The Derivative Relevance of Demonstrative Evidence: Charting Its Proper Evidentiary Status

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The Derivative Relevance of Demonstrative Evidence: Charting Its Proper Evidentiary Status

INTRODUCTION

Demonstrative evidence has been part of the American trial process for over a century.[1] Cases referring to the use of models, charts, and diagrams to clarify or highlight other evidence introduced at trial are legion.[2] Demonstrative evidence is almost universally present at contemporary trials of any complexity, and practitioners have written hundreds of articles[3] and several books on the subject.[4]

None of these practitioner-oriented sources, however, contain a theoretical analysis of demonstrative proof as a separate branch of the evidence family.[5] One might expect academic scholars to have filled the void, but demonstrative evidence has largely become the forgotten stepchild of evidence scholarship.[6] As a

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[1] *See infra* notes 112-17 and accompanying text (discussing treatment of demonstrative evidence in American courts in 19th century); *see also* 20 CENTURY EDITION OF THE AMERICAN DIGEST, Evidence §§ 676-683 (1900) (classifying cases dealing with admission of items such as models, reproductions, and enlargements under category entitled "Demonstrative Evidence").

[2] For a fraction of the cases that refer to the use of an item of demonstrative evidence at trial, *see. e.g.*, 20 NINTH DECENNIAL DIGEST, PART 2, American Digest System 1981-1986, §§ 188-198 (1987).

[3] *See infra* notes 145-46 (listing sampling of such articles).

[4] *See, e.g.*, MELVIN M. BELLI, MODERN TRIALS (2d ed. 1982) [hereafter BELLI (1982)]; MARK A. DOMBROFF, DOMBROFF ON DEMONSTRATIVE EVIDENCE (1983); GREGORY P. JOSEPH, MODERN VISUAL EVIDENCE (1991); ASHLEY S. LIPSON, ART OF ADVOCACY - DEMONSTRATIVE EVIDENCE (1991); DEANNE C. SIEMER, TANGIBLE EVIDENCE: HOW TO USE EXHIBITS AT TRIAL (2d ed. 1989).

[5] For the most part, the practitioner-authored pieces on demonstrative evidence either extol the virtues of demonstrative evidence in obtaining favorable verdicts or describe the techniques involved in creating effective demonstrative displays. *See infra* part II.C (analyzing historical contribution of practicing bar to study of demonstrative evidence and analyzing and cataloging more prominent works on demonstrative evidence written by practitioners).

[6] The most prominent academic-authored views on demonstrative evidence are found in the various editions of Dean McCormick's treatise on evidence, *see, e.g.*, CHARLES T. MCCORMICK, HANDBOOK OF THE LAW OF EVIDENCE §§ 179-184 (1954) [hereafter MCCORMICK (1st ed.)], and in the

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result, no one has yet developed a satisfactory theory explaining the relevance of demonstrative evidence. No one has correctly denoted the characteristics of demonstrative evidence that distinguish it from other forms of trial evidence. No one has proposed a uniform treatment concerning its admissibility or a consistent methodology regarding how such exhibits are to be treated at trial or even whether they should be viewed by jurors during their deliberations. Perhaps most surprisingly, there is not even a settled definition of the term.[7]

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evidence volumes of Professors Wright and Graham's multi-volume federal practice and procedure treatise, *see* 22 CHARLES A. WRIGHT & KENNETH W. GRAHAM, JR., FEDERAL PRACTICE AND PROCEDURE § 5172 (1978). While each of these works provides well-needed guidance as to the history of demonstrative evidence, each erroneously defines the term and misidentifies the rules governing its proper relevance and use at trial. *See infra* notes 159-79 and accompanying text (discussing problems in treatment of demonstrative evidence found in various editions of McCormick treatise); *infra* notes 180-86 and accompanying text (discussing problems in approach to demonstrative proof taken by Wright and Graham); *see also infra* note 7.

[7] *See infra* notes 150-89 and accompanying text (discussing confusion over proper definition and treatment of demonstrative evidence). *Compare* 3 BELLI (1982), *supra* note 4, § 53.3, at 532 ("In the use of demonstrative evidence, may be determined the definition.") *with* CHARLES T. MCCORMICK, MCCORMICK ON EVIDENCE § 212, at 663 (Edward W. Cleary ed., 3d ed. 1984) [hereafter MCCORMICK (3d ed.)] ("Demonstrative evidence is a type of evidence which consists of things . . . as distinguished from the assertions of witnesses . . . about things. Most broadly viewed, this type of evidence includes all phenomena which can convey a relevant firsthand sense impression to the trier of fact.").

These two definitions also serve as paradigm examples of the different treatments given demonstrative evidence by the practicing bar and by the academic commentators. As further explained in Part II.C.1, the practitioners' contribution to the study of the subject has largely been their consistent use of such proof at trial and their unfailing use of the term "demonstrative" to describe it. As a result, the idea of a separate branch of evidence known as "demonstrative evidence" eventually became so ingrained in our legal system that the academic writers could not ignore it. For the most part, however, practitioner-authored writings on the subject are devoid of detailed analysis of the attributes and proper role of demonstrative proof and are instead devoted either to explaining the production techniques in creating demonstrative exhibits or to extolling the virtues of using illustrative aids to secure favorable verdicts. *See infra* note 149 and accompanying text.

On the other hand, almost all the academic commentary that has focused on demonstrative evidence has mischaracterized it. By and large, these scholars define and treat demonstrative evidence as if it were a specialized form of real evidence. It is true that demonstrative and real evidence share

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Demonstrative evidence's second-class analytic status is explicable on two distinct, but interrelated, grounds. The first focuses on the nature of demonstrative evidence itself. Demonstrative proof has only a secondary or derivative function at trial: it serves only to explain or clarify *other* previously introduced, relevant substantive evidence.[8] Evidence scholars, however, have concentrated on the relationship of evidence to the substantive issues and facts of consequence at trial: guilt, liability, defenses, etc.[9] That is, they have focused on the admissibility of the other, primary evidence that demonstrative proof explains. In essence, scholars have felt that demonstrative evidence's "secondary" nature in the proof process merits only subordinate evidential examination.

The second explanation as to why demonstrative evidence has not received more critical study has to do with its historical treatment by courts, trial lawyers, and evidence codes. Under common law regulation of evidence, the propriety of a witness's use of some sort of demonstrative exhibit was simply assumed by most American trial judges and trial lawyers.[10] Occasionally an objection would be made to the introduction of a *particular* demonstrative exhibit,[11] but the early case law contains absolutely no

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an attribute: namely, that a proffered exhibit of each type gives the trier of fact a firsthand impression of the information it contains. *See infra* notes 73-76 and accompanying text. Nevertheless, demonstrative evidence and real evidence are quite different in their proffered use at trial. Real evidence is used to help prove directly the existence of a fact of consequence in the action, whereas demonstrative proof is only offered derivatively, to help explain other admissible evidence.

[8] *See infra* parts I.C, I.D (defining demonstrative evidence and discussing its proper use at trial).

[9] *See generally* George F. James, *Relevancy, Probability and the Law*, 29 CAL. L. REV. 689 (1941) (discussing concept of relevancy as treated by such scholars as Thayer, Phillips, and Wigmore).

[10] *See infra* notes 112-17 and accompanying text; *see also* FED. R. EVID. 611 (a)(1) advisory committee's note (stating that regulation of demonstrative evidence at common law was governed by judge's "common sense and fairness in view of the particular circumstances").

[11] *See, e.g.*, Burke v. Commonwealth, 249 S.W.2d 764, 765-66 (Ky. Ct. App. 1952) (objection to introduction of bloody garments to illustrate location of wounds); Fore v. State, 23 So. 710, 711-12 (Miss. 1898) (objection to introduction of photographs reconstructing murder scene); Cass v. Pacific Mut. Life Ins. Co., 253 N.W. 626, 626 (S.D. 1934) (objection to in-court exhibition of plaintiff's inflamed joints).

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discussion of what evidential standards governed the admissibility of demonstrative evidence as a separate category of proof.

The assumed admissibility of this type of proof has not changed in the modern era of code-based evidence regulation. Contemporary jurists and lawyers continue to share the historical vision that demonstrative proof can be used at trial as a matter of right, subject only to the discretion of the trial judge to preclude individual exhibits that are unfairly prejudicial, inaccurate, incomplete, or cumulative.[12] Undoubtedly this is due, in large part, to the fact that no evidence code in use today provides any specific direction for the admission or use of demonstrative exhibits at trial.[13] Hence, the focus today of any case in which the use of demonstrative evidence is an issue continues to be an extremely fact-specific discussion of whether a particular photograph is too gory, a certain chart too incomplete, or a specific graph too misleading, and not on what standards govern generally the use of demonstrative exhibits.[14]

Despite this dearth of scholarly study by both commentators and appellate judges, the case law regarding demonstrative evidence has produced a relatively consistent and unremarkable pattern of admissibility.[15] This leads to a legitimate question—and

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[12] *See, e.g.*, Rogers v. Raymark Indus., 922 F.2d 1426, 1429 (9th Cir. 1991) ("The admissibility of demonstrative evidence lies largely within the discretion of the trial court.") (citing Daily Herald Co. v. Munro, 838 F.2d 380, 388 (9th Cir. 1988)); Wright v. Redman Mobile Homes, Inc., 541 F.2d 1096, 1097-98 (5th Cir. 1976) (" 'The admissibility of demonstrative evidence is largely within the discretion of the trial judge . . . .' ") (quoting Meadows & Walker Drilling Co. v. Phillips Petroleum Co., 417 F.2d 378, 382 (5th Cir. 1969)).

[13] In fact, the term "demonstrative evidence" is used in no provision of the Federal Rules of Evidence, nor is it found in any state evidence code. There is one mention of the term in the Advisory Committee's Note to FED. R. EVID. 611, but that reference does not provide guidance in determining how demonstrative proof should be received at trial or what relevance standards should govern its admission. *See infra* notes 190-209 and accompanying text (discussing treatment of demonstrative evidence by modern evidence codes).

[14] *But see* Rogers v. Raymark Indus., 922 F.2d 1426, 1429 (9th Cir. 1991) (discussing argument by proponent of piece of demonstrative evidence that standard for introduction of demonstrative evidence should be "lesser" than judicial discretion).

[15] Such uniform decision-making is not always true, however. *Compare* Zurzolo v. General Motors Corp., 69 F.R.D. 469, 473 (E.D. Pa. 1975) (finding no error in permitting defendant to show jury movie illustrating "Newtonian laws of motion") *with* Gladhill v. General Motors Corp., 743

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one we have been asked by some of our colleagues—namely, why is it either necessary or desirable to undertake a critical analysis of a branch of evidence that, albeit unstudied, has nevertheless not led to any noteworthy abuses? Our answer is in several parts.

Within the last ten years, the nature of demonstrative evidence has changed in kind, not just in degree. With the advent of relatively low-cost but powerful computers and sophisticated computer graphics software, demonstrative proof has changed from the "state-of-the-art" brightly colored charts and nascent day-in-the-life films of the early 1980's[16] to professionally produced movies, imprinted on laser discs, dramatically depicting, for example, an expert's opinion of what the pilot saw from the cockpit during the last fifteen minutes before an airplane crash,[17] or the causes of a complicated accident at a hexane production plant.[18] Within the next decade or so, even these types of demonstrative exhibits will seem tame, as then-state-of-the-art demonstrative proof will be even more powerful. Technology will soon be available for a witness to don a "body suit" in the courtroom, step into a three-dimensional reconstruction of the scene, and illustrate exactly what she says occurred at the relevant locale by interacting in real time with the objects on the screen.[19]

F.2d 1049, 1051-52 (4th Cir. 1984) (holding that, on retrial, such exhibit—or at least one virtually identical to it—should be excluded).

[16] *See, e.g.*, Robert D. Brain & Daniel J. Broderick, *Demonstrative Evidence in the Twenty-First Century: How to Get it Admitted*, *in* WINNING WITH COMPUTERS: TRIAL PRACTICE IN THE 21ST CENTURY 369, 370 (John Tredennick, Jr. ed., 1991) (tracing briefly history of demonstrative evidence).

[17] *See, e.g.*, Paul Marcotte, *Animated Evidence: Delta 191 Crash Re-Created through Computer Simulations at Trial*, A.B.A. J., Dec. 1989, at 52.

[18] We describe the exhibit illustrating the expert's opinion of the hexane plant explosion in Brain & Broderick, *supra* note 16, at 372. *See also* Marcotte, *supra* note 17, at 56.

These newer forms of demonstrative evidence are undoubtedly effective. *See, e.g.*, Windle Turley, *Effective Use of Demonstrative Evidence: Capturing Attention and Clarifying Issues*, TRIAL, Sept. 1989, at 62 ("One study documented that jurors given visual presentations retained 100 percent more information tha[n] those given oral presentations. Jurors given combined visual and oral presentations retained an astounding 650 percent more information than those given only oral presentations.").

[19] *See, e.g.*, James D. Foley, *Interfaces for Advanced Computing*, SCI. AM., Oct. 1987, at 127. Foley explains how entire simulators, like those presently in use for jet aircraft, can already be reduced to a pair of specially made goggles and individual data gloves hooked up to a special computer. That is, a person standing in an otherwise bare room, equipped with only these goggles and data gloves, can undergo the same experiences as someone

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This change in the very nature of neoteric demonstrative proof already has begun to create uncertainties as to its proper place at trial. We have played sophisticated demonstrative exhibits at bar meetings[20] (and have had access to the results of similar studies done at judicial conventions),[21] and there is often considerable disagreement among the participants whether such laser disc presentations even properly belong in a trial, let alone how they should be regulated. The font of judicial discretion is no longer a reliable source for easy and predictable rulings regarding the use of newer demonstrative evidence, for the change in the very essence of this proof has pushed aside any boundaries that might have been formed as a result of a shared normative vision of "unfair prejudice" between bench and bar.

Another reason for a current reexamination of demonstrative evidence has to do with the ever-increasing emphasis in modern trials on lay and expert opinion testimony. More and more often, testimonial evidence at trials is not limited to just percipient witnesses, but also includes witnesses who are asked their opinions about why something happened or how something works. As a result, modern lawyers are increasingly turning to demonstrative evidence to make these opinions understandable to triers of fact.

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sitting in a cockpit of a fully built simulator, including the tactile sensations of flipping switches, turning knobs, and steering the plane. As Foley notes, the next step in such technology will be to project the images that are displayed in the goggles onto a bank of oversized television monitors or movie screens surrounding the pilot and to upgrade the data gloves into an entire data suit. At that point, it will be but a small step before a witness will be able to step into a body suit hooked up to a computer with software specially tailored to reproduce the relevant site and illustrate exactly and interactively what she testified occurred at the scene.

20 *See* Brain & Broderick, *supra* note 16, at 373.

21 *See id.* It is, perhaps, interesting to note that at one judicial gathering with in excess of 50 state and federal judges present, we are told that only the state judges expressed any reservation in the use of newer "movie-like" demonstrative exhibits at trial. The federal judges unanimously stated that they would allow such proof. One explanation for this phenomenon may be that the federal courts are well-schooled in the notion first posited by Professor Waltz, that the core philosophy of the judicial discretion granted under the Federal Rules of Evidence is "helpfulness." *See* Jon Waltz, *Judicial Discretion in the Admission of Evidence under the Federal Rules of Evidence*, 79 Nw. U. L. Rev. 1097, 1120 (1984-1985). As discussed *infra*, since the newer forms demonstrative proof may be crucial in bringing about rational decisionmaking in complex cases, the federal judges may well have recognized the value of these types of exhibits to the trial process.

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Hence, demonstrative evidence's role in trial is no longer a "secondary" one. In a trial of any complexity, where opinion testimony is important, demonstrative evidence is becoming ever more crucial to rational decision-making and enlightened jury deliberation.

Yet another reason for undertaking an in-depth study of demonstrative evidence is that the introduction of demonstrative proof at trial has been rendered illegitimate. This is because, as a matter of definitional logic, demonstrative evidence does not and cannot meet the test of relevance required under modern evidence rules for admission at trial. For example, to be admissible under the Federal Rules of Evidence, a piece of evidence must be relevant,[22] and to be relevant, a piece of evidence must make the existence of a fact of consequence in the action more or less probable than it would be without that evidence.[23] No piece of demonstrative evidence can meet this test. The only purpose of demonstrative evidence is to illustrate or clarify previously admitted *other* evidence.[24] It has no independent effect on the determination of the existence of a fact of consequence, other than its helpfulness as an illustrative aid to another, independently relevant piece of substantive evidence. That is, a diagram of an apartment that has been burglarized does not, in and of itself, make it any more or less probable that the defendant was the one who committed the crime; it only clarifies previous testimony as to what the apartment looked like. Demonstrative evidence's relevance is thus derivative and different from that of admissible substantive evidence. Hence, when modern courts allow demonstrative exhibits to be used at trial based on traditional relevance tests, they do so illegitimately, without sufficient theoretical support.

A final reason for a critical study of demonstrative evidence is that the lack of a well-defined evidential theory of demonstrative evidence has fostered inconsistency among trial courts on how demonstrative exhibits are to be treated at trial. Some courts treat demonstrative exhibits exactly like they do substantive exhibits, by formally admitting them into evidence and allowing

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22 FED. R. EVID. 402 ("Evidence which is not relevant is not admissible.").

23 FED. R. EVID. 401 (" 'Relevant evidence' means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence.").

24 *See infra* part I.C (discussing function of demonstrative evidence).

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the jury to view the exhibits during deliberations.[25] Other courts admit demonstrative exhibits into a twilight zone reserved for "demonstrative purposes only," apparently indicating that such exhibits can be identified for the record but must be precluded from use by the jury during deliberations.[26] Still other courts admit demonstrative exhibits "for limited purposes," but nevertheless permit the jury to view the exhibits during deliberations.[27] Finally, some courts explicitly refuse to "admit" demonstrative exhibits into evidence at all, but allow witnesses to refer to them during testimony. Even among those courts, however, there is a difference of opinion—with some permitting the jury to view this unadmitted evidence during deliberations,[28] while others do not.[29] Having different courts operating with the same basic rules but applying them differently in determining such fundamental questions as whether proof is "admitted" and whether jurors can

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[25] *See e.g.*, United States v. Gardner, 611 F.2d 770, 776 (9th Cir. 1980) (chart summarizing calculations undertaken by different witnesses); Joynt v. Barnes, 388 N.E.2d 1298, 1310 (Ill. App. Ct. 1979) (hand-drawn illustration of tumor).

[26] *See, e.g.*, United States v. Cox, 633 F.2d 871, 874 (9th Cir. 1980) (mock-up of bomb); United Stated v. Abbas, 504 F.2d 123, 124-25 (9th Cir. 1974) (chart summarizing witness testimony).

[27] *See, e.g.*, Harvey by Harvey v. General Motors Corp., 873 F.2d 1343, 1355 (10th Cir. 1989) (videotape showing rollover accidents); Millers Nat'l Ins. Co. v. Wichita Flour Mills Co., 257 F.2d 93, 99 (10th Cir. 1958) (movie showing different experiments undertaken by expert witness); Veliz v. Crown Lift Trucks, 714 F. Supp. 49, 51 (E.D.N.Y. 1989) (live demonstration of operation of lift truck and videotapes of truck carrying different loads); Hubbard v. McDonough Power Equip., Inc., 404 N.E.2d 311, 319 (Ill. App. Ct. 1980) (model of "deadman's control device").

[28] *See, e.g.*, Smith v. State, 344 So. 2d 1239, 1241 (Ala. Crim. App. 1977) (blackboard diagrams of crime scene). *But cf.* Handford v. Cole, 402 P.2d 209, 210-11 (Wyo. 1965) (error to allow witnesses to make illustrative drawings before foundational identification and without subsequent offer and reception in evidence).

[29] *See, e.g.*, Gallagher v. Viking Supply Corp., 411 P.2d 814, 819 (Ariz. Ct. App. 1966) (chart of plaintiff's damages).

This inconsistency of treatment as to demonstrative displays can also be seen in a well-chronicled series of meetings among Indiana trial judges where, despite having met (on at least one occasion) to work out a consistent framework for treating demonstrative evidence, they failed to do so. *See* Thomas L. Shaffer, *Judges, Repulsive Evidence and the Ability to Respond*, 43 NOTRE DAME LAW. 503, 515-16 (1968); Thomas L. Shaffer, *Bullets, Bad Florins, and Old Boots: A Report of the Indiana Trial Judges Seminar on the Judge's Control Over Demonstrative Evidence*, 39 NOTRE DAME LAW. 20, 22 (1963) [hereafter Shaffer, *Bullets*].

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view such a class of exhibits shows that a uniform application of demonstrative evidence principles needs to be articulated and followed.

It is the central thesis of this Article that an analytically separate class of evidence can be identified as "demonstrative evidence," and that the members of this class share a common characteristic we call "derivative relevance."[30] What distinguishes primarily relevant substantive evidence from derivatively relevant demonstrative evidence is the use for which such proof is offered at trial. Primarily relevant evidence directly affects the perceived likelihood that a fact of consequence has occurred. The only direct effect of demonstrative evidence is to help clarify and make more understandable a piece of substantive proof. While making a piece of substantive proof more comprehensible may ultimately change the perceived likelihood that a fact of consequence has occurred, the role of demonstrative evidence in this process is only an indirect, derivative one. Only by understanding, acknowledging, and accepting the derivative relevance of demonstrative evidence can courts hope to regulate more consistently the use and admissibility of demonstrative proof.

Part I of this Article defines the term "demonstrative evidence" and examines the nature of such evidence. Part I also explains in more detail the concept of demonstrative evidence's derivative relevance and demonstrates where such proof fits in the trial process. Next, Part II reviews the history of demonstrative evidence, revealing what we believe to be its origins, as well as the bases for modern misconceptions about the topic. Finally, Part III suggests a modification of existing statutory rules of relevancy that would provide a consistent basis for the admission of demonstrative evidence.

I. The Nature of Demonstrative Evidence

As a mechanism for resolving disputes, a trial is characteristically a "demonstrative" process.[31] In order to persuade the trier of fact on an issue or element, the party bearing the burden of

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[30] We have previously called this relationship "secondary relevance." Brain & Broderick, *supra* note 16, at 374. Professor Waltz suggested that "derivative relevance" better expresses the nature of the concept, a suggestion with which we agree and which we much appreciate.

[31] Jerome Michael & Mortimer J. Adler, *The Trial of an Issue of Fact: I*, 34 Colum. L. Rev. 1224, 1236 (1934).

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proof must display evidence of material facts in court. The responding party can then exhibit contrary proof or contend by argument that the burden of proof has not been met. Because every piece of evidence introduced at trial demonstrates something,[32] a colloquial use of the term "demonstrative evidence" could conceivably include all types of judicial proof.[33] The legal term "demonstrative evidence," however, has never donned such an expansive mantel. And while what lawyers and commentators have called "demonstrative evidence" has changed over time, in truth demonstrative proof has a limited set of readily distinguishable characteristics that permit a relatively straightforward definition of the term.

A. A Definition

"Demonstrative evidence" is any display[34] that is principally[35] used to illustrate or explain other testimonial,[36] documentary,[37]

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[32] Blackstone, for example, described evidence in general as "that which demonstrates." 3 WILLIAM BLACKSTONE, COMMENTARIES *367.

[33] It is probably for this very reason that Wigmore, in his exhaustive treatise on the law of evidence, assiduously avoids the terms "demonstrative" or "illustrative" evidence, describing the word "illustrate" as a "convenient but insidious term." *See* 3 JOHN H. WIGMORE, EVIDENCE IN TRIALS AT COMMON LAW § 791, at 228 n.2 (James H. Chadbourn rev., 1970).

[34] We use the term "display" here in its broadest sense to include any matter that can be recognized by the senses, with those objects triggering aural and visual stimuli being the most common. We use the term "display" rather than "exhibit" because some examples of demonstrative evidence never assume the form of a trial exhibit. Demonstrative jury views or courtroom demonstrations, for example, only assume exhibit form when recorded; otherwise, they are merely displayed before the trier of fact.

[35] We have qualified the definition with the term "principally" because some evidentiary proof can serve a demonstrative *or* a substantive purpose. For example, assume a witness first generally describes in words a relevant action that supposedly took place, then departs from the witness stand and acts out that action before the trier of fact. Such a demonstration likely both illustrates the witness's prior testimony and provides the trier of fact with some additional substantive proof regarding how and whether the action really took place. The distinguishing characteristic of this type of proof is how that evidence is being used at trial. Demonstrative evidence is introduced principally to illustrate or explain *other* evidence; substantive evidence is principally introduced to establish directly the apparent existence of facts of consequence. *See infra* part I.C.

[36] *See infra* part I.E.1 (discussing the distinction between testimonial and demonstrative evidence).

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or real proof,[38] or a judicially noticed fact. It is, in short, a visual (or other sensory) aid.

B. A Typology

The most common types of demonstrative evidence, as defined above, can be divided into six categories:

1. In-court Demonstrations, Re-Creations, or Experiments:

Typically, a witness describes an action orally and then reenacts that action physically in front of the trier of fact.[39]

2. Models and Other Tangible Objects:

Descriptive evidence is introduced about a fact, and a model or other tangible representation of this evidence is then shown to the judge or jury.[40]

3. Charts, Diagrams, and Maps:

Descriptive evidence is elicited and then depicted visually in an illustrative exhibit.[41] Such exhibits can be made in court by a witness while testifying, or by counsel,[42] or they can be pre-made.

4. Photographs, Movies, and Videotapes:

Objects or events existing outside of the courtroom are

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[37] *See infra* part I.E.2 (discussing the distinction between documentary and demonstrative evidence).

[38] *See infra* part I.E.3 (discussing the distinction between real and demonstrative evidence).

[39] *See, e.g.*, Allen v. Seacoast Prods., Inc., 623 F.2d 355, 365 n.23 (5th Cir. 1980) (in-court demonstration of removal and replacement of artificial eye); Veliz v. Crown Lift Trucks, 714 F. Supp. 49, 51 (E.D.N.Y. 1989) (in-court demonstration as to operation of lift truck); Foster v. Devilbiss Co., 529 N.E.2d 581 (Ill. App. Ct. 1988) (in-court demonstration where counsel bent "trigger guard" whose rigidity was issue in case).

[40] *See, e.g.*, United States v. Cox, 633 F.2d 871, 873-74 (9th Cir. 1980) (introduction of bomb mock-up); Hubbard v. McDonough Power Equip., Inc., 404 N.E.2d 311, 319 (Ill. App. Ct. 1980) (introduction of model of "deadman's control device").

[41] *See, e.g.*, United States v. Behrens, 689 F.2d 154, 161-62 (10th Cir.) (oversize chart outlining evidence against accused), *cert. denied*, 459 U.S. 1088 (1982); *In re* Air Crash Disaster, 635 F.2d 67, 72-73 (2d Cir. 1980) (chart illustrating glidepath of aircraft).

[42] If an exhibit is made by counsel, it runs the risk of not being "demonstrative" at all, but instead being argument. *See infra* part I.E.6.

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described testimonially, and an illustrative image of these objects or events is then reproduced and brought into the courtroom.[43]

5. Jury Views:

A demonstrative jury view traditionally occurs when the jury visits a relevant site that has been or will be described by a witness.[44]

6. Computer-Dependent Animations and Simulations:

Computer-dependent animations are cartoon-like illustrations of an event or object, usually accompanying the testimony of an expert witness. Typically, a few crucial scenes are "built" into a computer by a graphic artist, and the computer then replicates and connects the scenes, slightly shifting the objects in them between frames so that the end result is a videotape or laser disc depicting objects moving in a natural-looking manner.[45]

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[43] Since the first reported use of crude daguerreotype photographs as evidence in an 1839 divorce action, *see* CHARLES C. SCOTT, PHOTOGRAPHIC EVIDENCE § 1, at 2 (2d ed. 1969), new technological advances in image reproduction have quickly found their way to the courtroom as demonstrative exhibits: x-rays in 1895, Samuel W. Donaldson, *Medical Facts That Can and Cannot Be Proved by X-Ray*, 41 MICH. L. REV. 875, 876 (1943); enlarged slide photographs two years later, Hampton v. Norfolk & W.R. Co., 27 S.E. 96, 96-97 (N.C. 1897); motion pictures in 1915, Pierre R. Paradis, *The Celluloid Witness*, 37 U. COLO. L. REV. 235, 235 (1965); aerial photographs in 1928, United N.J. R.R. & Canal Co. v. Golden, 140 A. 450, 450 (N.J. 1928); ultraviolet photographs six years later, State v. Thorp, 171 A. 633, 638 (N.H. 1934); and in 1943, color and infrared photographs, Green v. City & County of Denver, 142 P.2d 277, 279 (Colo. 1943) (color); Kauffman v. Meyberg, 140 P.2d 210, 214 (Cal. Ct. App. 1943) (infrared). In 1967, videotape evidence began to appear in court as well. SCOTT, *supra*, § 1, at 12. For a general discussion of the historical development of photographic evidence, see *id.* § 1.

[44] *See, e.g.*, Kraus v. Walt Disney Prods., Inc., 34 Cal. Rptr. 702, 704 (Ct. App. 1963) (jury view of operation of turnstile at amusement park). A jury view that serves only to illustrate prior testimony about a scene is, by definition, demonstrative evidence. Frequently, however, views provide the jury with information not imparted by the other evidence. When the jury is taken out of court to view an exhibit that physically cannot fit within a courtroom (such as a crashed airplane, for example), the additional information imparted by viewing this exhibit then acts as substantive, relevant proof. *See supra* note 35.

[45] While we have seen animations that have been introduced and admitted in trials, we know of no reported appellate decisions dealing with the admission of computer-dependent animations. For a more detailed

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Computer-dependent simulations also illustrate expert testimony, typically as to the cause of an airplane, train, or automobile accident. Once again, production begins with a graphic artist who "builds" the stationary objects at the accident scene into a computer. A few different data points representing the position of the plane, train, or automobile over the relevant time period[46] are then entered into the computer. Finally, the computer connects those data points using form-and-motion software,[47] and the expert's opinion as to the paths the moving objects probably took across the accident scene are depicted in smooth-looking motion on a videotape or laser disc.[48]

Obviously, there are displays seemingly fitting one of the categories above that are being used for purposes other than primarily explaining or illustrating other proof. A photograph taken by the automatic bank camera during a robbery, for example, can be used independently of any other evidence, as substantive evidence of a bank robber's identity.[49] On the other hand, the same photograph can be used merely to illustrate a percipient witness's testimony concerning the facial characteristics of an accused. Similarly, a map can be introduced to help clarify previously introduced documentary proof, or it can be used as independent, substantive evidence of specific boundary lines.

Whether a particular display is demonstrative or substantive evidence does not depend on the physical appearance of the display, but rather on the principal purpose for which the display is

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description of how an animation is produced, see Brain & Broderick, *supra* note 16, at 370-71.

46 These data points are provided by an accident reconstruction specialist and are derived either mechanically (e.g., from a "black box") for airplane and train crashes, or by personal inspection of the scene for car crashes. For a more detailed discussion, see, e.g., Brain & Broderick, *supra* note 16, at 371-72; Mark A. Dombroff, *Innovative Developments in Demonstrative Evidence Techniques and Associated Problems of Admissibility*, 45 J. AIR L. & COM. 139 (1979); and Marcotte, *supra* note 17.

47 Brain & Broderick, *supra* note 16, at 371-72.

48 *See, e.g.*, People v. McHugh, 476 N.Y.S.2d 721 (Sup. Ct. 1984) (computer re-creation of fatal automobile crash admitted).

49 McCormick refers to this phenomenon as the "silent witness" theory of admission. MCCORMICK (3d ed.), *supra* note 7, § 214, at 672. Under this doctrine, X-ray photographs and automatic surveillance photographs are admitted as substantive evidence even though they lack the authenticating testimony of a witness who has actually seen the depicted event. Instead, courts permit authentication by evidence verifying the reliability of the photographic process involved. *See, e.g.*, FED. R. EVID. 901(b)(9).

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offered at trial. If the primary purpose of the display is to illustrate or explain other evidence, it is being used demonstratively; in other words, its evidentiary role is dependent and indirect. If it is being used primarily to prove the existence or nonexistence of a fact of consequence, the display is being used substantively; its evidentiary role is thus independent and direct.

C. The Role of Demonstrative Evidence as a Means of Proof

Judicial evidence comprises both facts and the means used to bring such facts to the attention of a judicial tribunal.[50] If the fact is one that is to be established before the tribunal, it is, in the words of Bentham and others, a *factum probandum*, a fact to be proved.[51] These facts will often be the elements of a cause of action, a crime, or a defense. Thus, in a murder trial, one *factum probandum* is that the deceased is indeed dead; another, that the accused committed the homicide with the requisite mental state. Material evidencing such facts, as distinct from the facts themselves, are *facta probans*, the means of proof.[52] In our murder trial scenario, the *facta probans* could include testimonial evidence from a witness that he or she observed the homicide, documentary evidence such as a death certificate, or the real evidence of the dead body itself.

The means of proof can take several forms. A witness may testify orally in court; via transcript or on videotape, by means of deposition; or silently, by merely exhibiting some physical condition or infirmity. Similarly, documentary evidence may be introduced as an original written record, a copy, or even a summary or compilation of several written records. Even real evidence can vary in form, from physical objects, to jury views, to scientific experiments.

The purpose of each of these forms of proof, however, is the same: to establish material *facta probandum*. Such means of proving or disproving material issues are of substantive value to the case on trial and are consequently often popularly referred to as "substantive evidence." Substantive evidence can act directly and

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[50] 1 S. MARCH PHILLIPS, A TREATISE ON THE LAW OF EVIDENCE 149-50 (4th Am. ed. New York, Gould, Banks & Co. 1839).

[51] 3 JEREMY BENTHAM, RATIONALE OF JUDICIAL EVIDENCE 3 (London, Hunt & Clarke 1827) (Book V, ch. I). Bentham also refers to a *factum probandum* as a principal fact. *See id.*

[52] *Id.* at 2-3. These facts were categorized by Bentham as evidentiary facts or circumstantial facts. *Id.*

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independently to prove the apparent existence or nonexistence of material facts, or it can act indirectly, in conjunction with other circumstantial substantive evidence.

Unlike substantive evidence, demonstrative evidence does not, by itself, prove the apparent existence or nonexistence of any material fact. It has no independent probative value. Demonstrative evidence only illustrates or clarifies other substantive evidence. Thus, it is entirely derivative of other evidence, and its only value at trial is when it is linked to other substantive proof. Put another way, an evidentiary display is substantive if it is primarily introduced as a *factum probans* for an underlying *factum probandum*; it is demonstrative if it is primarily introduced as a *factum probans* of another *factum probans*.

D. The Derivative Relevance of Demonstrative Evidence

Under modern evidence rules, a proffered item of evidence must be relevant before it can be used in the trial process. Relevance is defined by the appropriate code.[53] Until now, all but a very few commentators[54] have assumed that demonstrative displays share the same characteristics that make substantive evidence relevant. This assumption is incorrect. Substantive evidence is relevant because it relates to a material element of the case. Demonstrative evidence, on the other hand, relates to something else: it relates to other admissible substantive evidence that, in turn, relates to a material element of the case. Thus, we have termed the relevance of substantive evidence "primary relevance" and that of demonstrative displays "derivative relevance." To fully understand the nature of this derivative relevance, it is necessary to begin with the concept of code-regulated relevance in general.

As Professor George F. James asserted over forty years ago, relevance "is not an inherent characteristic of any item of evidence but exists as a relation between an item of evidence and a proposition sought to be proved."[55] If any item of evidence tends to

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[53] For example, FED. R. EVID. 401 defines "relevant evidence" as "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence."

[54] *See, e.g.*, Roy W. Krieger, *New Dimensions in Litigation: Computer-Generated Video Graphics Enter Courtroom Scene*, TRIAL, Oct. 1989, at 69, 74.

[55] James, *supra* note 9, at 690. Of course, conditionally relevant evidence is an exception. *See* FED. R. EVID. 104(b). Conditionally relevant evidence,

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prove or disprove a specific proposition that is of consequence to the case, one such relationship has been established, and the evidence is relevant to that case. The problem with James's observation is that it limits relevance to one relationship: the connection between an item of evidence and a proposition to be proved, such as an element of a claim, crime, or defense.[56] An entirely different, but equally "relevant," relationship is that between one item of evidence and another item of evidence. If one item of evidence tends to clarify a second item of evidence, then the first item is logically relevant to the second. There is a relationship between the two items of evidence. It is *this* relationship, the tendency to illustrate or explain, that exists between admissible[57] demonstrative evidence and other admissible substantive evidence.[58]

This illustrative or explanatory relationship is every bit as important at trial as the tendency-to-prove relationship. The reason is that no evidence, substantive or demonstrative, actually establishes the existence of a proposition or fact.[59] A fact either exists or does not exist. Evidence reviewed after the occurrence of a fact cannot change this.[60] Either the defendant was at the

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however, also has primary relevance, but only after the required condition for admissibility is satisfied.

[56] Admissible substantive evidence bears this relationship. The fingerprints of a defendant on the window of a burglary victim's home, for example, are logically connected with a proposition to be proven in the case: that the defendant was present at the crime scene.

[57] Relevance does not, of course, mean admissibility. Even if an item of demonstrative evidence tends to make some substantive proof more understandable, it would not be admissible unless it also fairly and accurately illustrated that proof and was introduced through the testimony of an appropriate foundational witness. *See* JON R. WALTZ & JOHN KAPLAN, EVIDENCE: MAKING THE RECORD 38-39 (1982); Brain & Broderick, *supra* note 16, at 374-76.

[58] This same principle applies to "background evidence," explained more fully below. *See infra* part I.E.4. This evidence also does not share James's relationship with propositions to be proved; it relates only to other substantive evidence.

[59] *See infra* part III.B. In Part III.B, we discuss this point further and explain our proposed change in the relevance rules from requiring that an item of evidence must make the "existence" of a fact more or less likely than it would be without such evidence to be relevant, to requiring that the item change only the "apparent existence" of that fact in the view of the fact finder.

[60] *See generally* JEROME MICHAEL & MORTIMER J. ADLER, THE NATURE OF JUDICIAL PROOF 1-15 (1931) (comparing philosophical existence of a fact with process of proving a fact in judicial process).

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burglary victim's house or the defendant was not. Neither the defendant's fingerprint, nor a chart of the house, can change this. Nonetheless, both substantive and demonstrative evidence can affect the fact finder's *perceived likelihood of a fact having occurred.* A piece of substantive evidence affects this perceived or apparent likelihood if it tends to prove or disprove the probable existence of the fact. This is the concept of primary relevance. An item of demonstrative evidence, however, also affects the trier of fact's perception of the *apparent* likelihood of a fact. By making other substantive evidence more understandable, demonstrative displays heighten the perceived effect of that substantive proof. In so doing, demonstrative evidence secondarily augments the perceived likelihood that a fact of consequence either occurred or did not occur.[61] Thus, demonstrative evidence has an altogether different, dependent, and derivative relationship with material facts, but a relationship that is still relevant to the issues of consequence in a case.

The problem with modern evidence rules is that they limit their definition of relevant evidence to the primary relevance of substantive evidence—in other words, the tendency of substantive evidence to prove or disprove facts of consequence. Rule 401 of the Federal Rules of Evidence, for example, defines legally[62] relevant evidence as "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence."[63] No piece of demonstrative evidence can

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[61] *See* GRAHAM C. LILLY, AN INTRODUCTION TO THE LAW ON EVIDENCE 511 (2d ed. 1987). Lilly states that the "validity of [the distinction in probative value between real evidence and demonstrative evidence] . . . is doubtful, at least if the term 'probative value' denotes the tendency of evidence to make the existence of a fact more probable *to the trier* than it would be in the absence of the evidence." *Id.* (emphasis added). By adding the words "to the trier," Lilly has redefined relevance into perceived relevance.

[62] The concept of "legal relevance" has been debated among scholars ever since Wigmore argued that legal relevance required something more than minimal probative value, something that he called a "plus value." 1 JOHN H. WIGMORE, EVIDENCE IN TRIALS AT COMMON LAW § 28, at 969 & n.2 (Peter Tillers rev., 1983). *See generally* Herman L. Trautman, *Logical or Legal Relevancy—A Conflict in Theory*, 5 VAND. L. REV. 385 (1952). With the adoption in almost every jurisdiction of evidence codes, it seems to us that this debate is rather easily resolved. Relevant evidence—legally relevant evidence—is merely whatever evidence the applicable jurisdiction chooses to define by law as relevant.

[63] FED. R. EVID. 401.

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meet this definition.[64] This is not the relevance relationship of demonstrative proof. It concerns only Professor James's relationship between substantive evidence and the tendency to prove material facts. It does not address the relationship between demonstrative evidence and other evidence. Consequently, no piece of demonstrative evidence can be relevant in any court governed by relevancy rules similar to the Rule 401, at least if the court follows the rule strictly.[65] For this reason, courts that rou-

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[64] In truth, substantive proof cannot meet the literal requirements of Rule 401 either. No piece of substantive proof can do more than make the apparent existence of a fact more or less likely. Thus, if Rule 401 were to be applied strictly, no evidence could ever be admitted in any court reviewing evidence after the occurrence of the fact, because no item of evidence would ever be deemed relevant.

Obviously, courts cannot and do not construe Rule 401's criteria verbatim. What courts seem to do when faced with a piece of substantive proof is to interpret Rule 401 to mean that so long as the proffered piece of evidence directly makes the *apparent* existence of a fact of consequence to the action more or less probable than it would be without the evidence, the evidence is relevant. For further discussion of this point, see *infra* Part III.B.

When faced with demonstrative displays, however, courts do not refer to Rule 401 at all. They cannot. Demonstrative evidence fails to satisfy even the interpretive definition of relevance. Instead, courts assume the relevance of demonstrative evidence and determine admissibility pursuant to Rule 403.

[65] There are two possible arguments that the drafters of the Federal Rules of Evidence addressed the relevance of demonstrative proof, based on passages in two of the Advisory Committee's Notes accompanying the Rules. The first is based on the Note to Rule 401, which states that "[e]vidence which is essentially background in nature can scarcely be said to involve disputed matter, yet it is universally offered and admitted as an aid to understanding. Charts, photographs, views of real estate, murder weapons, and many other items of evidence fall in this category." FED. R. EVID. 401 advisory committee's note. This Note does nothing to shed light on the different relevancy relationships demonstrative and substantive proof have with the underlying action. To the extent it is saying that demonstrative exhibits are "universally admitted," it is in error. *See, e.g.*, Gladhill v. General Motors Corp., 743 F.2d 1049, 1052 (4th Cir. 1984) (affirming denial of admission of film demonstrating "Newtonian principles of physics"); Perma Research & Dev. v. Singer Co., 542 F.2d 111, 121-25 (2d Cir. 1976) (Van Graafeiland, J., dissenting) (arguing for denial of admission to computer simulation of workings of anti-skid device); Thomas v. C.G. Tate Constr. Co., 465 F. Supp. 566, 569-71 (D.S.C. 1979) (denying admission of videotape illustrating physical therapy session of plaintiff). To the extent it is saying that only pieces of demonstrative proof illustrating undisputed matter will be allowed to be used at trial, it is also in error. *See, e.g.*, United States v. Gardner, 611 F.2d 770, 776-77 (9th Cir. 1980)

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tinely admit demonstrative evidence are acting illegitimately.

To ensure the relevance and admissibility of demonstrative displays, the definition of relevant evidence needs to be amended to acknowledge the existence of both relevance relationships. In Part III of this Article, we suggest an amendment to Rule 401 of the Federal Rules of Evidence that would account for the derivative relevance of demonstrative displays.[66]

(contested admission of chart summarizing defendant's assets and liabilities); Veliz v. Crown Lift Trucks, 714 F. Supp. 49, 51 (E.D.N.Y. 1989) (contested admission of plaintiff's demonstration of lift truck); Hubbard v. McDonough Power Equip., 404 N.E.2d 311, 318-319 (Ill. App. Ct. 1980) (contested admission of in-court demonstration of "deadman's control device"). However, to the extent it is saying that there is no doctrine automatically excluding a demonstrative display that illustrates undisputed, as opposed to disputed, matter, it is correct, but such a proposition does nothing to clarify the proper relevance relationship between demonstrative evidence and the underlying action. It merely distinguishes the treatment of undisputed evidence under the Federal Rules of Evidence from the treatment given such proof in various other codes. *See, e.g.*, CAL. EVID. CODE § 210 (West 1966) (defining relevant evidence in terms of tendency to prove disputed fact).

The second potential argument that the drafters of the Federal Rules of Evidence addressed the relevance of demonstrative evidence comes from the Advisory Committee's Note to Rule 611(a), which states, "[Rule 611(1)(a)] restates in broad terms the power and obligation of the judge as developed under common law principles. It covers such concerns as . . . the use of demonstrative evidence . . . and the many other questions arising during the course of a trial which can only be solved by the judge's common sense and fairness in view of the particular circumstances." FED. R. EVID. 611(a) advisory committee's note. It would be a strained and unreasonable construction of this provision, however, to interpret it as meaning that under Rule 611 a court has the discretion to allow the use of irrelevant, nongenuine, unauthenticated, and unfairly prejudicial evidence so long as that evidence is of a type mentioned in the Advisory Committee's Note. Rather, a much more reasonable interpretation is that so long as a piece of evidence is relevant, genuine, authenticated, and not unfairly prejudicial, a court still has the power to exclude it on any of the grounds listed in Rule 611(a)—because use of the evidence is not an effective way to ascertain the truth, is cumulative, or will cause a witness undue embarrassment. As such, the Note to Rule 611(a) properly gives the trial court some discretion in the use of demonstrative evidence at trial, but again does nothing to clarify the derivative relevance of demonstrative proof.

66 In addition to the theoretical problems caused by the lack of a definition of demonstrative evidence, the failure of modern evidence codes to deal directly with such evidence has caused practical problems in the proper treatment of demonstrative displays used at trial. *See supra* notes 25-29 and accompanying text. In Part III of this Article, we propose an

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E. Distinguishing Demonstrative Evidence from Other Parts of the Proof Process

Despite the arguments outlined above, the natural ambiguity associated with a broad and amorphous term like "demonstrative evidence" continues to cause considerable confusion in the courts. To fully understand the nature of demonstrative evidence, we must distinguish it from other evidence and other parts of a trial.

1. Testimonial Evidence

Testimonial evidence primarily consists of the aural information presented to the trier of fact by live or recorded witness statements. Such testimony is usually offered to prove or disprove a material fact, rather than to explain or clarify other proof. In other words, it is usually offered substantively rather than demonstratively, and it must satisfy the relevance requisites for substantive evidence.[67]

The term "testimonial evidence" also necessarily includes any visual information imparted by a *testifying* witness's demeanor and physical appearance.[68] Most demeanor evidence is unplanned,

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amendment to the Advisory Committee's Note to Rule 401 to provide that demonstrative proof should be formally admitted into evidence, but should be allowed to be taken with the jury during deliberations only if viewing the demonstrative display requires no mechanical playback or manipulation.

[67] Testimonial evidence can also be introduced, however, as background or clarification of other evidence. The witness's testimony would then act as a type of background evidence, explained below. *See infra* part I.E.4. It would still not be labeled demonstrative evidence, however, because the evidence is still presented testimonially and not in the form of a palpable display.

[68] When a witness testifies in-person in court (either live or on videotape), the trier of fact is able to learn more from that witness than the import of the witness's oral testimony. The witness's facial expressions, body movements, and overall manner can reveal a good deal about the witness's credibility. *See* 1 BENTHAM, *supra* note 51, at 54 (Book I, ch. IV) (discussing involuntary person evidence); Lyman R. Patterson, *The Types of Evidence: An Analysis*, 19 VAND. L. REV. 1, 9-10 (1965) (discussing relationship among real evidence, testimonial evidence, and demeanor evidence). Such demeanor evidence acts in essence as background testimonial evidence rather than as demonstrative evidence. *But see* G.D. Nokes, *Real Evidence*, 65 LAW. Q. REV. 57, 59-63 (1949) (classifying witness demeanor and physical appearance evidence as "real evidence"); MCCORMICK (3d ed.), *supra* note 7, § 212, at 664 n.4 (labeling witness demeanor evidence as "analytically a type of demonstrative evidence").

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with unpredictable effects.[69] In these instances, it is merely a natural appendage to a witness's testimony and is not demonstrative evidence because it is not intentionally offered to clarify or illustrate. Some demeanor evidence, on the other hand, is planned. For example, witnesses may voluntarily or in response to counsel's coaching weep at carefully chosen times or appear angry at others. This type of planned demeanor evidence, however, is not being introduced to illustrate or clarify other evidence, but to emphasize it or to make it more credible.[70] Consequently, planned demeanor testimony acts in the same manner as other witness credibility evidence, explained below.

2. Documentary Evidence

Documentary evidence is factual evidence[71] contained in a writing or recording.[72] Such evidence differs from testimonial proof in that the source of the relevant information is the document or recording and not the witness. It differs from real evidence, outlined below, in that real evidence imparts information first-hand to the trier of fact, whereas documentary evidence imparts such information only through the medium of a writing or recording. Despite these differences, documentary evidence is analytically distinct from demonstrative evidence in the same manner that both testimonial and real evidence are: it is offered primarily to prove material, substantive facts and not to illustrate other evidence. In other words, a summary chart offered to prove the underlying facts would normally constitute documentary evidence, whereas a chart offered solely to illustrate or clarify already admitted facts is demonstrative.

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69 The effect of a facial or body gesture on a particular juror depends, quite obviously, on the individual juror.

70 Certainly, one of the effects of demonstrative displays will be to highlight the evidence, especially if the display is presented dramatically or colorfully. Nonetheless, the analytical distinction between demonstrative evidence and planned demeanor evidence (or other evidence) depends not on the effect of the evidence, but on the proponent's purpose in introducing it.

71 Documentary evidence includes facts judicially noticed and presented to the trier of fact via writings or recordings.

72 Although most documentary evidence will consist of written records, documentary information can also be retained on electronic, magnetic, or other forms of data recordings. *See* FED. R. EVID. 1001(1).

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3. Real Evidence

Real evidence[73] involves proof by palpable objects. The objects may be persons exhibiting parts of their bodies, articles of clothing, or other physical items of evidence. Real evidence differs from testimonial and documentary evidence in that the relevant information is imparted to the trier of fact by first-hand inspection of the exhibit, rather than through a witness, writing, or recording. In this respect, many items of demonstrative evidence appear to be real evidence. For example, a knife is a palpable object that imparts some sort of information to the trier of fact by first-hand inspection. Thus, the knife could serve either as demonstrative evidence or real evidence. The analytical distinction between the two uses is, again, in the way the evidence is used at trial. Real evidence tends to prove or disprove a material

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[73] Like "demonstrative," the word "real" is susceptible to an expansive, colloquial meaning. In its broadest sense it could, for example, be used to refer to any genuine, nonfabricated evidence presented at trial. The term "real evidence," however, has rarely been employed in such a broad sense. *But see* Jerome Michael & Mortimer J. Adler, *Real Proof I*, 5 VAND. L. REV. 344, 352, 355 (1952) (discussing sense in which all evidence is "real").

Most modern commentators track the term "real evidence" to Jeremy Bentham's seminal evidential classifications. *See, e.g.*, Sidney L. Phipson, *"Real" Evidence*, 29 YALE L.J. 705, 705 (1920). *See generally* 1 BENTHAM, *supra* note 51, at 51-57 (Book I, ch. IV) (setting forth Bentham's "species" of evidence). Bentham classified real evidence as one type of circumstantial evidence, stating: "By *real* evidence, I understand all evidence of which any object belonging to the class of *things* is the source; *persons* also included, in respect of such properties as belong to them in common with things." 3 *id.* at 26 (Book V, ch. III).

As Phipson later convincingly demonstrated, the term "real evidence," as envisioned by Bentham, most appropriately refers to material (in the sense of palpable, physical) objects, other than documents, produced for the inspection of the court, such as clothing, weapons, or narcotics, for instance. Phipson, *supra*, at 707.

Since Phipson, several other commentators have attempted to redefine or reclassify real evidence, but such efforts have consistently failed to gain general acceptance in the legal community. Wigmore, for example, jettisoned the term "real evidence" entirely, championing the phrase "autoptic proference" to refer to any matters directly perceived by the trier of fact. 4 JOHN H. WIGMORE, EVIDENCE IN TRIALS AT COMMON LAW § 1150, at 321 (James H. Chadbourn rev., 1972). This unwieldy phrase died long before the second half of this century. The philosophers Jerome Michael and Mortimer Adler added an erroneous and unnecessarily complex analysis to this type of evidence in their article *Real Proof I*, 5 VAND. L. REV. 344 (1952). *See* 1A JOHN H. WIGMORE, EVIDENCE IN TRIALS AT COMMON LAW § 37.3 (Peter Tillers rev., 1983) (criticizing Michael and Adler's analysis).

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issue; demonstrative evidence relates exclusively to other evidence. Thus, if the knife is being offered only to illustrate what the actual knife used in the robbery looked like, it is a demonstrative display, not a real exhibit.[74]

Several modern evidence authorities distinguish real evidence from demonstrative evidence by suggesting that real evidence consists of tangible objects originally involved in the litigated occurrence, whereas demonstrative evidence is not directly involved in the litigated occurrence, but subsequently constructed or obtained by the parties for illustrative purposes.[75] The problem with this distinction is that it incorrectly excludes too much evidence from both categories. Some tangible objects present at the litigated occurrence may lack the chain-of-custody foundation essential for admission as substantive exhibits. Nonetheless, they can readily be used demonstratively to illustrate, for instance, what the actual knife or clothing looked like. Similarly, specimens of a party's actual fingerprint or handwriting are frequently obtained after the litigated event, but are nonetheless introduced at trial as real, substantive evidence that can be compared with latent fingerprints or disputed handwriting.[76]

4. Background and Credibility Evidence

Frequently at trial, parties will introduce evidence that does not relate even indirectly to material issues, but provides background, color, or completeness to the overall picture. This evidence can include, for example, circumstances occurring before or after relevant events, or whether a witness is married and has any children. Similarly, parties often elicit information about each witness's background, education, or criminal history to bolster or

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74 It is a failure to appreciate this distinction that has caused much of the present day confusion surrounding demonstrative evidence. That is, instead of acknowledging demonstrative evidence as its own branch of evidence, commentators will often try to analyze it as a special application of real evidence. *See, e.g.*, MCCORMICK (1st ed.), *supra* note 6, § 179, at 384; *see also infra* notes 159-79 and accompanying text (discussing McCormick's treatment of demonstrative evidence).

75 *See* RICHARD O. LEMPERT & STEPHEN A. SALTZBURG, A MODERN APPROACH TO EVIDENCE 988 (2d ed. 1982); LILLY, *supra* note 61, at 511.

76 When introduced at trial, the actual fingerprint or handwriting specimen will often be introduced along with an enlargement of the specimen, thus enabling the testifying witness to explain to the trier of fact the significance of the evidence. This enlargement is demonstrative; the actual fingerprint or handwriting sample is substantive.

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attack the witness's credibility.[77]

Although such background evidence and witness credibility evidence appear to play similar roles in the proof process at trial, the evidential status of these two types of evidence differs considerably. Witness credibility evidence acts like substantive evidence in that it is primarily relevant, while background evidence retains only the derivative relevance attached to demonstrative evidence. A primarily relevant fact under Rule 401 of the Federal Rules of Evidence is one that is "of consequence to the determination of the action." Once there is a dispute between parties concerning the credibility of a witness, facts that go to the witness's credibility are now of consequence and therefore primarily relevant.[78]

Background evidence, on the other hand, acts as a secondary means of proof in that it does not relate primarily (or frequently, at all) to a material issue, but acts only secondarily to explain or support other primarily relevant evidence. There is normally nothing of consequence to the issues in a case about a witness's address or employment, for example. This evidence merely aids the trier of fact in understanding the witness generally, so that the specific substantive points covered by the witness can be better evaluated. Background evidence, like demonstrative evidence, retains only a derivative relevance to the material issues at trial.[79]

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[77] *See, e.g.*, United States v. Masino, 275 F.2d 129, 133 (2d Cir. 1960) (testimony regarding service in armed forces and prior drug use related to witness's credibility).

[78] This is one reason, for example, that courts do not permit evidence bolstering the credibility of witnesses to be admitted until that credibility has been questioned. *See* FED. R. EVID. 608(a); MCCORMICK (3rd ed.), *supra* note 7, § 49. Absent some attack on the credibility of a witness, the witness's credibility is not really "of consequence" and therefore not relevant. *See infra* note 211 (discussing derivative relevance of impeachment and character evidence).

[79] In defining relevant evidence, the Advisory Committee's Notes to the Federal Rules of Evidence acknowledge the existence of background evidence. *See* FED. R. EVID. 401 advisory committee's note. However, the drafters confine their analysis of such evidence to its relationship to disputed issues, rather than its relationship to material issues. No effort is made to fit background evidence within the confines of the definition of relevant evidence. *See supra* note 65; *see also* Arthur H. Travers, Jr., *An Essay on the Determination of Relevancy Under the Federal Rules of Evidence*, 1977 ARIZ. ST. L.J. 327, 345-47 & nn.35-36 (discussing whether reference to background facts in Advisory Committee's Note to Rule 401 creates separate and distinct basis for admission of background evidence).

The most recent reviser of Wigmore's treatise also discusses background

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However, background evidence in fact differs from demonstrative evidence in how it is used. The principal purpose of demonstrative evidence is to clarify or illustrate other evidence, while the purpose of background evidence is to present the context of that other evidence.

5. Opening Statements

Opening statements provide an outline of the factual evidence that a party intends to introduce at trial, to assist the trier of fact in understanding and evaluating that evidence as it is presented. The role of an opening statement in the proof process is quite similar to the role played by background evidence—it previews the picture to the trier of fact in much the same manner that background evidence completes the picture. Like the relevance of demonstrative evidence, the only "relevance" of opening statements is secondary. They help to understand the relevant, substantive evidence that will follow, but they do not independently tend to prove any material issues.

Nonetheless, opening statements do, in fact, differ from demonstrative evidence and background evidence. Opening statements, like argument, are statements by counsel. They are not independently established facts. Because they are not independent facts, openings are generally not regarded as "evidence" at all.[80] In fact, as there is no mention of opening statements in the Federal Rules of Evidence, any discussion of the "relevance" of opening statements would seem to be unnecessary.

Some mention should be made, however, of "demonstrative" exhibits used by counsel during opening statements. To the extent that such exhibits are subsequently used as demonstrative

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evidence. *See* 1 WIGMORE, *supra* note 62, at 658-61. Tillers notes that the primary effect of admitting background evidence is to weaken the basic relevancy principle that only relevant evidence can be admitted. *Id.* Nonetheless, Tillers concludes that admission of background evidence is necessary to place other material facts in an understandable context. *Id.* We agree that background evidence is necessary, although we contend that principles of relevance need not be weakened so much as restructured to include background and demonstrative evidence. *See supra* part I.D; *infra* part III.

[80] *See* 1 EDWARD J. DEVITT & CHARLES B. BLACKMAR, FEDERAL JURY PRACTICE INSTRUCTIONS: CIVIL AND CRIMINAL § 10.01, at 257-58 (3d ed. 1977).

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evidence during the testimony of a witness, their status as demonstrative evidence is unchanged. On the other hand, if the exhibit principally repeats counsel's words and is not referenced by later testimony, then the exhibit becomes part of the argument of counsel, rather than demonstrative evidence.

6. Argument

"Argument in its simplest form is the statement of reasons to support a conclusion."[81] The distinction between argument and evidence at trial, however, stems not from the nature of the subject matter, but the source. At trial, argument springs from counsel. It involves comments by counsel on facts or law: most appropriately, those facts introduced as evidence at trial or those legal principles governing the case.[82] Demonstrative evidence, on the other hand, involves the presentation of factual evidence[83] where the source of such facts is not counsel, but other evi-

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[81] G.D. NOKES, AN INTRODUCTION TO EVIDENCE 7 (4th ed. 1967).

[82] Counsel's argument at trial is almost always limited to comments on facts introduced as evidence at trial or on the governing legal principles selected by the court in that case. Representations during argument of facts that were not addressed at trial, or comments about inapplicable legal principles, are generally improper. *See* 6 JOHN H. WIGMORE, EVIDENCE IN TRIALS AT COMMON LAW §§ 1806-1807 (James H. Chadbourn rev., 1976).

[83] *But see* 1 WIGMORE, *supra* note 62, at 661. Tillers states:

> That such things [as background evidence] should be called evidence at all is interesting since such a practice tends to undermine the view that evidence, unlike legal argument and logic, is properly aimed at proof of facts and is not something which demonstrates what sorts of inferences should be drawn from the evidence presented or which suggests how the various pieces of evidence and facts presented to the jury should be combined to make the sort of tapestry a proponent of the evidence desires to establish.

Id.

The problem with this view is that it limits "evidence" to primarily relevant evidence—evidence that is aimed at proof of material facts. If we accept that "evidence" can include derivatively relevant evidence, then we can accept Tillers's later comment that there is "nothing anomalous or improper in treating illustrative diagrams and the like as evidence since there is in fact no rigid dichotomy (nor should there be) between the use of evidence as the basis for factual inference and the use of evidence to improve the process of factual inference." *Id.* Currently, there is a rigid dichotomy—the definition of relevant evidence. If we remove this, or reword it, then we can properly treat demonstrative displays as evidence.

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dence—testimony, documents, palpable objects, or judicially noticed facts.

The distinction between argument and demonstrative evidence is probably more obvious in theory than in practice. Trial counsel can be expected to present any display, including demonstrative ones, in a manner calculated to increase its persuasive effect. Thus, counsel may add facts to the underlying substantive evidence, alter facts, or subtly shade facts in a demonstrative display. If so, then counsel, at least as to these additional facts, is using the display to argue. The source of these new facts is counsel, not other evidence. In deciding when a trial display crosses this rather vague line between demonstration and argument, the court must decide whether the display principally and accurately clarifies other factual evidence or whether the information presented by the display principally flows from counsel.

A similar distinction can also be made between visual or auditory aids used during trial and then later in closing argument and similar aids used exclusively during counsel's arguments. For example, counsel will frequently insert into closing argument large charts that highlight certain evidence or that feature portions of the judge's jury instructions. To the extent that such an exhibit principally illustrates other factual evidence introduced at trial, then such a closing chart acts as a demonstrative display.[84] If, on the other hand, the exhibit principally highlights counsel's words or the applicable legal instructions, then the exhibit is part of counsel's argument.

Despite the distinguishable characteristics of demonstrative evidence described above, we suspect that some contemporary evidence scholars will continue to disagree with our initial premise that demonstrative evidence is identifiable as a distinctive category of evidence. Certainly there will be a few that continue to

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[84] The admissibility problems associated with such demonstrative displays are discussed in Brain & Broderick, *supra* note 16, at 372-83. The problem with admitting such closing demonstrative displays into evidence is that when the display is not referenced during trial, there is insufficient foundation to admit such an exhibit. For example, no witness has testified that the display is accurate or nonmisleading. Thus, although the chart can still be used like the remainder of counsel's argument to persuade, the display cannot be admitted into evidence, and it should not be given to the jury during their deliberations. *See, e.g.*, United States v. Abbas, 504 F.2d 123, 125 (9th Cir. 1974) (stating that "better practice" was not to let exhibits used solely for demonstrative purposes go to jury room during deliberations).

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eschew even the term itself.[85] On the other hand, we anticipate that our observations and conclusions will be welcomed by the practicing bar, as they present much-needed theoretical support for oft-used, significant evidence. It is to the reasons for these disparate attitudes about demonstrative evidence and the historical origins of this dichotomy that we now turn.

II. The Disjunctive History of Demonstrative Evidence: Theory and Practice

Although a common law of singular evidentiary principles developed alongside evolving English rules of pleading and procedure, the law of evidence did not emerge as a separate branch of law until the sixteenth and seventeenth centuries.[86] It was then that English juries ceased basing their verdicts upon their own prior knowledge of the facts of a case and instead began to rely primarily on information presented to them by witnesses in court. A cohesive body of evidentiary rules began appearing, therefore, coincidentally with the predominance of the modern jury.[87] This newly emergent branch of the law was not, of course, invented out of whole cloth. It attempted to fit the bits and pieces of existing practice into some pattern of evidentiary principles. We begin our inquiry into the history of demonstrative evidence, therefore, with a look at evidentiary practice rather than theory.

A. Demonstrative Evidence and the Dawning of a Law of Evidence

Trial reports of this period are sketchy, but we know that nontestimonial, nondocumentary evidence was used in at least some of the courts of England prior to the nineteenth century. For example, Blackstone lists as one of his seven species of civil trials in eighteenth-century England a trial by inspection or examination, where a judge decided a contested issue or point merely by ocular demonstration.[88] This type of trial originated centuries

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[85] *See, e.g.*, 22 Wright & Graham, *supra* note 6, § 5172 (" 'Demonstrative evidence' is another of those bastard classifications that serve only to confuse the analysis of evidentiary issues; some of the matter to which it is applied is neither 'demonstrative' nor 'evidence.' ") (footnotes omitted).

[86] *See* 9 William Holdsworth, A History of English Law 127 (3d ed. 1944); *see also* James B. Thayer, A Preliminary Treatise on Evidence at the Common Law 47-62 (Boston, Little, Brown 1898) (presenting exceedingly thorough treatment of development of jury trial).

[87] *See* 9 Holdsworth, *supra* note 86, at 127.

[88] Blackstone, *supra* note 32, at *331-33.

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before Blackstone's *Commentaries*, and while trial by examination was initially limited to judicial trials, inspection gradually became a practice at jury trials as well.[89]

Trial by inspection was most frequently used to determine questions of age, pregnancy, bastardy, and the genuineness of records, copyrights, and handwriting.[90] If the case alleged bastardy, the court merely compared the child's appearance with that of the putative parents. In a case involving disputed handwriting, the court would directly inspect the disputed handwriting specimen and compare it with a genuine specimen.

The nontestimonial evidence introduced in trials by inspection did not usually involve "demonstrative evidence" as we use the term, but rather real or documentary evidence. In each example listed above, the evidence introduced during such a trial was offered as proof of a primary, material issue and not as a secondary illustration of other evidence. In a case of disputed handwriting, for example, the court or jury would personally inspect both the disputed signed instrument and some other example of the signer's genuine handwriting. Neither specimen was presented as demonstrative of other testimony or exhibits; instead, both acted as primary proof of material issues. Nonetheless, the existence of trials by inspection shows that there did exist an established practice of using nontestimonial and nondocumentary evidence at the time a unitary law of evidence began to emerge in the early eighteenth century.[91]

The initial expositions of a law of evidence, however, inexplicably ignored nontestimonial and nondocumentary evidence. The first sources for an Anglo-American law of evidence were case digests, sometimes called abridgements of the law.[92] These con-

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89 *See* SIDNEY L. PHIPSON, THE LAW OF EVIDENCE § 11, at 6 (2d ed. London, Stevens & Haynes 1898).

90 *Id.* at 3-5.

91 Despite as diligent a search as our library allowed, we have been unable to find any early English cases involving the use of purely illustrative exhibits, such as drawings or demonstrations. We suspect it possible that the relatively unsophisticated nature of most cases, both criminal and civil, tried during these early years did not require the additional clarification or explanation provided by demonstrative exhibits. It is also possible that straightforward demonstrative displays were used so regularly that the reporters of these decisions thought them unremarkable.

92 The first evidence digest appears to have been THE LAW OF EVIDENCE (London, R. Gosling 1717). This was followed by several abridgements that devoted sections to evidence cases, the most notable being, perhaps, 2

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sisted mainly of "numbered propositions founded on cases, statutes, and other authorities, which [were] not arranged on any intelligible plan. The law [was] for the most part grouped round the forms of action, and there [was] no attempt to extract its underlying principles."[93] In examining several of these early digests, we find no mention of demonstrative evidence, real evidence, or trials by inspection. Instead, evidence, to the extent it was categorized at all, was limited to oral testimony and writings.[94] Although the impact of these early case digests on the subsequently propounded law of evidence was rather limited,[95] they established a pattern of scholarly omission that would recur several times in succeeding years.

The first genuine treatise on the law of evidence was written by Lord Chief Baron Gilbert sometime prior to 1754.[96] A substantial portion of this book addressed rules of pleading and procedure in several substantive legal areas, as well as the burdens of proof in these areas. Gilbert's treatise is noteworthy, however, because it did attempt to establish an analytical structure for the newly-emergent law of evidence. Unfortunately, Gilbert's structure, like that of the preceding digests, erroneously limited evidence to oral testimony of witnesses and written records or documents.[97] He discussed "demonstration" as a method of logi-

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MATTHEW BACON, A NEW ABRIDGEMENT OF THE LAW 284-313 (London, n.p. 1736), and 3 JOHN COMYNS, A DIGEST OF THE LAWS OF ENGLAND 279-85 (London, n.p. 1765). *See* 1 WIGMORE, *supra* note 62, § 8, at 609. Unlike others, Bacon at least attempted to outline some basic evidentiary principles prior to digesting the evidence cases. These principles, however, ignored both trials by inspection and real evidence, limiting evidence to writings and testimony. 2 BACON, *supra*, at 575 (6th ed. London, n.p. 1807).

93 12 HOLDSWORTH, *supra* note 86, at 366.

94 *See, e.g.*, 2 BACON, *supra* note 92, at 575 (6th ed. London, n.p. 1807).

95 Very few subsequent evidence treatises, for example, refer at all to these initial case digests. *But see, e.g.*, 1 WIGMORE, *supra* note 62, § 8, at 609 (discussing role of case digests in development of evidence law).

96 Gilbert's *The Law of Evidence* was first published posthumously in 1754. *Id.*

97 Gilbert did not call his evidential proofs "evidence." Instead, he defined evidence as written testimony (documents) and unwritten testimony ("Proofs from the Mouths of Witnesses"). LORD CHIEF BARON GILBERT, THE LAW OF EVIDENCE 5, 119 (5th ed. London, n.p. 1788). Gilbert also addressed a third category of proof, judicial notice of the general acts of parliament, *id.* at 40, but did not include judicial notice as a type of testimony.

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cal proof,[98] but he made no mention of demonstrative exhibits, real evidence, or trials by inspection.

As we shall see, this error, like the errors of the preceding digests, did not forestall the continued evolution of nontestimonial, nondocumentary evidence in trial courtrooms.[99] Gilbert's treatise did, however, have a significant impact upon succeeding evidence scholars, as his omission of demonstrative evidence seemed quite clearly to limit the framework of evidence treatises that followed in the next century.[100]

B. Demonstrative Evidence and Precursive Modern Sources: 1800-1935

In the nineteenth century, the writing of evidence treatises became a cottage industry. Buoyed by a monumental increase in printed reports of *nisi prius* rulings, evidence theorists tried to fashion a much more thorough and consistent structure for this emerging branch of law. The most elaborate effort in this regard, and arguably the most influential among scholars, was that of the English utilitarian philosopher Jeremy Bentham.[101] In his treatise

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98 In the first Place, it has been observed by a very learned Man [Mr. Locke], that there are several Degrees from perfect Certainty and Demonstration . . . .

. . . .

As if the Question be, whether certain Land be the Land of *J. S.* or *J. N.* and a Record be produced whereby the Land appears to be transferred from *J. S.* to *J. N.* now when we shew any such third Perception, that doth necessarily infer the Relation in Question, this is called Knowledge by Demonstration.

Id. at 1-3.

99 As Wigmore noted over a century later, "this propounding of a system [of evidence] was as yet chiefly the natural culmination of the prior century's work and was independent of the expansion of practice that was going on." 1 WIGMORE, *supra* note 62, § 8, at 609.

100 One English evidence scholar noted that from the early years of the nineteenth century, "there may be observed two parallel modes of writing on evidence—that which was primarily theoretical and that which was primarily practical." NOKES, *supra* note 81, at 23. Many of the significant evidence scholars writing after Gilbert embraced several of his analytical observations. *See, e.g.*, PHILLIPS, *supra* note 50; THOMAS STARKIE, A PRACTICAL TREATISE OF THE LAW OF EVIDENCE (9th ed. Philadelphia, T. & J.W. Johnson & Co. 1869); JAMES F. STEPHEN, A DIGEST OF THE LAW OF EVIDENCE (London, Macmillan 1876).

101 Bentham's impact on evidence scholarship can be traced throughout many of the most influential evidence theorists of the nineteenth century. *See, e.g.*, WILLIAM M. BEST, A TREATISE ON THE PRINCIPLES OF EVIDENCE AND

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on the rationale of judicial evidence,[102] Bentham attempted to conform the contemporary practice of law to his perception of an overall evidentiary framework. To do so, Bentham originated several additional classifications for certain evidence that appeared regularly in trial courts but was not addressed by other authors. For example, Bentham examined demeanor evidence as "involuntary personal evidence" and cast it as an analytically distinct category from the traditionally defined "testimonial evidence."[103]

Bentham also coined the term "real evidence" for the type of physical evidence that was being used in trials by inspection but was not easily fit within the existing categories of personal, testimonial, or documentary evidence.[104] To Bentham, real evidence was evidence from things. This included the in-court exhibition of wounds, instruments of a criminal offense, or any of the kinds of evidence introduced during trials by inspection—[105]in other words, things where "the source of the evidence is made present to the senses of the judge himself."[106] This broad definition would seem to include virtually all demonstrative exhibits,[107] in that such exhibits would be presented in tangible form like other real or physical evidence. Bentham, however, makes no reference in his discussion of real evidence to any nonsubstantive, physical exhibits such as charts, drawings, or the like.[108]

PRACTICE AS TO PROOFS IN COURTS OF COMMON LAW at v-vi (2d ed. London, S. Sweet 1854); PHIPSON, *supra* note 89; 1 FRANCIS WHARTON, A COMMENTARY ON THE LAW OF EVIDENCE IN CIVIL ISSUES at iv (Philadelphia, Kay & Bro. 1877); WILLIAM WILLS, AN ESSAY ON THE RATIONALE OF CIRCUMSTANTIAL EVIDENCE at iii (London, Longman 1838).

102 BENTHAM, *supra* note 51.

103 1 *id.* at 53-54 (Book I, ch. IV).

104 Most modern commentators track the term "real evidence" to Bentham. *See supra* note 73.

105 3 BENTHAM, *supra* note 51, at 26-61 (Book V, ch. III).

106 *Id.* at 33.

107 McCormick adopted the essence of Bentham's definition of "real evidence" as his definition of "demonstrative evidence." In that definition, McCormick includes both real evidence and demonstrative evidence as those terms are used in this Article. *See* MCCORMICK (3d ed.), *supra* note 7, § 212, at 663 (defining demonstrative evidence as that which conveys firsthand sense impressions).

108 Bentham does teasingly allude to the existence of another type of evidence that he called "indicative evidence":

> By the term *indicative* evidence, I understand, not any particular and separate sort of evidence, such as circumstantial,

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If Bentham was familiar with primarily illustrative evidence in use during this period,[109] his omission of demonstrative evidence as a separate species of evidence is both perplexing and significant. The sheer number of his evidential species certainly suggests that he intended his treatise to be all-encompassing. Moreover, Bentham was certainly capable of understanding the analytical distinction between purely demonstrative evidence and substantive evidence. Nonetheless, by ignoring demonstrative proof, Bentham served to legitimate subsequent scholarly omissions of this class of evidence,[110] even as a common law of demonstrative evidence began to fully develop in the American[111] courts of this period.

By the middle of the nineteenth century, the law of evidence in

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> direct, self-regarding, and so forth,—but evidence of any sort, considered as being productive of a particular effect; viz. the indicating or bringing to view the existence, certain or probable, of some other article of evidence. Indicative evidence is *evidence of evidence*.

3 BENTHAM, *supra* note 51, at 554 (Book VI, ch. XI).

Though this term "indicative evidence" is suggestive of demonstrative evidence, Bentham provides no examples of such evidence being used as a secondary illustration of other evidence. Moreover, Bentham did not pursue the idea of indicative evidence any further in his writings.

109 It is possible that demonstrative charts, diagrams, or models were simply not that prevalent at pre-nineteenth century trials. However, Bentham's analysis of expert testimony, which he called "scientific evidence," seems to suggest that such evidence would have been permitted: "[I]t cannot but be to the interests of justice, that the means should be in [the expert's] hands for giving to the expression of the degree of force of his persuasion whatsoever degree of accuracy he thinks fit." 1 *id.* at 89-90 (Book I, ch. VI).

110 For example, Best readily acknowledged that models and drawings were being used in trial courts of the time. BEST, *supra* note 101, at 272. Nonetheless, he limited his instruments of evidence to Bentham's categories of witnesses, real evidence ("evidence from things"), and documentary evidence. *Id.* at 159. Even Best had to admit to some problem with this limiting categorization, however: "In some instances, no doubt, the line of demarcation between documentary and real evidence seems faint; as in the case of models or drawings, which clearly belong to the latter head, but differ from that which we are now considering in this that they are *actual*, not *symbolical*, representations." *Id.* at 272.

111 Two principal nineteenth and twentieth century English evidence treatises, those by Phipson and Nokes, omit any discussion of demonstrative evidence. They seem content to include demonstrative evidence within the category of real proof. *See* PHIPSON, *supra* note 89, at 484-87; NOKES, *supra* note 81, at 10-15.

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the United States was largely dictated by numerous judicial opinions.[112] This rapidly developing common law of evidence included a continually growing common law of demonstrative evidence.[113] Unlike cases involving other evidentiary issues, however, there are relatively few reported cases from the early nineteenth century on the use of explanatory charts, diagrams, or models. The use of such displays did not seem to present any great difficulties to the bench or bar in that era. In fact, if we examine some of these opinions, we see that nineteenth century trial judges and appellate justices seemed almost indifferent to the need for any evidential theory justifying the use of purely demonstrative displays. When objections were voiced against the use of this type of evidence, most were summarily dismissed. For example, one opinion stated:

> The next objection is that an expert witness was allowed to explain upon a blackboard his meaning, and the reasons for his opinion. We think there was no error in this. Of course, the whole class of expert evidence is exceptional; and, as experts are to give opinions, it is right that they should explain the reasons for them.[114]

A Vermont justice even more tersely stated that one may "as well object to the use of an eye-glass by one whose vision is defective," as to the use of enlarged illustrative photographs.[115]

Such authoritative and logical-sounding propositions needed no authority or theory to support them and, almost uniformly, none was given.[116] Even if we trace back the few demonstrative

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112 1 WIGMORE, *supra* note 62, at 612-13.

113 *See, e.g.*, Ordway v. Haynes, 50 N.H. 159, 164 (1870) (drawing distinction between hand-chalked drawing and drawing in medical book); State v. Whitaker, 3 S.E. 488, 489 (N.C. 1887) (stating that notice of illustrative diagram not required); 20 CENTURY EDITION OF THE AMERICAN DIGEST, Evidence §§ 676-683 (1900) (citing other cases involving demonstrative evidence).

114 McKay v. Lasher, 3 N.Y. 352, 353 (Sup. Ct. 1888); *see also* State v. Knight, 43 Me. 11, 132 (1858) (permitting witness to present diagram "merely to explain his meaning, and not as an infallible test of truth"); Shook v. Pate, 50 Ala. 91, 92 (1873) (stating that "even savages" resort to diagrams or linear descriptions in lieu of words).

115 Rowell v. Fuller, 10 A. 853, 861 (Vt. 1887).

116 The vast majority of cases cited by both Wigmore and the digests as authority for the introduction of demonstrative evidence during the nineteenth century cite to nothing more than judicial discretion as their basis for the admission of such exhibits. *See* 3 WIGMORE, *supra* note 33, § 791.

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evidence cases that rely upon precedent, the purported line of authority often begins at some similarly unsupported font of judicial common sense. Evidential theory seemed unnecessary to nineteenth century trial courts for this helpful class of exhibits.[117]

Nonetheless, as these demonstrative displays became more and more commonplace at nineteenth century trials, we might have expected evidential theorists to address this category of proof. Unfortunately, this did not occur. For instance, Simon Greenleaf's *A Treatise on the Law of Evidence*,[118] written initially for his evidence classes at Harvard and first published in 1842, is regarded by some as "the authoritative statement of the law [of evidence] for the rest of the 19th Century."[119] In this multi-volume treatise, however, Greenleaf reserved less than a page to demonstrative displays. He noted without comment in his discussion of expert testimony concerning private handwriting that papers were occasionally exhibited by expert witnesses "in confirmation and explanation" of their testimony.[120] Greenleaf also mentioned trials by inspection in his section on proceedings in equity, noting that although such trials had fallen into disuse, "as a matter of proof, ancillary to other testimony, parties are . . .

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[117] An interesting exception to this pattern of unsupported opinions involves map cases. Some nineteenth century demonstrative evidence cases rely upon precedent involving the use of maps or land area charts. These seminal map cases, however, almost always involve controversies where maps or charts were admitted solely as *substantive* evidence, such as in boundary disputes. *See, e.g.*, Kankakee & Seneca R.R. Co. v. Horan, 23 N.E. 621, 624 (Ill. 1890) (finding no error in submitting maps to jury in nuisance action); Goldsborough v. Pidduck, 54 N.W. 431, 432 (Iowa 1893) (upholding admission of plat into evidence in boundary dispute); Commonwealth v. Switzer, 19 A. 681, 681 (Pa. 1890) (finding error in admission of unauthenticated map into evidence in action for obstruction of public highway). In later cases, when litigants moved to admit similar-appearing exhibits as *demonstrative* evidence, the courts cited to the earlier cases without realizing or acknowledging the now-secondary use of the exhibit. *See, e.g.*, Chicago, R.I. & P. Ry. Co. v. Buel, 76 N.W. 571, 572 (Neb. 1898) (citing *Goldsborough v. Pidduck* for proposition that map was "admissible in evidence to enable the jury to properly understand and apply the other evidence adduced on the trial").

[118] SIMON GREENLEAF, A TREATISE ON THE LAW OF EVIDENCE (16th ed. Boston, Little, Brown 1899) [hereafter GREENLEAF (16th ed.)].

[119] 21 WRIGHT & GRAHAM, *supra* note 6, § 5001, at 20. The preface to the 16th edition of Greenleaf's treatise, written by John Henry Wigmore, notes that Greenleaf's text remained virtually unchanged through fifteen separate editions. 1 GREENLEAF (16th ed.), *supra* note 118, at v-vi.

[120] 1 GREENLEAF (16th ed.), *supra* note 118, § 581, at 727.

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permitted . . . to exhibit to the court and jury, persons, *models*, and things not cumbrous, whenever the inspection of them may tend to the discovery of the truth of the matter in controversy."[121]

Greenleaf made no attempt to analyze demonstrative displays as a separate instrument of evidence, nor did he try to fit such evidence within his two limited categories of evidential proof: written records and deeds, and parol witness statements. Instead, Greenleaf, like those who preceded him, ignored or eliminated demonstrative proof as a species of evidence.[122]

Although we can only surmise why Greenleaf and other nineteenth century evidential theorists failed to address adequately the ever-increasing use of purely illustrative proof, we do know why they omitted the term "demonstrative evidence" from their categories of judicial proof. Beginning with Gilbert and proceeding through Bentham, Best, Wills, Greenleaf, and Wharton, the legal theorists seem to have completely ceded the term "demonstration" to logicians and mathematicians.[123] To them, a piece of

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[121] 3 GREENLEAF (16th ed.), *supra* note 118, § 328 (emphasis added). Wharton, a contemporary of Greenleaf who authored his own set of influential evidence treatises, also mentioned maps, charts, pictures, photographs, and diagrams. 1 WHARTON, *supra* note 101, §§ 668-670, 676-677. Nevertheless, he, too, limited his categories of evidence to witness testimony, documents, and inspection. *Id.* § 3, at 2.

[122] Oddly enough, Greenleaf also eliminated real proof as a separate category of evidence. The fact that the term "real evidence" can be traced to Jeremy Bentham may have had a considerable amount to do with Greenleaf's omission. Greenleaf was peculiarly hostile to the observations of Bentham. For example, he quoted with seeming glee the statement by the English Judge Best that Bentham was " 'a learned writer, who has devoted too much of his time to the theory of jurisprudence, to know much of the practical consequences of the doctrines he has published to the world.' " 1 SIMON GREENLEAF, A TREATISE ON THE LAW OF EVIDENCE § 435, at 484-85 n.6 (13th ed. Boston, Little, Brown 1876) [hereafter GREENLEAF (13th ed.)] (quoting Hovill v. Stephenson, 5 Bingham's Reports 493, 497 (1829)). This hostility is peculiar in light of Greenleaf's substantial reliance on Bentham disciples such as Starkie and Phillips. Nonetheless, it does show that Greenleaf's omission of demonstrative evidence was not his only oversight.

[123] The idea that demonstrative evidence referred to mathematically confirmable truth was not limited to theorists only. In 1948 the drafters of the proposed Missouri Code of Evidence adopted the following provision: " 'Demonstrative Evidence' is that high degree of evidence of which none but mathematical truth is susceptible. Such evidence excludes all possibility of error." MO. EVID. CODE § 1.01(j) (Proposed Official Draft 1948), *reprinted in* 22 WRIGHT & GRAHAM, *supra* note 6, § 5172, at 123.

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demonstrative evidence was an illustration of a tautological, mathematically confirmable proof, something in the nature of what today we might call scientific proof. As Greenleaf stated in the first section of *A Treatise on the Law of Evidence*:

> None but mathematical truth is susceptible of that high degree of evidence, called *demonstration*, which excludes all possibility of error, and which, therefore, may reasonably be required in support of every mathematical deduction. Matters of fact are proved by *moral evidence* alone; by which is meant, not only that kind of evidence which is employed on subjects connected with moral conduct, but all the evidence which is not obtained either from intuition, or from demonstration. In the ordinary affairs of life, we do not require demonstrative evidence, because it is not consistent with the nature of the subject, and to insist upon it would be unreasonable and absurd.[124]

Absurd or not, several nineteenth century American[125] trial lawyers and judges insisted on using the term "demonstrative evidence," to refer to illustrative exhibits, even as they cited subsequent editions of Greenleaf's treatise for authoritative guidance in other areas. As chronicled in the section of the *Century Edition of the American Digest* entitled "Demonstrative Evidence," numerous state and federal courts in the preceding hundred years had approved the use of demonstrative displays such as models, reproductions, and enlargements.[126]

Nevertheless, the vagaries of common law development and the forced exodus of the term "demonstrative evidence" from theoretical evidence nomenclature destroyed any chance that the term would emerge from the nineteenth century with a consistent meaning. When we look at the cases cited in the *Century Edition of the American Digest*, we see that the term "demonstrative evidence" is not used in any consistent manner. The term is used to refer without distinction to both derivatively relevant demonstrative displays and primarily relevant real evidence. The listed subcat-

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[124] 1 GREENLEAF (16th ed.), *supra* note 118, § 1 (second emphasis added). This notion of "moral evidence" contrasted to "demonstrative proof" was borrowed directly from Wills. *See* WILLS, *supra* note 101, at 4-5. The notion of demonstration as a means of positive proof was borrowed from Locke. *See* JOHN LOCKE, AN ESSAY CONCERNING HUMAN UNDERSTANDING (London, Holt 1690).

[125] The term "demonstrative evidence" does not appear to have been adopted in England. *See* NOKES, *supra* note 81, at 443 n.1.

[126] *See* 20 CENTURY EDITION OF THE AMERICAN DIGEST, Evidence §§ 676-683 (1900).

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egories of demonstrative evidence include substantive evidence formerly introduced at trials by inspection (exhibition of person or object, wounds, and writings submitted for comparison)[127] and substantive real evidence (weapons and other articles subject of or connected with the controversy).[128] In other words, the nineteenth century trial lawyer's use of the term "demonstrative evidence" seems to have been a substitute for Bentham's original category of "real evidence"—any nontestimonial, nondocumentary evidence presented in palpable form.

The reasons for this may be several. As already noted, by disregarding this category of proof, the eminent legal theorists of the period suggest that there is no reason for a distinction. Moreover, the loosely defined concepts of evidence, relevancy, and admissibility in this period no doubt permitted courts to admit virtually anything unless precluded by a specific rule.[129] Thus there was no reason to distinguish between substantive proof and purely demonstrative proof, as both were relevant.

It was not until John Henry Wigmore entered the scene at the turn of the century that there was any noticeable attempt to address this distinct category of evidence.[130] In the sixteenth edi-

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[127] *Id.* §§ 676-677, 681.

[128] *Id.* §§ 678-679.

[129] For example, Greenleaf defined "evidence" as "all the means by which any alleged matter of fact . . . is established or disproved." 1 GREENLEAF (16th ed.), *supra* note 118, at 3. When examining relevance, Greenleaf noted that relevant evidence need only tend to prove an issue at trial:

> It is not necessary, however, that the evidence should bear *directly* upon the issue. . . . Nor is it necessary that its relevancy should appear at the time when it is offered; it being the usual course to receive, at any proper and convenient stage of the trial, in the discretion of the judge, any evidence which the counsel shows will be rendered material by other evidence, which he undertakes to produce.

1 GREENLEAF (13th ed.), *supra* note 122, § 51a.

Wigmore was similarly expansive in explaining the rules of admissibility during this period. His two axioms of admissibility were: (1) "none but facts having rational probative value are admissible" and (2) "all facts having rational probative value are admissible, unless some specific rule forbids." 1 WIGMORE, *supra* note 62, §§ 9-10.

[130] Sir James Stephen, in his unsuccessful draft of a code of evidence for England, did include a rule making relevant any facts necessary to explain other relevant facts, but the examples he gives for such evidence are entirely substantive. STEPHEN, *supra* note 100, at 13-14. Moreover, Stephen limited evidence to witness statements or documents. *Id.* at 2. James Bradley

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tion of Greenleaf's treatise, edited by Wigmore in 1899, Wigmore added a discussion of maps, drawings, diagrams, models, and photographs.[131] Wigmore also added a third category of proof to Greenleaf's existing two. He called it "autoptic proference"; in fact, it covered real evidence.[132] In making these changes, Wigmore noted briefly that real evidence differed from demonstrative displays in that a demonstrative display "presupposes a qualified witness as its testimonial support and cannot of itself have any standing independently of some witness whose knowledge it serves to represent."[133] The discussion of the topic in Greenleaf's treatise, however, was quite limited.

Wigmore expanded upon the topic of demonstrative displays six years later in his own authoritative and monumental treatise, *Evidence in Trials at Common Law*. In the chapter addressing testimonial narration or communication, Wigmore placed most of what we refer to in this Article as demonstrative evidence, including demonstrations, models, maps, diagrams, and photographs, within the category of nonverbal testimony.[134] He inventoried an exhaustive list of state and federal cases in which courts allowed such evidence. Unfortunately, despite having erected an elaborate theoretical construct to explain the use of other types of evidence earlier in his writings and his treatise, Wigmore failed to present any theoretical explanation for the admissibility of nonverbal evidence. Instead, he simply said that "[i]t would be folly to deny ourselves on the witness stand those effective media of communication commonly employed at other times as a superior substitute for words."[135]

Despite this lapse, and his ardent refusal to use the terms "demonstrative" or "illustrative" to describe such exhibits,[136] Wigmore clearly understood the analytical nature of demonstrative evidence and its role at trial. He noted that demonstrative evidence "cannot be received except as a non-verbal expression

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Thayer's subsequent American treatise on evidence makes some casual allusions to illustrative evidence, but that is all. He, too, makes no effort at explaining any theory for the use of such evidence. *See* THAYER, *supra* note 86, at 263.

131 1 GREENLEAF (16th ed.), *supra* note 118, §§ 439*g*-439*h*.

132 *See infra* note 138 and accompanying text.

133 1 GREENLEAF (16th ed.), *supra* note 118, § 439*d*.

134 3 WIGMORE, *supra* note 33, §§ 789-797.

135 *Id.* § 790, at 218.

136 *See id.* § 791, at 228 n.2.

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of the *testimony of some witness* competent to speak to the facts represented."[137] He therefore distinguished purely demonstrative evidence from substantive, real evidence, which he futilely attempted to rename "autoptic proference."[138] While Wigmore did much to classify the distinguishing characteristics of substantive and demonstrative evidence, he failed to note that the principal distinction between demonstrative evidence and substantive real (or testimonial) evidence is in the purpose for which such evidence is used at trial. Nonetheless, his analysis suggested that logical and consistent treatment of this subject was possible. Modern and contemporary analysis of this topic, however, has not fulfilled this promise.

C. The "Modern" Era of Demonstrative Evidence: 1940-Present

We have chosen the 1940's to begin the "modern" era of demonstrative evidence because three basic ingredients coalesced during that decade to solidify contemporary demonstrative evidence thinking: increased reliance by prominent members of the trial bar on demonstrative displays; new scholarly theories concerning the nature and use of demonstrative evidence; and inconsistent omission of such evidence from proposed statutory evidence codes.

1. The Influence of Practitioners on Contemporary Demonstrative Evidence Theory

No history of demonstrative evidence can be complete without acknowledging the enormous influence of Melvin Belli and other practitioners beginning in the 1940's. The trial process has not been the same since Belli first threw a prosthetic leg at a jury in 1946 and told each juror to "feel the warm blood coursing through the veins."[139] The prosaic charts, graphs, and photographs that had been the mainstay of demonstrative proof since

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[137] *Id.* § 790, at 218-19.

[138] "[A]utoptic proference, or the tribunal's self-inspection, is to be distinguished from the use of testimonial and circumstantial evidence as the basis of an inference. Autoptic proference calls for no inference from the thing perceived to some other thing . . . ." 4 WIGMORE, *supra* note 73, § 1150, at 324.

[139] The case was Jeffers v. City & County of San Francisco, No. 343965 (Cal. Super. Ct. S.F. County 1946), and the complete story has been recounted in a number of places. *See, e.g.*, Melvin M. Belli, *Demonstrative Evidence and the Adequate Award*, 22 MISS. L.J. 284, 298-300 (1951).

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before the turn of the century[140] gave way almost immediately to numerous brightly colored flip charts, three-dimensional models, movies, and videotapes.[141]

With this increase in the quantity and sophistication of demonstrative trial displays came a concomitant avalanche of practitioner legal writings addressing the subject. Belli set the pace, authoring articles,[142] books,[143] and even a multi-volume treatise[144] largely devoted to the use of demonstrative evidence at trial.[145] Scores of other articles followed,[146] as well as several

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[140] *See, e.g.*, Cowley v. State, 83 N.Y. 464, 476-79 (1881) (finding no error in admission of photographs into evidence in action for child neglect).

[141] *See* Brain & Broderick, *supra* note 16, at 370.

[142] *See, e.g.*, Melvin Belli, *Demonstrative Evidence and the Adequate Award*, 22 MISS. L.J. 284 (1951); Melvin M. Belli, *Demonstrative Evidence*, 10 WYOMING L.J., 15 (1955); Melvin M. Belli, *Demonstrative Evidence: Seeing is Believing*, TRIAL, July 1980, at 70.

[143] *See, e.g.*, MELVIN M. BELLI, "READY FOR THE PLAINTIFF!": A STORY OF PERSONAL INJURY LAW (1956).

[144] MELVIN M. BELLI, MODERN TRIALS (1954) [hereafter BELLI (1954)].

[145] This is not to say that no authors prior to Belli had written about demonstrative evidence topics; of course they had. *See, e.g.*, Edward T. Lee, *The Use of Sound Films in Trial Courts*, 7 NOTRE DAME LAW. 209 (1932); L.E. Merman, Note, *Demonstrative Evidence—the Use of Models*, 20 NOTRE DAME LAW. 414 (1945); Viley O. Blackburn, Note, *Evidence—Demonstrations Before the Jury*, 34 KY. L.J. 309 (1946). However, none of these articles had nearly the energizing effect of Belli's writings on the practicing bar to use demonstrative evidence in a forceful manner.

[146] *See, e.g.*, George C. Bunge, *Demonstrative Evidence—A Grandstand Play?*, 42 ILL. B.J. 72 (1953); James A. Dooley, *Demonstrative Evidence—Nothing New*, 42 ILL. B.J. 136 (1953); Wallace E. Sedgwick, *Demonstrative Evidence*, 20 INS. COUNS. J. 218 (1953); Herman W. Goldner & Edward F. Mrovka, *Demonstrative Evidence and Audio-Visual Aids at Trial*, 1956 INS. L.J. 202; Hal B. Coleman, *Demonstrative Evidence in Closing Arguments*, 1959 TRIAL LAW. GUIDE 47; John A. Ladner, *Demonstrations and Experiments*, 1959 TRIAL LAW. GUIDE 19; Francis H. Hare, Jr., *Demonstrative Evidence*, 27 ALA. LAW. 193 (1966); Peter Perlman, *Demonstrative Evidence*, 33 KY. ST. B.J. 5 (1969); Gerald A. McGill & James W. Thrasher, *Videotapes: the Reel Thing of the Future*, TRIAL, Sept.-Oct. 1975, at 43; Kenneth G. Brooks, *Photo Exhibits—Improving the Breed*, TRIAL, Feb. 1976, at 31; Bruce T. Wallace, *Demonstrative Evidence: Some Practical Pointers*, TRIAL, Oct. 1976, at 50; Mark A. Dombroff, *Innovative Developments in Demonstrative Evidence Techniques and Associated Problems of Admissibility*, 45 J. AIR L. & COM. 139 (1979); John A. Owens, *Demonstrative Evidence—Refusal to Allow Plaintiff to Demonstrate Artificial Leg to Jury Not Prejudicial Error*, 30 DEFENSE L.J. 171 (1981); Michael J. Pangia, *The Use of Demonstrative Evidence in Aviation Litigation—A Conservative Approach*, 1981 TRIAL LAW. GUIDE 64; Peter Perlman, *Seeing is Believing: Making Proof More Meaningful*, TRIAL, June 1981, at 34; Monty L. Preiser & Mark L. Hoffman,

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"Day-in-the-Life" Films—Coming of Age in the Courtroom, TRIAL, Sept. 1981, at 41; Mark A. Dombroff, *Close-up: Utilizing Photographs as Demonstrative Evidence*, TRIAL, Dec. 1982, at 71; Mark A. Dombroff, *Demonstrative Evidence: Computer Reconstruction Techniques*, TRIAL, July 1982, at 52; David W. Christensen & J. Douglas Peters, *A Guide to the Use of Demonstrative Evidence*, 61 MICH. B.J. 818 (1982); Michael H. Graham, *Demonstrative Evidence - Photographs of Victims and "Mug Shots"*, 18 CRIM. L. BULL. 333 (1982); Thomas A. Hefferman, *Effective Use of Demonstrative Evidence: "Seeing is Believing"*, 5 AM. J. TRIAL ADVOC. 427 (1982); J. Kendall Few, *Demonstrative Evidence in the Products Case: Putting the Pieces Together*, TRIAL, Nov. 1983, at 101; John M. Meritt, *Re-Creation: The Tool of the Winning Lawyer*, 156 TRIAL LAW. Q. 64 (1983); Bernard B. Rinella, *Winning Cases Through Show and Tell: The Use of Demonstrative Evidence is an Appeal to the Senses that Makes the Difference*," FAM. ADVOC., Summer 1983, at 16; Edward M. Pikula, *The Evidentiary Aspects of "Day in the Life" Films*, 69 MASS. L. REV. 59 (1984); Larry Shavelson, *Photography as Demonstrative Evidence: There's More to it than Pushing the Right Button*, TRIAL, Feb. 1984, at 42; John A. Tarantino, *The Use of Demonstrative Evidence to Defend a Drunk Driving Case*, 30 PRAC. LAW., Dec. 1984, at 61; Harold A. Feder & Harlan M. Feder, *Video—A New Litigation Tool for the '80's*, TRIAL DIPL. J., Summer 1985, at 15; George P. Haldeman & S. Allan Adelman, *Planning Demonstrative Proof*, LITIG., Summer 1985, at 8; Gregory P. Joseph, *Videotape Evidence in the Courts—1985*, 26 S. TEX. L.J. 453 (1985); Ed Dwyer & David L. Abney, *When Litigants Go to Hollywood: A "Day in the Life" and Selected Short Subjects*, 37 FED'N INS. & CORP. COUNS. Q. 3 (1986); Gregory P. Joseph, *Demonstrative Videotape Evidence: How to Use Videotape in Trials*, TRIAL, June 1986, at 60; Joan D. Tierney, *Demonstrative Evidence: Working with the Specialist*, TRIAL, Jan. 1986, at 46; Paul Marcotte, *Putting the Jury in Your Shoes*, A.B.A. J., July 1987, at 20; Joseph D. Schleimer, *Film in the Courtroom: Visibility Film is an Effective Surrogate for Human Vision in a Trial*, TRIAL, June 1987, at 77; Dianne J. Weaver, *Problems with Demonstrative Evidence*, TRIAL, Sept. 1987, at 124; John C. Rogalski, *Tales from the Evidence Trade*, TRIAL, Sept. 1988, at 68; Stuart J. Baskin, *Charts, Graphs, and Mini-Summations*, LITIG., Fall 1989, at 21; Roy W. Krieger, *New Dimensions in Litigation: Computer-Generated Video Graphics Enter Courtroom Scene*, TRIAL, Oct. 1989, at 69; Paul Marcotte, *Animated Evidence: Delta 191 Crash Re-Created through Computer Simulations at Trial*, A.B.A. J., Dec. 1989, at 52; Thomas R. Mulroy, Jr. & Ronald J. Rychlak, *Use of Real and Demonstrative Evidence at Trial*, 33 TRIAL LAW. GUIDE 550 (1989); Robert D. Peltz, *Admissibility of "Day-in-the-Life" Films*, FLA. BAR J., Jan. 1989, at 55; Sharyn Rosenbaum, *Simple Pictures for a Complex Case: How to Create the Attention-Grabbing Graphics Your Case Deserves*, COMPLEAT LAW., Summer 1989, at 38; Windle Turley, *Effective Use of Demonstrative Evidence: Capturing Attention and Clarifying Issues*, TRIAL, Sept. 1989, at 62; Stanley D. Abrams, *New (and Better) Demonstrative Evidence for the Land Use Case*, PRAC. REAL EST. LAW., Mar. 1990, at 11; Roger J. Dodd, *Innovative Techniques: Parlor Tricks for the Courtroom*, TRIAL, Apr. 1990, at 38; Richard J. Leighton, *The Use and Effectiveness of Demonstrative Evidence and Other Illustrative Materials in Federal Agency Proceedings*, 42 ADMIN. L. REV. 35 (1990); Fred Setterberg, *Roger Rabbit Goes to Court*, CAL. LAW., Feb. 1990, at 70.

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books dedicated exclusively to demonstrative evidence.[147] Within decades of Belli's initial articles, the term "demonstrative evidence" became the definitive term for use at trial to refer to all illustrative proof.[148]

Unfortunately, most of this writing concentrated on popularizing this type of evidence rather than analyzing it.[149] The legal

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[147] *See, e.g.*, MARK A. DOMBROFF, DOMBROFF ON DEMONSTRATIVE EVIDENCE (1983); GREGORY P. JOSEPH, MODERN VISUAL EVIDENCE (1991); ASHLEY S. LIPSON, ART OF ADVOCACY-DEMONSTRATIVE EVIDENCE (1991); DEANNE C. SIEMER, TANGIBLE EVIDENCE: HOW TO USE EXHIBITS AT TRIAL (2d ed. 1989).

[148] In their treatise, Wright and Graham suggest that the practitioner-authored articles did more than "solidify" use of the term "demonstrative evidence" to denominate illustrative proof. *See* 22 WRIGHT & GRAHAM, *supra* note 6, § 5172, at 123. According to them, the practitioners coined the term. *See id.* Wright and Graham intimate that the nonmathematical use of the term "demonstrative evidence" was unheard of until the mid-twentieth century when, "apparently at the instigation of the self-proclaimed 'King of Torts', the phrase was vandalized for use in describing a miscellaneous collection of forensic gimmickry." *Id.* (footnote omitted).

This proposition is incorrect. The *Century Edition of the American Digest* (the first of the Decennial Digest series) contains a lengthy compendium of cases dealing with models, reproductions, enlargements, and the like under the title "Demonstrative Evidence." 20 CENTURY EDITION OF THE AMERICAN DIGEST, Evidence §§ 676-683 (1900). It is true that in keeping with the general misunderstanding that has followed demonstrative evidence throughout its history, the editors of the Digest lumped together cases involving the admission of substantive exhibits with those involving the admission of purely demonstrative ones. Nonetheless, the Digest entries make manifest that the term "demonstrative evidence" was applied to illustrative proof well before the mid-twentieth century. Wright and Graham miss the most important effect of the practitioners' consistent use both of illustrative proof itself and of the term "demonstrative evidence" to describe it: namely, that through such activity the practitioners made it impossible for academic commentators to continue to ignore the topic when writing broad-based treatises.

[149] The overwhelming number of practitioner writings on this subject do little more than relate the attorney's own personal trial triumphs, issue a ringing endorsement of Belli's premise that there is a correlation between the forceful nature of a demonstrative exhibit and the likelihood of securing a favorable verdict, and explain the techniques of using and producing demonstrative displays. *See* sources cited *supra* notes 142-47. On occasion, some of the more "scholarly" of these efforts will throw in a few cites showing that somewhere in the country a particular court upheld admission of demonstrative proof, but nowhere in these works is there a satisfactory explanation of what demonstrative evidence is or what distinguishes it from other forms of proof. *But see* Thomas R. Mulroy & Ronald J. Rychlak, *Use of Real and Demonstrative Evidence at Trial*, 33 TRIAL LAW. GUIDE 550, 551-56 (1989) (correctly analyzing differences between real and demonstrative

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practitioner literature failed to present either a precise definition of the term "demonstrative evidence" or a unifying theory explaining its relevance, admissibility, and use.[150] The best example of this is Belli's own multi-volume treatise, *Modern Trials*.[151] Under the tantalizing section heading "What is Demonstrative Evidence,"[152] Belli first set forth a possible definition of demonstrative proof: "that type of evidence imparted 'directly to the senses without the intervention of testimony.' "[153] He then quite properly rejected that view, stating that "this definition would at once exclude many of the procedures the author believes compatible to, and encompassed within, the sphere of demonstrative evidence."[154] However, instead of then trying to articulate a proper definition for the term,[155] he abruptly concluded that "[i]n the use of demonstrative evidence, may be determined the definition."[156]

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evidence and explaining significance of those distinctions as they relate to relevance).

150 A few practitioners have attempted to define demonstrative evidence and discuss its admissibility requisites. *See, e.g.*, BELLI (1982), *supra* note 4, § 53.3; LIPSON, *supra* note 4, § 1.01; SIEMER, *supra* note 4, at 1. However, there are significant errors and omissions in all these commentators' analyses. *See infra* notes 151-58 and accompanying text.

151 BELLI (1954), *supra* note 144.

152 1 *id.* § 3.

153 *Id.* Belli took this definition virtually verbatim from the opinion in Kabase v. State, 12 So. 2d 758, 764 (Ala. Ct. App. 1943), which in turn borrowed it verbatim from *Corpus Juris Secundum*. *See* 32 C.J.S. *Evidence* § 601 (1964). In addition, it is the definition found in BLACK'S LAW DICTIONARY 433 (6th ed. 1990). However, the genesis of this definition was Bentham's definition of "real evidence." *See supra* notes 104-08 and accompanying text.

154 1 BELLI (1954), *supra* note 144, § 3, at 11-12. While Belli was right in rejecting the definition, his reasons for doing so were incorrect. The problem is not that the given definition is too restrictive, as Belli seemed to think, but rather that it is a definition of a completely different thing, namely substantive real evidence. As discussed earlier, a demonstrative exhibit lacks the logical relevance connection to impart anything to a juror without the intervention of other, usually testimonial, evidence. *See supra* part I.D. That is, purely demonstrative evidence is derivative in nature and can be properly used only to illustrate other admissible evidence. Therefore, all it can do is communicate to the jury a better understanding of other real, documentary, or testimonial proof.

155 *See* 1 BELLI (1954), *supra* note 144, § 3, at 12.

156 *Id.* In the second edition of *Modern Trials*, Belli delved a little more deeply into the origins of different definitions of "demonstrative evidence" and tried to explain demonstrative evidence a little more theoretically.

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Belli's writings, like other practitioner-authored compositions, are similarly unhelpful in deciding how demonstrative displays should be evaluated at trial. There is no discussion at all of the relevance of demonstrative proof. To Belli and others, such relevance was assumed.[157] The only question for them was whether a particular demonstrative display was inflammatory or unfairly prejudicial.[158]

However, once again he ended up rejecting all these other definitions as too restrictive and concluding that the way to define "demonstrative evidence" comes from its use. *See* 3 BELLI (1982), *supra* note 4, § 53.3, at 532. Belli was, of course, not alone in trying to define demonstrative proof by use or by example. *See, e.g.*, 3 SPENCER A. GARD, JONES ON EVIDENCE 1-2 (1972) ("In accordance with its generally accepted meaning among lawyers 'demonstrative' evidence is here intended to include: articles or things (animate and inanimate) brought into court; experiments in court; demonstrations by way of comparison or illustration made in the course of trial; views by the trier of fact away from the place of trial but during the course of trial; and, though not precisely in the same category, inspections, experiments, tests and examinations made out of court as a basis for testimony at the trial."); JOSEPH, *supra* note 4, § 1.01, at 1-2 (" 'Modern visual evidence' encompasses a wide range of potential exhibits, including, for example: videotaped testimony; demonstrative videotape evidence; computer-generated visual evidence; animations; and professionally prepared diagrams, charts and graphs of various types."); Turley, *supra* note 18, at 62 (describing, but not defining, various types of modern demonstrative evidence).

157 As one practicing lawyer put it, "Demonstrative evidence includes the use of any object, illustration, demonstration, or description that tends to create an image in the minds of the members of the jury which helps them to better understand and appreciate our position." J. Kendall Few, *Demonstrative Evidence in the Products Case, Putting the Pieces Together*, TRIAL, Nov. 1983, at 101; *see also* Krieger, *supra* note 54, at 74. In discussing computer-generated video graphics ("CGVG"), Krieger says, "relevancy under Rules 401 and 402 must be established. This is a comparatively uncomplicated task requiring only a showing that the CGVG tend to make the existence of any fact that is of consequence more or less probable than it would otherwise be." *Id.* (footnote omitted).

158 *See* 1 BELLI (1954), *supra* note 144, § 8, at 35-37. Belli might be forgiven his failure to consider the derivative relevance of demonstrative proof when these comments were first published. After all, common law evidence regulation was the norm in 1954, as no state had yet adopted an evidence code. As discussed earlier, admissibility of demonstrative proof at common law seemed to be governed by no more than the "common sense" of the trial judge. *See supra* notes 112-17 and accompanying text; *see also* FED. R. EVID. 611(a) advisory committee's note (noting that common law power and obligation of trial judge was to control use of demonstrative evidence by using "judge's common sense and fairness in view of the particular

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By failing to recognize the derivative relevance of demonstrative displays, practitioners such as Belli severed the necessary link between these displays and other substantive proof. If the display assists in persuading the jury to the advocate's side, and does so without unfair prejudice, they argue that the use of the display should be permitted. The consequence of this argument is that it gives the courts no guidance whatsoever in deciding how to treat such evidence. If the display is not linked to any substantive evidence, should the display be admitted into evidence? If it is not relevant, can it be used at all? If a piece of demonstrative evidence exists merely to persuade, should it be treated the same as counsel's argument? What is it about charts and diagrams that make them admissible at trial? By not addressing these issues, modern practitioner literature has done little to clarify the proper status of demonstrative evidence.

2. The Influence of Evidence Scholars on Contemporary Demonstrative Evidence Theory

Although practitioner-authors failed to develop an analytic framework for demonstrative proof, their writings did help solidify the term "demonstrative evidence" as the one to be applied to such proof. As a result, evidential theoreticians could no longer continue to ignore demonstrative evidence as a topic meriting serious study.

The most influential modern evidence theoretician to write about demonstrative evidence as a separate evidential subject[159] was Dean McCormick. In fact, the modern era of demonstrative evidence really started with the first edition of McCormick's evidence casebook, published in 1940.[160] In that book, McCormick devoted an entire chapter (out of only twelve total) to demonstrative evidence.[161] In the first edition of his evidence treatise, pub-

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circumstances"). However, in the second edition of the treatise, published seven years after the Federal Rules of Evidence took effect, he repeats these same comments. *See* 3 BELLI (1982), *supra* note 4, § 53.5, at 546-48.

159 As discussed earlier, others had written about a mathematical, as opposed to an illustrative, meaning of "demonstrative evidence." *See supra* notes 123-24 and accompanying text; *see also* Boyd v. Gosser, 82 So. 758, 759 (Fla. 1919); GREENLEAF (16th ed.), *supra* note 118, § 1. *See generally* LOCKE, *supra* note 124.

160 CHARLES T. MCCORMICK, CASES AND MATERIALS ON THE LAW OF EVIDENCE (1940).

161 *Id.* at ch. 7. Apparently McCormick took the term "demonstrative evidence" to describe charts, graphs, and the like from 20 CENTURY EDITION

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lished in 1954, McCormick also devoted one out of nine Titles to "Demonstrative Evidence."[162] The treatment of demonstrative evidence as an isolated topic capable of being analyzed separately from other forms of evidence, by so eminent a scholar, was an important turning point in the development of demonstrative evidence theory.[163]

Unfortunately, Dean McCormick never expressed a proper understanding of demonstrative proof. He failed to acknowledge, for example, any distinction between substantive, real evidence and demonstrative evidence.[164] McCormick believed that if the *form* of real and demonstrative exhibits was identical, they deserved identical treatment, regardless of the *purpose* for which those exhibits were introduced at trial. In other words, to McCormick, a knife was a knife, whether it was introduced to prove that the knife was the actual murder weapon or merely to show what the actual murder weapon may have looked like. McCormick judged as evidentially equivalent all palpable objects that could convey information to the jury by the direct use of their senses.[165]

The reason for McCormick's misguided approach to demonstrative evidence stems from his improper definition of the term. He did not use the term "demonstrative" in the sense we use it, but rather in its broad, colloquial form. So long as an exhibit facially "demonstrated" something, it was "demonstrative evidence."[166] In fact, McCormick specifically rejected the notion

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OF THE AMERICAN DIGEST, Evidence §§ 676-683 (1900). There, the term served as the section heading for a compendium of cases involving the admission of models, reproductions, and enlargements.

162 MCCORMICK (1st ed.), *supra* note 74, §§ 179-184 (Title 7).

163 *See, e.g.*, 22 WRIGHT & GRAHAM, *supra* note 6, § 5172, at 123 (stating that use and study of demonstrative evidence "later received a measure of respectability through its appearance in McCormick's treatise").

164 *See* MCCORMICK (1st ed.), *supra* note 74, § 179. This was also a failing of Judge Weinstein in his evidence treatise. *See infra* note 181. For an explanation of the difference between "real" and "demonstrative" evidence, see *supra* notes 73-76 and accompanying text.

165 Other evidence scholars of the day also failed to distinguish demonstrative evidence from real evidence. *See, e.g.*, JOHN J. MCKELVEY, LAW OF EVIDENCE §§ 337-341 (5th ed. 1944).

166 *See* MCCORMICK (1st ed.), *supra* note 74, § 179, at 384. Further proof of the enormous breadth of what McCormick meant when he used the term "demonstrative" can be found in his treatment of documentary proof. To McCormick, since documents were "tangible things . . . which enable the judge or jury by the direct use of their senses to perceive facts about these things in evidence," they also fell within his definition of demonstrative

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that any exhibit can have a purely demonstrative or illustrative use:

> The adjective 'illustrative' aptly describes the role of the picture thus incorporated in the testimony, but it is sometimes used as contrasted with 'substantive' evidence. It is believed that this distinction is groundless, and that the photograph, as part of the descriptive testimony, is just as much substantive evidence as the testimony of a witness describing the features of a scene or object without a photograph would be.[167]

McCormick viewed the linkage between demonstrative displays and substantive proof to be one of authentication rather than one of relevance:

> [I]t is true that demonstrative evidence also rests in part upon testimonial evidence. Objects or things offered in evidence generally do not identify themselves. Accordingly the demonstrative evidence must first be authenticated by testimony of a witness who testifies to facts showing the object has some connection with the case which makes it relevant.[168]

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proof. *Id.* Indeed, he exempted them from the remainder of his discussion of demonstrative evidence only because, historically, documentary evidence had always been treated as different than real proof: "Documents also, except when they are statements offered to prove their truth, such as business records, are the commonest kind of demonstrative evidence, but they have developed their own rules and will mostly be treated in other chapters." *Id.*

Similarly, in his discussion of jury views, McCormick notes that while some courts regard the purpose of such views as "solely to aid the jury to understand and evaluate the testimony of the witnesses," i.e., demonstratively, more realistic courts see them as "evidence which the jury may use as a basis for finding the facts so disclosed," i.e., substantively. *Id.* § 183, at 392-93 (footnotes omitted).

[167] *Id.* § 181, at 388 (footnotes omitted). McCormick's misguided position seemed to stem from his belief that after a witness had authenticated a demonstrative display, the testifying witness's role ended, and the display itself was then shown to the trier of fact for their inspection:

> Accordingly the demonstrative evidence must first be authenticated by testimony of a witness who testifies to facts showing that the object has some connection with the case which makes it relevant. But when this requisite is complied with the judge or jury ascertains the fact about the object by inspection and the use of their senses.

Id. § 179, at 384-85 (footnote omitted).

While this is true of most real evidence, it is not the case with most demonstrative charts, photographs, or models. With these displays, the testifying witness testifies as he or she explains the exhibit.

[168] *Id.*

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McCormick is again in error. Authentication testimony is necessary for the introduction of demonstrative displays, but it is not sufficient to establish relevance. For a demonstrative display to be relevant there must exist some other substantive evidence that it clarifies or illustrates. Purely demonstrative evidence more than rests "in part" on this other evidence, it rests entirely upon it.

One of the more frustrating aspects of McCormick's treatment of demonstrative evidence is that, at one point, he seemed to acknowledge some difference between demonstrative and real evidence. He recognized that most purely illustrative exhibits have little inherent value and are virtually always prepared or obtained in anticipation of litigation, whereas real proof inevitably has some extra-litigation legitimacy:

> We may likewise classify demonstrative evidence into that which is *original*, in that it had some connection with the transaction in suit at the time it occurred, and that which is *prepared*, such as sketches, models and plaster casts, or *selected*, such as writings used as standards for comparison, or samples of materials similar to the ones in issue.
>
> Demonstrative evidence of the *direct* kind is always relevant, since it bears immediately on the facts in issue. Ordinarily, inspection of the object itself is the most satisfying and persuasive means of ascertaining its qualities, and when these qualities are in issue, such inspection will always be permitted unless there is in the particular situation some overriding contrary consideration of prejudice or of physical difficulty. When the demonstrative evidence, on the other hand, is circumstantial or inferential in its bearing, then (as in other cases of circumstantial evidence) the trial judge, in determining admissibility, has a wider power of balancing the probative value of the evidence against its dangers of undue prejudice, distraction of the jury from the issues, and waste of time. Here again, however, when the balance wavers the court should lean toward admission.[169]

Even here, though, McCormick viewed the distinction between real and demonstrative evidence as only a quantitative variation in the amount of probative value between the two groups. There was no acknowledgement of any qualitative difference between the two types of evidence.

The editors of the subsequent editions of the McCormick treatise have corrected some of the problems inherent in McCormick's initial analysis, but they still have not developed a

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[169] *Id.* at 385-86 (footnotes omitted).

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completely satisfactory theory to explain such proof. To their credit, they continue McCormick's special treatment of the subject in its own separate "Title."[170] Further, unlike McCormick, they recognize that the principal distinction between real substantive proof and purely demonstrative displays is the purpose for which each exhibit is offered:

> Again, demonstrative evidence may be classified as to whether the item offered did or did not play an actual and direct part in the incident or transaction giving rise to the trial. Objects offered as having played such a direct role, e.g., the alleged weapon in a murder prosecution, are commonly called "real" or "original" evidence and are to be distinguished from evidence which played no such part but is offered for illustrative or other purposes.[171]

In addition, at first glance the editors also seem to recognize that illustrative proof requires a different evidentiary foundation for admission than does substantive proof, although they unfortunately give no theoretical basis for such a statement. After going through a fairly routine explanation of the foundational requisites for the admission of real evidence,[172] they state:

> It is today increasingly common to encounter the offer of tangible items . . . which are . . . tendered for the purpose of rendering other evidence more comprehensible to the trier of fact. [Examples of this type frequently] include models, maps, photographs, charts, and drawings. If an article is offered for these purposes, rather than as real or original evidence, its specific identity or source is generally of no significance whatever. Instead, the theory justifying admission of these exhibits requires only that the item be sufficiently explanatory or illustrative of relevant testimony in the case to be of potential help to the trier of fact.[173]

Despite this better understanding of the issue, these authors

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170 *See* CHARLES T. MCCORMICK, MCCORMICK'S HANDBOOK OF THE LAW OF EVIDENCE, §§ 212-217 (Title 8) (Edward W. Cleary ed., 2d ed. 1972) [hereafter MCCORMICK (2d ed.)]; MCCORMICK (3d ed.), *supra* note 7, §§ 212-217 (Title 8).

171 MCCORMICK (2d ed.), *supra* note 170, § 212, at 527. This passage was repeated verbatim in the next edition. *See* MCCORMICK (3d ed.), *supra* note 7, § 212, at 667.

172 *See* MCCORMICK (2d ed.), *supra* note 170, § 212, at 527-28; MCCORMICK (3d ed.), *supra* note 7, § 212, at 667-68.

173 MCCORMICK (2d ed.), *supra* note 170, § 212, at 528 (footnotes omitted); MCCORMICK (3d ed.), *supra* note 7, § 212, at 668 (footnotes omitted).

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nevertheless continue to make the mistake of lumping real proof with illustrative exhibits under the rubric "demonstrative evidence." They, like McCormick before them, give the term "demonstrative" its broadest colloquial meaning,[174] stating that demonstrative evidence "includes all phenomena which can convey a relevant firsthand sense impression to the trier of fact, as opposed to those which serve merely to report the secondhand sense impression of others."[175] Under such a definition, once again, any palpable object used at trial, including documentary evidence,[176] becomes "demonstrative," no matter what its purpose. Indeed, these authors go so far as to label nonpalpable evidence, such as "demeanor evidence,"[177] demonstrative evidence.

The problem with this approach is that it lacks any coherent legal theory justifying inclusion of real, documentary, illustrative, and demeanor evidence under the one heading "demonstrative evidence."[178] While all these types of evidence may in fact share

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[174] "[Demonstrative evidence] will be seen variously referred to as real, autoptic, demonstrative, tangible, and objective. For present purposes, the term 'demonstrative' will be used to refer to the generic class . . . ." MCCORMICK (2d ed.), *supra* note 170, § 212, at 524; MCCORMICK (3d ed.), *supra* note 7, § 212, at 664.

[175] MCCORMICK (2d ed.), *supra* note 170, § 212, at 524 (footnote omitted); MCCORMICK (3d ed.), *supra* note 7, § 212, at 663 (footnote omitted).

[176] *See* MCCORMICK (2d ed.), *supra* note 170, § 212, at 524; MCCORMICK (3d ed.), *supra* note 7, § 212, at 663. However, like McCormick, while they acknowledge that documentary proof falls under their definition of demonstrative evidence, they exclude it from their treatment of the subject because "[w]ritings . . . have developed rules of their own." MCCORMICK (2d ed.), *supra* note 170, § 212, at 524 n.2; MCCORMICK (3d ed.), *supra* note 7, § 212, at 663 n.2.

[177] MCCORMICK (2d ed.), *supra* note 170, § 212, at 524; MCCORMICK (3d ed.), *supra* note 7, § 212, at 663-64. For an explanation of the differences between demonstrative evidence and demeanor evidence, see *supra* notes 68-70 and accompanying text.

[178] The impossibility of finding a unifying theme across all the categories of proof that McCormick and his successors include in their definition of demonstrative evidence is apparent by the way they have organized their discussion. They say documentary evidence fits within their definition of demonstrative proof, but then say it is excluded from their discussion because different evidentiary rules apply to documents. MCCORMICK (2d ed.), *supra* note 170, § 212, at 524; MCCORMICK (3d ed.), *supra* note 7, § 212, at 663. They say both real and illustrative proof are "demonstrative," MCCORMICK (2d ed.), *supra* note 170, § 212, at 524; MCCORMICK (3d ed.), *supra* note 7, § 212, at 663, but then imply that they have different foundational requisites, MCCORMICK (2d ed.), *supra* note 170, § 212, at 527-

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the common attribute of communicating some information directly to the trier of fact, that attribute has no legal significance. It does not affect relevance, nor does it determine admissibility.[179] Thus, labeling something at trial as "demonstrative evidence" gives no guidance to a court that must determine how such evidence is to be admitted or used. The subsequent editions of McCormick's treatise, therefore, only perpetuate the disharmony found in the reported demonstrative evidence cases.

Other modern evidence treatises have also failed to analyze correctly this category of judicial proof. The evidence volumes of Wright & Graham's *Federal Practice and Procedure*[180] provide a good illustration of this point.[181] At first blush, Wright and Graham appear to recognize the error in McCormick's broad use of the term "demonstrative evidence," stating that it "is another of those bastard classifications that serve only to confuse the analysis of evidentiary issues."[182] Nonetheless, they, too, ultimately include real, documentary, and illustrative proof in their expan-

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28; MCCORMICK (3d ed.), *supra* note 7, § 212, at 667-68. Indeed, perhaps the truest statement they make is the admission that "the problem of satisfactorily labeling and classifying [demonstrative evidence] has proved a difficult one." MCCORMICK (2d ed.), *supra* note 170, § 212, at 524; MCCORMICK (3d ed.), *supra* note 7, § 212, at 664.

179 Indeed, if the true test of demonstrative proof were the sharing of a single characteristic, it would have made as much sense if the editors had lumped *all* evidence under the heading "demonstrative evidence," on the theory that all proffered proof demonstrates, either directly or indirectly, some event or series of events.

180 21-25 WRIGHT & GRAHAM, *supra* note 6.

181 Of course, Judge Jack B. Weinstein's classic work, *Weinstein's Evidence*, appeared in the years between publication of the second edition of McCormick's *Law of Evidence* in 1972 and Wright and Graham's *Federal Practice and Procedure* in 1978. *See* 1 JACK B. WEINSTEIN & MARGARET A. BURGER, WEINSTEIN'S EVIDENCE at ii (1991) (indicating initial copyright of 1975). However, as in the Federal Rules of Evidence, after which Judge Weinstein patterned his treatise, demonstrative evidence gets short shrift in Judge Weinstein's five-volume work. In the most recent edition, "demonstrative evidence" appears to be discussed in only one sentence, wherein it is labelled as a species of real proof in a discussion of unfair prejudice under FED. R. EVID. 403. 1 WEINSTEIN & BURGER, *supra*, ¶ 403[05], at 403-82 ("Real proof, otherwise known as real evidence, demonstrative evidence or autoptic preference [sic], refers to evidence . . . which is directly cognizable by the senses of the trier of fact.") (footnote omitted).

182 22 WRIGHT & GRAHAM, *supra* note 6, § 5172, at 122.

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sive view of what constitutes "demonstrative evidence."[183] Wright and Graham do acknowledge that "the kinds of evidence that are commonly lumped under the heading 'demonstrative' present quite different problems with respect to relevance and admissibility."[184] But later they repudiate this: "An object that is offered to 'illustrate' the testimony of a witness must itself satisfy the requirement of relevance [under Federal Rule of Evidence 401]; it is not enough that the object serves to emphasize the testimony of the witness or make it more colorful."[185] As noted earlier, if this approach were followed, then no demonstrative displays could ever be admitted as relevant evidence.[186]

Other modern commentators have also not done much to advance demonstrative evidence theory.[187] Many simply repeat

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183 *Id.* at 123.

184 *Id.*

185 *Id.* at 126 (footnote omitted). Part of Wright and Graham's insistence on a rigid primary relevance requirement even for illustrative evidence surely stems from the extreme antipathy they express for the neoteric demonstrative aids used by the practicing bar:

> [A]pparently at the instigation of the self-proclaimed "King of Torts", the phrase [demonstrative evidence] was vandalized for use in describing a miscellaneous collection of forensic gimmickry supposed to possess miraculous persuasive powers. . . .
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> . . . .
>
> If the concept of "demonstrative evidence" serves no useful analytic purpose, it may still function as an excuse for trial judges to take leave of their senses and attorneys to stretch the ethics of advocacy to the breaking point. Abuses masquerading as "demonstrative evidence" are common. . . .
>
> . . . .
>
> . . . [T]he concept of "demonstrative evidence" has served to legitimate a "Madison Avenue" approach to advocacy.

Id. at 123-25 (footnotes omitted).

186 *See supra* notes 62-65 and accompanying text. While we believe Wright and Graham's premise to be incorrect, of course they are not alone in believing it to be true. *See, e.g.*, United States v. Helmel, 769 F.2d 1306, 1318-19 (8th Cir. 1985) ("Like other matters of relevancy, the use of photographs is committed to the sound discretion of the trial judge."); Krieger, *supra* note 54, at 74 (stating that relevancy of demonstrative evidence is to be judged under FED. R. EVID. 401 and that meeting Rule 401 test for relevancy "is a relatively uncomplicated task" for proponent of illustrative proof).

187 *See, e.g.*, DOMBROFF, *supra* note 4; JOSEPH, *supra* note 4; SIEMER, *supra* note 4. While these treatises are full of excellent descriptions of how demonstrative evidence can be creatively and effectively used, there really is

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the error of including real and other forms of proof in a too-broadly categorized definition of demonstrative evidence.[188] In so doing, these scholars reinforce the erroneous message that demonstrative evidence has no distinct evidentiary meaning and is really nothing more than a convenient descriptive term that can be assigned to any palpable exhibit, regardless of the purpose for which the exhibit is introduced. As such, our present jurisprudence has the academics writing about a different kind of "demonstrative evidence" than that which the practitioners are actually using at trial. The vast majority of demonstrative displays at trial are being used to clarify or illustrate other proof. Charts, diagrams, and models are being used to explain percipient witness testimony, just as computer-dependent animations and simulations are being used to illustrate expert testimony. These displays are not being used independently of other substantive evidence, nor is their relevance dependent entirely upon their tendency to prove directly facts of consequence. To the modern-day academic authors, however, all demonstrative displays must still fit within the confines of substantive relevant evidence. A secondary purpose or derivative relevance is just not possible under their construct. It is no wonder then, when two significant groups in the legal world use the same words but mean different things, that the legal system has had such a hard time coming to grips with the derivative relevance of demonstrative evidence or even in coming up with an agreement as to how illustrative proof

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no attempt in any of them to articulate a theory of demonstrative proof or to identify what makes some demonstrative displays admissible and others not. *But see* Mulroy & Rychlak, *supra* note 149, at 551-56 (1989) (recognizing and explaining distinction between relevance of real evidence and of demonstrative evidence).

188 *See, e.g.*, LIPSON, *supra* note 4. In a book that "is intended to serve as the single most comprehensive volume on the subject of demonstrative evidence," *id.* at xiii, the author states that "[t]he term demonstrative evidence is a broad one, encompassing all tangible things that might be used for display during the course of a trial or proceeding," *id.* § 1.01, at 1-1; *see also* SIEMER, *supra* note 4, at 1 (using "tangible evidence as the term . . . intended to include what elsewhere is described as 'real evidence,' 'demonstrative evidence,' 'documentary evidence,' 'direct evidence,' and 'physical evidence' "); Richard J. Leighton, *The Use and Effectiveness of Demonstrative Evidence and Other Illustrative Materials in Federal Agency Proceedings*, 42 ADMIN. L. REV. 35, 39 (1990) (stating that demonstrative evidence is "part of the record that may be given evidentiary (or 'decisional') weight in and of itself without testimony").

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should be treated at trial.[189]

3. The Influence of Modern Evidence Codes on Contemporary Demonstrative Evidence Theory

The modern movement to replace the common law of evidence with statutory evidence codes presented several opportunities to close this chasm separating the practitioner and the academic. The prospects of a common definition for demonstrative evidence and common treatment of such displays seemed a very real possibility in the 1940's and 1950's. As we shall see, however, when the drafters of these modern evidence codes confronted the several different meanings and suggested admissibility requisites for demonstrative proof, they chose to ignore this category of proof altogether.

The term "demonstrative evidence" is absent from both editions of the Uniform Rules of Evidence and from the Federal Rules of Evidence, except for a single mention of the term in the Advisory Committee's Note to Federal Rule of Evidence 611.[190] Similarly, the term "demonstrative evidence" is not found in a single state evidence code. This statutory neglect is absolutely astonishing, especially given the volume and enthusiasm of practitioner-authored writings on the subject, and the prestige of the scholars, such as Wigmore and McCormick, who had written at some length on the subject. If we look at the reasons for such neglect, however, we will learn much about the contemporary status of demonstrative evidence.

The first collectively written modern code of evidence was the American Law Institute's Model Code of Evidence.[191] Although they did not refer to "demonstrative evidence" by name, Profes-

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189 *See supra* notes 25-29 and accompanying text.

190 The Note mentions the trial court's power and obligation to control the use of demonstrative evidence so that such proof is effective, not cumulative, and not unduly embarrassing to a witness. *See* FED. R. EVID. 611(a) advisory committee's note; *supra* note 65. There is no mention anywhere in the Advisory Committee's Notes, however, about the relevance of demonstrative evidence. Instead, the Advisory Committee's Note to Rule 401 notes that background evidence such as charts, photographs, views, and murder weapons are universally offered and admitted. *But see supra* part I.E.4 (regarding the distinction between background evidence and demonstrative evidence).

191 The American Law Institute commenced work on a model code of evidence in 1939. MODEL CODE OF EVIDENCE at ix (1942). The code was adopted in 1942. *Id.* at vii.

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sor Morgan and the rest of his drafting committee[192] correctly recognized the distinctive purpose of this type of proof. In Rule 105 they provided:

> The judge controls the conduct of the trial to the end that the evidence shall be presented honestly, expeditiously and in such form as to be readily understood, and in his discretion determines, among other things,
>
> . . . .
>
> (j) whether a witness in communicating admissible evidence may use as a substitute for oral testimony or in addition to it a writing, model, device or any other understandable means of communication, and whether a means so used may be admitted into evidence . . . .[193]

The comment accompanying this Rule made it even clearer that the drafters understood the essence of demonstrative proof:

> Indeed, under this Rule the judge may allow a witness to use any means which the judge believes will enable or assist the witness . . . to make more easily understandable evidence already admitted. It is not essential that the device used be made by the witness whose testimony it communicates or explains.[194]

The Model Code's treatment of demonstrative evidence, however, inexplicably disappeared in subsequent years. In 1949, the

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192 The American Law Institute's Committee on Evidence had to be one of the most stellar assemblages of legal talent anywhere. In addition to Professor Edmund M. Morgan, it included, among others, Judges Learned Hand, Augustus N. Hand, Charles E. Wyzanski, and Robert P. Patterson, as well as Professors Charles T. McCormick, John M. Maguire, Mason Ladd, Laurence H. Eldredge, and Wilbur H.Cherry. *Id.* at iii.

193 *Id.* Rule 105.

194 *Id.* Rule 105(j) cmt.; *see also id.* at 13 ("Under Rule 105 [the trial judge] is to see to it that evidence is presented honestly, expeditiously and in such form as to be readily understood: to this end [the judge] regulates in his discretion such matters as . . . the use . . . of maps, models, diagrams, summaries and *other devices for making testimony readily understandable* . . . .").

While recognizing the distinctive uses of demonstrative and substantive proof was an important achievement, we do not believe the Model Code went far enough in its regulation or prescribed treatment of demonstrative evidence. All Rule 105(j) did was to codify the common law rule regarding the use of demonstrative evidence, namely that its admission depends on the unfettered discretion of the trial judge. We believe an evidence code must also manifest both a recognition that the relevance of demonstrative evidence stands on a different footing than does the relevance of substantive proof and a prescription for whether to admit demonstrative proof or allow it to be taken by the jury during deliberations. *See supra* notes 25-29, 53-66 and accompanying text.

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A.L.I. referred the Model Code to the National Conference of Commissioners on Uniform State Laws ("the Conference"), for "study and, if deemed desirable, for redrafting."[195] It was this group, whose drafting committee was chaired by an Iola, Kansas state district court judge named Spencer Gard, that jettisoned the entire idea of having differing provisions controlling the admission of demonstrative and substantive proof at trial.[196] Judge Gard's committee justified the complete dismantling of Rule 105 and other provisions of the Model Code by stating:

> The Committee recognizes its obligation to use The American Law Institute's Model Code of Evidence as a basis from which to work, and has proceeded accordingly. That thorough, candid work by the nation's best talent commands respect. But if its departures from traditional and generally prevailing common law and statutory rules of evidence are too far-reaching and drastic for present day acceptance, they should be modified in such respects as will express a common ground of acceptability in the jurisdictions and by the tribunals which the rules are expected to serve.[197]

Although this excuse may have justified rejection of other provisions in the Model Code, it was entirely inappropriate with respect to demonstrative evidence. Judicial discretion over demonstrative evidence, guided by the policies codified in Rule 105(j) of the Model Code, was already well-accepted by the trial bar.[198] Even in Judge Gard's native state of Kansas there was a

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195 Spencer A. Gard, *Report of the Special Committee on Uniform Rules of Evidence, in* HANDBOOK OF THE NATIONAL CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS 447 (1952).

196 We know relatively little about Judge Gard. He was a graduate of the University of Kansas law school and spent 20 years in private practice. During this time he was also elected a state representative and a state senator. In 1947 he was made a member of the National Conference of Commissioners on Uniform State Laws and was named Chair of the Conference's Special Committee on Uniform Rules of Evidence in 1949. In 1950 he was appointed to the state trial court bench. During his tenure as a judge, he authored several law review articles and was the editor and author of several books. For additional information about Judge Gard, see the brief biography in Shaffer, *Bullets*, *supra* note 29, at 21 n.5. Plainly Judge Gard's influence in the Kansas legislature was still strong in 1952, for Kansas was the only state to adopt the Uniform Rules verbatim.

197 Gard, *supra* note 195, at 448.

198 *See, e.g.*, BELLI (1954), *supra* note 144, § 8, at 35-37 ("Most states repose an abundant quantum of judgment in the trial judges under the legal term 'discretion.'. . . Thus in allowing or disallowing the admission of demonstrative evidence, the discretion of the trial judge is generally

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common ground of acceptability for demonstrative displays.[199] Certainly by the time the Conference promulgated the Uniform Rules of Evidence in 1953, the Model Code's suggested treatment of demonstrative evidence was a reflection of the common law rather than a departure from it.[200]

Nonetheless, when the Uniform Rules of Evidence replaced the Model Code as the basic document upon which states based their evidence codes, any reference to demonstrative evidence was omitted, both in the Rules and in the accompanying comments. Thus, it is not too surprising that subsequent state evidence codes also failed to mention this category of judicial proof. By 1961, when the Judicial Conference of the United States approved a study of a possible federal evidence code, any mention of demonstrative evidence would, at that point, have been a departure from other statutory rules of evidence.[201]

The drafters of the Federal Rules of Evidence followed the lead of their immediate predecessors in the Conference and totally omitted any reference to demonstrative evidence in the actual Rules. Wright and Graham's treatise suggests four theories for how the drafters of the Federal Rules of Evidence intended to treat demonstrative evidence. First, the drafters may have intended to give demonstrative evidence no special treatment under the Federal Rules. Thus, to be admissible, such proof would have to meet the relevancy requirements set forth in Rule

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controlling.") (footnote omitted); *see also* FED. R. EVID. 611(a) advisory committee's note.

199 *See, e.g.*, Logan v. Empire Dist. Elec. Co., 161 P. 659, 662 (Kan. 1916) (noting that use of models and photographs was within discretion of court); State v. Ryno, 74 P. 1114, 1115 (Kan. 1904) (approving use of blackboard by expert to illustrate testimony).

200 The omission of demonstrative evidence from the Uniform Rules promulgated by the Conference was even more peculiar in that Dean Charles McCormick (who had already published his first casebook in 1940) and Professor Mason Ladd were members of the Special Committee on Uniform Rules of Evidence. *See* HANDBOOK OF THE NATIONAL CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS 21 (1952).

201 While mention of demonstrative evidence in the proposed rules may have been a departure from other statutory codes, it would not have been a departure from the existing federal or state common law. By the time the Federal Rules of Evidence were adopted, demonstrative displays were commonplace in virtually every civil and criminal trial. *See generally* Brain & Broderick, *supra* note 16, at 370.

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401, just like any other proffered piece of proof.[202] The problem with this approach, as we have previously noted, is that derivatively relevant demonstrative evidence does not meet the requirements of Rule 401.[203]

Second, the authors note that some observers do not view demonstrative evidence as "evidence" at all, so the drafters may not have intended Rule 401 to govern its admissibility.[204] The problem with this theory is that it neglects the derivatively relevant, evidential purpose of demonstrative displays.

Third, Wright and Graham note that the drafters may have intended that the court regulate admission of demonstrative evidence under its broad power to control the mode of presenting evidence provided by Rule 611.[205] The support for this argument comes from the Advisory Committee's Note to Rule 611(a), which states:

> [Rule 611(a)] restates in broad terms the power and obligation of the judge as developed under common law principles. It covers such concerns as . . . the use of demonstrative evidence . . . and the many other questions arising during the course of a trial which can be solved only by the judge's common sense and fairness in view of the particular circumstances.[206]

As noted earlier, although trial courts must indeed exercise discretion in the admission of demonstrative proof, the Rules are set up so that such discretion is intended to be exercised only after the relevance of the demonstrative display has been established.[207] In other words, there is nothing in the Advisory Committee's Note accompanying Rule 611 that suggests this Rule was intended to be a conduit for the admission or use of otherwise irrelevant evidence. Instead, the logical interpretation is that the trial judge can still exclude relevant demonstrative proof on the grounds listed in Rule 611: in other words, because use of the proffered illustrative proof is not an effective way to ascertain the truth, is cumulative, or is unduly embarrassing to the witness. Thus, even if the drafters did intend this Rule to govern the use

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202 Wright and Graham prefer this theory. *See* 22 WRIGHT & GRAHAM, *supra* note 6, § 5172, at 126.

203 *See supra* notes 55-66 and accompanying text.

204 22 WRIGHT & GRAHAM, *supra* note 6, § 5172, at 124 & n.15.

205 *Id.* at 124.

206 FED. R. EVID. 611(a) advisory committee's note.

207 *See supra* note 65.

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of demonstrative evidence, they could not have intended the Rule to govern the admissibility and relevance of such proof.

Fourth, Wright and Graham suggest that a broad reading of the term "consequential facts" in Rule 401 would permit demonstrative evidence to be treated as relevant evidence.[208] In our opinion, this theory more accurately reflects what courts are implicitly doing now when they permit the use of demonstrative displays. The problem with this approach is that it warps the definition of relevance almost beyond recognition, permitting the kinds of disparate decisions regarding the use and admissibility of demonstrative displays that have plagued the entire history of demonstrative evidence. As noted earlier, we believe the intent of the drafters of Rule 401 was to limit relevant evidence to primarily relevant evidence and not derivatively relevant evidence.[209] Thus, to govern accurately and consistently the use and admissibility of derivatively relevant demonstrative evidence, some modification to the definition of relevance is necessary.

III. Modifying the Rules of Relevancy

As illustrated previously, purely demonstrative evidence is not admissible under existing primary relevance statutes such as Rule 401 of the Federal Rules of Evidence. Demonstrative exhibits do not make the existence or nonexistence of a material fact more or less likely.[210] Consequently, for years purely demonstrative proof has been used in trial illegitimately, without a proper theoretical base.

To remedy this situation, we believe the evidentiary rules governing relevance need to be changed. We have drafted a proposed revision to Rule 401 of the Federal Rules of Evidence and to the accompanying Advisory Committee's Note that recognizes the different standards necessary for the admission of primarily

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208 Wright & Graham, *supra* note 6, § 5172, at 126 n.30.

209 *See supra* notes 53-66 and accompanying text.

210 After viewing a demonstrative exhibit, jurors may believe in the existence or nonexistence of a fact with more certitude than without such a view. Indeed, that is largely the purpose of demonstrative proof in litigation. This increase in juror belief, however, stems from an increased appreciation or understanding of the other evidence to which the demonstrative proof relates. In other words, it is a secondary effect of the purpose for which the demonstrative display was introduced. This increased juror belief does not flow from any increase or decrease in the probable existence of the relevant, underlying fact.

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relevant evidence and derivatively relevant proof. This revision is set forth below, and while the wording of the statute itself best reflects our efforts, an outline of our changes follows, along with a discussion of some of the more difficult choices we made during the drafting process.

A. Overview of the Revised Rule 401

The basic change we have made to the structure of Rule 401 is to break it into two provisions: 401(a) and 401(b). New Rule 401(a) is based on the current Rule and makes substantive evidence relevant if the proffered evidence has a tendency to change the trier of fact's perception of the existence of a fact of consequence to the action. New Rule 401(b) legitimizes the use of demonstrative proof at trial by making relevant evidence that accurately and equitably explains, illustrates, or clarifies other admissible evidence.[211]

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[211] Many of the evidence commentators who were kind enough to review a draft of this Article suggested that our proposed revision did not go far enough. They recommended that we also change Rule 401 so as to legitimize the admission of impeachment and character evidence which, they believe, also is not "relevant" under the current version of Rule 401. As we understand it, this argument posits that whether, for example, someone is a friend of the defendant, has a financial stake in the outcome of the case, or has a general reputation for dishonesty, has no more tendency to make the existence of any material fact more or less probable than does demonstrative evidence. In other words, both impeachment evidence and demonstrative evidence are offered to make previously admitted evidence either more or less believable, and as such, neither type of proof, standing alone, can have a direct effect on the determination of whether a fact of consequence exists or not.

We have chosen not to take our colleagues up on their suggestion to propose a Rule 401(c) dealing with impeachment evidence for a few reasons. First, while we see the merit in their argument, there is also merit to the view that at trial, the relevance of demonstrative evidence and impeachment evidence can be distinguished. A piece of demonstrative evidence only makes clearer and more understandable what has already been admitted. While demonstrative proof may have some positive effect on the believability of a party's already admitted proofs, that effect is only indirect. In other words, what makes a piece of evidence demonstrative is that it adds to the *understanding* of other evidence. Any augmented effect on the weight given that previously admitted proof as a result of the demonstrative exhibit explaining it is only evidentiary byproduct.

Impeachment evidence, on the other hand, is offered directly to make a witness's testimony more or less believable. Thus, its intended purpose is to effect the weight given previously admitted substantive evidence. It seems

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The model for the structure of our proposed revision came from Federal Rule of Evidence 701(b), the rule dealing with lay opinion testimony. That provision states:

> If the witness is not testifying as an expert, the witness' testimony in the form of opinions or inferences is limited to those opinions or inferences which are . . . (b) helpful to a clear understanding of the witness' testimony or the determination of a fact in issue.[212]

While the analogy between our proposed change of the relevance rules and the provisions of Rule 701(b) is not perfect, the dictates of the latter provision are suggestive. That is, Rule 701(b) establishes that there is a difference between evidence that is "helpful to a clear understanding of [other admissible testimony]"[213] and evidence that is helpful to "the determination of a fact in issue."[214] In other words, the drafters of the Federal Rules of Evidence have recognized that, in certain respects, the admissibility of illustrative and substantive proof can be governed separately. We are suggesting that the structure already apparent in Rule 701(b) be recognized in the rule regulating relevance, i.e., a difference in treatment between evidence that only explains other evidence and evidence that directly relates to the determination of a fact of consequence.[215]

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to us not a huge jump to say that any evidence solely intended to affect directly the believability of primarily relevant substantive evidence has a tendency to make the determination of a fact of consequence derived from that substantive evidence more or less probable. Thus, we are not sure that the admission of impeachment evidence under current rules is as clearly illegitimate as the admission of demonstrative proof.

Our main reason for choosing not to propose a revision including impeachment evidence, however, is that we believe development of this argument and the potential establishment of a new relevance standard necessary for admission of impeachment evidence deserves far lengthier treatment than as merely an appendage to an article primarily focusing on demonstrative evidence.

212 FED. R. EVID. 701.

213 *Id.*

214 *Id.*

215 This conclusion is buttressed by the Advisory Committee's Note to FED. R. EVID. 701, which states, in part: "The rule retains the traditional objective of putting the trier of fact in possession of an accurate reproduction of the event. Limitation (a) is the familiar requirement of firsthand knowledge or observation. Limitation (b) is phrased in terms of requiring testimony to be helpful in resolving issues."

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B. The Change from "Existence" to "Apparent Existence"

One of the more significant changes we are proposing to Rule 401 is to change the word "existence"[216] into the phrase "apparent existence." That is, currently, Rule 401 provides that a piece of evidence is relevant if it has "any tendency to make the *existence* of any fact that is of consequence to the determination of the action more probable or less probable than it would be without such evidence."[217] We propose that the language be changed so as to make a piece of evidence relevant if it either directly or indirectly tends to make the "apparent existence" of a fact of consequence more or less likely than it would be without such evidence.

The reason for this suggested change is that we believe it more accurately reflects the effect of evidence in general, be it demonstrative or substantive. As noted earlier, a fact (whether a "fact of consequence" or any other) either exists or does not exist.[218] No piece of evidence introduced at trial can change that immutable characteristic and make it more or less probable that the fact exists. All a piece of evidence can do is to change the trier of fact's *perception* that a fact of consequence occurred.

For example, whether the defendant charged with burglary was the person who broke into the victim's house is a fact. Nothing that will be introduced at trial will change that fact. Testimony that the defendant's fingerprints were on the victim's window sill can change only the jury's perception of whether it was indeed the defendant who entered the house. Accordingly, to more accurately reflect the true nature of an item of evidence's effect in the trial process, we propose that Rule 401 be changed so that relevance is based on a determination that the proffered evidence change only the probability of the "apparent existence" of a fact, rather than requiring it to change the probability of the "existence" of such a fact.

C. The Treatment of Demonstrative Evidence Used at Trial: Should it be Formally Admitted?

We suggest that courts formally admit demonstrative exhibits into evidence. We believe it is probably more important that courts consistently apply a particular rule than that they select the "formal admission" rule over the "marked but not admitted" or

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216 FED. R. EVID. 401.

217 *Id.* (emphasis added).

218 *See supra* notes 59-60 and accompanying text.

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any other rule. Nevertheless, formally admitting demonstrative proof more faithfully carries out the dictates and spirit of the Federal Rules of Evidence. That is, under Rule 402, evidence that is relevant and free from other evidentiary deficiencies "is admissible."[219] Hence, if the relevancy of demonstrative proof is legitimized by adoption of our proposed Rule 401(b), then it seems to us the Rules command that it be formally "admitted."[220]

D. Should the Jury Get to View Demonstrative Exhibits in the Jury Room during Deliberations?

The question of whether a jury should be allowed to take demonstrative exhibits with them into the jury room during deliberations is perhaps more complicated than it first appears. First, not all demonstrative exhibits are even capable of being taken into the jury room. Obviously live, in-court demonstrations cannot be "taken" with the jurors (other than in their memories and notes). Thus, there is something to the argument that as a matter of equity it would be unfair to allow some kinds of demonstrative evidence to be taken to the jury room when other kinds of such evidence would, perforce, be excluded. On the other hand, if an important goal of the trial process is informed decision-making, then it would seem that the chance for a jury to study at their leisure demonstrative exhibits admitted at trial and used to explain other admitted evidence could only further that goal.

Another factor in developing a rule as to whether the jury may view demonstrative exhibits in the jury room is the recognition that demonstrative proof runs the gamut from the simple to the ultra-sophisticated. That is, it may be one thing to allow a jury to take a summary chart or a simple diagram into the jury room with them (although some courts have drawn the line even there and have held that jurors cannot have those exhibits with them);[221] however, it is quite another to give a jury a fifteen-minute laser disc and a laser disc player and allow them to play selected scenes, as many times as they wish, without either the knowledge

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219 *See* FED. R. EVID. 402.

220 *See id.*

221 *See, e.g.*, United States v. Wood, 943 F.2d 1048, 1053-54 (9th Cir. 1991) (stating that chart used "only as a testimonial aid . . . should not be admitted into evidence or otherwise be used by the jury during deliberations"); United States v. Abbas, 504 F.2d 123, 125 (9th Cir. 1974) (stating that it is "better practice" to keep demonstrative exhibits from jury during deliberations), *cert. denied*, 421 U.S. 988 (1975).

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or supervision of counsel or the court. Further, although in this day and age this may not be a huge problem, there may be juries who simply do not know how to use the necessary viewing equipment properly. Hence, a situation might exist where two different juries hearing the same case might deliberate differently, not due to their different life experiences, but rather due to their technical acumen in operating a laser disc player or VCR.

As a result of the closeness of this question, and our caution in making a single rule applicable to all demonstrative evidence, to give the courts some flexibility we have not included any specific provision dealing with this issue in our suggested revision to Rule 401 itself. However, in our proposed revision to the Advisory Committee's Note, we suggest that courts exercise their discretion in the following manner. For those demonstrative exhibits that require no mechanical manipulation, we urge that the trial judge permit jurors to take them into the jury room for their inspection. That is, such exhibits should be treated just the same as primarily relevant substantive exhibits. For those exhibits that do require some form of mechanical playback or other mechanized manipulation, we urge that judges treat them as they do the re-reading of witness testimony. That is, the jury should be allowed to review such exhibits during deliberation, but only in open court, after the foreperson specifically requests such a viewing, and after counsel are given a chance to make any objections to that request.

E. Proposed Revisions to Federal Rule of Evidence 401 and the Advisory Committee's Note[222]

Federal Rule of Evidence 401 should be amended as follows:

Rule 401. Definition of "Relevant Evidence"

"Relevant evidence" means: *(a)* evidence having any tendency to make the *apparent* existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence[ ]; *or (b) evidence that fairly and accurately explains, illustrates, or clarifies other admissible evidence.*

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222 In the proposed revisions, additions to the present text of Rule 401 and the Advisory Committee's Note are italicized, alterations to the present text are bracketed, and deletions from the present text are indicated by empty brackets.

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The Advisory Committee's Note accompanying Rule 401 could then be amended to read:

> Advisory Committee's Note
>
> Problems of relevancy [ ] *come in two forms: (i) a decision* whether an item of evidence, when tested by the processes of legal reasoning, possesses sufficient probative value to justify receiving it in evidence, *e.g. the* [ ] assessment of the probative value of evidence that a person purchased a revolver shortly prior to a fatal shooting with which he is charged is a matter of analysis and reasoning; *and (ii) a decision whether a proffered piece of evidence both helpfully and equitably clarifies or illustrates a piece of admissible, probative proof.*
>
> The variety of relevancy problems *under part (a) of the rule* is coextensive with the ingenuity of counsel in using circumstantial evidence as a means of proof. An enormous number of cases fall in no set pattern, and this rule is designed as a guide for handling them. On the other hand, some situations recur with sufficient frequency to create patterns susceptible of treatment by specific rules. Rule 404 and those following it are of that variety; they also serve as illustrations of the application of the present rule as limited by the exclusionary principles of Rule 403.
>
> Passing mention should be made of so-called "conditional" relevancy. Morgan, Basic Problems of Evidence 45-46 (1962). In this situation, *under part (a) of the rule* probative value depends not only upon satisfying the basic requirement of relevance as described above but also upon the existence of some matter of fact. For example, if evidence of a spoken statement is relied upon to prove notice, probative value is lacking unless the person sought to be charged heard the statement. The problem is one of fact, and the only rules needed are for the purpose of determining the respective functions of judge and jury. See Rules 104(b) and 901. *Similarly, while in some respect demonstrative evidence covered in part (b) of the rule is also contingent upon something, namely that the piece of evidence that it relates to and clarifies is admissible, it is in no way the subject of the "conditional" relevancy doctrine articulated by Morgan. Accordingly,* [t]he discussion which follows in the present note is concerned with relevancy generally, not with any particular problem of conditional relevancy.
>
> Relevancy is not an inherent characteristic of any item of evidence but exists only as a relation between an item of evidence and a matter properly provable in the case. Does the item of evidence tend to prove *the apparent existence of* the matter sought to be proved? *Under part (a) of the rule,* [w]hether the relationship exists depends upon principles evolved by experience or science, applied logically to the situation at hand. James, Relevancy, Probability, and the Law, 29 Calif.L.Rev. 689, 696, n. 15 (1941), in Selected Writings on Evidence and Trial 610, 615, n. 15 (Fryer ed. 1957). The rule summarizes this relationship as a "tendency to make the *apparent* existence" of the fact to be

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proved "more probable or less probable." Compare Uniform Rule 1(2) which states the crux of relevancy as a "tendency in reason," thus perhaps emphasizing unduly the logical process and ignoring the need to draw upon experience or science to validate the general principle upon which relevancy in a particular situation depends. *Under part (b) of this rule, whether the relationship exists depends on whether the piece of demonstrative evidence helps elucidate, and thereby make more understandable to the fact finder, a piece of substantive proof.*

The standard of probability under *part (a) of* the rule is "more . . . probable than it would be without the evidence." Any more stringent requirement is unworkable and unrealistic. As McCormick § 152, p. 317, says, "A brick is not a wall," or, as Falknor, Extrinsic Policies Affecting Admissibility, 10 Rutgers L.Rev. 574, 576 (1956), quotes Professor McBaine, ". . .[I]t is not to be supposed that every witness can make a home run." Dealing with probability in the language of the rule has the added virtue of avoiding confusion between questions of admissibility and questions of the sufficiency of the evidence.

Part (a) of [t]he rule uses the phrase "fact that is of consequence to the determination of the action" to describe the kind of fact to which proof may properly be directed. The language is that of the California Evidence Code § 210; it has the advantage of avoiding the loosely used and ambiguous word "material." Tentative Recommendation and a Study Relating to the Uniform Rules of Evidence (Art. I General Provisions), Cal. Law Revision Comm'n, Rep., Rec. & Studies, 10-11 (1964). The fact to be proved may be ultimate, intermediate, or evidentiary; it matters not, so long as it is of consequence in the determination of the action. Cf. Uniform Rule 1(2) which requires that the evidence relates to a "material" fact.

The fact to which the evidence is directed need not be in dispute *under either part of the rule.* While situations will arise which call for the exclusion of evidence offered to prove a point conceded by the opponent, the ruling should be made on the basis of such considerations as waste of time and undue prejudice (see Rule 403), rather than under any general requirement that evidence is admissible only if directed to matters in dispute. Evidence which is essentially background in nature can scarcely be said to involve disputed matter, yet it [ ] *is relevant under part (b) of this rule, as it explains and helps clarify other relevant substantive evidence.* A rule limiting admissibility to evidence directed to a controversial point would invite the exclusion of this helpful evidence, or at least the raising of endless questions over its admission. Cf. California Evidence Code § 210, defining relevant evidence in terms of tendency to prove a disputed fact. *In addition, a piece of demonstrative evidence relevant under part (b) of this rule is subject to control by the court under the provisions of Rule 611(a).*

The variety of types of demonstrative evidence is already extensive and surely will expand as computer and video technology progress. Typically

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charts, diagrams, models and other tangible objects, photographs, movies, videotapes, laser discs, views, and computer-dependent animations and simulations fall into this category. Depending on the circumstances, these types of exhibits can be used in two ways. They can be used substantively, to make the apparent existence of a fact of consequence directly more or less probable, or they can be used demonstratively, to explain other admissible substantive evidence. For example, a weapon can be offered either as the murder weapon (substantive) or as an example of what the murder weapon described by the witness looked like (demonstrative). In the cases in which such evidence is being offered substantively, the relevance of that evidence must be judged under part (a) of the rule. However, when its purpose and effect is merely to illustrate other admissible evidence, its relevance is not directly connected to a fact of consequence in the action, but rather to the piece of evidence it is illustrating. Thus, it becomes relevant under part (b) of the rule if it clearly explains that related evidence and will be helpful to the trier of fact in understanding that related evidence. In other words, a piece of demonstrative evidence is primarily used to illustrate another piece of evidence and only derivatively relevant to making the apparent existence of a fact of consequence more or less likely than would be the case without that evidence. In cases where a piece of evidence is offered both directly to establish a fact of consequence and to illustrate other admissible proof, the principal purpose for which the item is being offered shall control whether it shall be admitted under part (a) or part (b) of this rule. The treatment of evidence made relevant under either part of this provision should be the same. That is, if an item is relevant under either part (a) or part (b), and that item is not precluded from admission for any other reason, then it should be admitted into evidence according to the dictates of Rule 402.

There has been a difference of opinion in the courts as to whether jurors should have access to demonstrative evidence of the type made relevant under part (b) during their deliberations. Exhibits made relevant under part (b) should be allowed to accompany the jurors during their deliberations if viewing them does not require any mechanical manipulation, e.g., playing a movie on a movie projector or video recorder, or viewing a laser disc on a special player. If a jury wishes to view an exhibit made relevant under part (b) that does require mechanical manipulation to be viewed, the foreperson of the jury must seek permission of the court to do so, and any such viewing must take place in the presence of the judge and counsel, and then only after counsel have had an opportunity to object to such request.

CONCLUSION

Throughout its history, demonstrative evidence has been the forgotten stepchild of the evidence family. Although its use at trial has proven fruitful, its study has not particularly excited evidence theoreticians. Indeed, even those who have analyzed the subject have not done so with the thoroughness they have applied to hearsay or presumptions, for example. This lack of critical study has resulted in an evidentiary system that, at least on its

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face, should exclude the admission of demonstrative evidence as irrelevant, and that has not reached an agreement on the proper treatment of such proof at trial. Modern evidence codes need to be modified to account for the derivative relevance of demonstrative evidence and to regulate the use of demonstrative evidence at trial. We hope that the suggestions made in this Article will assist in that goal.

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