1986) (examining the difference between projected free-standing rather than bolted-down storage of spent nuclear fuel rods for determining what constitutes a significant hazard). See *infra* note 51 and accompanying text for more information about the issue of fuel rod storage.

12. Such costs could include, for example, a lack of future energy supplies, overdependence on foreign fuel, and a consequent national security risk. See generally SENATE COMM. ON ENERGY AND NATURAL RESOURCES, 96TH CONG., 1ST SESS. ENERGY INITIATIVES OF THE 95TH CONGRESS 1 (Comm.

Thus, if the truth-seeking process is not accurate, the legal system risks hindering or misdirecting economic and technological development.<sup>13</sup> Just as disregarding scientific evidence completely can have these dangers, so can the current practice of expert shopping which results in each side presenting one-sided expert testimony in court.<sup>14</sup> This practice introduces inaccuracy into the truth-seeking process, corrupting the legal system.

Three costs are apparent from the corruption caused by one-sided expert testimony. First, each time an incompetent, under-qualified or seriously biased expert testifies before a factfinder, the legal system loses credibility as a truthfinder. Second, when such an expert testifies, the factfinder becomes more cynical about the value of "expert" testimony. In cases where an accurate result depends upon the factfinder genuinely understanding expert testimony, truth is not found and justice not served if the factfinder, because of cynicism, ignores the expert's testimony.<sup>15</sup>

The third cost of expert shopping and the battle of the experts is the greatest, and therefore the focus of this Comment. Factfinders use expert testimony to gain an understanding of information that they would not understand from ordinary experience.<sup>16</sup> Unfortunately, the great cost of the current adversarial use of scientific experts is that the process itself eliminates these experts' expertise.<sup>17</sup> Under the current system an expert rarely acts as an "expert."<sup>18</sup> Instead, the system reduces him or her to something closer to a mere "competent" person.<sup>19</sup> In other words, the scientific expert whose role it is to assist the factfinder no longer acts like an expert. The loss of expertise is not a loss of *degree* of expertise; instead, it is an elimination of expertise, resulting in a change in the *quality* of information available to the factfinder. Having "competent" people, rather than experts, testify degrades the level of scientific analysis presented in court, therefore impeding the truth-seeking function of the court. The importance of expert testimony is not merely an academic one; scientific evidence and the experts who must explain it are increasingly important in

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Print 1979) (estimating decline to near exhaustion of U.S. production of oil and gas by end of the century and increasing dependence on foreign fuel supply).

13. See Paepke, *supra* note 10, 85-88 (discussing the problems involved with improper decisions on patent protection).

14. See *infra* text accompanying notes 93-114 (discussing the problems with the current treatment of scientific experts in federal court).

15. Cf. Imwinkelried, *The Standard for Admitting Scientific Evidence: A Critique from the Perspective of Juror Psychology*, 28 VILL. L. REV. 554, 567-68, 569-70 (1982-83) (jurors are not unduly influenced by scientific evidence and may disregard it; jurors may reject evidence of which they are skeptical).

16. See FED. R. EVID. 702.

17. See *infra* text accompanying notes 94-110 (explaining why the current system forces expert witnesses to lose the characteristics which makes them experts).

18. *Id.*

19. See *infra* text accompanying notes 99-108 (discussing competence). Potential scientific experts are disinclined to testify, because the system reduces their expertise. This consequently increases the first two costs (truth and cynicism). The reluctance of many reputable experts to involve themselves in litigation was a major concern of the Advisory Committee that drafted Rule 706's comprehensive scheme for court-appointed experts. See FED. R. EVID. 706 advisory committee's note. See also Van Dusen, *supra* note 1, at 508-09 (highly qualified experts unwilling to participate in cases as partisans).

proving or disproving cases.<sup>20</sup> For example, in patent infringement cases, experts testify concerning the degree of "non-obviousness" of the invention.<sup>21</sup> For the patent system to operate properly, a testifying expert must possess a high level of skill and familiarity with the subject matter of the patent and of industry capabilities. A factfinder deciding whether to grant monopoly power in a highly competitive marketplace relies on accuracy and sophistication from the expert. Simplification of evidence that results from having only "competent" witnesses dilutes and distorts the complexities of a situation, with large costs to the legal system and society in general.

Accordingly, the goal of this Comment is twofold: First, to present a model for defining "expertise" which will enable us to understand what expertise is and more accurately analyze what effect trial procedures can have on it; and second, based on that model to propose changes for the way courts use scientific expert witnesses. This Comment is concerned primarily with the witness whose scientific expertise largely involves objective criteria.<sup>22</sup> For example, a physician explaining how the kidneys purify the blood would be a scientific expert for my purposes. However, under my definition, a physician who offers her opinion on the cause of a patient's condition would not be a scientific expert, because a diagnosis requires consideration of too many subjective factors. Similarly, a psychiatrist who testifies concerning the psychological motivations or the dangerousness of a criminal defendant also does not base his opinion primarily upon objective factors.<sup>23</sup> No verifiable experiments can be run to test a

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20. The National Center for State Courts has found that almost half of the judges and attorneys they surveyed encountered scientific evidence in at least 30% of their cases. *Study to Investigate Use of Scientific Evidence*, NAT'L CENTER FOR ST. CT[S]. REP., Aug. 1980 at 1. For a description of expert testimony available to a prosecuting attorney see Blair, *Scientific Evidence*, in *THE PROSECUTOR'S DESKBOOK* 555 (P. Healy & J. Manak eds. 1977). For a thorough explanation of the importance of scientific evidence in modern trials see Imwinkelried, *supra* note 15, at 555-600.

21. See generally 35 U.S.C. § 103 (1982) (non-obviousness required for patent validity).

22. There is a debate in the philosophy of science focusing upon whether science is grounded in objective fact or is really a mixture of subjective and objective elements. Lakatos, *Falsification and the Methodology of Scientific Research Programmes*, in *CRITICISM AND THE GROWTH OF KNOWLEDGE* 91 (I. Lakatos & A. Musgrave, eds 1965). Thomas Kuhn, recognized as the initiator of the subjective view of science, argues that scientific discoveries are dependent more on the current scientific community's common beliefs than on any objective process of investigation. See generally T. KUHN, *STRUCTURE OF SCIENTIFIC REVOLUTIONS* (1970); cf. P. FEYERABEND, *AGAINST METHOD* (1975) (anarchistic view of science). The strongest critics of the subjective view argue that science cannot be reduced to a product of "mob psychology." Lakatos, *supra* at 178; cf. Shapere, *Meaning and Scientific Change*, in *MIND AND COSMOS ESSAYS IN CONTEMPORARY SCIENCE AND PHILOSOPHY* (R.G. Colodny ed. 1983) (criticizing the subjective view). While I recognize that this realist movement to debunk the objective nature of science contains some truth, I am not convinced by it. It is nonetheless useful always to keep in mind Kuhn's notions so that one can reflect upon the way subjective influences may predetermine "objective" findings. Cf. Jones, *Is There a Property Interest in Scientific Research Data?*, 1 HIGH TECH. L.J. 447, 464-65 (1986) (scientists' world view influences what she deems facts).

23. See generally Wesson, *Historical Truth, Narrative Truth, and Expert Testimony*, 60 WASH. L. REV. 331 (1985) (casting doubt on ability of psychoanalysis to determine a criminal defendant's mental state in the past recollection of events).

Best guesses and probabilities are all that one can expect of a psychiatrist when making a diagnosis. The United States Supreme Court ruled that a psychiatrist's testimony predicting dangerousness was admissible despite the scientific dubiousness of the prediction. *Barefoot v. Estelle*, 463 U.S. 880, 896-903 (1983). Justice Blackmun made a strong argument for the exclusion of this evidence based upon its unreliability. *Id.* at 926-30 (Blackmun, J., dissenting). See also Levine, *The*

psychiatrist's hypothesis. The actual number of experts who fall into this narrower-than-Rule 702 definition probably is few.<sup>24</sup> But even if the scope of this Comment is narrow, the particular situations it covers are significant.<sup>25</sup>

To accomplish its twofold goal, this Comment has four sections. Section I examines expertise. Section II looks at the current treatment of expert witnesses in the federal system. Section III analyzes the problems that the current system presents in relation to expertise. Section IV makes two proposals, one legislative and one judicial, in order to solve the problems raised in Section III.

## I. EXPERTISE

This Comment examines expertise as a type of discretion.<sup>26</sup> When a person exercises her expertise concerning a subject, she makes a decision based upon her expert judgment. The attributes of expertise are education,<sup>27</sup> autonomy,<sup>28</sup> experience, and intuitive understanding.<sup>29</sup> If any of these attributes are

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*Adversary Process and Social Science in the Courts: Barefoot v. Estelle*, 12 J. PSYCHIATRY & L. 147 (1984) (analyzing the unreliability of psychiatric testimony).

24. This assertion is not based on any empirical studies, but rather upon my own impressions from reading many of the cases which involved Rule 702 experts.

For example, in an examination of the 38 Ninth Circuit cases listed in 5 Shephard's United States Citations (1986) for FED. R. EVID. 702, only 3 cases involved scientific experts as defined in this Comment: *United States v. Horo-Espinosa*, 619 F.2d 789 (9th Cir. 1979) (expert on cocaine); *Crom Corp. v. Crom*, 677 F.2d 48 (9th Cir. 1982) (expert on water tanks); *Wood v. Stihl, Inc.*, 705 F.2d 1101 (9th Cir. 1983) (engineer testified on chain brake design and use). However, what is relevant is not the number of cases in which scientific experts are used, but rather the importance of the issues and the decisions in those cases. See *supra* note 12 and accompanying text.

25. See *supra* note 20 (data on the use of scientific evidence indicating the likelihood of the importance of scientific experts).

26. Expertise is one of four types of discretion: discretion vis-a-vis the rule of law, management by objectives, a range of choice, and expertise. I derive the general framework of these four types of discretion from a seminar entitled "Discretion", taught by Professors Robert Post, Martin Shapiro, and Edward Rubin at Boalt Hall, University of California at Berkeley (January 1986 to May 1986). However, neither errors in my logic or my specific model of the expertise of a scientific expert should be imputed to these professors. Since this Comment is not about the whole field of discretion, I mention the four types only to give perspective as to where expertise fits into the complete framework of discretion.

Discretion (vis-rule) and the rule of law exist in tension, along a linear spectrum. At one end of the continuum, quasi-precise rules exist in the realm of the rule of law. At the other end, open-ended discretion operates in an unfettered manner. All laws exist along the continuum. The term "rule of law" is meant to designate a rigid rule, stated in unambiguous language, which will produce precisely the same result each time it is applied. One of the chief reasons that lawmakers insist on rigid rules is to insure certainty. Friendly, *Indiscretion About Discretion*, 31 EMORY L.J. 747, 755 (1982).

Management by objectives defines, in part, the relationship between the manager and the worker and operates as follows. A manager describes to his worker a desired result but does not prescribe the process to be used to obtain the result. Instead, the worker internalizes the objective and has "discretion" to choose the path that he believes is best suited to reach that objective. See Swanson, *A Basis of Authority and Identity in Post Industrial Society*, in *IDENTITY AND AUTHORITY* 194-95 (R. Robertson & B. Holzner, eds. 1980).

Like management by objectives, range of choice operates as a means of control. Range of choice, however, focuses not on the stated objective, but rather on the lower level decision-maker and particularly on the process which she uses to choose a path that she will follow. An analysis of range of choice is an internal viewpoint consideration of the worker's self perceived ability and freedom to choose from available options.

27. W.E. MOORE, *THE PROFESSIONS: ROLES AND RULES*, 10-13 (1970).

28. *Id.* at 15-16.

missing, expertise will not be present.<sup>30</sup> Commentators have traditionally described a person who possesses these characteristics as a professional.<sup>31</sup> A functional analysis of what the "professional" and a "profession" is results in the realization that the classic professional is what this Comment calls an "expert."

The standard approach to defining a profession is in terms of its ideal, typical, or quintessential characteristics, those which distinguish it from a mere occupation.<sup>32</sup> Moore identifies the defining characteristics of a profession as occupation, calling, organization, education, service orientation, and autonomy.<sup>33</sup>

Moore's concept of professionalism is based upon a model in which one abstracts the central elements from the "true" or classical professions of law, medicine, and the clergy.<sup>34</sup> These classic professionals were the "learned," who studied and passed along theoretical knowledge.<sup>35</sup> Because they were "learned," they were given autonomy.<sup>36</sup>

With the explosive growth in both the number and importance of scientific pursuits, a new group of the "learned" has developed—scientists, engineers, and others. These "experts" share certain characteristics with the classic professionals: they learn a body of theoretical knowledge; they are given autonomy; and hierarchical organizations have grown up about their practice which similarly include barriers to entry into that pursuit. However, the classic professional elements of calling and service orientation have disappeared in most cases. Thus, my model of a scientific expert incorporates the components of a

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29. See *infra* notes 54-56 and accompanying text (explaining intuitive understanding).

30. The Dreyfus brothers' controversial model of human reasoning dovetails with this Comment's view of expertise in many significant ways. H.L. DREYFUS & S.E. DREYFUS, *MIND OVER MACHINE, THE POWER OF HUMAN INTUITION AND EXPERTISE IN THE ERA OF THE COMPUTER* (1986). This theory, which attacks the notion that intelligent human reasoning can be duplicated, contradicts the model of human reasoning accepted by some designers of expert systems, who view this process as being duplicable by an expert system. See, e.g., F. Hayes-Roth, D.A. Waterman & D.B. Lenat, *An Overview of Expert Systems*, in *BUILDING EXPERT SYSTEMS* 3, 12-13 (F. Hayes-Roth, D. A. Waterman & Lenat, eds. 1983) [hereinafter *BUILDING EXPERT SYSTEMS*]; R.J. Brachman, S. Amarel, C. Engelman, R.S. Englemore, E.A. Feigenbaum & D.E. Wilkins, *What Are Expert Systems?* 31, 41-45 in *BUILDING EXPERT SYSTEMS; Applications-Oriented AI Research: Science*, 80-81 in *II THE HANDBOOK ON ARTIFICIAL INTELLIGENCE* (A. Barr & E.A. Feigenbaum, eds. 1982); see also Debessonnet & Cross, *An Artificial Intelligence Application in the Law: CCLIPS, A Computer Program that Processes Legal Information*, 1 *HIGH TECH. L.J.* 329, 329-30 (1986).

31. See generally W.E. MOORE, *supra* note 27 (focusing on the classical professions); T.J. JOHNSON, *PROFESSIONS AND POWER* (1972) (focusing on the power dynamic of professions).

32. See, e.g., W.E. MOORE, *supra* note 27, at 4-5 (1970).

33. *Id.* at 5-6.

34. This approach, which uses profession "trait" or specific "function" analyses, has been criticized as ignoring the power asserted by the professions and the historical conditions which produced them. T.J. JOHNSON, *supra* note 31, at 37-38.

While I appreciate Johnson's point, I do not find his analysis useful in the context in which I wish to discuss professionalism. Because of my focus on discretion, a functional analysis is most useful, because we can see what happens when outside forces, such as methods of examining witnesses, interact with an expert/professional. See W.E. MOORE, *supra* note 27, at 10.

35. *Id.*

36. *Id.* at 15-16 (autonomy of professionals based in part on education); cf. BLEDSSTEIN, *THE CULTURE OF PROFESSIONALISM* 89-90 (1976) (autonomy of professionals based on training and indoctrination).

body of theoretical knowledge and autonomy as described in the literature on professions.

To illustrate what I mean by expertise, let me use an example familiar to the layperson, not just the scientific expert. Consider the concert pianist playing a piano concerto. He has learned either through years of school or personal tutoring about technique, music history and theory. His *education* provides the foundation for his playing. This pianist also has the *autonomy*, or self-direction, to direct how he will play a piece. If a conductor treats a pianist as a puppet, the pianist loses a part of his ability to play to his highest potential. *Experience* also is important to the pianist. To grow, he needs experience to point out both his faults and his successes. But most important, a concert pianist needs inspiration. This term encompasses both natural ability<sup>37</sup> and *intuitive understanding* of the meaning to be conveyed by the piece.

Similarly, consider the long-tenured geology professor who studies earthquakes. Years of education led to his graduate degree. Freedom to pursue his interests (autonomy) and many years in the field (experience) also helped create this expert, the earthquake specialist. But it is the last component of expertise which separates this expert from a merely competent geologist—intuitive understanding. This understanding involves more than just his technical knowledge about earthquakes. Although nearly impossible to describe, it is the geologist's ability to understand new situations in a manner which appears to go beyond his current level of scientific knowledge.

### A. The Elements of Expertise

As just briefly discussed, the elements of my model of expertise are education, autonomy, experience, and intuitive understanding. As noted, this model draws from the professionalization literature,<sup>38</sup> and dovetails in some respects with the model of expert judgment put forward by some researchers working in the area of computer expert systems.<sup>39</sup> This section will expand on the elements of my model of expertise.

#### 1. Education

The necessity of education is obvious if the community expects an expert to exercise independent judgment. But years of schooling are not enough. An expert needs to learn specialized knowledge that is "organized into an internally consistent system, called a *body of theory*."<sup>40</sup>

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37. I do not discuss further the natural ability of an expert because it remains a constant, unaffected by the manner in which the expert is used in court.

38. See *supra* notes 27-36 (citing materials on professionalization).

39. See *supra* note 30 (surveying works discussing developments in expert systems).

40. Greenwood, *Social Work*, in PROFESSIONALIZATION 10, 11 (H.M. Vollmer & D.L. Mills eds. 1966) (emphasis original). Greenwood states that:

[a] profession's underlying body of theory is a system of abstract propositions that describe in general terms the classes of phenomena comprising the profession's focus of interest. Theory serves as a base in terms of which the professional rationalizes his operations in concrete situations. Acquisition of the professional skill requires a prior or simultaneous mastery of the theory underlying that skill. Preparation for a profession, therefore, involves considerable preoccupation with systematic theory, a feature virtually absent in the training of the nonprofessional.

The expert's education involves more than rote memorization; she must master and understand the intricacies of the specialized knowledge and underlying theory of her chosen field.<sup>41</sup> This knowledge and theoretical understanding form the foundation of the expert's discretion. It is upon this foundation that the other attributes rest, for without a consistent theory of the subject, new information and freedom of thought create no new advances and deepening of understanding. But with only this theoretical knowledge, the person is not an expert. Expertise is more than detached understanding or mechanical application of rules.<sup>42</sup>

## 2. *Autonomy*

An expert's education provides him with a highly valued commodity in our society: autonomy.<sup>43</sup> The inability of the laity to comprehend the theoretical framework of an expert's decision is not the only reason for this autonomy. In addition, an essential element in the practice of a profession "is the exercise of the faculty of judgment, and its exercise, moreover, in circumstances where the validity of the judgment must be a matter of opinion."<sup>44</sup>

In other words, autonomy creates room for the expert to exercise his independent intellect and intuitive understanding. In this zone of autonomy, the expert exercises his discretion in accordance with his soundest judgment. We demand not step-by-step analysis from an expert, but a decision based upon a solid foundation of knowledge aligned with the professional's best judgment.<sup>45</sup>

Another element of autonomy is the freedom from outside control. Non-experts may nonetheless question an expert's decision. Questioning, like experience, plays an important role in testing and shaping the expert's assumptions and results. But being able to test the expert is not the same as controlling the expert.<sup>46</sup> For an expert to act intuitively, he needs room to be able to think

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*Id.*

41. In a seminal work, Carr-Saunders and Wilson found that "[w]ith the advancement of knowledge and the raising of standards, the content of the courses of theoretical training has greatly increased." A.M. CARR-SAUNDERS & P.A. WILSON, *THE PROFESSIONS* 375 (1933) (claiming that increased body of knowledge, more than any other cause, "has led to the breakdown of the apprenticeship system under which both theoretical and practical training was supposed to be given").

42. Such characteristics are descriptive of either a novice, an advanced beginner, or a competent, but not an expert. See H.L. DREYFUS & S.E. (DREYFUS, *supra* note 30, at 19-27.

43. W.E. MOORE, *supra* note 27, at 15-16. As a society, we accord our experts much discretion in their chosen fields: "[t]he specialist in his field must be supreme, for who, other than another similarly qualified specialist, can challenge him?" *Id.* Education acts as the threshold to autonomy, which is the ultimate value for members of the professional community. See *id.* at 16. This is what Johnson was concerned with when he described the connection between the professions and power. See T.J. JOHNSON, *supra* note 31, at 41-45.

44. A.M. CARR-SAUNDERS & P.A. WILSON, *supra* note 41, at 399. This element specifically applies to the classic professions, such as law and medicine. *Id.*

45. For example, when I go to the doctor with a sore throat, I want to know that my doctor went to a proper medical school to learn all about sore throats. But if that were all I wanted, I could consult any type of doctor. I go to my doctor because I trust she has seen lots of sore throats in the past, reads all the latest journal articles about sore throats, and makes independent judgments about the cause of a particular sore throat. I want her to have these attributes because I want her to exercise her best judgment to help me. I want her to be an autonomous evaluator.

46. See H.L. DREYFUS & S.E. DREYFUS, *supra* note 30, at 36.

freely, without external restrictions. Restricting him transforms him from an intuitive expert into someone lower in skill such as a competent or a proficient person. A competent person consciously *chooses* an objective procedure to apply to a set of facts and then works through the facts using the process chosen.<sup>47</sup> One step above the competent, a proficient person does not act in a conscious, deliberative, rule-applying manner.<sup>48</sup> "The proficient performer, while intuitively organizing and understanding his task, will still find himself thinking analytically about what to do."<sup>49</sup>

Reducing the expert to a lower level by restricting his autonomy can be useful for some purposes. For instance, if a person wants a great tennis player to explain how to hit a low ground stroke, the value of having the professional tennis player slow down the process and reflect upon his actions outweighs the loss of expertise during the strokes he hits. In such situations, the value of teaching outweighs the loss of expertise.

When time is plentiful and much turns on the expert's opinion, as during a technology-based lawsuit, "detached deliberative rationality . . . can enhance the performance of even the intuitive expert."<sup>50</sup> However, the usual type of "deliberation" caused by trial tactics, which simply means slowing down the expert and forcing him to *justify* his results, can do more harm to the expertise sought to be imparted than the benefit to the factfinder which results from simplification.

For example, in a recent case, a structural engineer was called upon to testify about the problem of stabilizing spent fuel rods in a storage tank at a nuclear power plant.<sup>51</sup> Such a case presents problems which a judge or a jury cannot adequately solve without an expert's help. Permitting the testifying engineer to think freely and creatively is essential in achieving a safe, workable, cost-effective solution to the problem of the increased, long-term need for storage of radioactive waste. The step-by-step analysis of the problem that an undergraduate structural engineer (a proficient witness) could do would not address all the variables that confront the expert engineer faced with this problem. Similarly, a step-by-step analysis elicited from the true expert on structural engineering falls short of eliciting that expert's total understanding of the problem. This is because the step-by-step analysis omits intuitive thinking, which in turn sacrifices truth as understood by a scientific expert.

This is too high a price. Our legal system, which is essentially a method of dispute resolution, should permit scientific experts to offer their complete expertise. Autonomy should be a component of the expert who testifies in a case.

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47. *Id.* at 26.

48. *Id.* at 29.

49. *Id.*

50. *Id.* at 40.

51. *Mothers For Peace v. United States Nuclear Regulatory Comm'n*, 799 F.2d 1268 (9th Cir. 1986). In this case, a nuclear power plant operator planned to store spent fuel rods without externally securing them to the floor or walls of the storage container. *Id.* at 1269. Plaintiff sought to block this action. *Id.* On review, the court remanded the case to the Nuclear Regulatory Commission so that it could consider the hazards of bolted-down versus free-standing storage of spent fuel rods. *Id.* at 1271.

### 3. *Experience*

Experience buttresses the education and autonomy of the expert. Education provides authority, and autonomy provides the freedom to exercise that authority. Experience, the third component of expertise, substantiates and refines the professional's judgment, increasing his authority. Experience facilitates the application of theoretical knowledge beyond the person's previous grasp. More importantly, experience can refine a person's judgment providing feedback<sup>52</sup> to test a theoretical concept.

Einstein's description of how he achieved his insights captures the role of experience in expertise. Einstein stated: "To these elementary laws there leads no logical path, but only intuition, supported by being sympathetically in touch with experience."<sup>53</sup> Experience in turn supports or buttresses the other components of expertise. Folk wisdom tells us that we mature when we "learn from our mistakes." Whether one calls the process a feedback loop or learning from experience, it is the same process. Experience comes from opportunities to test one's own assumptions, see new insights, and confirm ideas through application to practical situations.

### 4. *Intuitive Understanding*

The final component of this model is intuitive understanding. The mind of an expert has been characterized as an experience base consisting of "[a]n immense library of distinguishable situations."<sup>54</sup> However, the expert also exercises what has been termed "holistic similarity recognition."<sup>55</sup> This is the intuitive ability to solve problems based upon the expert's knowledge and experience without first reducing the problem into its component parts and pursuing a logical analysis. In other words, this irreducible concept describes the "gut-level" understanding that distinguishes a true expert from a competent or proficient person. This is the component that makes the expert's understanding greater than the sum of the parts of information available to him. It is this last component that this Comment is trying to unfetter for use in the legal dispute process.

## B. The Exercise of Expertise

The four attributes of my model—education, autonomy, experience, and intuitive understanding—combine to create the expertise for which we consult experts. We rely on this form of discretion—expertise—whenever we defer to an expert.<sup>56</sup> Without such deference, no expert could successfully function as an expert.<sup>57</sup> The actual process of applying expertise to a problem is an

52. Feedback is the return of ideas "in an altered or extended form to their point of origin, so making possible still more progress." A.P. COWIE & R. MACKIN, OXFORD DICTIONARY OF CURRENT IDIOMATIC ENGLISH 103 (1975).

53. G. HOLTONE, THEMATIC ORIGINS OF SCIENTIFIC THOUGHT: KEPLER TO EINSTEIN 357 (1973).

54. H.L. DREYFUS & S.E. DREYFUS, *supra* note 30, at 32.

55. *Id.* at 28.

56. *See supra* note 26 for a description of other forms of discretion.

57. *See infra* text accompanying notes 93-114 (explaining how the current system causes loss of expertise).

unquantifiable independent merging of the expert's past experience, intuitive judgment, and theoretical understanding in a singular moment of insight.<sup>58</sup> When the expert acts upon his insight he exercises expertise.

This higher level of thinking is different in quality from that used by persons with lesser levels of ability such as novices, advanced beginners, competent, and proficient.<sup>59</sup> However, often lay people do not like a true expert to function on such a level because they cannot control the discussion. No matter how intelligent the lay person is, that person simply cannot separate the expert's thinking into its component parts, because the whole of the expert's expertise is greater than the sum of its parts. When a discussion progresses at the level of expertise, the component parts are often indiscernible. A lay person's need to control the discussion conflicts with his or her need to trust the expert to decide a question which requires expertise to answer. In a judicial setting, this conflict between the need for trust and the desire for control is particularly acute.

## II. CURRENT TREATMENT OF EXPERTS IN FEDERAL COURT

The courtroom is one of the most important places where expertise comes in contact with real scientific problems. Once a trial court determines that proffered scientific evidence is admissible<sup>60</sup> and that an expert is necessary, there are two procedures by which an expert may testify. Under Rule 702, judges allow parties to present their own expert testimony.<sup>61</sup> Rule 706 allows

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58. For example, when the talented automobile mechanic listens to my engine, questions me about the starting behavior of my car and looks intently into the recesses of my engine, in an instant he correctly identifies the problem as a worn coil. All the components of expertise—education, autonomy, experience, and intuitive understanding—combine in the moment he diagnoses the trouble.

59. See *supra* notes 47-48; H.L. DREYFUS & S.E. DREYFUS, *supra* note 30, at 21.

60. Rule 702 states: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise." FED. R. EVID. 702.

Prior to adoption of the Federal Rules of Evidence in 1975, the Court of Appeals for the District of Columbia, in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), set a standard which other courts later followed governing the admissibility of scientific evidence. It stated that the party seeking to introduce scientific evidence must show that the scientific principle upon which the evidence rests "be sufficiently established to have gained general acceptance in the particular field in which it belongs." *Id.* at 1014.

After the passage of the Federal Rules of Evidence, a general state of upheaval enveloped the *Frye* test, with many courts wisely breaking away from the strict *Frye* approach. See, e.g., *States v. Dowling*, 753 F.2d 1224, 1237 (3d Cir. 1985) (rejecting the *Frye* test); *United States v. Williams*, 583 F.2d 1194, 1198-99 (2d Cir. 1976) (rejecting the *Frye* test), *cert. denied*, 439 U.S. 1117 (1979). The broader approach of the Federal Rules is the current trend, although the *Frye* rule has not been completely abandoned. See Gianelli, *The Admissibility of Novel Scientific Evidence: Frye v. United States, A Half Century Later*, 80 COLUM. L. REV. 1197, 1228-31 (1980).

*Frye* erected an extra hurdle for the admission of scientific evidence. With the safeguards of the Federal Rules and my proposal, I believe the *Frye* approach is unnecessary. At least two current members of the United States Supreme Court, Justices White and Brennan, would like to resolve the issue of whether *Frye* was overruled by the enactment of the Federal Rules of Evidence. *Mustafa v. United States*, 22 M.J. 165 (C.M.A. 1986), *cert. denied*, 107 S.Ct. 444, 444-45 (1986) (White & Brennan, J., dissenting).

61. FED. R. EVID. 702.

the court to appoint an expert witness agreed to by the parties or experts of its own choosing.<sup>62</sup>

### A. Rule 702 Party-Sponsored Experts

Nearly all experts testify in a trial at the request of one of the parties as authorized by Rule 702. This Comment refers to such an expert as a "party-sponsored expert." Rule 702 permits an expert to testify about that expert's "scientific, technical, or other specialized knowledge" if the expert's testimony will "assist the trier of fact to understand the evidence or to determine a fact in issue[.]"<sup>63</sup> Thus, Rule 702 sets up two separate instances when an expert may testify. First, an expert may give a dissertation or exposition of the scientific principles relevant to the case to help educate the factfinder.<sup>64</sup> Second, an expert may testify to help the factfinder determine a fact in issue. The expert thus may testify in a manner similar to that of an ordinary witness, except that an expert may testify as to his opinion and may base his opinion upon inadmissible evidence.<sup>65</sup> However, if the expert's testimony merely reiterates knowledge or experience within the factfinder's reasonable scope of knowledge or experience,<sup>66</sup> then the expert's testimony would invade the province of the jury, and thus would not be allowed.<sup>67</sup>

### B. Rule 706 Court-Appointed Experts

In 1975, Congress extended the express right of a court to appoint expert witnesses to civil cases.<sup>68</sup> Rule 706 of the Federal Rules of Evidence states that a "court may appoint any expert witness agreed upon by the parties, and may appoint expert witnesses of its own selection."<sup>69</sup>

62. FED. R. EVID. 706.

63. See *supra* note 60 (providing entire text of Rule 702).

64. FED. R. EVID. 702 advisory committee's notes.

65. FED. R. EVID. 703. However, the inadmissible evidence upon which the expert bases his opinion must be "of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject." *Id.*

66. Rule 702 is broadly phrased to encompass experts not traditionally considered experts who possess specialized knowledge such as "bankers or landowners testifying to land values." *Soo Line R.R. Co. v. Fruehauf Corp.*, 547 F.2d 1365, 1377 (8th Cir. 1977); FED. R. EVID. 702 advisory committee's notes. Naturally, the party must qualify the person with specialized knowledge in the same way a party qualifies traditional experts: according to the person's "knowledge, skill, experience, training, or education." FED. R. EVID. 702.

67. See *Ellis v. Miller Oil Purchasing Co.*, 738 F.2d 269, 270 (8th Cir. 1984); *Bartak v. Bell-Galyardt & Wells, Inc.*, 629 F.2d 523, 530 (8th Cir. 1980); *United States v. Kyles*, 20 M.J. 571, 575 (N.M.C.M.R. 1985).

68. FED. R. EVID. 706. In 1946, Congress had initiated a comprehensive scheme to permit a trial court to appoint an impartial expert in a *criminal* trial. FED. R. CRIM. P. 28 (1946). In civil cases, a court prior to 1975 had the inherent ability to appoint an expert under proper circumstances to aid the court in a just resolution of the case. *Danville Tobacco Assn. v. Bryant-Buckner Assocs., Inc.*, 333 F.2d 202, 208-09 (4th Cir. 1964) (court appointed tobacco marketing expert in antitrust suit); *Scott v. Spanjer Bros., Inc.*, 298 F.2d 928, 930-31 (2d Cir. 1962) (medical expert appointed in personal injury loss); see generally Sink, *The Unused Power of a Federal Judge to Call His Own Expert Witnesses*, 29 S. CAL. L. REV. 195 (1956).

69. FED. R. EVID. 706. Rule 706 in its entirety reads:

(a) Appointment

The court may on its own motion or on the motion of any party enter an order to show cause why expert

Three concerns about the use of party-sponsored experts led the Advisory Committee to propose to the Supreme Court and ultimately to Congress the establishment of Rule 706's comprehensive system of permitting a trial court to appoint experts: "[t]he practice of shopping for experts, the venality of some experts, and the reluctance of many reputable experts to involve themselves in litigation."<sup>70</sup> In drafting the Federal Rules of Evidence, the Advisory Committee assumed that the threat of court-appointed experts would be enough to prevent these three problems with party-sponsored experts.<sup>71</sup> The Advisory Committee's notes state that the "availability of the [court appointment] procedure [would] in itself decrease[] the need for resorting to it."<sup>72</sup> However, the concerns that the Advisory Committee hoped to address with Rule 706 remain with us today as real problems.<sup>73</sup>

Today, courts rarely exercise their power to appoint expert witnesses.<sup>74</sup> Some courts express the concern that utilizing court-appointed experts usurps the factfinder's role.<sup>75</sup> For example, in *Kian v. Mirro Aluminum Company*,<sup>76</sup> a Michigan district court noted in dicta that "[t]he presence of a court-sponsored

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witnesses should not be appointed, and may request the parties to submit nominations. The court may appoint any expert witness agreed upon by the parties, and may appoint expert witnesses of its own selection. An expert witness shall not be appointed by the court unless the witness consents to act. A witness so appointed shall be informed of the witness' duties by the court in writing, a copy of which shall be filed with the clerk, or at a conference in which the parties shall have opportunity to participate. A witness so appointed shall advise the parties of the witness' findings, if any; the witness' deposition may be taken by any party; and the witness may be called to testify by the court or any party. The witness shall be subject to cross-examination by each party, including a party calling him as a witness.

(b) Compensation

Expert witnesses so appointed are entitled to reasonable compensation in whatever sum the court may allow. The compensation thus fixed is payable from funds which may be provided by law in criminal cases and civil actions and proceedings involving just compensation under the fifth amendment. In other civil actions and proceedings the compensation shall be paid by the parties in such proportion and at such time as the court directs, and thereafter charged in like manner as other costs.

(c) Disclosure of appointment

In the exercise of its discretion, the court may authorize disclosure to the jury of the fact that the court appointed the expert witness.

(d) Parties' experts of own selection

Nothing in this rule limits the parties in calling expert witnesses of their own selection.

FED. R. EVID. 706.

70. FED. R. EVID. 706 advisory committee's notes.

71. *Id.*

72. *Id.*

73. The touted benefits of using court-appointed experts have not materialized, because in practice, relatively few judges have exercised their Rule 706 privilege. 3 J. WEINSTEIN & M. BERGER, WEINSTEIN'S EVIDENCE ¶ 706[01] (1987).

74. AMERICAN BAR ASSOCIATION, SECTION OF LITIGATION, EMERGING PROBLEMS UNDER THE FEDERAL RULES OF EVIDENCE 157, 225-28 (1983); see also J. WEINSTEIN & M. BERGER, *supra* note 73, at ¶ 706[01] (asserting that federal judges have appointed experts in "remarkably few cases").

This is not to say that the power is never exercised. For example, the Fifth Circuit suggested that a court-appointed computer expert could help the district court resolve whether an agency's computer could be programmed to reduce delays in noticing providing notice of a hearing under the Aid to Families with Dependent Children program. *Barrett v. Roberts*, 551 F.2d 662, 664 (5th Cir. 1977).

A Federal Judicial Center study in progress on the use of court-appointed experts shows 80 of 500 judges, had used Rule 706 court-appointed experts. Telephone conversation with Joe Cecil, Federal Judicial Center (Jan. 20, 1988).

75. See J. WEINSTEIN & M. BERGER, *supra* note 73 at ¶ 706[09].

76. 88 F.R.D. 351 (E.D. Mich. 1980).

witness, who would most certainly create a strong, if not overwhelming, impression of 'impartiality' and 'objectivity,' could potentially transform a trial by jury into a trial by witness."<sup>77</sup>

Thus, while some courts view neutral experts as potentially invading a jury's function, other courts view Rule 706 experts beneficially.<sup>78</sup> For example, in *Students of California School for the Blind v. Honig*, the Ninth Circuit affirmed the district court's use of a neutral court-appointed expert to determine whether reports concerning the building site satisfied earthquake safety rules.<sup>79</sup> The appellate court noted that the district court "was free to appoint an expert of its own choosing without the consent of either party."<sup>80</sup>

Another possible explanation of why courts refrain from appointing experts is that the court is overly comfortable with the adversarial system's reliance on the parties' ability to produce "the truth."<sup>81</sup> Old ways die slowly. A court in most situations prefers to rely on the parties;<sup>82</sup> the notion that the court must interject itself into the proceedings as someone other than an umpire is quite foreign to the average trial judge.<sup>83</sup>

### C. Rule 611 and 614 Methods of Examination

Tradition and Rule 611(c) define the general method of examining a witness.<sup>84</sup> Questioning on direct examination proceeds one logical step at a time so as to allow objections by the opposing counsel.<sup>85</sup> On direct examination, counsel ordinarily is not allowed to ask leading questions, except to elicit foundational facts or lead a witness through a confusing area of examination.<sup>86</sup> On cross-examination, both open-ended and leading questions are allowed.<sup>87</sup> Usually, a court does not permit a witness to tell his story in narrative<sup>88</sup> or

77. *Id.* at 356. The court did not permit the expert to testify because "the issues [were] within the grasp of the jury." *Id.* The *Kian* court's holding concerned whether an expert should testify at all about the subject matter, a Rule 702 inquiry, although its dicta discussed whether a court-appointed expert would be proper, a Rule 706 inquiry. Thus, the court confused Rule 702 and Rule 706.

78. *See, e.g.,* *Gates v. United States*, 707 F.2d 1141 (10th Cir. 1983); *Wheeler v. Schumaker*, 78 F.R.D. 218, 227 n. 14 (D. R.I. 1978).

79. 736 F.2d 538, 549-50 (9th Cir. 1984), *vacated on other grounds*, 471 U.S. 148 (1985).

80. 736 F.2d at 549. Although the appointment of court experts is rare, when a district court does utilize Rule 706, a strict level of review could inhibit district courts from appointing their own experts for fear of reversal. Fortunately, the level of review that circuit courts apply is the abuse of discretion standard. *Id.*; *see also* *Fugitt v. Jones*, 549 F.2d 1001, 1006 (5th Cir. 1977).

81. Resnik, *Failing Faith: Adjudicatory Procedure in Decline*, 53 U. CHI. L. REV. 494, 513 (1986) [hereinafter *Failing Faith*].

82. *See* Resnik, *Managerial Judges*, 96 HARV. L. REV. 374, 376, 444-45 (1982).

83. *Id.* at 376; *see* Wyzanski, *A Trial Judge's Freedom and Responsibility*, 65 HARV. L. REV. 1281, 1302-04 (1952).

84. FED. R. EVID. 611(c).

85. *See generally* FED. R. EVID. 103(a)(1) & (2) (objections need to be made to preserve evidentiary issues for appeal; each question should address only one piece of evidence at a time); J. KAPLAN & J. WALTZ, *THE TRIAL OF JACK RUBY* 120-21 (1965).

86. FED. R. EVID. 611(c); *see also* 3 J. WEINSTEIN & M. BERGER, *supra* note 73, at ¶ 611[05] (1987).

87. FED. R. EVID. 611(c); *see generally* J. KAPLAN & J. WALTZ, *EVIDENCE: CASES AND MATERIALS* 28-29 (6th ed. 1987).

88. *Id.*; *see also* *Hutter Northern Trust v. Door County Chamber of Commerce*, 467 F.2d 1075, 1078 (7th Cir. 1972) (refusing to permit *pro se* plaintiff to testify in narrative form).

uninterrupted story-telling form. However, under Rule 614, a court may itself call witnesses<sup>89</sup> in unusual circumstances and interrogate witnesses called by it or by a party.<sup>90</sup> The court will usually question a party's witness to clarify the testimony presented.<sup>91</sup> However, a judge who exercises this privilege too energetically may be reversed on appeal.<sup>92</sup>

### III. PROBLEMS PRESENTED BY THE CURRENT TREATMENT OF SCIENTIFIC EXPERTS

Criticism of an existing situation is a constructive instrument of reform.<sup>93</sup> My critique of the current use of party-sponsored experts is presented in this spirit of criticism and advocates reform.

#### A. Co-opting the Expert: A Loss of Autonomy

The current system regulating party-sponsored expert witnesses permits each side to shop for experts who favor its position and to co-opt the experts in the course of using their expertise.<sup>94</sup> The first time an expert discusses his testimony is almost always prior to trial. To insure that the expert's testimony will be favorable, the attorney discovers at the outset exactly what that expert testimony will be, before he even considers calling the expert as a witness. Thus, in a sense, the lawyer captures<sup>95</sup> the expert, and with it the expert's ability to form an independent opinion.

Even if the expert honestly believes the opinion that the attorney seeks to propound, the expert still experiences a form of coercion or co-option that taints the expert's views. Through the repeated contact with counsel in preparation for trial, the expert begins to identify with the side that hired him. In addition, the party who hires the expert will pay for the expert's services, which allows another opportunity for coercion to seep into the lawyer-expert relationship.<sup>96</sup> Each time the expert confers with the attorney, the expert's testimony and the attorney's viewpoint grow more congruent.<sup>97</sup>

89. FED. R. EVID. 614(a).

90. FED. R. EVID. 614(b).

91. See J. WEINSTEIN & M. BERGER, *supra* note 73, at ¶ 614[03].

92. *Id.* at ¶ 614[03].

93. "Criticism is the spur of reform; and Burke's admonition that a healthy society must reform in order to conserve has not lost its force." *Dennis v. United States*, 341 U.S. 494, 549 (1951) (Frankfurter, J., concurring).

94. See Van Dusen, *supra* note 1, at 500 (describing this phenomenon as bias, even if an unconscious one, because the experts are paid by the party for whom they testify).

95. "Capture" is often used in economic analysis to describe what happens when an industry has great influence over its own government regulators. See Wiley, *A Capture Theory of Antitrust Federalism*, 99 HARV. L. REV. 713 (1986).

96. See Van Dusen, *supra* note 1, at 500.

97. For a description of this process see Sink, *supra* note 5, at 197 (a testifying expert is imbued with "team spirit" which makes him reluctant to damage the interests of his side). This phenomenon is similar to that which occurs when employees of an institution must advocate the institution's views. In these situations, the employees' views begin to mirror the views of the institution.

For an expert, such identification runs counter to the rationale for the provision of real expert testimony—the provision of expertise. Expertise operates successfully only when the expert can question his own assumptions, change his mind, and generally act as an autonomous person who exercises intuitive thought reflectively upon analytical knowledge and experience. Autonomy permits an expert to act as he thinks best, including the freedom to rely upon the intuitive understanding of situations and the freedom to change his mind as he learns more about the questions put to him.

In contrast, a paid party-sponsored expert is less free to act as she see best. By the end of trial preparation, an expert will often espouse only views which support the side paying her. An expert will downplay the opposing side's view in her own mind. Although an expert may truly believe that she is exercising her professional judgment, the pressures at play logically indicate that she is not. To be truly autonomous, an expert must be free to change her mind as experience and additional facts provide valuable feedback to test her theoretical assumptions. The inevitable identification that occurs between the scientific expert and the attorney's position interrupts the feedback loop that is supposed to test the theoretical assumptions underlying an expert's opinion. Identification with one side perverts an expert's best judgment.

To illustrate, imagine one side buying the best person, the real "Einstein" of the field.<sup>98</sup> At first glance, it would appear advantageous to truth-seeking to let this person testify—which of course it is. However, depending on the expert's ability to withstand influence, the world renowned expert's opinions may change from the time he first learns of the case to the time he actually testifies. Undoubtedly the degree of capture involved varies depending upon the parties involved, but it is likely that capture occurs to some degree in every case involving party-sponsored expert testimony.

## **B. Reducing the Expert to a Mere Competent: A Loss of Trust**

An expert is reduced to a mere competent by the method of examination in the current system and by the effect of partisan identification with the side that hired him. Reduction of the expert to a competent results in a loss of trust in the expert's testimony. The tension between the need of the factfinder to trust experts who are exercising their expertise and the factfinder's need to scrutinize the expert's analysis and conclusions<sup>99</sup> is a clear problem caused by the current adversarial use of experts.

When a decision-maker can trust an expert, there is less need to scrutinize an expert's analysis and conclusions. But when there is a lack of trust, as when

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98. L. Petrich, *Use of Expert Testimony and Surveys in Copyright Cases*, in *LITIGATING COPYRIGHT, TRADEMARK, AND UNFAIR COMPETITION CASES* 167 (Litigation and Administrative Course Handbook Series 1986) ("Some lawyers dealing in a very narrow field will make the effort to contact all the known experts in that field—on the hope that they have thereby blocked the use by their opponent of those experts, whether or not those experts are ever retained or testify."); Emerick, *Discovery of the Nontestifying Expert Witness' Identity Under the Federal Rules of Civil Procedure: You Can't Tell the Players without a Program*, 37 *HASTINGS L.J.* 201 (1985) (illustrating how retaining an expert can amount to a "capture" of the best person in a field).

99. See *supra* text accompanying note 59.

a party-sponsored expert is testifying, the inability to double-check and examine for flaws puts the factfinder in a difficult position. Distrust, which prompts the factfinder to want to control a situation, may lead to decomposition of the "whole" of the expert's expertise.<sup>100</sup> Such decomposition is fatal because it results in distortion and disintegration of thought.

Adversarial examination of experts forces the expert to weigh each word carefully in anticipation of its use by the other side.<sup>101</sup> Fluid thought, the hallmark of expertise,<sup>102</sup> is removed by this process. Hard and fast rules, each examined in a logical fashion, make the safest testimony for the party-sponsored expert. But an "expert" functioning in such a manner is no longer exercising expertise. The expert applies rules and states conclusions based on expertise, but because she cannot use her intuitive understanding, she has been transformed into a competent.<sup>103</sup>

Cross-examination, as such, is not the only force leading to this transformation from expert to competent. Adding to the transformation is the fact that a party-sponsored expert feels compelled to espouse a viewpoint that is distorted in favor of his side.<sup>104</sup> This is similar to the point Justice Cardozo made when he stated that "[i]t is common knowledge that a camera can be so placed, and lights and shadows so adjusted, as to give a distorted picture of reality."<sup>105</sup> The lawyer's questions on cross-examination can, like the placement of a camera and lights, distort the reality of the situation which the expert is trying to explain. Like adversary cross-examination, where counsel prevents explanation by the expert and uses the expert's wavering against him, partisanship compels an expert either to make grand statements of his position, which would be open to attack on cross-examination, or to build a logical neat argument that can be explained in a series of steps. However, such neat arguments, proceeding in logical steps, are the arguments of competents.<sup>106</sup>

Permitting someone who is a competent rather than an expert to testify about important issues litigated in our courts threatens the credibility of the decisions reached in these cases. When a court addresses, for example, the risk of harm which the Diablo Canyon Nuclear Power Plant poses because of a possible earthquake in Southern California,<sup>107</sup> it needs to hear "expert" advice, not just competent advice. People's lives and millions of dollars rest on the court's decision, the correctness of which depends upon the scientific accuracy of *expert* testimony.<sup>108</sup>

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100. See *supra* notes 16-20 and accompanying text.

101. See generally J. KAPLAN & J. WALTZ, *supra* note 87, at 28-29.

102. See *supra* notes 50-51 and accompanying text.

103. See *supra* notes 16-20 and accompanying text.

104. See *supra* text accompanying notes 94-98.

105. *Snyder v. Massachusetts*, 291 U.S. 97, 115 (1934) (arguing that to be admitted, a photograph should be verified by the oath of the photographer, who should be available for cross-examination on the manner in which he took it).

106. See *supra* note 47.

107. For an examination of this factual situation see, e.g., *San Luis Obispo Mothers for Peace v. United States Nuclear Regulatory Comm'n*, 799 F.2d 1268, 1270 (9th Cir. 1986).

108. Many cases illustrate the factual dilemmas that a court faces. Returning to a familiar example, in *San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm'n*, 751 F.2d 1287 (D.C. Cir. 1984), *vacated in part* (en banc), 760 F.2d 1320 (D.C. Cir. 1985), the majority declined to re-

### C. Loss of Intuitive Understanding in Assessing New Situations: A Loss of Truth

Another cost to the legal system of the current party-sponsored expert system is a loss of the ability of experts to exercise their "intuitive understanding"<sup>109</sup> to forecast the results of future events.<sup>110</sup> Lawyers tend to believe that the examination of both sides of the story will produce the "truth", the historical fact of what actually occurred. Although this may be true in the usual case in which a court is asked to look backwards, the basic assumption that two adversaries vigorously advocating their respective positions will produce the truth is an untrue assumption in most cases in which experts testify. Often the expert testifies about something that is not a past fact, and instead the expert is asked to give opinions of what will happen in the future. An expert who has been reduced to a mere competent will not be able to exercise the kind of intuitive understanding necessary to make these predictions. Permitting each side to pick someone who favors its position does not in any way guarantee that truth will emerge.

### D. Battle of the Experts: Rejection of Scientific Evidence

In a case in which expert testimony is crucial, any battle of the experts can cause the jury to disregard important evidence.<sup>111</sup> A jury will tend to disregard the testimony of both experts in such a case and, thus, decide the case without the help of expert evidence,<sup>112</sup> because it would consider the experts to be

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view the substance of the Nuclear Regulatory Commission regulations concerning emergency preparedness. Judge Wald noted in dissent the importance of thorough judicial review of an agency's actions "in the area of nuclear power regulation [where] even a small lapse in rational decision making may have the most profoundly devastating consequences on public health and safety" and suggested that the court should have required the Commission to consider the effect of earthquakes on emergency planning for the Diablo Canyon Nuclear Power Plant because "refusal to make explicit provision in emergency response plans for an earthquake in a nuclear plant within three miles of a major, active fault . . . is by definition an arbitrary . . . act." *Id.* at 1330, 1335. See generally Note, *Diablo Canyon Licensing Oversight: Does the NRC Licensing Process Assure Nuclear Safety?*, 21 NEW ENG. L. REV. 77 (1986) (questioning whether judicial deference to NRC determinations produces wise decisions).

109. See *supra* text accompanying notes 54-56 (explaining intuitive understanding).

110. In some situations, this inability to get expert forecasts could bar suits completely. See, e.g., *Gwaltney of Smithfield v. Chesapeake Bay Found.*, 108 S. Ct. 376, 384-85 (1987) (plaintiff cannot survive motion to dismiss case brought under Clean Water Act without alleging either current, continuing, or intermittent violations of the Act). Where there is no evidence of current violations and the only data available to a citizen will be reports which rely upon past data, plaintiffs may have to rely upon an expert's prediction from past violations that there is a continuing or intermittent violation.

111. Cf. *Imwinkelried*, *supra* note 15, at 567-70 (jurors may disregard scientific evidence of which they are skeptical).

112. The law permits the jury to disregard evidence when the evidence is not trustworthy. For example a sample jury instruction used in the Fifth Circuit charges the jury that:

The rules of evidence provide that if scientific, technical, or other specialized knowledge might assist the jury in understanding the evidence or in determining a fact in issue, a witness qualified as an expert by knowledge, experience, training, or education, may testify and state his opinion concerning such matters.

You should consider each expert opinion received in evidence in this case and give it such weight as you may think it deserves. If you should decide that the opinion of an expert witness is not based upon sufficient education and experience, or if you should conclude that the reasons given in support of the opinion are not sound, or that the opinion is outweighed by other evidence, then you may disregard the opinion entirely.

untrustworthy.<sup>113</sup> Thus, scientific evidence would be removed from the decision-making process.<sup>114</sup>

#### IV. TWO PROPOSALS TO INCREASE COURT APPOINTMENT OF SCIENTIFIC EXPERTS

Any proposal for changing the way experts participate in federal court must address the following three problems identified by this Comment: the degree of side identification, the undermining of objective truth, and the inability of the legal system to avail itself of the expertise of the best people in science. The legal process needs new methods in order to realize the full value of scientific evidence.<sup>115</sup> This Comment makes two possible proposals: a legislative proposal and a judicial proposal that modifies current Rule 706.

##### A. The Legislative Proposal

###### 1. Structure of the Proposal

The current system of party-sponsored experts needs to be modified in order for the court system to utilize fully the expertise of experts who assist the triers of fact. The legislative proposal would add a party-negotiated expert to mechanisms already in place under Rule 706 of the Federal Rules of Evidence. Party-negotiated, court-appointed experts would be heavily favored over party-sponsored experts, with the latter being used only in exceptional cases.

The legislative proposal would mandate a new system for selecting experts. The parties would first submit to the court a list of subject areas in which they desire expert testimony.<sup>116</sup> This list would be accompanied by a list of cleared experts corresponding to each suggested subject area. The parties would then negotiate with each other to decide which *one* expert will testify

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PATTERN JURY INSTRUCTIONS (CIVIL CASES) § 6 (Comm. on Pattern Jury Instructions District Judges Ass'n Fifth Circuit 1980) (emphasis added).

113. See *supra* text accompanying note 59.

114. In cases in which there may be extensive ramifications from an erroneous decision, this loss of credibility is very costly, because these are precisely the cases in which the legal process needs to bring experts into the dispute resolution process. See *supra* note 2 and text accompanying notes 11-15.

115. A few years ago, there was serious discussion of the creation of a specialized "science court." The proposal to create such a court seemed partially a response to the perceived inability of the current system to successfully adjudicate scientific disputes. Proponents intended it "as an adversary forum in which scientists with different views on controversial issues would argue in structured debates before unbiased scientific judges. Debate would be limited to questions of fact: judges would give opinions only on factual matters[.]" Jasanoff & Nelkin, *Science, Technology, and the Limits of Judicial Competence*, 214 *SCIENCE* 1211, 1214-15 (Dec. 11, 1981).

Professor Tribe argues against such a method of factual decision-making believing that it separates the scientific issue from the underlying value choices. Professor Tribe calls such values "fragile values." See Tribe, *Ways Not To Think About Plastic Trees*, in *WHEN VALUES CONFLICT: ESSAYS ON ENVIRONMENTAL ANALYSIS* 61-92 (L. Tribe, C. Schelling & J. Voss eds. 1975). I agree with Professor Tribe that decision-making involving scientific disputes needs to remain integrated; bifurcated decision-making tends to squeeze out values that are non-quantifiable, intangible, and resist categorization. My proposal favoring court-sponsored experts leaves value choices and decisions based upon scientific fact with the same decision-maker—with the factfinder. See *supra* text accompanying notes 94-98.

116. This submission would occur during discovery. Each court would have discretion to decide when in the discovery process this would occur. I suggest adding this part of the proposal to the Federal Rules of Civil Procedure to provide advance notice to the parties. See, e.g., FED. R. CIV. P. 30(b), 31 (notice of deposition and notice of deposition upon written questions, respectively).

concerning each subject matter.<sup>117</sup> Prior to trial, the court would instruct all of the chosen experts that they owe their allegiance to the court and to the search for truth, and that they are not to treat either side more favorably than the other side.<sup>118</sup> The court should permit discovery by both sides of the expert's proposed views, so they may prepare to challenge or support the testimony.<sup>119</sup> During the trial, each side would be able to call and to cross-examine the expert, but the court should grant the expert freedom to explain answers rather than holding the expert strictly to the precise question asked.

If the parties cannot agree on a single expert, they would submit to the court a list of three candidates, along with each expert's credentials. The court would then again try to get the parties to agree upon an expert. If an agreement is still elusive, however, then the court would independently appoint the expert from the list of proposed candidates.

As a last resort, the court could permit dual experts to air openly diverse views on subjects the court finds highly controversial<sup>120</sup> or where the use of

117. Negotiation is an express option in current Rule 706, which states "[t]he court . . . may request the parties to submit nominations [and] [t]he court may appoint any expert witnesses agreed upon by the parties . . ." FED. R. EVID. 706(a).

118. An example of a court's written instruction to a court-appointed expert states:

*Instructions to Court-Appointed Expert Witness  
Dr. Harry Jackson Till*

Dr. Till, this Court has appointed you as an expert witness in this case under Federal Rule of Evidence 706. Said Rule is set out in its entirety in the accompanying Memorandum Opinion and Order. You are to examine the plaintiff in connection with his hernia complaints.

*Duty of the Court-Appointed Expert Witness:*

Since it is the Court who appointed you, it is to the Court, not the parties, that you owe your allegiance. The Court will expect you to remain neutral, fair and free of prejudice in all your contacts with the parties. You should examine plaintiff with the questions the Court poses below in mind. It is your role to explain what your examination of plaintiff revealed, to tell the truth as most fully and completely as you can. The Court seeks not only your examination skills, it seeks your best and soundest judgment. Truth, fairness and your medical judgment should guide you as you examine plaintiff.

*Questions:*

Dr. Till, you should be prepared to answer the following questions: 1. What type of hernia does plaintiff have? 2. Does plaintiff's hernia require corrective surgery? 3. If plaintiff's hernia requires surgery, would you consider a doctor who recommended "no surgery" to have acted with callous indifference to the serious medical needs of the patient?

*Responsibilities:*

After your examination you should write down your findings and your answers to these questions. Feel free to include any other observations you think may be relevant which the Court has failed to identify. You should send this written report to the Court.

Just as in any case, the parties are free to take your deposition, that is, ask you questions under oath with a court reporter taking down your answers. However, they should wait until after you have submitted your written report.

If this case goes to trial, the Court will call you as a witness. Of course, as stated above, you owe your allegiance to the Court and to truth.

Defendants' counsel, Hon. Bobby N. Bright, or possibly someone with the Alabama Department of Corrections, should contact you soon to arrange to bring plaintiff to your office. If you have any questions, feel free to call.

Instructions to Court-Appointed Expert Witness, Lee V. Granger, No. 87-H-286-N (M.D. Ala. Mar. 1, 1988).

119. Rule 706 currently authorizes either party to take the deposition of court-appointed experts. FED. R. EVID. 706(a). See 3 J. WEINSTEIN & M. BERGER, *supra* note 73, at ¶ 701[02] (commenting that this increases the chances that the truth will be ascertained).

120. These highly controversial areas of science pose the same problem addressed by the *Frye* rule. See *supra* note 60 (discussing the impact of the *Frye* rule's approach to admitting questionable

party-sponsored experts is in the interest of justice.<sup>121</sup> Finally, the court would assign the cost of the experts to the losing side, with discretion to modify as the court sees fit.<sup>122</sup>

The purpose of this scheme is to encourage an expert to identify with the court rather than with the side that hires him. The result should be deeper objective truth presented to the factfinder, better quality experts participating in the legal system, and an increased degree of credibility for the legal system in the community. This should lead the court closer to "mutual conciliation rather than adversary confrontation."<sup>123</sup>

The burden of discovering who is truly an expert in each field should be placed upon the parties rather than the court. This is because the parties are in the best position to know the subject areas in which an expert's testimony will assist the factfinder in better understanding the case.<sup>124</sup> The nature of the final selection process will temper each side's desire to nominate only those experts who are favorable to it. Wise counsel will also include more moderate experts on the list to permit retreat during negotiation to a neutral position that each party considers acceptable. The bargaining nature of the selection process would result in a wide range of expert viewpoints being represented during the submission stage. When few experts testify, or only one testifies, the bargaining produces one expert in each area who has testimony to assist both sides, an expert more neutral than one that would be chosen by either of the parties in a non-negotiated situation. If the case requires experts in numerous subject areas,

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scientific evidence). There is a place for the problem *Frye* attempts to address. My approach is to permit the battle of experts since the suggested area is so new or unexplored that no one really knows what to think. For example, see *Baltimore Gas & Elec. Co. v. Natural Resources Defense Council*, 462 U.S. 87, 103 (1983) (environmental effects of nuclear power plant's fuel cycle is an area "at the frontier of science").

121. Psychiatric examination in criminal cases seems a truly nebulous area in which the use of battling experts probably works as well or better than the use of one expert. Furthermore, the criminal defendant may have a constitutional right to his own expert. For an illustration of the use of experts in situations in which no one expert possesses the conclusive answer see *Barefoot v. Estelle*, 463 U.S. 880 (1983); see also *supra* note 23 (works discussing the possible unreliability of psychiatric testimony).

122. Current treatment is to tax the costs of Rule 706 experts. See 28 U.S.C. § 1920 (1983); see *MANUAL FOR COMPLEX LITIGATION* 140 (5th ed. 1982) (compensation should be taxed like other costs); see generally T. WILLING, *COURT-APPOINTED EXPERTS* 14-17 (Federal Judicial Center 1986) (describing procedures for allocating and paying expert witness costs).

Naturally, a court-appointed expert is entitled to reasonable compensation. FED. R. EVID. 706(b). In a case in which one party is proceeding *in forma pauperis* or the litigation is apt to be protracted so that the taxing of costs may occur long after the expert lends her services, Rule 706(b) empowers a court to deviate from the usual method of taxing costs at the end of the case. Specifically Rule 706(b) states that: "the compensation shall be paid by the parties *in such proportion and at such time as the court directs*, and thereafter charged in like manner as other costs." FED. R. EVID. 706(b) (emphasis added). A trial court's discretion is broad in deciding the method in which witness costs are administered. See, e.g., *United States Marshals Service v. Means*, 741 F.2d 1053, 1057 (8th Cir. 1984) (en banc) (holding that the trial court has the power to call a party's witness as the court's own and then order the opposing side to advance fees and expenses).

123. M. SHAPIRO, *COURTS, A COMPARATIVE AND POLITICAL ANALYSIS* 15 (1981) (the prototypical court is less adversarial than one might imagine; the business of the court is bringing two disputing parties to a resolution).

124. The submission of the expert list by each party to the court uses the parties' knowledge in a form of range-of-choice discretion. See *supra* note 26 (explaining range-of-choice discretion).

then the expected result is that the parties will allow plaintiff's expert *A* to testify about one subject and defendant's expert *B* to testify about another—quasi-*quid pro quo* bargaining. Although such bargaining could result in the selection of less neutral experts than would be selected when there are few experts in the case, it would still lead to the selection of a panel of experts with fewer adversarial allegiances than under the current system.

If the parties deadlock on any of the slots, then the court would step in to provide a solution. By submitting suggested names and then narrowing down the list during the bargaining process, the parties would provide the court with a short list from which to choose an expert based upon credentials, experience, and particular areas of expertise. The list of experts and the court order appointing an expert together would create a record that would facilitate appellate review of the trial court's choice and would offer some guidance for future cases. The court should also be free to choose an expert who does not appear on either side's list although this would probably be the exception rather than the rule.

The part of this proposal most vulnerable to judicial bias would be the court's selection of an expert from the short list. The proposal's bargaining process would, in most circumstances, render court selection of an expert unnecessary. When such a situation does occur, it can be handled by case law, that should emphasize selection of the person with the best credentials and as impartial as possible. Inevitably some bias will creep in, but this would not approach the degree of distortion that now exists with party-sponsored experts.

Once experts have been chosen, the court's primary task would be to instruct them, on the record, about their duty to the court.<sup>125</sup> The court can assure the experts that their role is to explain what they know, regardless of the effect of that testimony on either party, rather than to be subject to an elicitation of selective testimony.<sup>126</sup> A conscious identification with the court and truth would release the expert to act as an "expert," rather than as a mouthpiece of one party's view of the situation.<sup>127</sup>

The method of examination should begin with a narrative of the expert's view or understanding of his speciality. Then the parties should, at the discretion of the court, be able to ask leading questions of the expert. However, the court should supplement the leading questions with clarifying questions to round out the examination for the benefit of the factfinder. Because the expert owes express allegiance to the court, the court should take care not to appear biased toward either side. The court, in recognition of the expert's expertise, should permit the expert freedom to answer questions with the objective of uncovering the opinion of the expert in all its complexity. Unhindered by the adversary nature of the questioning, this would allow the expert to think freely and honestly. This will not lead to uncontrolled testimony, because of the court's discretion to allow a party to put leading questions to a hostile expert.<sup>128</sup>

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125. See *supra* note 118.

126. *Id.*

127. See *supra* note 5 (noting the problems of expert identification with the party that hires her).

128. Such authority should be within the trial court's discretion vis-a-vis the rule of law. See *supra* note 26 (explaining types of discretion).

The opportunity to examine fully how the expert arrives at her opinion would assist the factfinder in its truth-seeking function. This approach would encourage the expert to exercise expertise and would encourage the best people in a specialized field to act as expert witnesses because they would believe that they can testify to the "whole" truth of a situation, regardless of its effect on either side. An expert fully conversant in a specialized scientific area does not want to operate under the artificial restrictions that a lawyer places on him by asking him to put forth a new "truth" consistent with the lawyer's viewpoint. The parties will still have the opportunity and duty, as they do now upon cross-examination, to expose to the factfinder the expert's biases which may color the expert's viewpoint. However, cross-examination would no longer be an exercise that reduces experts to incompetents. Reflective discussion still can be expertise, but that would differ from the current system in which an expert espouses one view without qualification.<sup>129</sup> Nevertheless, the factfinder would hear what the expert has to say, supplemented by probing questions from counsel and the court to round out the examination.

In special circumstances, the court should allow each of the parties to present an expert, following the current practice of party-sponsored experts. The court would justify, on the record, why the particular subject matter requires an open airing of diverse views using party-sponsored experts. Such special circumstances should be limited to two situations: a highly controversial subject area that is best understood through presentation of opposing views, and when the use of opposing experts is in the best interest of justice.<sup>130</sup> A good example of when justice would be served by the presentation of diverse views is in the death penalty phase of a trial for a capital offense. Psychiatric experts for each side would testify about the "dangerousness" of the defendant.<sup>131</sup> Thus, the so-called "battle of the experts" would occur in only a narrow range of cases.

Where a dispute involves a highly controversial area of a scientific discipline, allowing only one expert could, by the highly charged nature of the subject area, virtually determine the outcome of the case.<sup>132</sup> In this situation, the court should allow the parties to present the divergent views of the scientific community by using two or more experts. For example, imagine a case in which the

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129. See *supra* text accompanying notes 94-98 (examining the co-opting of experts).

130. See *supra* notes 120-121 and accompanying text. Appellate courts would need to develop guidelines for applying these exceptions. The "best interests of justice" exception would probably be limited to criminal cases. As previously discussed, a defendant in a criminal case would probably have a constitutional right to call his own expert witnesses.

131. The United States Supreme Court ruled in such a case that a psychiatrist's testimony predicting dangerousness was admissible despite its scientific uncertainty. *Barefoot v. Estelle*, 463 U.S. 880, 899-901 (1983). Justice Blackmun makes a strong argument in the dissent for exclusion of this type of evidence based upon its unreliability. *Id.* at 926-30 (Blackmun, J., dissenting). For a good explanation of the dubiousness of psychiatric material see Levine, *The Adversary Process and Social Science in the Courts: Barefoot v. Estelle*, 12 J. PSYCHIATRY & L. 147 (1984). Nevertheless, *Barefoot* is a good example of the use of opposing experts in a controversial area.

132. A party who wishes to argue that a dispute involves a highly controversial scientific area would move to have party-sponsored experts. In considering such a motion, the judge should keep in mind that party-sponsored experts should be reserved for exceptional cases.

scientific issue before the jury is the following: how does AIDS spread and can men get AIDS from women?<sup>133</sup> Because the transmission of AIDS is still such a mystery to medical science,<sup>134</sup> diverse views on this question would be most helpful to the jury. The loss of expertise would be more acceptable because, by definition, this is an unsettled area of scientific inquiry, and thus no person alone is an "expert."<sup>135</sup> In some undeveloped area of science, all scientists are only competents trying to understand the causes and dimensions of the issues. Although the use of party-sponsored experts diminishes the expertise of each witness, if this is reserved for situations which experts would agree are controversial, quality experts will respect such use of the adversary system. A factfinder could still make an informed decision as possible after listening to multiple experts. Reserving party-sponsored expert testimony for active controversies in the scientific community would both focus the controversy and maintain the court's integrity.<sup>136</sup>

Assignment of the costs of court-appointed expert witnesses is another issue. Currently, the court has discretionary power to order the losing party to pay the costs of the expert witnesses.<sup>137</sup> The court also has the express authority to apportion the costs between the parties in its discretion.<sup>138</sup> Similarly, under this proposal, the cost of the court-appointed expert should normally be taxed to the losing party. In circumstances where each party would normally pay its own costs,<sup>139</sup> the parties should split the cost of the court-appointed expert equally. Since only one expert would be used rather than two for each subject area, the cost to the losing party is no more than if each party paid for its own experts. In addition, in an area in which only one or two people are experts, this system of party-negotiated experts would help prevent the wealthier party from "buying" all the experts.<sup>140</sup> Thus, this system has the added benefit of helping to equalize the positions of the parties in some circumstances.<sup>141</sup>

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133. The context might be a murder trial where a woman with AIDS had sexual intercourse with the murder victim who later died of AIDS and her defense is one of causation.

134. K. Leishman, *San Francisco: A Crisis in Public Health*, ATLANTIC MONTHLY, Oct. 1985, at 18, 22, and 24 (Notes & Comments) (still debate over cause of transmission of AIDS). See generally Moriarity, *AIDS in Correctional Institutions: The Legal Aspects*, 1987 CRIM. L. BULL. 533; Landesman, Ginzburg & Weiss, *Special Report: The AIDS Epidemic*, 312 NEW ENG. J. MED. 5221 (1985).

135. When the trial court decides that a scientific matter is highly controversial or that the case requires diverse experts for justice to be served, the court's discretion is discretion vis-a-vis the rule of law. See *supra* note 26 (explaining types of discretion).

136. In contrast, for an example of the use of a court-appointed expert in a case involving a non-controversial area of science see *Kaehni v. Diffraction Co.*, 342 F.Supp 523 (D. Md. 1972), *aff'd without opinion*, 473 F.2d 908 (4th Cir.), *cert. denied*, 414 U.S. 854, *reh'g denied*, 414 U.S. 1033 (1973) (court-appointed expert testified regarding physical properties of light). In this case, the court also exercised its power to question the expert witness. *Id.* at 527.

137. See *supra* note 122; 28 U.S.C. § 1920(6) (1982).

138. For examples of such circumstances, see T. WILLGING, *supra* note 122, at 14-15. See also FED. R. EVID. 706(b).

139. T. WILLGING, *supra* note 122, at 14.

140. *Id.* at 15 & n.53.

141. Of course, each side can still hire an expert to educate its own lawyers, but consulting experts would not testify.

2. *How the Legislative Proposal Addresses Problems Caused by Current System of Party-Sponsored Experts*

a. Elimination of co-opted experts: preserving autonomy

Using one expert picked by negotiation or by the court from a short list would help infuse truth into the scientific inquiry. Negotiation would force the parties to pick experts with more neutral viewpoints, which would in turn allow the jury to hear a more balanced explanation of the scientific issues. This would eliminate the "buying" of a viewpoint to support an untenable position.<sup>142</sup>

A court-sponsored expert system would prevent co-option of the expert. The expert remains neutral and detached, much like the jury. Capture would be avoided because the hours of preparing the expert would never occur and the thirty pieces of silver would never change hands. No bond would grow between one party and the expert; thus the phenomenon of side identification would never have a chance to color the expert's thinking. Throughout the process, the expert would remain an autonomous person who can question her assumptions and change her opinions as new facts become known. With the legislative proposal, expertise would operate where once showmanship ruled supreme.

b. Elimination of the factors which reduce an expert to a mere competent: restoring trust

Changing the method of examination would guarantee that an expert, rather than a competent, testifies. Using one non-party-sponsored expert would allow the expert to speak freely with no secrets to hide or weak points to avoid. The expert could discuss the given topic in a fluid manner, fully expressing his expertise.

The Dreyfus brothers' description of the fluidity of thought and action an expert experiences illustrates this concept. They state that "[w]hen things are proceeding normally, experts don't solve problems and don't make decisions; they do what normally works."<sup>143</sup>

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142. Van Dusen, *supra* note 1, at 500. Even as far back as 1858, the United States Supreme Court remarked in a patent case that "[e]xperience has shown that opposite opinions of persons professing to be experts may be obtained to any amount[.]" *Winans v. New York & Erie Ry. Co.*, 62 U.S. (21 How.) 88, 101 (1858).

143. See H.L. DREYFUS & S.E. DREYFUS, *supra* note 30, at 30-31 (emphasis omitted). Their longer explanation of this idea is worth considering. They state:

An expert generally knows what to do based on mature and practiced understanding. When deeply involved in coping with his environment, he does not see problems in some detached way and work at solving them, nor does he worry about the future and devise plans. . . . An expert's skill has become so much a part of him that he need be no more aware of it than he is of his own body.

The expert driver becomes one with his car, and he experiences himself simply as driving, rather than as driving a car, just as, at other times, he certainly experiences himself as walking and not, as a small child might, as consciously and deliberately propelling his body forward. Airplane pilots report that as beginners they felt that they were flying their planes but as experienced pilots they simply experience flying itself. . . . Similarly, the expert business manager, surgeon, nurse, lawyer, or teacher is totally engaged in skillful performance. *When things are proceeding normally, experts don't solve problems and don't make decisions; they do what normally works.*

*Id.*

Allowing the expert to first testify in narrative form would permit a more fluid thought process to occur before the leading questions of the parties test the expert's assumptions.<sup>144</sup> This difference is not a difference in degree, it is a difference in kind. Expertise is a different sort of understanding than mere competence. It is this highest level of human understanding that this proposal seeks to unfetter in the legal dispute process through the use of court-appointed experts.

c. Preservation of the expert's intuitive understanding: restoring truth

Just as allowing the expert to explain his opinion in narrative form before question and answer begins would permit an expert to act like an expert, so does the use of only one expert. As stressed above, the hallmark of expertise is natural, fluid thought. An expert's opinion is apt to both support and refute each side's position. Otherwise, there would not be a dispute. Without an eye toward the end result of the litigation, the expert can express his *whole* position in all its complexity.

Compare this to the current situation in which each side's expert must focus on the facts which support his sponsor and downplay the other side's position. The distorted picture which results from this battle of the experts does not result in a whole, fully fleshed-out view of a complex scientific issue.

Using only one expert would permit more sophisticated testimony by the expert. The attorney could question the expert about his testimony to permit the factfinder to reflect upon it. The key would be to encourage the expert to use his intuitive understanding. Fluid thought would release the expert's expertise. This would be especially crucial in cases in which the expert is called upon to use expertise to predict future consequences, where intuitive understanding—the ability to apply expertise to new situations—is most helpful. For example, "[e]xpert nurses will sometimes sense that a patient lies in danger of imminent relapse and urge remedial action upon a doctor."<sup>145</sup>

d. Retention of the benefit of scientific expertise: restoring credibility

Allowing scientists to act like scientists would protect the credibility of the legal system in the jurors' and the experts' minds. The jury is less likely to ignore scientific data if the presentation of it does not conflict unnecessarily.

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The key idea is that experts simply act and react. They do not apply rigid rules to a particular fact pattern. Instead they "see" both the solution and the result in a given fact pattern. An expert's narration of both solution and result is what expertise is all about; that is what this Comment wants to introduce into the legal dispute process. The legislative proposal does this by having the expert explain his opinion in *narrative* form before the choppy form of question and answer explanation begins.

144. The classic form of examination in which the lawyer asks a single question such as "what color was your car?" and the witness answers "red," breaks up the fluidity that is the essence of expertise. Question and answer makes sense when the purpose is to explain how an accident occurred or some other historical fact. What the legislative proposal does is postpone question and answer until *after* the expert has explained his opinion in narrative form. Thus, an expert can reflect upon his intuition and use expertise when responding to questions.

145. H.L. DREYFUS & S.E. DREYFUS, *supra* note 30, at 34.

A jury wants to believe in the validity of the process in which it participates. Party-sponsored experts who spar force the jury to concentrate on their clash rather than the substance of the dispute. The jury's faith in the judicial system is a precious asset, particularly in a cynical age in which people do not trust the courts or their officers, the lawyers.<sup>146</sup> The use of a single expert would allow the jurors to place their trust in the expert. This trust is necessary for the expert to convey his expertise.<sup>147</sup>

In addition, allowing an expert to be honest and forthright rather than evasive or manipulative permits the expert to have a positive experience with the legal system. Outstanding scientists would be more receptive to testifying in court if they felt that they do not owe their "bosses," the people who hired them, a certain outcome. This problem of quality scientists' reluctance to involve themselves in a serious lawsuit harms the integrity of the legal system. If an expert knew allegiance was owed to the court and to truth, the expert most likely would view testifying much like jury duty—a civic trust that can be both-ersome but necessary in a civilized society.

## B. The Judicial Proposal

### 1. *The Structure of the Proposal*

The legislative proposal represents complete reform. However, half-way solutions appeal to the practical mind because they appear possible without tremendous effort. The judicial proposal, a more modest reform, takes advantage of the current structure of the Federal Rules of Evidence. It stresses the court's use of the current court-appointed expert Rule 706.<sup>148</sup> With minor differences, this proposal parallels the legislative proposal. However, in practice this judicial proposal both retains some of the problems of the present system and loses some of the improvement offered by the legislative proposal. The judicial proposal combines the use of party-sponsored experts<sup>149</sup> with the legislative proposal's nearly exclusive use of court-sponsored experts.<sup>150</sup> The end result of the judicial proposal is the use of party-negotiated experts, a situation already provided for in Rule 706. For this proposal to work, a trial court would need to exercise its power either to appoint experts or to force the parties to come to an agreement about which experts will testify.

The judicial proposal shifts the emphasis of using experts from Rule 702 party-sponsored to Rule 706 court-sponsored. Rule 706 permits a court to appoint an expert of its own choice or from nominations by the parties.<sup>151</sup> This nomination provision is similar to the legislative proposal's requirement that the parties submit a list of candidates with credentials attached. Rule 706 requires

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146. The notion that a lawsuit is simply a "game" for lawyers is not an uncommon perception among non-lawyers.

147. See *supra* text accompanying notes 56-59 (examining an uncorrupted exercise of expertise).

148. See *supra* notes 68-83 and accompanying text (examining Rule 706).

149. See *supra* notes 63-67 and accompanying text (explaining party-sponsored expert Rule 702).

150. See *supra* text accompanying notes 116-141 (discussing the legislative proposal).

151. FED. R. EVID. 706 (a). See *supra* note 69 for the complete text of this Rule.

the court to inform the expert of his duties in writing or at a conference, which the parties may attend.<sup>152</sup> As with the legislative proposal, the court instructs the expert concerning her allegiance to the court and to truth.<sup>153</sup> In addition, under the judicial proposal the expert would advise the parties of any findings and be available for deposition by the parties, which is comparable to the legislative proposal's discovery mechanism.<sup>154</sup> The use of cross-examination by both parties also resembles the legislative proposal, except that the legislative proposal expressly permits the expert more latitude to explain the questions posed by counsel.<sup>155</sup>

However, Rule 706(d)'s escape clause, "[n]othing in this rule limits the parties in calling expert witnesses of their own selection[,]"<sup>156</sup> would neutralize all the presumptions of the judicial proposal. This clause leaves the use of court-appointed experts to the whim of the trial court. The judicial proposal turns that presumption on its head and makes quasi-court-sponsored experts the rule with party-sponsored experts the exception.<sup>157</sup> A court that would want to use the judicial proposal seriously would need to use its influence with the parties to attempt to limit the use of party-sponsored experts. However, even without such strong-arm tactics, a court that actively uses Rule 706 would gain the benefits of the expert's full expertise and the availability of higher quality experts.<sup>158</sup>

## 2. *Application of the judicial proposal to current problems*

### a. *Eliminating Co-opted Experts*

Utilizing Rule 706 with more "gusto" would not, by its own terms, eliminate co-opted experts. An expert who is wedded by money or contact to one party may still testify under the express terms of Rule 706(d). However, introducing the court-appointed expert into the trial would probably reduce the impact of party-sponsored experts.<sup>159</sup> A lawyer who had planned to use a "hired gun" might think twice about doing so for fear of how foolish his hired gun might look in comparison to the more balanced viewpoint of a court-appointed expert. While the more complete solution available through legislative change would do more to reduce the threat of co-opted experts, the judicial proposal's emphasis on court-appointed experts would help reduce the impact and use of co-opted experts.

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152. *Id.*

153. *See supra* notes 125-127 and accompanying text.

154. *See supra* text accompanying notes 116-141.

155. *See supra* notes 128-129 and accompanying text.

156. FED. R. EVID. 706(d).

157. A judge can informally control a case by discouraging overuse of party-sponsored experts.

158. *See supra* text accompanying notes 142-144 (explaining how the legislative proposal attacks the problems of the current system).

159. *Kian v. Mirro Aluminum Co.*, 88 F.R.D. 351, 356 (E.D. Mich. 1980) (court feared trial by expert).

b. Retaining the Expert's Status as Expert

The Federal Rules of Evidence constrain methods of witness examination.<sup>160</sup> Although a court may control the progress of a trial,<sup>161</sup> permitting the trial court some room to control a trial does not mean that a court can permit all experts to testify first in narrative form, and then allow liberal cross-examination by the parties, as the legislative proposal would permit. By implication, the Federal Rules do not permit such expanded examination, and a court should abide by Congress' intent to control a witness's testimony.

Thus, the judicial proposal does differ from the legislative proposal in that an expert testifying under Rule 706 only answers the questions propounded rather than explaining the testimony in narrative form. Although this difference reduces the ability of an expert to set forth her views in an undivided manner, relaxing the strictures imposed by being allowed to answer only the questions asked, and by the court asking additional questions, the expert can put forth a unified picture of how she views an issue.

c. Preserving the Expert's Intuitive Understanding

As in the legislative proposal, permitting the parties to use their own experts in addition to the court-appointed expert would theoretically not affect the ability of the court-appointed expert to utilize intuitive understanding of a problem. However, in practice, if a court-sponsored expert testifies after a party's expert testifies on the same or a related subject, the court-appointed expert might be tempted to reduce the testimony to rule-bound answers, in the manner of a competent or proficient. This would reduce the expert's ability to rely upon her own intuitive understanding.

d. Preserving the Benefit of Scientific Expertise

Having three experts testify about a subject—one for each side and one by court-appointment—could be confusing to a jury. Whether a jury would disregard the court-appointed expert's viewpoint would depend on the dynamics of the particular case. At a minimum, the jury might disregard some testimony because of its apparent repetitiveness, although the testimony might in fact not be repetitive. Thus, some of the benefits of scientific testimony would be lost because party-sponsored experts would be allowed to testify in addition to court-appointed ones. Furthermore, some experts may be unwilling to testify, because they fear their testimony will not be given the weight it deserves. This problem, however, seems minimal, given the other protections of the judicial proposal. Thus, the court's ability to attract the best scientists as expert witnesses would probably not be diminished by allowing the testimony of party-sponsored experts, unless the experts were to fear "guilt by association" with party-sponsored experts.

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160. FED. R. EVID. 611.

161. *Geders v. United States*, 425 U.S. 80, 87 (1976); *see also* FED. R. EVID. 611.

### 3. *Comparison of Legislative and Judicial Proposals*

The most significant difference between the legislative proposal, which involves complete reform, and the judicial proposal, with an increased emphasis on Rule 706 is the degree to which co-opted experts would be eliminated from the trial. The legislative proposal would eliminate party-sponsored experts. In contrast, the judicial proposal permits party-sponsored experts, those who by definition are co-opted to some degree, to testify regardless of whether the court appoints an expert.

Additional differences do exist, but the important point to notice is the degree of similarity between these two proposals in addressing the problems with the current system of party-sponsored experts. Whatever the mechanism, the solution involves using more court-appointed experts and fewer party-sponsored ones. If a court faces a situation involving scientific evidence, and the court appoints an expert, greater truth and a fairer trial will surely result.

## C. **Objections to Increased Court Appointment of Experts**

The two most obvious problems that the proposals present are (1) the possibility of judicial bias, and (2) the danger of the factfinder abdicating its role, that is, trial by expert.<sup>162</sup> This section addresses each of these problems in turn.

### 1. *Judicial Bias*

Judicial bias<sup>163</sup> is a possible cost from implementing either of my two proposals. However, these proposals attempt to minimize and contain judicial bias. For instance, utilizing experts whom the parties have stipulated to before resorting to court-selected experts would eliminate judicial bias in all such cases.<sup>164</sup> Similarly, limiting partisan experts to highly controversial cases and in "best interest of justice" cases<sup>165</sup> would reduce the opportunity for judicial bias to substantially affect the result.<sup>166</sup> Finally, having the trial court create a record of its selection process, and including a list of the credentials and experience of each expert considered, would allow for meaningful appellate review of the selection process. Reversal of the trial result would be an appropriate remedy if bias affecting the outcome were discovered in the trial court's selection process.<sup>167</sup>

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162. What I mean by "trial by expert" is that a factfinder would abdicate all responsibility to ascertain independently the truth and would rely entirely upon the opinion of the expert. In other words, however the expert sees the problem, the jury will see it that way also.

163. The term "judicial bias" includes all types of favoritism that a court could show—for example, a judge might pick an expert who he knew would tend to favor one side over the other, or he might not allow an expert to testify at all on a certain subject. For an example of a judge affecting the outcome of a trial by his restriction of expert testimony see *Wood v. Stihl, Inc.*, 705 F.2d 1101 (9th Cir. 1983).

164. See *supra* text accompanying notes 116-141.

165. Criminal cases are the most likely example of when party-sponsored experts would be used with the legislative proposal, because this would be in the best interests of justice. See *supra* note 130.

166. See *supra* notes 130-135 and accompanying text.

167. Interlocutory appeals might also be used, and may be preferable as a means of preserving judicial resources. Obviously, either type of appeal would benefit from a full record of the selection process.

These safeguards do not completely eliminate the possibility of judicial bias, but they do contain it within acceptable boundaries. Comparing this bias with the flagrant abuses that occur everyday from the use of party-sponsored experts, possible judicial bias seems like the preferable risk for our society to run.

## 2 Trial by Expert

Trial by expert<sup>168</sup> remains a danger with both proposals. However, using only one expert at least removes the "showmanship" emphasized by the current system of party-sponsored experts.<sup>169</sup> The jury would decide the case on the substance of the expert's testimony rather than her polite ways or humorous manner. The attorneys have the chance to question the expert's views and can argue a more partisan view to the jury. In a case in which a crucial issue turns on a scientific question, having the most informed experts testify in a manner that best approaches the truth of the situation is more important than any concern about how much deference the jury would give to the expert. The party-sponsored system of experts also carries with it the risk of trial by expert. The possibility of trial by expert would be higher under the two proposals, but this risk is outweighed by the superior truth-seeking ability of the proposals. In addition, one should not underestimate the ability of lay people to cut through technocratic jargon and the truth of a situation.<sup>170</sup> The questioning atmosphere of a courtroom helps keep a jury from accepting *carte blanche* anything that is said. So while trial by expert is a danger, the benefits of using only one expert outweigh the dangers.

## CONCLUSION

This Comment suggests two possible new treatments of scientific experts. The legislative proposal, a modified version of Rule 706, would require parties to negotiate for the appointment of a single expert for each subject area which requires expert testimony. The court would remain involved in the negotiations and could appoint the expert if the negotiations fail to produce an agreed-upon expert. In special circumstances, the court could permit each party to call its own expert, setting up the classic battle of the experts.

The legislative proposal's move away from the traditional workings of the adversary system may meet serious resistance from those steeped in adversarial traditions and stratagems. But before rejecting this proposal, it is worth considering its benefits. Higher degrees of objective truth are possible when one frees

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168. See *supra* note 162 (defining trial by expert).

169. See Peck, *Impartial Medical Testimony*, 22 F.R.D. 21, 22 (1958) ("The witness with the cultivated courtroom manner, rather than with the superior knowledge and greater integrity, may make the best appearance and carry the jury.").

170. Imwinkelried, *supra* note 15, at 566-70; see also Doyle, *Applying Lawyers' Expertise to Scientific Experts: Some Thoughts About Trial Court Analysis of the Prejudicial Effects of Admitting and Excluding Expert Scientific Testimony*, 25 WM. & MARY L. REV. 619, 636-37 (1984); F.H. HARE, *MY LEARNED FRIEND: MEMORIES OF A TRIAL LAWYER* 99-100 (1976) ("war story" about the ability of a jury to evaluate expert testimony using common sense).

the expert to think independently of a cause or side. Naturally, the expert's testimony comes in the context of a concrete legal dispute that is bound to color the expert's opinions. Cross-examination style questioning, however, should highlight to the factfinder any biases or assumptions of the expert.

The judicial proposal attempts to solve the same problems as the legislative proposal does, and in so doing creates the same dilemmas. This proposal urges judges, through their power to control a case, to emphasize the use of court-sponsored experts, while minimizing the use of party-sponsored experts. This differs from the legislative proposal that would allow the use of party-sponsored expert witnesses only in cases that involve highly controversial areas of science or when in the best interests of justice.

The importance of knowing the truth of scientific situations will become even more important as our society becomes more dependent upon technology. As a people we must demand the best of our largest institutional dispute resolution system—the courts. To do so we need to free our best and brightest minds to think like experts. Intuitive understanding and independence of thought, those qualities crushed by the party-sponsored expert system, need to be reintroduced to the courtroom. We need to release the greatest asset of humanity—the human mind. As Blaise Pascal said: “mathematicians wish to treat matters of intuition mathematically, and make themselves ridiculous. . . . The mind. . . [works] tacitly, naturally, and without technical rules.”<sup>171</sup>

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171. B. Pascal, *Pensees*, in *THE PROVINCIAL LETTERS, PENSEES, SCIENTIFIC TREATISES 171-72* (W.F. Trotter trans., W. Benton ed. 1952) (1670).