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## Gaining/Losing Perspective on the Law, or Keeping Visual Evidence in Perspective

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# Gaining/Losing Perspective on the Law, or Keeping Visual Evidence in Perspective

CHRISTOPHER J. BUCCAFUSCO\*

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*“All the management of our lives depends on the senses, and since that of sight is the most comprehensive and the noblest of these, there is no doubt that the inventions which serve to augment its power are among the most useful that there can be.”*

—Rene Descartes<sup>1</sup>

*“Form is henceforth divorced from matter. . . Give us a few negatives of a thing worth seeing, taken from different points of view, and that is all we want of it. Pull it down or burn it up, if you please.”*

—Oliver Wendell Holmes, Jr.<sup>2</sup>

## I. INTRODUCTION

Although the past few decades have seen the gradual acceptance of

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\* J.D., University of Georgia School of Law. I wish to thank Kristen Adams, Richard Grusin, and Paul Heald for their support and comments throughout this project. Most importantly, I must thank Stephanie Harris for her keen editing, unique “perspective,” and constant inspiration.

1. RENE DESCARTES, DISCOURSE ON METHOD, OPTICS, GEOMETRY AND METEOROLOGY 65 (Paul J. Olscamp trans., Hackett Publ’g Co. rev. ed. 2001) (1965), *quoted in* MARTIN JAY, DOWNCAST EYES: THE DENIGRATION OF VISION IN TWENTIETH-CENTURY FRENCH THOUGHT 71 (1993).

2. Oliver Wendell Holmes, *The Stereoscope and the Stereograph*, 3 ATLANTIC MONTHLY 738, 747 (1859), *reprinted in* CLASSIC ESSAYS ON PHOTOGRAPHY 71, 74 (Alan Trachtenberg ed., 1980), *quoted in* Jennifer L. Mnookin, *The Image of Truth: Photographic Evidence and the Power of Analogy*, 10 YALE J. L. & HUMAN. 1, 17 (1998).

contemporary cultural studies in legal analysis,<sup>3</sup> scholars and judges have yet to give significant consideration to the study of Visual Culture. While Race and Gender Theory have gained at least marginalized recognition from mainstream legal scholarship,<sup>4</sup> Visual Culture Studies has been largely ignored. If this trend continues, it promises to have severe deleterious effects on legal culture. All of society, including the courtroom, is being inundated with images, whether from traditional media like painting and photography to newer media such as film and television.<sup>5</sup> The overload of images is being further increased by new digital media that make the creation and dissemination of visual information cheaper and easier,<sup>6</sup> but courts and scholars have turned a blind eye (so to speak) to the implications of a culture so thoroughly dominated by images. In this Article, I shall argue for an immediate appreciation of the impact of representational technologies on the legal system. Such an appreciation is particularly warranted in light of the recent expansion in the use of digital media productions as evidence.<sup>7</sup> Although the use of digital media has been given at least cursory commentary,<sup>8</sup> no scholar has yet applied the work of Visual Culture theorists to the issues these technologies present. The remainder of this Article will offer a fuller understanding of the creation and application of both old and new visual media in society. It will examine the historical reactions of both popular and legal culture to the introduction of new visual technologies,<sup>9</sup> and it will apply the theories of Visual Culture Studies to explain the accept-

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3. See, e.g., Arthur Austin, *The Top Ten Politically Correct Law Reviews*, 1994 UTAH L. REV. 1319 (1994). In an amusing ranking of law reviews and journals that publish a substantial amount of scholarship by Critical Legal theorists, Professor Austin notes, "Political Correctness ('PC') has infiltrated legal education. Feminist politics, race consciousness, and white male trashing are as familiar as civil procedure. A growing number of law faculty compete with colleagues from other parts of the university to produce PC scholarship." *Id.* at 1319-20.

4. *Id.*

5. See Mario Borelli, Note, *The Computer as Advocate: An Approach to Computer Generated Displays in the Courtroom*, 71 IND. L.J. 439, 439 (1996) (suggesting, "In the 1990s, our culture has become computer crazed. We constantly hear such terms as 'information superhighway,' the 'net,' and 'multimedia.' The law is no exception.").

6. See *id.* at 439. (stating, "A growing number of attorneys take advantage of more affordable three-dimensional animations to present their cases to juries. An ability to create animations on desktop computers, combined with falling hardware prices, have contributed to a surge of courtroom animations.").

7. *Id.*

8. Most of the scholarship in this area has come from law students in law review notes. See, e.g., *id.*; John Selbak, Comment, *Digital Litigation: The Prejudicial Effects of Computer-Generated Animation in the Courtroom*, 9 HIGH TECH. L. J. 337 (1994); Elan E. Weinreb, Note, 'Counselor, Proceed With Caution': *The Use of Integrated Evidence Presentation Systems and Computer-Generated Evidence in the Courtroom*, 23 CARDOZO L. REV. 393 (2001); Jill Witkowski, Note, *Can Juries Really Believe What They See? New Foundational Requirements for the Authentication of Digital Images*, 10 WASH. U. J.L. & POL'Y 267 (2002).

9. See *infra* Part II.

ance of such technologies as visual evidence.<sup>10</sup> Finally, I will describe the history of linear perspective in visual media<sup>11</sup> and consider the ideological impact of this technique on legal culture.<sup>12</sup>

### A. *Visual Culture Studies in 10 Minutes or Less*

Since Visual Culture Studies<sup>13</sup> has been overlooked by the legal community, it is necessary to first provide a general introduction to both the types of questions raised by theorists in this field and to the answers they provide.<sup>14</sup> Like much of contemporary Critical Studies scholarship, Visual Culture Studies represents a broad array of methodological approaches including psychoanalysis, linguistics, sociology, and the history and philosophy of technology. It is in some sense double interdisciplinary in that these modes of inquiry are then turned on a variety of subjects, including Art History, Photography and Film Theory, and Media Studies.<sup>15</sup> Such an extensive interdisciplinarity makes categorizing the field particularly difficult, but some general approaches can be discerned.

First, following contemporary Structuralist linguistics,<sup>16</sup> Visual Culture often emphasizes the social practices by which meaning is created via culturally specific signifying systems.<sup>17</sup> This typically involves recognizing that media and the way they represent images cannot be divorced from their historical, economic and social contexts, and that the technological developments of media are often driven by intentional actors, rather than chance or inevitable scientific “progress.”<sup>18</sup> Thus, it is not sufficient to talk about the “meaning” of a photograph or film

10. See *infra* Part III.

11. See *infra* Part IV.

12. See *infra* Parts V, VI.

13. The first use of the term “visual culture” is generally attributed to Svetlana Alpers. See Svetlana Alpers, *Visual Culture Questionnaire*, 77 OCTOBER 26 (1996).

14. See generally Jessica Evans & Stuart Hall, *What is Visual Culture?*, in VISUAL CULTURE: THE READER (Jessica Evans & Stuart Hall eds., 1999).

15. Malcolm Barnard suggests, “The notion of visual culture . . . is broader than that of either art or design, encompassing both and including material often overlooked or ignored by the histories of art and design.” See MALCOLM BARNARD, *APPROACHES TO UNDERSTANDING VISUAL CULTURE* 2 (2001).

16. Frederic Jameson has described Structuralism as the study of the “unconscious value system or systems of representations which orders social life at any of its levels, and against which the individual conscious acts and events take place and become comprehensible.” See FREDERIC JAMESON, *THE PRISON HOUSE OF LANGUAGE* 101 (1972), quoted in BARNARD, *supra* note 15, at 33.

17. See BARNARD, *supra* note 15, at 33-39.

18. Evans & Hall, *supra* note 14, at 3. The authors propose that “cultural studies rests on the achievements of semiotics as a whole and stakes its distinctiveness upon the analysis of the symbolic, classificatory and, in short, meaning-making practices that are at the heart of all cultural production and consumption.” *Id.* at 3.

without also talking about the way meaning is created.<sup>19</sup> Traditional art and film criticism are eschewed in favor of an analysis that considers a wide range of social factors that explain the relationship between what is being represented and those who are viewing the representation.<sup>20</sup> While for some theorists, the notion that signifying practices are both foundational and culturally relative leads to the proposition that there is no “reality” that exists outside of the signifying system,<sup>21</sup> such a result is neither necessarily compelled nor generally accepted. Rather, the task of Visual Culture Studies is to explore and compare the multiplicity of meaning-making practices, and to posit conclusions about what these similarities and differences might mean.<sup>22</sup>

A second strand of Visual Culture Studies attempts to discern the impact of methods of visual representation on whoever may be viewing the images and whatever may be represented in them. This level of inquiry owes much to the psychoanalytic writings of Jacques Lacan.<sup>23</sup> Lacan’s theory of the formation of the ego and the Self is based on visual relationships and is explained by the visual metaphor of the mirror.<sup>24</sup> By underscoring the significance of visuality in the development of the earliest relationships between infants and their mothers, his theory provides a useful tool for studying the impact of visual representations

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19. *See id.* at 4 (stating, “meaning is constituted not in the visual sign itself as a self-sufficient entity, nor exclusively in the sociological positions and identities of the audience, but in the articulation between viewer and viewed, between the power of the image to signify and viewer’s capacity to interpret meaning.”).

20. Norman Bryson explains, “The act of recognition that painting galvanizes is a production, rather than a perception, of meaning. Viewing is an activity of transforming the material of paintings into meanings, and that transformation is perpetual: nothing can arrest it.” *See* NORMAN BRYSON, *VISION AND PAINTING: THE LOGIC OF THE GAZE* xiii-xiv (1983).

21. For examples of this belief in the realm of visual signifying systems, see E. H. GOMBRICH, *THE IMAGE AND THE EYE* (1982); NELSON GOODMAN, *LANGUAGES OF ART: AN APPROACH TO A THEORY OF SYMBOLS* (2d ed. 1976).

22. Evans & Hall, *supra* note 14, at 3.

23. *See generally* JACQUES LACAN, *ECRITS: A SELECTION* (Bruce Fink trans., 2002); *see also* Barnard, *supra* note 15, at 77-87.

24. *See* Jacques Lacan, *The Mirror-Phase as Formative of the Function of the I*, 51 *NEW LEFT REVIEW* 71 (1968); *see also* BILL NICHOLS, *IDEOLOGY AND THE IMAGE: SOCIAL REPRESENTATION IN THE CINEMA AND OTHER MEDIA* (1981). Summarizing Lacan, Nichols writes:

Lacan proposed that the young child between six and eighteen months old, before acquiring speech, establishes a distinctive relationship with the visual image of the other (in most cases, the mother). Compared to the incomplete control of its own body, the image of the other appears whole, complete, full, a plenum of realized potential. Likewise, the child’s own image represents an ideal to which the child aspires. It is internalized as an ego-ideal or superego to serve as the armature upon which the ego, or subject, constitutes itself. The consequences of this are vast. The self-as-subject or ego will be precisely a term in a relationship; the subject comes to define itself in a relationship of opposition to, and identity with, the other.

*Id.* at 30-31.

throughout society.<sup>25</sup> Due to the primarily visual nature of interpersonal relationships, much can be understood about the effect of representational techniques on the viewing subject and the viewed object from a closer consideration of visual media. Later, this Article will explore the effects of one such technique<sup>26</sup> on a legal system composed of viewers (jurors, judges, lawyers) and viewed (defendants, data, scenarios).

Before demonstrating the immediate need for an awareness of the inquiry presented by Visual Culture Studies scholars, I should clarify what is meant by the term “visual.” Distinct from a scientific understanding of “vision” in terms of the chemical interaction between light and the retina, “visual” refers to the cultural processes and systems by which meaning is created and understood through images.<sup>27</sup> This takes into account the science of optics, but it goes beyond the mere perception of images to an awareness of the cultural practices by which the perception of visual data can be employed to communicate meaning.<sup>28</sup> Thus, while it is insufficient to study the technological means of image creation as distinct from their social context, a scientific approach to vision alone cannot fully explain why images matter to people.

### B. *Why Visual Culture Studies and Why Now?: The Question of Digital Evidence*

Along with the proliferation of digital technology, come vital questions for judges, lawyers, and scholars regarding the role this technology should play in the courtroom. As these questions present themselves, it becomes necessary to grasp the significance of the admissibility of digital visual evidence to allow in relevant evidence and to keep out evidence that could threaten a just result. Unlike novel scientific evidence, the standards for which are regularly used by many in the legal profession,<sup>29</sup> it is rare that the law must concern itself with new methods for the visual presentation of evidence. Like the introduction of photography in the mid-nineteenth century,<sup>30</sup> digital evidence creates evidentiary issues that lawyers and judges are unaccustomed to dealing with.

25. See *id.* at 30 (noting that Lacan “suggests a particularly provocative role for perception in this setting into place of the self. . . . [I]t can serve as a useful model for the bridge between an individual psychology of perception and an encompassing sociology of perception.”).

26. The technique is Linear Perspective, and the discussion can be found in Parts IV & V, *infra*.

27. See Evans & Hall, *supra* note 14, at 4-5.

28. According to W.J.T. Mitchell, “‘Visuality’ refers to the visual register in which the image and visual meaning operate.” W.J.T. Mitchell, *The Pictorial Turn*, in *PICTURE THEORY: ESSAYS ON VERBAL AND VISUAL REPRESENTATION* 16 (1994).

29. This standard was established in the famous case of *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993).

30. See generally Mnookin, *supra* note 2.

Recent advances in microchip processing speed have dramatically increased the applications of computers for creating and manipulating images, and general improvements in computer technology have reduced the cost of hardware and software to the point where digital technology is widely available to the public.<sup>31</sup> In fact, the need to address evidentiary issues of digital media is perhaps more compelling than it originally was for photography, where the means of production remained beyond the reach of the public for many years.

Currently, computer-generated<sup>32</sup> evidence is being used in a wide variety of contexts, ranging from simple demonstrative evidence such as graphs, charts, and diagrams<sup>33</sup> to complex digital animations and recreations.<sup>34</sup> Other uses include digital photographs and digital enhancement of traditional photographs, composite digitally created images of suspects, and animations of scientific theories or microscopic details.<sup>35</sup> While the various manifestations of computer-generated evidence use different hardware and software for their creation, digital images are similar to each other in a number of profound and fundamental respects.<sup>36</sup> First, all computer-generated evidence is based on a complex system of binary information that can be represented by either a 0 or 1.<sup>37</sup> In the case of digital photographs for example, the light entering the lens of the digital camera is reflected off a sensor that records the data in

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31. See Borelli, *supra* note 5; Penney Azcarate, *Digital Imaging Technology and the Prosecutor*, 34-FEB PROSECUTOR 26, 26 (2000) (proposing, "In the not so distant future, digital cameras and digital imaging will be of such quality and price that regular film processing may become archaic and uneconomical.").

32. The terms "computer-generated" and "digital" will be used interchangeably throughout this Article.

33. For something like a Visual Culture analysis of these media see EDWARD R. TUFTE, *ENVISIONING INFORMATION* (1990).

34. See generally GREGORY P. JOSEPH, *MODERN VISUAL EVIDENCE*, Ch. 7 (2003); Azcarate, *supra* note 31, at 26 ("[d]igital imaging, once used primarily for fingerprint comparisons, now is being used effectively in an increasing variety of evidence procedures, including analysis of altered documents, recording crime scenes and traffic crash sites, documenting domestic violence cases and creating video mug shot systems.").

35. See JOSEPH, *supra* note 34, at Ch. 7.

36. Much of this information is elementary, and that which is not is beyond the scope of this Article. For a more detailed discussion of the processes of digital image creation, see WILLIAM J. MITCHELL, *THE RECONFIGURED EYE: VISUAL TRUTH IN THE POST-PHOTOGRAPHIC ERA* 6 (1994).

37. See Azcarate, *supra* note 31, at 26-27. The author offers a clear summary of digital images:

A binary digit (bit) is the smallest unit of information a computer can process. Its value is always '0' or '1' which the computer reads as an on/off electrical sequence. Eight bits make a byte. A picture element (pixel) is a code consisting of bits of information representing a specific color, intensity, and location. Pictures are made up of many different pixels. This digital representation of a photography is stored in the computer on a rectangular grid called a bitmap. *Id.*

binary form and stores it in a file.<sup>38</sup> After collection and storage, these data are manipulated by way of an algorithm or computer program. The algorithm determines the meaning of the data and the relationship of some data to others and then produces a graphic or pictorial display of the information.<sup>39</sup> The creation and application of these algorithms has been the focus of much of the scholarly concern regarding digital evidence, because they assume that digital images are inherently manipulated by the program and thus lack the indexical nature of traditional photography, which is the result of the “direct” capture of light on a photosensitive medium.<sup>40</sup>

The remainder of this Article will be devoted to a consideration of the evidentiary rules that have been adopted for the authentication and admission of computer-generated evidence, along with the concerns by some in the legal community about the inadequacy of these rules. This will be followed by an analysis of the potential effectiveness of judicially or legislatively created evidentiary rules, including a demonstration of the steps that historically have been used to develop evidentiary requirements for new technologies. Pursuing a recent body of scholarship on legal analogy, I will show how admissibility standards will be developed and explain why logic of this sort will generally be effective for dealing with the issues raised by digital images. Finally, I will com-

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38. *Id.* at 27 (“To acquire photographs, a digital camera uses the same principles as traditional film. Instead of using light sensitive film to record images, most digital cameras use a light sensitive chip called a charged coupled device (CCD) to record the image electronically. This is the same image sensor used in most video cameras. The light sensors on the CCD capture and store the image as red, green, and blue pixels.”).

39. *Id.* at 27 (explaining, “The electrical output of the CCD is sent to a converter that changes the image into a digital output. The data is then stored in the camera as a computer data file with each file representing a different photograph. Some digital cameras have the ability to display the resulting images on a view screen; others require a computer to view the images.”).

40. *See, e.g.,* Witkowski, *supra* note 8, at 272-73. In a section titled “Digital Images are Highly Susceptible to Manipulation,” the author suggests:

The electronic nature of the image file makes undetectable manipulation of a digital image easy, in part because no traditional “original image” is made. Unlike traditional cameras, which produce one negative, digital cameras create an electronic file from which the image can be generated. Because the image file contains a finite set of ones and zeros, exact copies of the image file can be made with no loss of image quality between generations. Thus, it is impossible to determine which image is a first generation image and is therefore the “original.” The lack of an “original” for comparison with the offered image reduces the opportunity to verify that the image has not been altered or has only been altered in an acceptable manner, thereby increasing the likelihood that changes will not be discovered unless the proponent of the image reveals them.

*Id.* at 272-73; *see also* Robert Garcia, “Garbage In, Gospel Out”: *Criminal Discovery, Computer Reliability, and the Constitution*, 38 UCLA L. REV. 1043 (1991). Garcia warns, “In a day when the pace of our technology threatens to exceed the development of rules for governing human conduct, we must be careful to insure that fundamental rights are not surrendered to the calculation of machines.” *Id.* at 1068.



pare the signifying codes of new digital media to their more traditional predecessors, and thus recommend that judges and scholars do more than consider the technical means of image construction; they must understand the complex social and psychological factors that affect meaning creation and apprehension.

## II. EVIDENTIARY RULES FOR DIGITAL VISUAL EVIDENCE

### A. *Futurists, Luddites, and Visual Evidence*

As intellectual historian Martin Jay demonstrates in his book *Downcast Eyes*,<sup>41</sup> vision and visuality have been the subject of a substantial body of intellectual discourse throughout the history of Western civilization, but the attitudes toward them have rarely been unambiguous.<sup>42</sup> After all, Plato, who claimed that vision was humanity's greatest gift, also warned against the illusions of our imperfect eyes.<sup>43</sup> Statements such as "Seeing is believing," and "A picture is worth a thousand words" indicate the value our culture places on vision, but there also exists a distinct countervailing notion that images can be deceptive and misleading.<sup>44</sup> These concerns are particularly strong in the legal culture, where certainty and reliability are paramount.<sup>45</sup> Jay points out that the legal insecurity regarding images is evident in the historical iconography of our legal system in artistic depictions of the goddess *Justicia*.<sup>46</sup> Remarking on her often shielded eyes, he notes, "A blindfolded justice

41. JAY, *supra* note 1.

42. See Martin Jay, *Scopic Regimes of Modernity*, in *VISION AND VISUALITY*, 4 (Hal Foster ed., 1988). According to Jay, "the scopic regime of modernity may best be understood as a contested terrain rather than a harmoniously integrated complex of visual theories and practices. It may, in fact, be characterized by a differentiation of visual subcultures, whose separation has allowed use to understand the multiple implications of sight in ways that are now only beginning to be appreciated." *Id.*

43. See JAY, *supra* note 1, at 26-27. Jay contrasts the *Timaeus*, in which Plato grouped the sense of sight with the creation of human intelligence and the soul, with the myth of the cave and the *Republic's* notorious hostility to the mimetic arts.

44. See Mnookin, *supra* note 2, at 1; see also JAY, *supra* note 1, at 1. Introducing his book, Jay notes:

Even a rapid glance at the language we commonly use will demonstrate the ubiquity of visual metaphors. If we actively focus our attention on them, vigilantly keeping an eye out for those deeply embedded as well as those on the surface, we can gain an illuminating insight into the complex mirroring of perception and language. Depending, of course, on one's outlook or point of view, the prevalence of such metaphors will be accounted an obstacle or an aid to our knowledge of reality.

45. See generally Garcia, *supra* note 40.

46. Martin Jay, *Must Justice Be Blind? The Challenge of Images to the Law*, in *LAW AND THE IMAGE: THE AUTHORITY OF ART AND THE AESTHETICS OF LAW* 21 (Costas Douzinas & Lynda Nead eds., 1999). For numerous images of the goddess *Justicia*, see Michael A. Dean, *Images of the Goddess of Justice*, at <http://members.tripod.com/mdean/justice.html> (last revised May 16, 2002).

could thus avoid the seductions of images and achieve the dispassionate distance necessary to render verdicts impartially.”<sup>47</sup> He attributes the concern about the sensual influence of images to the reliance on language by the Western legal tradition; by relying on texts and language, judges assumed they could avoid the illusory potential of visual perception.<sup>48</sup> Of course, despite this unease, visual representations have historically played a significant role in resolving legal disputes.<sup>49</sup>

Closely connected to the ambiguity surrounding vision’s reliability is the law’s uncertain approach to technologies of visualization. As with any technology, new visual media have always created a tension between the scholars and practitioners who see opportunities for enhanced representational abilities and, thus easier access to the truth, and those who are concerned about the opportunity for manipulation of the images or distraction from the issues of the case. Professor Mnookin, one of the few legal scholars to use the discourse of Visual Culture Studies, has explored the nineteenth-century debate over the acceptance of photographic evidence between these two factions, and she has characterized the factions as competing paradigms for the understanding of photographs. One paradigm emphasized photography’s ability to transcribe nature directly, and the other highlighted the ways in which the photograph was merely a human representation.<sup>50</sup> The former group stressed the mechanical nature of photography’s ability to directly record nature through the capturing and fixing of light rays without the intervention of a human actor.<sup>51</sup> The photographic image could be trusted to be an accurate copy of that which it depicted. Accordingly, the photograph was not merely evidence, “but the best kind of evidence imaginable: mechanical, automatic, and not subject to those biases and foibles that may cloud human judgment.”<sup>52</sup> While this conception of photography stressed its direct, natural, and indexical relationship with reality, another group of lawyers and scholars insisted that photography could never provide reliable testimony due to the inherent distortions

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47. Jay, *supra* note 46, at 21.

48. *Id.* at 32.

49. See generally Mnookin, *supra* note 2.

50. *Id.* at 4. She writes, “From the first perspective, the photograph was viewed as an especially privileged kind of evidence; from the second perspective, the photograph was seen as a potentially misleading form of proof.” *Id.* I will refer to these two groups as “Futurists” and “Luddites,” respectively.

51. *Id.* at 14-21. As an example of a member of this group, Mnookin quotes one judge’s ideas about an accident photo: “[A photograph] is a picture of the place made automatically, the spot being reflected as in a mirror, and the image chemically made permanent. . . . The photograph brings the spot to the jury . . . ; a more correct and vivid idea being thus conveyed to the minds of the jury than could be done by any language of witnesses.” *Id.* at 18, (quoting Hampton v. Norfolk & W.R.R., 27 S.E. 96, 97-98 (N.C. 1897) (Clarke, J., dissenting)).

52. Mnookin, *supra* note 2, at 19.

involved in taking a photograph.<sup>53</sup> They stressed the numerous “collateral issues” or human decisions associated with the taking and fixing of a picture that could distort the veracity of the image to the point where it was unreliable as evidence.<sup>54</sup> Judges were also legitimately concerned about the introduction of posed or reworked photographs, which they feared juries would unquestioningly believe.<sup>55</sup> Professor Mnookin suggests that the reluctance of the legal community to accept the veridical power of photographs may have come from a concern that photographs risked being overly authoritative.<sup>56</sup> If this type of evidence made facts in issue irrefutably provable, the need for the trial would be obviated and the act of judgment by the judge and jury would be reduced to an inevitable statement of what was represented in the images.<sup>57</sup> Photographic evidence, according to those scholars wary of its acceptance, was both too manipulable and too persuasive to play a role as evidence.

The same anxiety about reliability and verisimilitude that troubled the legal community of the late-nineteenth century has resurfaced in the current debate over the application of digital visual technology. In his article *Virtual Civil Litigation: A Visit to John Bunyan's Celestial City*,<sup>58</sup> Paul Carrington speculates, “When [computer] technology is fully deployed, almost nothing we now know about civil procedure will be

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53. *Id.* at 21. Mnookin quotes one photographer who pointed out the ways in which the focal length of the lens affected the image: “I need do no more than call to your minds the exaggerations in perspective which are most glaring in architectural subjects taken with a short-focus, wide-angle lens. I do so . . . to point out that the position claimed for photography as an infallible exponent of literal truth is quite untenable.” *Id.* (quoting George Croughon, *Photographic vs. Literal Truth*, 3 ANTHONY'S PHOTOGRAPHIC BULL. 40, 41 (1872).

54. Mnookin, *supra* note 2, at 21. These “collateral issues” include “the refractive power of the lens, the angle at which the original to be copied was inclined to the sensitive plate, the accuracy of the focusing, the skill of the operator, and the method of procedure.” *Id.*

55. *Id.* at 50-52. According to Mnookin:

Beginning in the 1880s, a number of cases involved photographs that had been carefully constructed to illustrate the placement of relevant people or objects. These photographs were staged, after-the-fact reconstructions purposefully designed to illustrate one side's theory of the case. Often these photographs showed the scene of the accident or crime, with individuals (sometimes those actually involved, sometimes not) carefully positioned in the places where the parties claimed they had been at the time of the crime or accident.

*Id.* at 50.

56. *Id.* at 57.

57. Summarizing this position, Mnookin asks:

[I]f a photograph caught a perpetrator in the act, why would one need a jury (or lawyers or a judge) at all? In such an instance, when the photograph itself displaced the facts with “an eye that cannot be deceived and a fidelity that cannot be corrupted,” what theoretical purpose would there be for a factfinder? How could a jury do anything other than certify “truth itself in the supremeness of its perfection?”

*Id.* (citations omitted).

58. 98 COLUM. L. REV. 1516 (1998).

true.”<sup>59</sup> He predicts the day when digital image creation and storage will make the traditional courtroom trial obsolete. Due to the ease of use and low cost of digital technology, all evidence and testimony will be recorded and edited digitally, and the jury will simply view a movie presentation, rather than sit through a trial.<sup>60</sup> Although he admits such changes may result in a diminution in spontaneity and interpersonal contact, he claims that these losses will be more than offset by the savings in money, time, and convenience.<sup>61</sup> Interestingly, Carrington suggests that viewing evidence on the “cool screen” will actually decrease the misleading aspects of demeanor evidence that occur with live testimony.<sup>62</sup> Furthermore, evidentiary issues and objections can be raised in pretrial conferences, thus reducing the amount of time the jury will be empanelled, and since the tapes can be screened and edited in advance, there need be no concern that the jury will accidentally be exposed to prejudicial information.<sup>63</sup> Finally, Carrington claims that “virtual review” will be easier and more effective because the appellate court will have complete access to the trial that was presented to the jury.<sup>64</sup> In his conception, then, digital litigation and computer-generated evidence offer a variety of solutions to problems that have faced the legal system throughout its history. The new technological means provide greater access to the truth because they make it more directly available and

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59. *Id.* He continues:

The institutions of civil litigation are . . . headed for fundamental change caused by the invention of the computer chip. The digitization of information offers technical solutions to problems that have long defied us. Indeed, technologies deploying digitization undercut many, perhaps most, of the premises of civil procedure as it has been practiced, not merely in America, but everywhere since the beginning of time.

*Id.* at 1517.

60. *Id.* at 1525 (“Given easy, almost costless, preservation of images in digitized form, and their instantaneous transmission over long distances, there will no longer be sufficient reason to require, expect, or even permit much, if any, evidence to be presented in the form of personal testimony by witnesses in room in which the judge, jury, and counsel are all present. A trial will normally be a movie presentation.”).

61. *Id.*

62. *Id.* at 1526. (“It seems at least possible that what is left out when testimony is observed on the cool screen is the part of demeanor evidence that is positively misleading, for those radiations of the spirit that cause us to be irrationally attracted to a witness or irrationally repelled by him or her may then be less intense. It may actually be harder to lie effectively on a screen than in person.”).

63. *Id.* Carrington predicts:

All evidentiary issues not resolved by agreement of the parties will be resolved by the court at a pretrial conference. Because all the proof is unalterably recorded before any of it is presented to a trier of fact, every evidentiary issue can be resolved in limine. This will result in a clean visual recording of all the testimony and arguments of counsel to be presented, with no distractions from bickering lawyers.

*Id.*

64. *Id.* at 1529-30.

more readily understandable.<sup>65</sup>

Opposing the technocrats, but no less certain of the great change that computer technology will bring, are those who fear its use. While Luddites may be too strong a name for them, this group is alarmed by many of the same aspects of digital technology that make it popular for Carrington. Whereas Carrington champions digital imagery for its ability to present visual data in a clear and non-prejudicial manner, many others are concerned about the inherent tendency of the "spectacle" to overload and distract jurors into believing whatever is presented.<sup>66</sup> While Carrington values digital technology for its editorial simplicity, the others worry that digital imagery is too easily manipulable.

These two issues of persuasiveness and manipulability are present through much of the discourse of the anxious scholars. One commentator suggests that "juries are especially prone to believe evidence that is presented visually, regardless of its veracity . . . [and] juries may discard common sense when confronted with computer evidence, and instead accept as proven fact whatever the computer proposes as the calculated result of the outcome."<sup>67</sup> This argument takes the willing suspension of disbelief normally associated with the movie-going experience to its extreme. Presumably overwhelmed by the "awesome"<sup>68</sup> visual spectacle, the writer fears that jurors will accept unquestioned any evidence presented on a television monitor.

While authors such as these argue that digital visual evidence must be closely monitored because of its inherent persuasiveness, they also believe that the issue of trial fairness is further complicated by the manipulability of digital images. Digital technology does not rely on a "direct" chemical process whereby the image is fixed in tangible form. As a result, the technology produces no "original" to which other images

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65. For my favorite Futurist, and the founder of the Italian Futurist movement, see F.T. Marinetti, *The Futurist Manifesto*, in MARINETTI: SELECTED WRITINGS (R.W. Flint ed., R.W. Flint & Arthur A. Coppotelli trans., 1972); see also Christopher J. Buccafusco, *Venus in Steel: A Psychoanalysis of the Sodomasochistic Tendencies of F.T. Marinetti as Evidenced by His Poems and Manifestoes* (2001) (unpublished B.S. thesis, Georgia Institute of Technology) (on file with author).

66. One commentator suggests, "The major problem facing an opponent of a computer simulation is its impact on the jury. Typically, the jury will think 'I saw it on the TV' or 'it says it on that paper, therefore it must be true.' Therefore, the best tactic is to prevent the admission of the simulation into evidence." Craig Murphy, *Computer Simulations and Video Re-enactments: Fact, Fantasy and Admission Standards*, 17 OHIO N.U. L. REV. 145, 158 (1990).

67. Selbak, *supra* note 8, at 339.

68. Weinreb, *supra* note 8, at 419-20 ("there exists a well-founded fear that the highly communicative nature of computer presentations and blind belief in the reliability of computers will turn a jury into a captive audience once it is witness to computer animations or simulations . . . the persuasive power of [computer-generated evidence] is awesome and can aid a jury immensely in its retention of information.").

can be compared,<sup>69</sup> and, consequently, there is an inherent risk that all computer-created images have been “always already” manipulated, making them necessarily untrustworthy.<sup>70</sup>

One writer even goes so far as to suggest that computer technology “may have a negative impact on the soul of the law.”<sup>71</sup> Although these writers have varying levels of faith regarding the judicial system’s ability to draft appropriate rules for admitting computer-generated evidence, they share a common concern about digital technology’s potential to unduly prejudice jurors.

Before getting to the actual rules of evidence regarding digital visual images, two points about the foregoing debate are worth noting. First, the scholars of both the nineteenth century and the present are concerned about the same issues, namely, persuasiveness and manipulation. In both eras, the advocates of the new technology championed the way that its persuasiveness and manipulability made achieving the truth more pure, while the party opposing it assumed that the new medium would prejudice the jury and obscure the truth. Though the medium at issue may have changed, the debate is being fought along the same lines, using the same arguments.<sup>72</sup>

And although the authors concerned about digital media appear to

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69. See Witkowski, *supra* note 8, at 272-73.

70. See *id.* (suggesting, “Digital images are easier to manipulate than traditional photographs and digital manipulation is more difficult to detect. . . . While manipulation tools are both accessible and easy to use for those without training, those who have training may make even more convincing manipulations . . . . The lack of an ‘original’ for comparison with the offered image reduces the opportunity to verify that the image has not been altered or has only been altered in an acceptable manner . . . .”); Selbak, *supra* note 8, at 355-56, 358 (stating, “computer animation is a long process that involves human speculations and assumptions at each stage,” and “computer animation easily may be tampered with, and the detection of a tampered animation is difficult”); Weinreb, *supra* note 8, at 418.

71. Molly Warner Lien, *Technocentrism and the Soul of the Common Law Lawyer*, 48 AM. U. L. REV. 85, 87-88 (1998) (claiming, “at the risk of being consigned to the ranks of neo-Luddites, I fear that some uses of computer technology may have a negative impact on the soul of the law.”).

72. Compare Mnookin, *supra* note 2, at 18 (“The photograph brings the spot to the jury . . . ; a more correct and vivid idea being thus conveyed to the minds of the jury than could be done by any language of witnesses.”) with Carrington, *supra* note 58, at 1526 (“It seems at least possible that what is left out when testimony is observed on the cool screen is the part of demeanor evidence that is positively misleading, for those radiations of the spirit that cause use to be irrationally attracted to a witness or irrationally repelled by him or her may then be less intense. It may actually be harder to lie effectively on a screen than in person”); and Mnookin, *supra* note 2, at 52 (“[The staged photograph’s] only effect was to graven upon the jury’s memory the account of the homicide given by the witness, an account at variance with that of at least two other eyewitnesses . . . . Indeed, with the average jury, these dumb witnesses, created by the joint efforts of the state’s leading witness and the photographic artist, might go far to secure a verdict for the party offering them.”) with Selbak, *supra* note 8, at 339 (“Juries are especially prone to believe evidence which is presented visually, regardless of its veracity . . . [and] juries may discard common sense when confronted with computer evidence, and instead accept as proven fact whatever the compute proposes as the calculated result of outcome.”).

be aligned with those who objected to photography's evidential value, they, in fact, hold up photography as a medium where representation of the truth can be presumed.<sup>73</sup> Eventually even the conservative members of society come around to technological change, but they are content with the technologies they are familiar with and are wary of any new ones.

Secondly, both sides of the current debate over digital technology seem to assume that, for better or worse, this new medium will bring about a great change in the way images are viewed and how the law is practiced.<sup>74</sup> Although some commentators are astute enough to consider the issues of persuasiveness and manipulability in earlier media,<sup>75</sup> they all agree that digital imaging devices present a bold new world of image creation. While it cannot be doubted that digital media are different from traditional photographic media in many ways, the scope and depth of these differences may be closer than any of them have admitted. As will be seen shortly, there are profound reasons why digital technology may not be as "new" as many think.

### B. *The Rules of Evidence and Digital Images*

Evidence and procedure codes have been drafted to deal with, among other things, concerns about reliability, prejudice, and manipulation that are pertinent to digital images. Although neither the Federal Rules of Evidence nor the Federal Rules of Civil Procedure directly address digital images, these concerns are dealt with through three procedures that ensure that the highest quality evidence is being presented to the jury in a non-prejudicial fashion.<sup>76</sup> Before digital images or animations may be admitted into evidence, they must be made available during pre-trial discovery, properly authenticated, and submitted to an inquiry concerning their logical and legal relevance.

To avoid the risk of unfair prejudice to the opponent of an item of computer-generated evidence, the proponent should make the other party

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73. See, e.g., Witkowski, *supra* note 8, at 272-73 ("Digital images are easier to manipulate than traditional photographs," and, "[u]nlike traditional cameras . . . digital cameras create an electronic file from which the image can be generated . . . . The lack of an 'original' for comparison with the offered image reduces the opportunity to verify that the image has not been altered or has only been altered in an acceptable manner").

74. See, e.g., Carrington, *supra* note 58, at 1517 ("The institutions of civil litigation are . . . headed for fundamental change caused by the invention of the computer chip"); Lien, *supra* note 71, at 86 (referring to computers as "technological revolutions").

75. See, e.g., Witkowski, *supra* note 8, at 273.

76. For detailed description of the authentication and admission of computer-generated evidence, see JOSEPH, *supra* note 34, but for a helpful summary, see Weinreb, *supra* note 8, at 409-14.

aware of the anticipated use of the item,<sup>77</sup> and the Federal Rules of Civil Procedure require the exchange of all exhibits used to support the opinion of experts.<sup>78</sup> The pretrial exchange of information regarding the use of computer-generated evidence allows the opponent to prepare a complete and proper defense, which may include objections based on fears of reliability<sup>79</sup> or manipulation that can be raised at trial or at least argued to the jury. Knowledge of the technology the adversary plans to use also permits attorneys to call their own expert witnesses to rebut the reliability of either the evidence presented or the theory used to create it.<sup>80</sup>

Assuming the proper steps are taken during discovery, an item of computer-generated or digital evidence must next cross the hurdle of authentication established by Federal Rule of Evidence 901 which requires a showing that the item of evidence is what it claims to be.<sup>81</sup> For digital photographs, this requirement is generally satisfied by a witness testifying that the image is a fair and accurate portrayal of that which it claims to depict.<sup>82</sup> It may also be necessary to offer testimony

77. See MANUAL FOR COMPLEX LITIGATION 3RD § 21.446 (Federal Judicial Center 1995); James E. Carbine & Lynn McLain, *Proposed Model Rules Governing the Admissibility of Computer-Generated Evidence*, 15 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 35-36 (1999). The authors point out:

The Court's pretrial consideration of computer-generated simulations or animations is triggered by a notice and objection procedure . . . Any party intending to offer such computer-generated animations or simulations at trial in a court other than small claims court is required to give written notice to the court and the other parties in the case well in advance of trial . . . Disclosure is not required if the computer-generated material is to be used only for argument.

*Id.*

78. See FED. R. CIV. P. 26(a)(2)(B) ("a party must, without awaiting a discovery request, provide to other parties . . . a copy of, or a description by category and location of, all documents, data compilations, and tangible things that are in the possession, custody, or control of the party and that the disclosing party may use to support its claims or defenses, unless solely for impeachment . . .").

79. See Carbine & McLain, *supra* note 77, at 34 ("The pretrial consideration has as its mandatory focus the reliability of the computer-generated evidence. Borrowing its policy from case law that has developed a qualifying framework for scientific testimony, the model rule seeks to ensure that the machinery producing this powerfully persuasive evidence is itself reliable.").

80. JOSEPH, *supra* note 34, at § 7.01[5]. Joseph writes:

If a party first sees a sophisticated computer-generated exhibit when it is offered at trial, that party labors under a very serious disadvantage in attempting to mount an effective inquiry into, or challenge to, any assumptions (factual or theoretical) on which the exhibit rests, to the manner in which it has been created, and otherwise to the fairness of the evidence. To avoid unfair prejudice, pretrial discovery of computerized evidence, including the underlying computer program, is essential.

*Id.*

81. See FED. R. EVID. 901 ("The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims"); see generally Witkowski, *supra* note 8, at 273-82.

82. See JOSEPH, *supra* note 34, § 8.04[4].



as to the validity of the technical process embodied in the program that creates the image and the trustworthiness and reliability of the program and its operator.<sup>83</sup> Thus, the admissibility of digital photos is a function of both the validity of the underlying scientific concepts incorporated within the computer program and the reliability of the process in applying that program.<sup>84</sup> In general, digital animations of “actual” events will require a foundational showing similar to that required for still images.<sup>85</sup> If the animation is used to demonstrate a novel scientific theory of an expert witness, the proponent must additionally satisfy the standards set forth in *Daubert v. Merrell Dow Pharmaceuticals*<sup>86</sup> or other state provisions. This generally requires the proponent to demonstrate that the evidence is based on scientific knowledge and that it will help the jury understand or determine a fact at issue.<sup>87</sup> The latter requirement limits computer-generated evidence to that which will assist the jury in comprehending and applying potentially complex scientific theories, and it decreases the risk that digital evidence will be presented merely for its spectacular effect. The hurdle of authentication minimizes the possibility that the jury will be prejudiced, because it requires a detailed demonstration of all of the processes used and all of the assumptions made. The opponent may object to any evidence on the grounds that it has not been properly authenticated if she thinks that the proponent has not satisfied this burden.<sup>88</sup>

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83. *Id.*; see also Carbine & McLain, *supra* note 77, at 21 (noting, “The Federal Judicial Center’s Manual for Complex Litigation recommends that the proponent must establish, to the court’s satisfaction under Uniform Rule of Evidence 104(a), the reliability of the computer equipment used and the data processing techniques applied. This foundation would include expert testimony that the processing programs accurately process information in the business record database.” (citations omitted)).

84. JOSEPH, *supra* note 34, at § 7.05[4] (stating, “The reliability of computer generated scientific or technical evidence will be a function of both the validity of the underlying scientific concepts incorporated within the computer program and the reliability of the process in applying that program in such a way as to generate relevant evidence.”).

85. *Id.*

86. 509 U.S. 579 (1993).

87. *Id.* at 592. The Court held that in order to satisfy the Federal Rules of Evidence, the trial judge must determine two things: (1) whether the proposed testimony is based on “scientific knowledge,” and (2) whether it would help the trier of fact understand or determine a fact at issue. See also FED. R. EVID. 702 (“if scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise”).

88. See Carbine & McLain, *supra* note 77, at 38 (listing possible objections under Rule 901 including:

- (a) An attack on the reliability of scientific theories or principles underlying a computer simulation or animation offered as substantive evidence.
- (b) An attack on the accuracy of the result shown in the computer-generated evidence because of:

The final major requirement for admission into evidence is an inquiry into the relevance of the particular item. First, under Federal Rule of Evidence 402, the proponent of a digital image must demonstrate its probative value by proving that the item will tend to increase or decrease the likelihood of a fact at issue.<sup>89</sup> While this is generally an unproblematic task, this step does serve to eliminate any evidence that is completely unrelated to the issues of the case and therefore, distracting to the jury. The more significant relevance requirement is embodied in Rule 403 and is often referred to as legal relevance.<sup>90</sup> Under this rule, the judge may disallow an item of evidence if the opposing party can show that the probative value of the exhibit will be substantially outweighed by the danger of creating unfair prejudice, confusing of the issues, or misleading the jury.<sup>91</sup> Although all of the rules of evidence are aimed at obtaining the most reliable and least prejudicial evidence available, Rule 403 provides a final safeguard for the admission of evidence. While the rule is not directed at visual evidence in particular, its applications in this field are manifold.<sup>92</sup> The judge may keep out any images that are likely to improperly excite or sway the jury. Likewise, digital images that appear to be overly manipulated but still admissible under Rule 402 may be excluded under Rule 403 if they will mislead the jury.<sup>93</sup> This final pre-admissibility rule provides a substantial barrier to any exhibit that threatens a fair trial.

Unless each of the requirements of discovery, authentication, and relevance can be met, the proposed evidence will not even be viewed by the jury. But these requirements are not the last evidentiary safe-

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(i) Improper data input; (ii) Mechanical error or failure; or (iii) Inadequate security).

*Id.*

89. See FED. R. EVID. 402 (“All relevant evidence is admissible, except as otherwise provided by the Constitution of the United States, by Act of Congress, by these rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority. Evidence which is not relevant is not admissible.”).

90. See FED. R. EVID. 403.

91. *Id.* (“Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.”).

92. See Carbine & McLain, *supra* note 77, at 11.

93. One commentator lists potential objections to digital evidence based on a fear of prejudicial effects including: “(1) [computer-animated evidence] can escape clear classification; (2) it confuses the jury and misleads them in their fact-finding role; (3) it creates a handicap to opponents who cannot afford to use the technology; and, (4) it can be readily manipulated in the courtroom, at least for “real time” computer-animated evidence.” See Selbak, *supra* note 8, at 353. He does admit, however, that these objections may not be enough to tip the balance against admission of the evidence.

guards.<sup>94</sup> Even if the jury sees the evidence, the judge still may resort to cautionary or limiting instructions to reduce the risk of prejudice.<sup>95</sup> Thus the judge may call the jury's attention to the purpose for which the exhibit is to be used, the assumptions underlying the exhibit, and differences between the exhibit and the facts at issue.<sup>96</sup> The judge may remind the jury that the scenes depicted in the evidence are not meant to be recreations of actual events, but rather representations of a witness's testimony, and if the judge later determines that the evidence is particularly misleading, she can ask the jury to ignore it when deciding on a verdict.<sup>97</sup>

Modern codes of evidence and procedure establish a number of safeguards for the admission of potentially misleading or prejudicial evidence, and while some of the hurdles are lower than others, they are spaced out through the trial process to allow the judge numerous opportunities to control the admission and use of the evidence. Proponents of digital evidence are required to present expert testimony to explain the application of algorithms used to generate the images, and opponents are given substantial opportunities to object to its inclusion. Contrary to the fears of the critics discussed above, the rules of evidence provide the essential precautions for admitting digital media evidence.<sup>98</sup> Given the

94. JOSEPH, *supra* note 34, § 7.01[5][b]. Joseph points out that:

Concerns about the potential of an animation or simulation to confuse or mislead the jury can frequently be addressed in cautionary or limiting instructions. At the time of admission, the jury should be instructed (and the record in a bench trial should reflect):

1. Purpose. The purpose for which the evidence is being received, such as:
  - a. To visualize or clarify a witness's testimony.
  - b. To illustrate a litigation theory.
  - c. To demonstrate scientific principles.
  - d. To show results of experiments or tests.
  - e. To re-create or reconstruct events at issue.

2. Assumptions. The principal assumptions underlying the exhibit. E.g., that it is predicated on one party's version of the facts; that the facts are in dispute; that the exhibit is no better than the assumptions on which it rests; and that it is for the jury to decide whether those assumptions are warranted.

3. Differences. Any salient differences between the exhibit and facts at issue — for example, that the exhibit does not purport to be drawn to scale or to include all (or certain specific) variables.

*Id.*

95. *Id.*

96. *Id.*

97. *Id.*

98. There might be cause for concern if judges had completely failed to take into account the differences in the processes for image creation and manipulation between photographic and digital media, but this does not seem to be the case. If it were merely assumed that digital photography was simply photography only better, there might be reason for caution in extending the rules of photographic authentication to digital graphics. Thanks to the wave of commentators claiming that digital photography is so different as to be evidentially unacceptable, this does not seem to be

liberal discovery and relevance provisions, judges have ample opportunity to guarantee the quality and reliability of the evidence presented. As the author of the major treatise on visual evidence points out, "The courts have always been able to address . . . questions like these fairly and methodically, without inordinate difficulty."<sup>99</sup> In the next section of the Article, I will offer an explanation for the historical success of the judiciary in accommodating new forms of visual evidence.

### III. WHY THE JUDGES CAN HANDLE IT — ANALOGY AND REMEDIATION IN VISUAL EVIDENCE

In Professor Mnookin's excellent work on the history of photographic evidence, she describes the nineteenth century dispute between the competing paradigms for understanding the role of photography in the courtroom.<sup>100</sup> Although the acceptance of a new form of visual evidence provided a novel question for the jurists of the day, they were quickly able to develop coherent rules for the admission of photographic evidence by analogizing this new medium to more traditional types of evidence that had a long history of admission.<sup>101</sup> Following recent developments in the study of legal analogy,<sup>102</sup> Mnookin suggests that there is nothing surprising about the judicial reliance on analogy in this or any situation, because judges' particular expertise is in reasoning through comparisons.<sup>103</sup> Because the photograph represented a threat to

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a serious threat. Also, if digital evidence were admitted without the opportunities to effectively challenge and cross examine the proponent's witness, the risk of juries mistaking digital images for photographic images could have serious effects on the trial system, but liberal discovery procedures and traditional cross examination provide the necessary precautionary devices to ensure fair adjudication.

99. JOSEPH, *supra* note 34, § 8.04[5].

100. Mnookin, *supra* note 2, at 4.

101. *Id.*

102. See Scott Brewer, *Exemplary Reasoning: Semantics, Pragmatics, and the Rational Force of Legal Argument by Analogy*, 109 HARV. L. REV. 925 (1996); Cass Sunstein, *On Analogical Reasoning*, 106 HARV. L. REV. 741 (1993). Sunstein states, "Reasoning by analogy is the most familiar form of legal reasoning. It dominates the first year of law school; it is a characteristic part of brief-writing and opinion-writing as well." *Id.* at 741. He later describes analogical reasoning:

The process appears to work in four simple steps: (1) Some fact pattern A has a certain characteristic X, or characteristics X, Y, and Z; (2) Fact pattern B differs from A in some respects but shares characteristics X, or characteristics X, Y, and Z; (3) The law treats A in a certain way; (4) Because B shares certain characteristics with A, the law should treat B the same way.

*Id.* at 745.

103. Mnookin, *supra* note 2, at 45. She offers:

There is nothing inherently surprising about a judicial turn to analogy as a tool for making sense of a novel form of evidence. Analogic reasoning is a legal mainstay, or as Cass Sunstein put it, legal culture's "most characteristic way of proceeding." Judges' particular expertise is in reasoning through comparison; this process is at

the traditional notion of a trial and the role of the judge,<sup>104</sup> judges invoked analogies to older, less threatening media as a form of “domestication” to make the new technology comprehensible in terms of existing evidentiary forms.<sup>105</sup> By declaring photographs to be nothing more than a “description in another mode of signs,”<sup>106</sup> judges were able to analogize them to other types of evidence such as paintings and verbal testimony; each type of evidence was understood to be nothing more than a description of the witness’s testimony through one medium or another.<sup>107</sup> The analogy to painting was particularly fitting in light of the similar representation schemes and the potential for human artifice in their creation. In 1874, one judge reasoned:

That a portrait or a miniature, painted from life and proved to resemble the person, may be used to identify him cannot be doubted, though, like all other evidences of identity, it is open to disproof or doubt. . . . There seems to be no reason why a photograph, proved to be taken from life and to resemble the person photographed, should not fill the same measure of evidence.<sup>108</sup>

The photograph appeared to represent reality through an entirely new form of image creation. Yet the focus on particular aspects of the technology such as human interaction in the creation<sup>109</sup> diffused the threat to tradition, and photography was understood as part of an historical tradition of acceptable evidentiary techniques. The acceptance of photographic evidence was accomplished smoothly and quickly, because the judicial analogy established a pedigree for the new medium that allowed it to be authenticated and employed in the same fashion as paintings or

the very heart of the common law. When confronting a novel form of evidence, then, why not compare the new to the known?

*Id.*

104. Mnookin writes, “Judges may have felt that photographs risked being overly authoritative, too certain. Once heaven has convicted someone, what need is there for an earthly trial? Would not perfect evidence make a trial unnecessary?” *Id.* at 57.

105. *Id.* at 6, 54. According to Mnookin:

Understanding the photograph as a new path to truth in the courtroom was threatening; viewing it as another example of a known category tamed the medium. By declaring the photograph to be like a painting or a verbal description, merely a “description in another mode of signs,” not fundamentally different from any other description, oral or written, judges gave to the photograph both kin and ancestry. It acquired legitimacy.

*Id.*

106. *Id.* (citing *Cowley v. People*, 83 N.Y. 464, 478 (1881)).

107. See Mnookin, *supra* note 2, at 25-26.

108. *Udderzook v. Commonwealth*, 76 Pa. 340, 352 (1874), cited in Mnookin, *supra* note 2, at 23-24.

109. See Mnookin, *supra* note 2, at 23 (“Emphasizing the significance of human agency and skill simultaneously highlighted the fact that the photograph was not a replication but a representation, a constructed — and hence fallible — image”).

maps.<sup>110</sup>

While, as Professor Mnookin suggests, it should not be surprising that judges turned to analogical reasoning to make sense of a novel form of evidence, it also should not be surprising that painting and photography were so easy to analogize to one another. That painting and photography, though vastly different, can be understood as flowing from the same pedigree is the result of significant and intentional social, economic, and aesthetic decisions that affect all media. Media scholars Jay Bolter and Richard Grusin refer to the process at work here as “remediation.”<sup>111</sup> This concept, which is defined as the representation of one medium in another,<sup>112</sup> provides a valuable analytic tool for understanding the relationships between new and old media. The representation at work in remediation practices is the result of our culture’s desire to both multiply its media and to erase all traces of mediation.<sup>113</sup> That is, contemporary culture seeks an expanding variety of mediating or imaging practices that enable it to represent the world in new ways, but it simultaneously does not want to be aware of acts of mediation that take place when the world is refashioned and represented visually.<sup>114</sup> It wants new ways of “seeing” without recognizing that new technologies are responsible.

Remediation works as new media develop through the refashioning of representational codes and systems that are available from older media.<sup>115</sup> At the same time, older media seek to reaffirm their status

110. See Mnookin, *supra* note 2, at 5 (suggesting, “By linking photographs analogically to maps, models, and drawings, this new doctrine invented a pedigree for the new technology. Through the use of analogy, judges gave the photograph a history”).

111. JAY BOLTER & RICHARD GRUSIN, *REMIEDIATION: UNDERSTANDING NEW MEDIA* (2000).

112. *Id.* at 45. Regarding their choice of diction Bolter and Grusin remark, “The word derives ultimately from the Latin *remederi* — ‘to heal, to restore to health.’ We have adopted the word to express the way in which one medium is seen by our culture as reforming or improving upon another.” *Id.* at 59. The authors suggest, “What might seem at first to be an esoteric practice is so widespread that we can identify a spectrum of different ways in which digital media remediate their predecessors, a spectrum depending on the degree of perceived competition or rivalry between the new media and the old.” *Id.* at 45.

113. *Id.* at 5 (noting, “Ideally, it wants to erase its media in the very act of multiplying them.”).

114. *Id.* Bolter and Grusin write:

In this last decade of the twentieth century, we are in an unusual position to appreciate remediation, because of the rapid development of new digital media and the nearly as rapid response by traditional media. Older electronic and print media are seeking to reaffirm their status within our culture as digital media challenge that status.

*Id.*

115. *Id.* at 9 (“The desire for immediacy leads digital media to borrow avidly from each other as well as from their analog predecessors such as film, television, and photography. Whenever one medium seems to have convinced viewers of its immediacy, other media try to appropriate that conviction.”).

now-challenged status by borrowing the practices of new media.<sup>116</sup> In attempting to remake themselves and each other, both new and old media throughout Western cultural history<sup>117</sup> invoke what Bolter and Grusin call the “twin logics of immediacy and hypermediacy.”<sup>118</sup> Regarding the former, Bolter and Grusin claim that all media strive to create a sense of immediacy, a feeling of “being there” or “presence” in the viewer, where the awareness of mediating technologies is diminished.<sup>119</sup> The viewer is capable of thinking of the image as a direct transcription of a reality that is directly accessible through the visual medium.<sup>120</sup> Transparent immediacy is an attempt to image and represent reality by bravely denying the fact of mediation.<sup>121</sup> The second of the “twin logics,” hypermediacy, undermines the sense of unmediated visual space by calling the viewer’s attention to the act of representation at work.<sup>122</sup> Hypermediacy is felt as a tension between looking *at* an image and looking *through* an image.<sup>123</sup> In contrast to the homogeneous, ordered space of the practice of transparent immediacy, the visual space of hypermediacy is fragmented, indeterminate, and heterogeneous.<sup>124</sup> Bolter and Grusin suggest that these “twin logics” are

116. *Id.*

117. For Bolter and Grusin:

Remediation did not begin with the introduction of digital media. We can identify the same process throughout the last several hundred years of Western visual representation. A painting by the seventeenth-century artist Pieter Saenredam, a photograph by Edward Weston, and a computer system for virtual reality are different in many important ways, but they are all attempts to achieve immediacy by ignoring or denying the presence of the medium and the act of mediation.

*Id.* at 11.

118. *Id.* at 5.

119. *Id.* at 22. Designers of transparent technologies seek an “interfaceless interface, in which there will be no recognizable electronic tools.” *Id.* at 23.

120. *Id.* at 30 (“The common feature of all of these forms of belief [about the relationship between the image and reality] is the belief in some necessary contact point between the medium and what it represents.”).

121. *Id.* at 53. John Tagg refers to a similar form of signification which he calls “realism.” While the term “realism” is a problematic one in this discussion, Tagg does present a fine description of the logic of immediacy in terms of structural linguistics:

Realism offers a fixity in which the signifier is treated as if it were identical with a pre-existing signified and in which the reader’s role is purely that of a consumer . . . . In realism, the process of production of a signified through the action of a signifying chain is not seen. It is the product that is stressed, and the production that is repressed.

JOHN TAGG, *THE BURDEN OF REPRESENTATION: ESSAYS ON PHOTOGRAPHIES AND HISTORIES* 99 (1999).

122. BOLTER & GRUSIN, *supra* note 111, at 41.

123. *Id.*

124. *Id.* at 31. Contrasting the twin logics, Bolter and Grusin write:

If the logic of immediacy leads one to either erase or to render automatic the act of representation, the logic of hypermediacy acknowledges multiple acts of

present in all current forms of visual media, though, of course, some media are valued for the sense of immediacy they offer, while others are preferred for their hypermediacy.<sup>125</sup>

In terms of potential value as legal visual evidence, it is apparent that the preferred media will be those that provide the strongest sense of transparent immediacy, since the proponent's goal in introducing the visual images is to help the jury see the events as the witness saw them. Proponents of visual evidence need to convince the jury of the immediacy of the image to give them a sense of "being there," and thereby, give the jury an opportunity to understand the situation from the point of view of the witness. Thus, the development of technologies of visual evidence is understandable as a creation and refinement of media that can produce images that the jury will find believable because they are devoid of traces of human mediation or manipulation.

When new visual technologies are developed, the public often reacts negatively, because new modes of representation threaten their existing notions of image creation and perception. New media, it seems, are inherently hypermediated because the representational practices of these media are not comfortable for audiences. They have yet to achieve the "natural" feeling associated with old media, and the viewers are consciously aware of the medium as spectacle rather than as a transparent window onto reality.<sup>126</sup> In order for new media to connect with viewers in a sense that is not distracting from the unconscious act of seeing – that is, to represent reality via the logic of transparent immediacy – they rely on the codes of symbolic representation that are available in older media forms.<sup>127</sup>

According to Bolter and Grusin, "The desire for immediacy leads

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representation and makes them visible. Where immediacy suggests a unified visual space, contemporary hypermediacy offers a heterogeneous space, in which representation is conceived of not as a window on to the world, but rather as "windowed" itself — with windows that open on to other representations or other media.

*Id.* at 33-34.

125. Consider the difference between photography, which is supposed to be a direct depiction of reality, and the World Wide Web, which creates a collage of visual material that can be shocking for its hypermediacy. According to the authors, "our two seemingly contradictory logics not only coexist in digital media today but are mutually dependent. Immediacy depends on hypermediacy." *Id.* at 6.

126. Film theorist Tom Gunning suggests that this was the reason for the violent audience reactions to early cinema. The new media form "solicits a highly conscious awareness of the film image engaging the viewer's curiosity. The spectator does not get lost in a fictional world and its drama, but remains aware of the act of looking, the excitement of curiosity and its fulfillment." Tom Gunning, *An Aesthetic of Astonishment: Early Film and the (In)credulous Spectator*, 34 *ART & TEXT* 31, 36 (1989).

127. BOLTER & GRUSIN, *supra* note 111, at 9.



digital media to borrow avidly from each other as well as from their analog predecessors such as film, television, and photography. Whenever one medium seems to have convinced viewers of its immediacy, other media try to appropriate that conviction."<sup>128</sup> This then, is the true essence of remediation. Once viewers become comfortable enough with a medium to be able to think of that medium as a direct representation of reality, other media, old and new, exploit the representational practices of the medium to gain the same sense of immediacy.

Bolter and Grusin's theory enables a full understanding of the success of legal analogy in the admission of new media as visual evidence. As the above discussion demonstrates, media do not develop in a cultural vacuum, but rather, are the result of social, economic, and aesthetic forces that regulate the characteristics of their technical features and signifying practices.<sup>129</sup> That photography could be analogized to painting is not the result of clever judicial deduction, but rather an effort by proponents of photography to exploit the sense of naturalness that accompanies viewing a realistic painting.<sup>130</sup> Consequently, it should not be surprising when digital media likewise attempt to follow the trends established by photographic media by relying on similar representational codes despite the technological differences in image creation.

In order to overcome the inherent hypermediation associated with all new technologies of representation, new digital media conform to the representational processes established by their antecedents. Only by achieving that same trust in the veridical relationship between the image and reality can new media be accepted as convincing visual evidence. The task of proponents of new forms of visual evidence is to mask the alternative logic of hypermediation accompanying the new technology while simultaneously positioning the medium within the historical tradition of transparent representation.<sup>131</sup> This accomplishment sets the stage

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128. *Id.* Tagg again offers a structuralist approach to the logic at work here: "Realism works by the controlled and limited recall of a reservoir of similar 'texts' by a constant repetition, a constant cross-echoing. By such silent quotation a relation is established between the existing realist text and other texts from which it differs and to which it defers." TAGG, *supra* note 121, at 99.

129. See JAY, *supra* note 1, at 49. Regarding the success of what he call "ocularcentrism," Jay writes, "The arrival of that dominant regime was prepared by a constellation of social, political, aesthetic, and technical innovations in the early modern era, which combined to produce what has in retrospect been called 'the rationalization of sight.'" *Id.*

130. In the same way, early proponents of cinematic images would not have highlighted film's unique properties of motion and sound, but instead focused on the fact that filmic images are captured and presented in much the same method as photographic images, which had become commonplace by the early twentieth century.

131. Jean Louis Comolli recognizes this effort in the development of depth and perspective in the cinematic apparatus: Set up to put its money on, and putting its money wholeheartedly on, the identification — the desire to identify, to duplicate, to recognize specularly — of the cinematic

for the public and judicial application of analogies that allow for the acceptance of the new technology as merely a derivation or evolution of already accepted methods of representation.

Although today it is easy enough for new media to achieve a sense of transparent immediacy by borrowing customary signifying codes, earlier media had to develop these codes on their own. According to Bolter and Grusin, early media such as painting and drawing sought immediacy through the techniques of linear perspective, erasure of the human designer or artist and automaticity of the creation process.<sup>132</sup> Although these three techniques are highly interrelated, and each are noticeable in the various media discussed, this Article will only address the historical role of linear perspective in achieving convincingly transparent images.

#### IV. THE DEVELOPMENT OF AND RELIANCE ON LINEAR PERSPECTIVE

Since the Renaissance, linear perspective<sup>133</sup> has provided the principal method by which objects from the three-dimensional world of reality are represented in the two-dimensional plane of images. Credit for the discovery or rediscovery of linear perspective<sup>134</sup> is generally given to the Italian artist Filippo Brunelleschi, but it was Leon Battista Alberti who first developed and published a set of written rules for the creation of images using the new technique in his 1435 treatise *On Painting (De*

image with 'life itself,' the ideological apparatus cinema could not, in default of realizing in practice the technical patent for relief, neglect the productions of effects of relief, of effects of depth . . . There is nothing accidental, therefore, or specifically technical in the cinematic image immediately claiming depth, since it is just this depth which governs and informs it.

Jean Louis Comolli, *Machines of the Visible*, in *ELECTRONIC CULTURE: TECHNOLOGY AND VISUAL REPRESENTATION* 114-115 (Timothy Druckery ed., 1996).

132. BOLTER & GRUSIN, *supra* note 111, at 24 ("To understand immediacy in computer graphics, it is important to keep in mind the ways in which painting, photography, film, and television have sought to satisfy [the desire for immediacy]. These earlier media sought immediacy through the interplay of the aesthetic value of transparency with techniques of linear perspective, erasure, and automaticity, all of which are strategies also at work in digital technology.").

133. According to the sixteenth century draftsman and theoretician Albrecht Dürer, "*Perspectiva* is a Latin word which means 'seeing through.'" ERWIN PANOFSKY, *PERSPECTIVE AS SYMBOLIC FORM* 27 (Christopher S. Wood, trans., 1991). Panofsky notes:

This is how Dürer sought to explain the concept of perspective. And although this *lateinisch Wort* was used already by Boethius, and did not originally bear so precise a meaning, we shall nevertheless adopt in essence Dürer's definition. We shall speak of a fully 'perspectival' view of space not when mere isolated objects, such as houses or furniture, are represented in 'foreshortening,' but rather only when the entire picture has been transformed — to cite another Renaissance theoretician — into a 'window,' and when we are meant to believe we are looking through this window into a space.

*Id.* Alberti was the above-mentioned Renaissance theoretician who invented the window metaphor. See JAY, *supra* note 1, at 54.

134. Linear perspective is also referred to as Projective Modeling.

*Pictura*).<sup>135</sup> Although our culture is familiar with the precepts of the theory, these artists had to work out the details of the system through the use of mathematics and drafting devices such as the *camera obscura*<sup>136</sup> to develop the customary rules regarding foreshortening, the depiction of horizontal, vertical, and parallel lines, and of the placement of objects in relations of depth and occlusion.<sup>137</sup>

Renaissance artists also created elaborate tools and techniques, often similar to the instruments used by contemporary surveyors, for the proper construction of perspectival images.<sup>138</sup> While to modern citizens, perspective seems the "natural" way to create and view images,<sup>139</sup> to the

135. See JAY, *supra* note 1, at 52. The basic rules of perspective as articulated by Dürer in his 1525 *Treatise on measurement with compasses and straightedge* include:

First, all perpendiculars . . . meet at the so-called vanishing point, which is determined by the perpendicular drawn from the eye to the picture plane. Second, all parallels, in whatever direction they lie, have a common vanishing point . . . Finally, equal dimensions diminish progressively as they recede in space, so that any portion of the picture — assuming that the location of the eye is known — is calculable from the preceding or following portion.

See PANOFSKY, *supra* note 133, at 28. For a detailed discussion of the history of linear perspective, see J.V. FIELD, *THE INVENTION OF INFINITY: MATHEMATICS AND ART IN THE RENAISSANCE*, 20-42 (1997).

136. For an introduction to the *camera obscura*, see Jonathan Crary, *Modernizing Vision, in VISION AND VISUALITY*, 29-50 (Hal Foster ed., 1988), *reprinted in VIEWING POSITIONS: WAYS OF SEEING FILM* (Linda Williams ed., 1997). Crary notes:

For at least two thousand years it has been known that, when light passes through a small hole into a dark, enclosed interior, an inverted image will appear on the wall opposite the hole. Thinkers as remote from each other as Euclid, Aristotle, Roger Bacon, and Leonardo noted this phenomenon and speculated in various ways how it might or might not be analogous to the functioning of human vision.

*Id.* at 30.

137. According to Lev Manovich:

From the moment of adaptation of perspective, artists and draftsmen have attempted to aid the laborious manual process of creating perspectival images. Between the sixteenth and the nineteenth centuries various "perspectival machines" were constructed. They were used to construct particularly challenging perspectival images, to illustrate the principles of perspective, to help students learn how to draw in perspective, to impress artists' clients, or to serve as intellectual toys. Already in the first decades of the sixteenth century, Dürer described a number of such machines. One such device is a net in form of a rectangular grid, stretched between the artist and the subject. Another uses a string representing a line of sight. The string is fixed on one end, while the other end is moved successively to key points on the subject. The point where the string crosses the projection plane, defined by a wooden frame, is recorded by two crossed strings.

Lev Manovich, *The Automation of Sight: From Photography to Computer Vision, in ELECTRONIC CULTURE*, 230 (Timothy Druckery ed., 1996).

138. FIELD, *supra* note 135, at 119-22.

139. According to J.V. Field, "To the twentieth-century eye, correct perspective seems an obvious contribution to making a picture more naturalistic. However, the invention of mathematical rules for this purpose does not seem to have a direct link with the increased naturalism which is a feature of the painting of the fourteenth century." *Id.* at 20.

theorists of linear perspective, the rules symbolized a harmony between the mathematical regularities of optics and God's will — they became a way for ordering and understanding the world as God did.<sup>140</sup>

By the seventeenth century, the traces of religion had vanished from the theory<sup>141</sup> and Rene Descartes had established the modern visual paradigm centered on linear perspective as the principal method for scientific discovery.<sup>142</sup> Often called Cartesian Perspectivalism, this new theory posited the division of mind/knowledge from the body and the material world, with the world as a knowable realm open to empirical scrutiny and discovery.<sup>143</sup> According to Descartes, humans are not prone to be deceived about distance, location, shape, or size because of a correspondence between our unconscious and innate geometrical sense and the geometrical reality of the world of matter.<sup>144</sup> Descartes thus forged a link between the human capability for rational thought and the ordered knowability of the external world that succeeded in naturalizing the codes of linear perspective in Western society.

Although scholars have pointed to notable breaks in the historical chain of perspectivalism, particularly in terms of the modern art of the late nineteenth and early twentieth centuries,<sup>145</sup> linear perspective must be considered the dominant mode of visual perception since the Renaissance.<sup>146</sup> And although perspectival vision has become the “natural” way for people to envision and depict the world, one must remember that the rules of the system rest on a number of assumptions about drafting and vision, and that these rules were developed with the explicit

140. See Jay, *supra* note 42, at 5-6 (“Growing out of the late medieval fascination with the metaphysical implications of light — light as divine *lux* rather than as perceived *lumen* — linear perspective came to symbolize a harmony between the mathematical regularities in optics and God's will.”).

141. Although as Jean-Louis Baudry notes, there continues to be a connection between perspective and idealism apparent even in contemporary cinema. He claims, “The principle of transcendence which conditions and is conditioned by the perspective construction represented in painting and in the photographic image which copies from it seems to inspire all the idealist paeans to which cinema has given rise.” Jean-Louis Baudry, *Ideological Effects of the Basic Cinematic Apparatus*, 28 *FILM Q.* 39, 42 (1974), reprinted in *APPARATUS: CINEMATIC APPARATUS: SELECTED WRITINGS* (Theresa Hak Kyung Cha ed., 1981).

142. See JAY, *supra* note 1, at 70. Jay suggests that “Descartes was a quintessentially visual philosopher, who tacitly adopted the position of perspectivalist painter using a camera obscura to reproduce the observed world. ‘Cartesian perspectivalism,’ in fact, may nicely serve as a shorthand way to characterize the dominant scopic regime of the modern era.” *Id.* at 69-70.

143. *Id.* at 69.

144. *Id.* at 78. Summarizing Descartes, Jay writes, “We are thus not prone to be deceived about distance, location, shape, and size, because of a correspondence between our unconscious and innate geometrical sense and the geometrical reality of the world of extended matter.” *Id.*

145. See generally Jay, *supra* note 42.

146. See *id.* at 4, (noting that it has even been referred to as “totally hegemonic”); JAY, *supra* note 1, at 57, 62.

purpose of creating a medium offering pure transparent immediacy.<sup>147</sup>

Considering its popular establishment as the primary visual signifying practice, it should not be surprising to see the codes of linear perspective adopted by visualization technologies that have appeared over the past centuries. Although originally developed for use with drafting and painting, perspective has spread to most of the other popular media.<sup>148</sup> Perspective is particularly important for those media that seek to make a claim about the veridical nature of the relationship between image and reality. Other media, hoping to borrow the conviction of truthfulness that perspective made possible for painting, have developed such that the codes of perspectival representation are easily translatable to the images produced from the new media. Following techniques originally created for use with the *camera obscura*, the photographic camera was able to take advantage of the system perhaps more than any medium before or since.<sup>149</sup> Like the painter standing in front of his canvas at a fixed point of view, the aperture of the camera corresponds to a single mathematically definable point in space from which reality could be logically represented.<sup>150</sup>

To capture light on a photographic medium capable of fixing an image, the camera relies on the same optical principles invoked by perspective drafting to depict lines and shapes.<sup>151</sup> With this in mind, photography can be considered the culmination of the evolution of mechanical drafting techniques for the creation of perspectival

147. Some scholars go so far as to claim that the status of linear perspective as a social construction removes any claim it can make to accurate representation of the world, and hence, that there is no true depiction of reality. See GOMBRICH, *supra* note 21; GOODMAN, *supra* note 21.

148. Regarding cinema, see, e.g., Baudry, *supra* note 143, at 41 ("Fabricated on the model of the *camera obscura*, [the camera] permits the construction of an image analogous to the perspective projections developed during the Italian Renaissance. Of course the use of lenses of different focal lengths can alter the perspective of an image. But this much, at least, is clear in the history of cinema: it is the perspective construction of the Renaissance which originally served as the model.").

149. See *id.*; Crary, *supra* note 136, at 29 (writing, "the emergence of photography and cinema in the nineteenth century is a fulfillment of a long unfolding of technological and/or ideological development in the West in which the camera obscura evolves into the photographic camera. Implied is that at each step in this evolution the same essential presuppositions about an observer's relation to the world are in place").

150. See Crary, *supra* note 136, at 32. Discussing Descartes's theory that an observer can know the world "uniquely by perception of the mind," Crary writes:

The aperture of the camera corresponds to a single mathematically definable point from which the world could be logically deduced and re-presented. Founded on laws of nature — that is, geometrical optics — the camera provided an infallible vantage point on the world. Sensory evidence that depended in any way on the body was rejected in favor of the representations of this mechanical and monocular apparatus, whose authenticity was placed beyond doubt.

*Id.*

151. See Manovich, *supra* note 137, at 231.

images.<sup>152</sup> No longer must artists carefully map out and measure the relationships between objects in a scene; now the time-consuming process of creating these images is eliminated and the process for generating perspectival images of reality is effectively automated.<sup>153</sup> Although decisions still have to be made in terms of framing and shutter speed, the image capturing process is reduced to the click of a button. Photography simultaneously manifests the remediation of point-of-view perspective common in drafting, while guaranteeing the veracity of the process by reducing the possibility of human error or manipulation.

The close connection between perspective drafting and legal photography is evident in the explicit codes of representation for each medium. In an attempt to standardize the creation of images, both the practitioners of perspective drafting and legal photography have developed conventions for the effective representation of reality. Much as Alberti and Dürer articulated rules for the proper conception and representation of three-dimensional space on the picture plane,<sup>154</sup> legal photographers have spelled out guidelines for taking convincing legal photographs.<sup>155</sup> Where Alberti would have called for mathematical relationships between parallel lines, one specialist in legal photography warns against that application of affected photographic techniques, such as unusual camera angles or printing variations.<sup>156</sup>

Like the quattrocento artist who might have felt that the strict rules of perspective limited his ability to present his subject matter cre-

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152. *Id.* ("With photography, [the] time-consuming process [of creating perspectival images] was finally eliminated. The process of *imaging physical reality*, the creation of perspectival representations of real objects, was not automated.") (emphasis in original).

153. *See id.*; BOLTER & GRUSIN, *supra* note 111, at 26 (noting, "The photograph was transparent and followed the rules of linear perspective; it achieved transparency through automatic reproduction; and it apparently removed the artist as an agent who stood between the viewer and the reality of the image.").

154. *See* PANOFSKY, *supra* note 133, and accompanying text.

155. *See* TAGG, *supra* note 121, at 95-98.

156. *Id.* Tagg quotes the recommendations of a former Detective Chief Inspector of Birmingham City Police:

A good record should of course be properly exposed, processed and printed. It must be correctly focused and sharp throughout, and all vertical lines of the picture must be upright and should not converge in the print . . . Photographs made for the purpose of crime detection or for production in any court should not be retouched, treated or marked in any way. Exaggerated lighting effects must not be used, and deep shadows or burnt-out highlights could reduce the value, as evidence, of an otherwise good record picture. Photographs should, where possible, be taken from eye level and this applies to traffic-accident photographs where the views of the drivers concerned may be an important factor. Prints are usually preferred on the "soft" side, because detail is more important than print brightness.

*Id.* at 95-96. Pay particular attention to the requirements regarding converging lines and eye-level images, which closely follow the rules for perspectival drafting.

atively,<sup>157</sup> the legal photographer must be careful to avoid techniques that might create suspicion in the viewer that the images are less than truthful.<sup>158</sup> In these cases, the remediation of codes of signification becomes explicit, as each artist strives to maintain the conviction that the images she created are accurate and trustworthy. The guidelines in each example were drafted to ensure that the pictures created were able to take full advantage of the public trust by following customary rules about the meaning of images.

To the extent that traditional film-based cinema is similar to photography in terms of the stationary lens and the filmic medium, it follows the same conventions of photographic perspective for the manufacture of moving images.<sup>159</sup> Digital photography and cinema, however, create new concerns about the veridical value that can be placed in these types of images because they do not rely on the same techniques of image fixation and production.

As mentioned above, digital photography uses light sensitive hardware to create electrical signals that are processed by an algorithm capable of generating a picture.<sup>160</sup> As a result, viewers who are aware that the image in front of them was taken by a digital camera may question the trust they normally afford to photographic images. To overcome this difficulty, the architects of digital photography remediated the symbolic codes of its photographic predecessor to link the new images with those that have been customarily accepted as natural.<sup>161</sup> Unable to rely on the causal and direct connection between light and medium, digital photography was forced to adopt accepted techniques of signification, including linear perspective.<sup>162</sup> Perspective became vital both to digital

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157. For example, the need for veracity that might prompt a Renaissance painter to depict all of the items in the picture plane in proper proportion would be lacking for a medieval artist who could increase or decrease the relative size of people or things to emphasize certain elements of the picture.

158. Another specialist in court photography advises, "Any such attempt to dramatize photographs may result in their exclusion and a consequent suspicion on the part of the jurors that the party offering such photographs cannot be trusted." *Id.* at 97.

159. See Baudry, *supra* note 141, at 41.

160. See MITCHELL, *supra* note 36, at 6; Azcarate, *supra* note 31, at 26-27.

161. See ANDREW DARLEY, VISUAL DIGITAL CULTURE: SURFACE PLAY AND SPECTACLE IN NEW MEDIA GENRES 86-87 (2000) (stating, "Although digital animation does not involve direct copying, nevertheless, it also entails a transposition of aesthetic codes into the simulation itself, no matter that this transposition is less direct, given the more abstract nature of the models and the origination in the simulation in this instance"); BOLTER & GRUSIN, *supra* note 111, at 26 (suggesting, "Digital graphics extends the tradition of the Albertian window. It creates images in perspective, but it applies to perspective the rigor of contemporary linear algebra and projective geometry").

162. BOLTER & GRUSIN, *supra* note 111, at 120 (noting, "Although no viewer could believe that the photograph is the same thing as the world it depicts, he can be encouraged to look through the medium, on the grounds that the medium holds a record of the light rays that would have

photographers seeking to convey the same sense of transparent immediacy that traditional photography offers and, consequently, to its acceptance as visual evidence.<sup>163</sup> If photography can be seen in terms of historical progression of attempts to mechanize the creation of perspectival images since the Renaissance, digital photography and computing completed this process with the achievement of algorithms for creating linear perspective automatically.<sup>164</sup>

The use of perspectival images extends beyond digital photography to encompass the entire array of computer imaging devices, including computer image processing, computer vision, computer graphics, and computer-aided design.<sup>165</sup> While it may be argued that the photographic image, being dependent on light and the laws of optics, would necessarily create images based on linear perspective, the same argument cannot be made for computer-created images and animations that do not require light or optics for the creation of pictures. Rather, the use of perspective in digital image creation was based on conscious decisions of the originators of the technology to fit it within the historical trend of photography and painting.<sup>166</sup>

The engineers and designers of the first digital graphics programs did not need to develop algorithms that took into account the effects of optics, but they did so in the hope that digital images would be as readily accepted as their photographic counterparts.<sup>167</sup> Remediation in such circumstances is readily apparent and it can be seen as the intentional act of inventors of technologies of image gathering to link their work with the historical tradition that held sway in society.<sup>168</sup>

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reached his eye had he been placed where the camera was. Neither painting nor computer graphics can appeal to the 'natural' agency of light itself").

163. *Id.*

164. *See* Manovich, *supra* note 137, at 231. Manovich writes:

By automating perspectival imaging, digital computers completed the process which began in the Renaissance. This automation became possible because perspectival drawing has always been a step-by-step procedure, an algorithm involving a series of steps required to project coordinates of points in 3-D space onto a plane.

*Id.*

165. *Id.* at 229.

166. *Id.* at 230. Manovich notes:

There are two reasons why digital technologies first attempted to automate vision via perspective: by the time digital computers became available, modern society was already heavily invested in lens-based methods of image gathering which all produced perspectival images and the automation of perspectival sight had already begun well before this century with the development of perspective machines, descriptive and perspective geometry, and of course, photography.

*Id.*

167. *Id.*

168. *See* DARLEY, *supra* note 161, at 37-38 (noting, "New digital forms signal a return to and a continuation of preoccupations, practices, forms, and experiences that were part of an earlier



This insight is perhaps best illustrated by the most abstract digital medium — Virtual Reality. According to a pair of scholars:

The representation of 'reality' in virtual reality is actually a highly specific view of the world, a view which unthinkingly assumes a Western tradition and ideology. [Virtual reality] rests on an unstated foundation of conventions such as Cartesian space, objective realism, and linear perspective. . . . It positions the Self behind a 'camera' looking at a window on the world, separate and distinct from his/her environment.<sup>169</sup>

Even in a medium as seemingly novel and abstract as virtual reality, the representational signs are borrowed and modified to create the same experience of immediate presence in the viewer.

By this point, it should not be surprising that a technology as connected to a sense of "presence" as virtual reality would certainly want to borrow the techniques that have been creating this sense in other media for centuries. Additionally, it is interesting to note the authors' connection of ideology to a particular conception of imagined reality in the above quote. Since the representational codes of perspective are socially constructed and intentionally maintained, Visual Culture theorists have attempted to analyze the ways in which a system of visualization can be exploited by a particular ideology. The next section will present some of these critiques and examine their relationship to the use of visual evidence in the courtroom.

## V. THE IDEOLOGY OF LINEAR PERSPECTIVE

While it may seem odd to discuss the implications of such a broad range of technologies, the above discussion explained how each of these media can be understood in a historical progression towards the complete automation of perspectival visual imaging. Thus, to the extent that they each rely on linear perspective as the primary system of signification, an analysis of the consequences of this technique is applicable to all of the media that employ it. Many of the examples cited below were developed by scholars working within a single medium, but as each refers to the effects of perspectival visualization, the critiques can be applied to all of the media discussed above.

Before examining criticisms of the ideology of linear perspective, we should start with an understanding of the term in this context.<sup>170</sup>

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phase of popular entertainment. . . . Although they do exhibit extremely distinctive properties, there is nevertheless, a very real sense in which they are part of a distinct lineage.").

169. Sally Pryor & Jill Scott, *Virtual Reality: Beyond Cartesian Space*, in *FUTURE VISIONS: NEW TECHNOLOGIES OF THE SCREEN* 168 (Philip Hayward & Tana Wollen eds., 1993).

170. For a general introduction to ideology and the law, see Alan Hunt, *The Ideology of the*

According to Marx, ideology is “the system of the ideas and representations which dominate the mind of a man or social group.”<sup>171</sup> Althusser extends this notion to the understanding of ideology as the representation of the imaginary relationship of individuals to their real conditions of existence.<sup>172</sup> Visual Culture theorists have applied these definitions to their subject matter in an attempt to understand the way representational systems represent the relationship between individuals and reality.

According to one scholar, “Ideology is a system of coding reality and not a determined set of coded messages. . . . From this point of view, an ideology may be defined as a system of semantic rules to generate messages.”<sup>173</sup> Ideology, then, is not a doctrine communicated from subject to subject or from a state mouthpiece; instead, it is better thought of as a linguistic system for generating meaningful messages about the relations of things in the external world. The first theorists of linear perspective were doing more than formulating rules for the proper depiction of objects in relation to one another; they were expressing a system that imbued the relations between the depicted objects with an external meaning. Furthermore, they were establishing the relationships between the members of the triangle of meaning: the creator, the represented object, and the viewer of the representation.<sup>174</sup>

While it may seem cynical, farfetched, or both to ascribe to artists and theorists like Alberti and Descartes the intention or ability to create an ideological mode of signification, it must be remembered that the inventors, no less than the users, of a language may be unaware of the basic elements for creating meaning and, more importantly, of the implications that arise from those elements.<sup>175</sup> As Stuart Hall remarks, “Statements may be unconsciously drawing on the ideological frameworks and classifying schemes of a society and reproducing them

*Law: Advances and Problems In Recent Applications of the Concept of Ideology to the Analysis Of Law*, 19 LAW & SOC'Y REV. 11 (1985).

171. Louis Althusser, *Ideology and Ideological State Apparatus*, in LENIN AND PHILOSOPHY AND OTHER ESSAYS 107 (Ben Brewster trans., 2001).

172. *Id.* at 109. Althusser explains, “it is not their real conditions of existence, their real world, that ‘men’ ‘represent to themselves’ in ideology, but above all it is their relation to those conditions of existence which is represented to them there.” *Id.* at 111.

173. Stuart Hall, *The Rediscovery of Ideology: Return of the Repressed in Media Studies*, in CULTURE, SOCIETY, AND MEDIA 71 (Michael Gurevitch et al eds., 1982).

174. Jane M. Gaines suggests that, “The machines that produce the signs as well as the signs themselves are both in and of ideology.” She further quotes Jean-Luc Comolli and Jean Narboni’s statement about these machines: “Clearly the cinema ‘reproduces’ reality: this is what a camera and film stock are for — so says the ideology. But the tools and techniques of film-making are a part of ‘reality’ themselves, and furthermore ‘reality’ is nothing but an expression of the prevailing ideology.” Jane M. Gaines, *Introduction: “The Real Returns,”* in COLLECTING VISIBLE EVIDENCE 2 (Jane M. Gaines & Michael Renov eds., 1999).

175. Hall, *supra* note 173, at 72.

without those making them being aware of so doing.”<sup>176</sup>

Even though the proponents of new media forms were adopting the codes of linear perspective merely to create an impression of unity with earlier media, they were at least unconsciously perpetuating the ideology of perspectivalism through their technologies. With this in mind, the Article will now examine the ideology of perspective in relation both to its impact on the viewing subject and on the object of representation.

### A. *Influences of Perspective on the Viewer*

At least since the Renaissance, linear perspective has established itself as the dominant mode of visualization in the modern society, but this dominance has recently come under fire from the critical theories generally associated with postmodernism such as structuralist linguistics and Lacanian psychoanalysis.<sup>177</sup> While many of the early theorists in this area like Lacan, Derrida, and Barthes were primarily interested in the signification systems associated with language, other theorists, including eventually the above mentioned, turned to the burgeoning world of images and spectacle for new subject matter.

One of the first challenges to the authority of perspectivalism concerned the way in which the viewer of an image is situated in a stationary point of view. It was noted that the viewpoint of the beholder was confined to a mathematically determined point that was identified with a monocular, unblinking eye, rather than the two active, stereoscopic eyes of normal vision.<sup>178</sup> The inventors of linear perspective considered the confinement of the viewer to a distinct point to be a great achievement because it allowed for a canvas that could be systematically divided and understood in terms of the laws of optics.

Visual Culture theorists saw in this practice the disembodiment of both the painter and the viewer in favor of the eternalized eye of God.<sup>179</sup> Abstracted and disembodied, the painter and the viewer of the linear perspective image withdrew from the relationship between the objects depicted into an externalized and idealized vision of rationality and

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176. *Id.*

177. See Jay, *supra* note 42, at 18, (noting, “We have witnessed in the twentieth century a remarkable challenge to the hierarchical order of the [regimes of vision] . . . The rise of hermeneutics, the return of pragmatism, the profusion of linguistically oriented structuralist and poststructuralist modes of thought have all put the epistemological tradition derived largely from Descartes very much on the defensive”).

178. See JAY, *supra* note 1, at 54-55.

179. See *id.* (suggesting that the assumption of a monocular, unblinking eye “led to a visual practice in which the living bodies of both the painter and the viewer were bracketed, at least tententially, in favor of an eternalized eye above temporal duration”).

order.<sup>180</sup> In what Norman Bryson terms the “logic of the Gaze,” the body of the viewer and painter is reduced to a single point on the retinal surface and the moment of perception is placed outside temporality because the gazing viewer is associated with the omniscient perception of God viewing an ordered world.<sup>181</sup>

Externalized from the forces acting on the objects represented, the viewer can avoid direct engagement with those objects, thus fixing the distinction between subject and object, self and other, that was crucial for Descartes and eventually much of Western thought.<sup>182</sup> Unconcerned about the effects of his gaze on the objects of sight, the observer could maintain the dispassionate scrutiny of the natural world necessary for scientific inquiry.<sup>183</sup> Perspectivalism thus situated the viewing subject in a position of externalized scientific observation with the objects of the world displayed before him awaiting his examination.<sup>184</sup>

180. See Jay, *supra* note 42, at 8. See also Baudry, *supra* note 141, at 28. Baudry, summarizing the history of perspectival media, suggests that:

Contrary to Chinese and Japanese painting, Western easel painting, presenting as it does a motionless and continuous whole, elaborates a total vision which corresponds to the idealist conception of the fullness and homogeneity of “being,” and is, so to speak, representative of this conception. In this sense it contributes in a singularly emphatic way to the ideological function of art, which is to provide the tangible representation of metaphysics. The principle of transcendence which conditions and is conditioned by the perspective construction represented in painting and in the photographic image which copies from it seems to inspire all the idealist paeans to which cinema has given rise . . .

*Id.* Although Baudry later discusses the differences between cinema and photography such as serial images and camera movement, these differences are unrelated to the basic issue of perspectival image creation.

181. See BRYSON, *supra* note 20, at 96. According to Bryson, “The logic of the Gaze is subject to two great laws: the body (of the painter, of the viewer) is reduced to a single point, the macula of the retinal surface; and the moment of the Gaze is placed outside duration. Spatially and temporally, the act of viewing is constructed as the removal of the dimensions of space and time, as the disappearance of the body.” *Id.*

182. See Jay, *supra* note 42, at 8. Other commentators have noted the same sense of disembodiment in the medium that was thought to offer the greatest sense of embodiment, virtual reality. They claim, “The development of virtual reality seems to reflect this fantasy of a disembodied self and dualistic world view. It is as if the user is assumed to be separate from her (Cartesian) world. . . . Her body is mapped back into this world, but in a semi-abstract sense that uncouples her from her body even while the dominant impression is of her body acting within and around the virtual space.” See Pryor & Scott, *supra* note 169, at 173.

183. See BRYSON, *supra* note 20, at 96; Jay, *supra* note 42, at 8 (claiming, “The abstract coldness of the perspectival gaze meant the withdrawal of the painter’s emotional entanglement with the objects depicted in geometricized space”).

184. See JAY, *supra* note 1, at 54-55; Jay, *supra* note 42, at 9 (suggesting, “Cartesian perspectivalism was thus in league with a scientific world view that no longer hermeneutically read the world as a divine text, but rather saw it as situated in a mathematically regular spatio-temporal order filled with natural objects that could only be observed from without by the dispassionate eye of the neutral researcher”). John Berger, describing the role of the painter, notes, “In the average European oil painting of the nude, the principal protagonist is never painted. He is the spectator in front of the picture and he is presumed to be a man. Everything is addressed

In addition to creating a gaze of scientific neutrality, linear perspective also helped to unify the visual experience of observers.<sup>185</sup> With the general acceptance of the codes of perspective, all viewers began to understand the world in terms of the relationship between viewing subject and viewed object.<sup>186</sup> Perspective was capable of more than just the unification of symbolic representation. Since the viewer of a perspectival image is confined to a single point that is related to the viewpoint of the creator of the image, perspective could also unify the information presented to the viewer.<sup>187</sup>

According to the codes of linear perspective, objects stationed behind other objects are at least partially obscured from the viewpoint of the image maker. Thus, the visual data presented must cohere around the viewpoint intentionally or arbitrarily chosen by the imager, and the viewer is not provided with any information other than that available to the artist at the time the image was made.<sup>188</sup> The familiar idea of the small child attempting to see around and behind a picture to gain access to more information not visible in the image exemplifies this unification of information.

While this aspect of perspectival images allows the creator of an image to intentionally limit the visual data depicted, it also furthers the goal of bracketing the body of the viewer by confining her to the viewpoint selected by the artist.<sup>189</sup> Bryson notes, "The only position for the viewing subject proposed and assumed by the image will be that of the Gaze, a transcendent point of vision that has discarded the body of labour and exists only as a disembodied punctum."<sup>190</sup> Not only does perspective serve to establish the relationship between the viewer and the image, it perpetuates the relationship by bracketing the viewer into a

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to him. Everything must appear to be the result of his being there. It is for him that the figures have assumed their nudity. But he, by definition, is a stranger with his clothes still on." JOHN BERGER, *WAYS OF SEEING* 54 (1972).

185. See BRYSON, *supra* note 20, at 103-07.

186. *Id.*

187. Remarking on Alberti's theory of perspective articulated in *De Pictura*, Bryson writes:

. . . it would seem that in this rigorously perceptualist account of representation, the body of the painter is reduced to the "interior" arc between retina and brush, and that the body of the viewer is correspondingly simplified into a punctual site of reception . . . the eye of the viewer is to take up a position in relation to the scene that is identical to the position originally occupied by the painter, as though both painter and viewer looked through the same viewfinder on to a world unified spatially around the centric ray . . . unified spatially, but also informationally, since all the data presented by the image are to cohere around a core narrative structure.

*Id.* at 103-04.

188. *Id.*

189. *Id.* at 107.

190. *Id.*

single point of view that uses the codes of linear perspective.<sup>191</sup> The viewer is situated in a scientific posture of inquiry, but she is simultaneously confined to the unified viewpoint of the creator of the image and limited to an examination of the data chosen to be presented.

In its attempt to offer a sense of transparency, linear perspective has developed in such a way so as to mask the signification process inherent in any system of communication. The earlier discussion showed that while the process of image-gathering is more complex and more intentional than the tradition of immediacy seems to suggest, the impression of directness must be maintained for images to be received as accurate depictions of reality.

The use of linear perspective, as standardized by the Renaissance painters, has disembodied the creative mechanism of image construction and presented images as direct transcriptions of the externally visible world.<sup>192</sup> By erasing the human creator, the process of image creation looks less like a system of communication than a natural process for the gathering of visual data, and the image created is thought of not as a sign, but as a perception.<sup>193</sup> The codes of meaning have been erased and made unconscious by the cultural adoption of the signifying system. A work in linear perspective is assumed to be a direct and truthful depiction created by an automatic and natural process the success of which need not be questioned. The actual processes of imaging are ignored in favor of a focus on the objects presented; the "meaning" of the picture becomes more important than the way in which meaning is communicated.<sup>194</sup>

Furthermore, since the act of creating the image is obscured, the image can be offered as "natural" and, more importantly, "real." Viewers assume that the images correspond directly to objects in existence and therefore, that the images represent "reality." Such a system poses a threat to appreciation of images in general, because society is so con-

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191. See JAY, *supra* note 1, at 54 (suggesting, "The significance of [Alberti's perspective window] was that the medieval assumption of multiple vantage points from which a scene could be painted, which at times meant no real vantage point at all, was replaced by one, sovereign eye").

192. See BRYSON, *supra* note 20, at 120 (stating, "In the tradition of perspective painting both combination and selection are disavowed: the painting is not sign, but percept; and the minimal precondition of information is obscured").

193. *Id.*

194. See MICHAEL J. SHAPIRO, *POLITICS OF REPRESENTATION: WRITING PRACTICES IN BIOGRAPHY, PHOTOGRAPHY, AND POLICY ANALYSIS* 124 (1988) (suggesting, "Despite the elements of photographic practice that contribute to the signifying effects or rhetorical force of photographs, the interpretive culture within which photographs are displayed tends to bracket the practices involved in creating the image and concentrate on the image itself"). Also, recall the differentiation between looking *at* and looking *through* noted earlier. See BOLTER & GRUSIN, *supra* note 111, at 41.

vinced of the truth represented that it need not question the actual processes of signification involved in all visual media.

Once the public has become convinced of the transparency of a given medium, it will no longer scrutinize the products of that medium for inconsistencies and biases. Some scholars, however, have pointed out that the potential consequences are even greater. One commentator suggests, "In stamping photography with the patent of realism, society does nothing more but confirm itself in the tautological certainty that an image of reality that conforms to its own representations of objectivity is truly objective."<sup>195</sup> More than presenting an image that is believed to be a true representation of reality, perspective reaffirms a particular cultural understanding of what reality is.<sup>196</sup>

To the extent that images seem to relate to a specific conception of how reality should look, other ideas about the nature of reality are marginalized or eliminated.<sup>197</sup> Perspective limits the number of possible perceptions about the relationships between objects in reality by championing the particular form of reality created perspectively as the one true version.<sup>198</sup> Combined with the previous critiques, this analysis challenges the claims to veracity of any image, and it questions the way truth is conceived and represented visually. It is important to go beyond an understanding of how images convince viewers of their trustworthiness to an examination of how perspective can be used by producers to impact the objects of representation.

### B. *Influences of Perspective on the Viewed Object*

As the above section clarified, linear perspective achieved the ultimate distinction between subject and object claimed by Descartes, and its impact on each side of this distinction is noteworthy. Visual Culture theorists point out that in addition to making certain assumptions about the role of the painter and viewer of perspectival images, the theory of perspective also made assumptions about what was visible in the image: a homogenous, regularly ordered space, there to be duplicated by the practice of the codes of signification.<sup>199</sup>

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195. See PIERRE BOURDIEU, *UN ART MOYEN* 48 (1965) (quoted in Rosalind Kraus, *A Note on Photography and the Simulacral*, 3 *OCTOBER* 49, 57 (1984)).

196. See Kraus, *supra* note 195, at 57 (noting, "If the photographic image is considered to be objective, that designation occurs within an entirely tautological or circular condition: the societal need to define something as fact leads to the insistence on the utterly objective factuality of the record that is made").

197. *Id.*

198. *Id.*

199. See JAY, *supra* note 1, at 57. According to Jay:

No less significant [than the creation of an idealized gaze] was the perspectivalists' assumption of what was visible in the perceptual field: a homogeneous, regularly

By placing the viewer in a position of dispassionate omniscience, perspective suggests that the objects depicted are there purely for the viewer's visual pleasure and scrutiny.<sup>200</sup> The objects, including people are in fact objectified in the sense that they are made subject to the rational gaze of the spectator and are assumed to be passive and knowable.<sup>201</sup> Linear perspective enables the artist to control the relationships between himself and the objects around him by imposing the rational dominance of mathematics on them.<sup>202</sup>

The implications of this controlling objectification include, among other concerns, the representation of the depicted (feminized) body as a passive object open to the sexualized gaze of the (masculine) spectator and the standardization of those represented in terms of generalized "types." Because the viewer is situated in a position of subjectivity allowing him to gaze at will upon the image before him, he assumes that the bodies therein depicted are available for his visual pleasure, thus creating a fetishization of the imaged.<sup>203</sup>

The fetish enables the subject to objectify the body in his relationship to it, thereby securing the domination implied by the inscription of the image.<sup>204</sup> The body as imaged becomes the body available for visual sexual arousal and not the body of an active subject capable of rationality.<sup>205</sup> And much like the image of a female body becomes an object of

ordered space, there to be duplicated by the extension of a gridlike network of coordinates . . . The result was a theatricalized 'scenographic' space, to use Pierre Francastel's widely adopted term. It was this uniform, infinite, isotropic space that differentiated the dominant modern world view from its various predecessors.

*Id.*

200. See TAGG, *supra* note 121, at 11.

201. *Id.*; see also Elizabeth Cowie, *The Spectacle of Actuality*, in COLLECTING VISIBLE EVIDENCE 27 (Jane M. Gaines & Michael Renov eds., 1999). Regarding documentary film, Cowie explains:

The world shown in the actuality of documentary film is presented as knowable, and the terms of its knowability are organized by the film, not by reality. The scenes of reality are posited for our view by their selection, framing, and combination; the spectator is invited to look and, even without titles or voice-over, thereby to understand the seen. The particular knowledge of a documentary film confirms the knowableness in general of the world.

*Id.*

202. See Sarah Kember, *Medicine's New Vision*, in THE PHOTOGRAPHIC IMAGE IN DIGITAL CULTURE 96 (Martin Lister ed., 1995) (suggesting, "Control was articulated and inscribed on the body by subjecting the isolated individual to minute and detailed forms of visual, textual, and statistical surveillance and classification").

203. *Id.* at 109.

204. *Id.*

205. See BRYSON, *supra* note 20, at 167 (pointing out that, "If, in the general concealment of the body of labor, painting of the Gaze accords an acute and privileged position to sexuality, this is because through exaggeration of the markers of sexuality, painting is able to draw into itself a libidinal and scopic drive whose local homogenizations . . . serve to underpin and to maintain the overall homogeneity of the Gaze."); TAGG, *supra* note 121, at 11.



visual sexual arousal, the images of certain classes of people, such as criminals, the poor, the colonized, the sick, or the insane, are constituted as passive objects of knowledge and study.<sup>206</sup>

As many scholars have pointed out, this trend is particularly noticeable in the police drawings and institutional photographs of the late nineteenth century. The modes of signification associated with linear perspective combined with the desires of the emerging social sciences for the ordering and classifying of individuals to represent the photographed people as instances of a particular "type" of person, rationally understandable and open for scientific study.

According to John Tagg, the standardized photograph of a member of one of these marginalized classes is more than a picture of a supposed criminal. "It is a portrait of the product of the disciplinary method: the body made object; divided and studied; enclosed in a cellular structure of space whose architecture is the file-index; made docile and forced to yield up its truth. . . . When accumulated, such images amount to a new representation of society."<sup>207</sup>

Once objectified through the perspectival image of a photograph, individuals are isolated from society and subjected to the analytic gaze of the social scientist and the public at large. Their active personhood is subtracted out, as they become merely instances of visual data open to study and hypothesis. To the extent that modern media such as film and digital photography use the codes of signification appropriated by traditional photography, they reinforce a eugenically oriented understanding of difference.<sup>208</sup>

From what has been said, it should be clear that the systems of representation adopted by society have broad implications for the relationships between those members of society within the triangle of communication. The goal of Visual Culture Studies is not to eliminate entirely the notion of an objective reality, but rather to question the methods for the representation of any set of visual data offered as "reality." Just as modern linguistics has demonstrated that the relationships between signifieds and signifiers has repercussions on those using the

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206. See TAGG, *supra* note 121, at 11. Regarding the application of photography to nineteenth century social science, Tagg suggests:

In the terms of such discourses, the working classes, colonised peoples, the criminal, poor, ill-housed, sick or insane were constituted as the passive — of, in this structure, 'feminized' — objects of knowledge. Subjected to a scrutinised gaze, forced to emit signs, yet cut off from command of meaning, such groups were represented as, and wishfully rendered, incapable of speaking, acting or organising for themselves.

*Id.*

207. TAGG, *supra* note 121, at 76.

208. See SHAPIRO, *supra* note 194, at 142.

sign system, Visual Culture Studies has revealed that the imaging processes thought to be natural are in fact the result of socially, aesthetically, and economically influenced decisions, and that these decisions affect the status of viewing subjects and viewed objects.<sup>209</sup> The final section of this paper will apply the findings of theorists in this field to the realm of visual evidence law.

## VI. CONCLUSION — VISUALITY AND THE LAW

The first half of this Article argued that the rules of evidence will generally be adequate when confronting the novel issues raised by digital visual evidence, but as the second half has demonstrated, there are significant concerns about all visual evidence technologies that rely on linear perspective. These technologies tend to endorse the ideology of Cartesian perspectivalism and its separation of active gazing subjects and passive knowable objects. Accordingly, one focus of legal scholarship should be directed at the ways many visual media use perspective, rather than concentrating solely on the technological differences between certain media.

Judges and scholars are capable of discerning the relatively obvious differences between the ways in which traditional and digital cameras capture an image, and they will be able to draft admissibility rules that incorporate these differences. They will also be able to comprehend the different methods for image manipulation presented by various media, and they will take these differences into account when allowing some evidence in and keeping other evidence out. These are the easy questions and the ones the judges are trained to handle.

The ideological implications of an image drafted in linear perspective present more threatening concerns because they exist on the margins of legal analysis. The work of Visual Culture scholars must be incorporated into both practical and academic legal culture to effectively answer these concerns. To that extent, the remainder of this Article will offer some suggestions for the further study of the impact of perspectival ideology on the courtroom.

First, legal scholars must consider the effects of the disembodied gaze of linear perspective on the jurors viewing an image admitted into evidence. As the scholarship discussed above has indicated, the abstract gaze of the viewer can be rendered emotionless and dispassionate,

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209. See Evans & Hall, *supra* note 14, at 3 (indicating that “cultural studies rests on the achievements of semiotics as a whole and stakes its distinctiveness upon the analysis of the symbolic, classificatory, and, in short, meaning-making practices that are at the heart of all cultural production and consumption. Any study of the image conducted under the impact of cultural studies is indebted to semiotics”).

allowing for the scientific scrutiny of that which is depicted in the picture plane.

The juror confronted with a perspectival image is thus likely to feel that she can rationally understand that which is represented. The image holds itself out as an ordered space awaiting the comprehension of the viewing subject, but the meaning of the image may actually be less orderly and comprehensible than it might suggest. Because the juror feels comfortable understanding the way the picture presents reality, she may be unwilling or unable to decipher alternative meanings or at least to recognize that the meaning of the image is in constant flux. Such a failure of analysis undermines the status of the exhibit as representative of a witness's testimony, because it fixes the meaning of the testimony in terms of the objects represented in the picture.

The law must also be concerned about the unification of information that occurs from the conflation of vision into a single, pre-chosen point of view. Although some digital technologies offer an escape from the traditional model, perspectival imaging causes the available information to cohere around a monocular viewpoint and limits the ability of jurors to envision the situation from alternative aspects. The jurors, like the small child, are unable to peer around the image to see what is being obscured. Likewise, they may not expand the frame of the image to take into consideration facts that are not offered by the image presented. Such a situation risks the jury becoming too closely linked with the version of truth offered by the proponent of the image, and it dissuades them from considering the situation "from a different perspective," so to speak.

Furthermore, by setting up the juror in the role of dispassionate observer, perspective diminishes the juror's ability to empathize with those people depicted in the image. Instead of being seen as complex human actors, the bodies in the picture are confined to the role of scientific data. Jurors, in viewing an image of a robbery for example, may not see the alleged criminals in their larger social context, but rather as confined and already defined "types" associated with certain characteristics. Just as the viewer is disembodied and situated as a gazing subject, the viewed are dehumanized and limited to predetermined traits connected with their perceived social class.

The law risks the application of stereotypes to people depicted in linear perspective images and the possibility that jurors will associate other negative criteria with the image of the person depicted. In this way, perspectival images tend to perpetuate arbitrary distinctions based on class and race that modern society should not tolerate in the courtroom. The objectification of bodies in perspectival images also creates

substantial risks of fetishization of female victims of crimes. For example, legal scholars should consider the extent to which images of female victims of sexual assault tend to create stimulation rather than empathy or consideration in male jurors. Once the image of the female body is sexualized by the image, it may likely provoke a sexual response in the male jurors and could cause them to feel as though she “deserved” what she got. Removed from the realm of purity that our society still foists on women, they may be imagined to have “had it coming to them.”

While it is not proposed to address these topics in more detail presently, this discussion should serve to indicate the potentially fruitful application of Visual Culture Studies to legal analysis. Because judges and lawyers will be able to manage the obvious technological challenges presented by new media, legal scholars would be better served examining the more subtle effects of the ways images create meaning and affect society. While surely the response to these concerns is not the wholesale elimination of visual media from the courtroom, legal scholars must endeavor to understand the implications of the codes of representation that are adopted by our culture.