METADATA IN DIGITAL PHOTOGRAPHY: THE NEED FOR PROTECTION AND PRODUCTION OF THIS SILENT WITNESS

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I. INTRODUCTION

> We cannot conceive of a more impartial and truthful witness than the sun, as its light stamps and seals the similitude of the object on the photograph put before the jury; it would be more accurate than the memory of witnesses, and as the object of all evidence is to show the truth, why should not this dumb witness show it?[1]

The preceding commentary on the importance of photographic evidence was offered by the Supreme Court of Georgia in 1882,[2] yet even today the validity and pertinence of the statement remains. In fact, the power of the court's observation shined clairvoyant light on a future component of modern photography that the Georgia court could not have imagined at the time: metadata.[3]

The area of discovery encompassing electronically stored information (ESI) is ever evolving, and rules of civil procedure and evidence are being stretched and manipulated to accommodate the demands of advancing technology and its role in litigation. American dependence on smart phone technology is pervasive and has paved the way for daily capture of the digital photograph. In litigation, a picture truly paints a thousand words and can be

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[1] Franklin v. State, 69 Ga. 36, 43 (1882).

[2] *Id.* at 43.

[3] Metadata is a set of data that provides information about other data. In this Comment, digital photography metadata includes information about a photograph, such as the date and time the photograph was taken, the location of the photograph, which device took and stored the photograph, whether the image was altered (and when and how), and even what type of camera lens was used to capture the image.

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the most influential piece of testimony in determining the fate of a case. When this independent corroboration of witness testimony is available, the interests of expedient justice on the merits of the case support the corroborating evidence's relevance and admissibility. Metadata—defined as "information about information"—embedded in digital photography provides just that corroboration.[4]

This Comment examines, through the lens of metadata in digital photography, the symbiotic relationship of decisional law with the Federal Rules of Civil Procedure and Federal Rules of Evidence, and the corresponding role of judicial analogy in assimilating new technological forms in trial advocacy. The confluence of these perspectives arrives definitively at the following: metadata within a digital photograph should always be presumed relevant;[5] preserved in reasonable anticipation of litigation;[6] disclosed in its native format;[7] authenticated by evidence describing the process or system used to produce the result and a showing that the result was accurate; and afforded heightened levels of protection from spoliation by the newly-proposed Rule 37(e)[8] in the Federal Rules of Civil Procedure.

This Comment stands among the many that seek to overcome the mountainous obstacles found in the way of uniform judicial treatment of ESI and seeks to provide a foothold for climbing the mountain so clarity may reign. To accomplish this task, system metadata within digital photographs is a scalable pass through that mountain. The familiarity and prevalence of the technology, and the comprehensibility and fidelity of its creation, provide a recognizable path to begin the climb.

This Comment analyzes representational cases not only to demonstrate the problem, but also to diagram the solution. The 2014 proposed amendments to the Federal Rules of Civil Procedure reveal a groundswell of judicial innovation becoming codified in the rules, and also support the proposal presented here. Through judicial analogy, the relatively new technology of metadata in digital photography is assimilated by linking it to an already existing form: photographs themselves, particularly those introduced as substantive evidence under the "silent witness" doctrine.

Judicial treatment of photographic evidence, spanning over a century, provides the precedent to employ analogical reasoning for a sound theory for the orderly treatment of metadata in digital photographs. And by this

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[4] *See* Thomas Y. Allman, *The Impact of the Proposed Federal E-Discovery Rules*, 12 RICH. J.L. & TECH. 13, 15 (2006). *See also infra* Part II.B.2.

[5] *See infra* Part III.C.1.

[6] *See infra* Part III.C.3.a.

[7] *See infra* Part III.C.3.a.

[8] FED. R. CIV. P. 37(e), Failure to Preserve Electronically Stored Information.

route, inroads into the area of ESI permit the common law treatment of metadata in digital photographs to evolve into less proscriptive rules applicable to both the discovery process and to judicial proceedings. The result will be hope for more prescriptive rules of civil procedure and evidence in the area of ESI, greater notice to litigants, lower cost of discovery, and more cases decided on the merits.

A. Evolution and Influence of Digital Photography and Cell Phone Cameras

Photography revolutionized trial advocacy,[9] and the photograph has been described as having "changed the world."[10] Photography has experienced drastic change, especially after the appearance of the first digital camera in 1975.[11] Digital photography is now considered "the only commercially viable method [of photography]."[12] With the advent of cameras in cell phones, individuals are capable of capturing an untold number of photographic images.[13] At the end of 2014, an estimated 7.3 billion cell phones were in use,[14] and 83% of those cell phones were camera phones, equating to over 6 billion cameras in the world equipped to capture digital images at a moment's notice while connected to mobile networks.[15]

At least 3.5 trillion photographs are estimated to exist, and "as a society [we] take approximately as many photographs [every two minutes] as were taken in the 1800s."[16] Therefore, a vast majority of the photographs in existence and—to a greater degree—those taken in the last fifteen years, have been captured using digital cameras; namely, cell phone cameras.[17]

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[9] Sumner, *supra* note 1, at 406. *See also* Kansas City M. & B. R. Cov. Co. v. Smith, 8 So. 43, 44 (1890).

[10] Thomas Maddrey, *Photography, Creators, and the Changing Needs of Copyright Law*, 16 SMU SCI. & TECH. L. REV. 501, 501 (2013).

[11] *Id*. at 511. *See also* Brian Barakat & Bronwyn Miller, *Authentication of Digital Photographs Under the "Pictorial Testimony" Theory: A Response to Critics*, FLA. B. J., July/August 2004, at 38.

[12] Maddrey, *supra* note 10, at 504.

[13] *See id.*

[14] Joshua Pramis, *Number of Mobile Phones to Exceed World Population by 2014*, DIGITALTRENDS (Feb. 28, 2013), http://www.digitaltrends.com/mobile/mobile-phone-world-population-2014.

[15] Tomi T. Ahonen, *The Annual Mobile Industry Numbers and Stats Blog—Yep, This Year We Will Hit the Mobile Moment*, COMMUNITIES-DOMINATE.BLOGS (Mar. 6, 2013), http://communities-dominate.blogs.com/brands/2013/03/the-annual-mobile-industry-numbers-and-stats-blog-yep-this-year-we-will-hit-the-mobile-moment.html.

[16] Maddrey, *supra* note 10, at 512 (citing Jonathan Good, *How Many Photographs Have Ever Been Taken?*, 1000 MEMORIES (Sept. 15, 2011), *reproduced at* https://rleephotography.wordpress.com/2012/11/15/3500000000000-images-and-counting.

[17] *See supra* text accompanying notes 11–16.

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B. The Proliferation of Metadata and Its Prevalence in Litigation

Metadata rose to prominence in litigation along with the groundswell of electronic documents.[18] Electronic documents contain metadata that describes the history, tracking, or management of the electronic media.[19] The large and growing amount of information created and stored electronically has been estimated to account for 92% of all new information.[20]

Although metadata was "reviled at one point as being useless and totally irrelevant to any judicial proceeding,"[21] litigants and the judiciary quickly took note of the significance of this electronically stored information and corresponding metadata, and soon found it "of more value" than paper counterparts[22] because "metadata shows the date, time and identity of the creator of an electronic record, as well as changes made to it."[23]

Metadata is categorized in three types: substantive, embedded, and system.[24] Substantive metadata is produced by "the software used to create the document," describes the document, remains with the document when moved or copied, and is "useful in showing the genesis of a particular document" and its history of revision.[25] Embedded metadata is "inputted into a file by its creators or users," such as formulas used to create spreadsheets, "but . . . cannot be seen in the document's display."[26] System metadata, such as that found attached to digital photographs, "reflects automatically generated information about the creation or revision" of electronic media, and is recognized as "most relevant" if authenticity of the electronically stored information is at issue.[27]

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[18] Mike Breen, *Nothing to Hide: Why Metadata Should Be Presumed Relevant*, 56 U. KAN. L. REV. 439, 440 (2008).

[19] *Id.* at 439.

[20] *Id.* (citing PETER LYMAN & HAL R. VARIAN, HOW MUCH INFORMATION? 2003 (2003), http://groups.ischool.berkeley.edu/archive/how-much-info-2003/printable_report.pdf).

[21] Andrew J. Peck, John M. Facciola & Steven W. Teppler, *E-Discovery: Where We've Been, Where We Are, Where We're Going*, 12 AVE MARIA L. REV. 1, 60 (2014) [hereinafter *E-Discovery Panel*].

[22] Breen, *supra* note 18, at 439. *See also* James Gibson, *A Topic Both Timely and Timeless*, 10 RICH. J. L. & TECH. 49, para. 3 (2004).

[23] Lorraine v. Markel Am. Ins. Co., 241 F.R.D. 534, 547–48 (D. Md. 2007).

[24] *See* Matter of Irwin v. Ononaga Cty. Res. Recovery Agency, 895 N.Y.S.2d 262, 267 (N.Y App. Div. 2010).

[25] *Id.*

[26] *Id.*

[27] *Id. See also* Michael J. Hannon, *An Increasingly Important Requirement: Authentication of Digital Evidence*, 70 J. MO. B. 314, 318 (2014). "System metadata is sometimes referred to as 'time stamps' or 'MAC' dates or times. MAC is an acronym for 'modified, accessed, and created.'" *Id.*

(*continued*)

Metadata in digital photography, and particularly that created by cell phone cameras, is automatically created and digitally nested in the photograph when taken.[28] The metadata provides, among other information, a date and time stamp of creation.[29] In cell phone cameras, stamps do not rely on user date and time settings because they are based on data of the constantly connected cellular networks—set to the official atomic clock.[30] Furthermore, cell phone operating system platforms track any changes by the user to the cell phone's date and time settings, so any attempt to fabricate the metadata of the photograph's creation can be detected.[31]

The increasing demand in litigation for electronic discovery (e-discovery) has resulted in a robust electronic data discovery market,[32] which is likely to double by 2018.[33] The importance and relevance of e-discovery and the profitability of an "enterprise e-discovery software market"[34] are

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[28] Molly Shaffer Van Houweling, *Atomism and Automation*, 27 BERKLEY TECH. L. J. 1471, 1472, 1483 (2012).

[29] *Id.* at 1483. *See also* Hannon, *supra* note 27, at 318. "Various types of metadata are potentially important in civil litigation and criminal investigations. For example, photographs taken with digital cameras may contain EXIF (exchangeable image file) metadata. Smart phones with built-in GPS may embed in EXIF metadata the GPS coordinates of locations where photographs were taken." *Id.*

[30] *See* Hannon, *supra* note 27, at 318. "[M]obile devices are constantly active and update information (e.g., the device clock) continuously." *Id.* (quoting RICK AYERS, SAM BROTHERS & WAYNE JANSEN, NIST SPECIAL PUBLICATION 800-101 REV. 1: GUIDELINES ON MOBILE DEVICE FORENSICS 26 (2014), http://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-101r1.pdf. *See also* Andrew Kantor, *Ultra-Accurate Clocks Are All Around Us*, USA TODAY (Oct. 22, 2004), http://usatoday30.usatoday.com/tech/columnist/andrewkantor/2004-10-22-kantor_x.htm.

[31] *See* Andrew Wyld, Comment to *Is There a Way to Detect When the User Has Changed the Clock Time on Their Device?*, STACKOVERFLOW, http://stackoverflow.com/questions/15544996/is-there-a-way-to-detect-when-the-user-has-changed-the-clock-time-on-their-device (last visited Feb. 23, 2015).

[32] *See* Gretchen J. Harris, *Metadata: High-Tech Invisible Ink Legal Considerations*, 78 MISS. L. J. 939, 947–48 (2009).

> Electronic evidence has spawned a new electronic data discovery (EDD) industry. A report showed 2006 commercial EDD industry revenues were up fifty-one percent to $2 billion and expected to grow to $4 billion by 2009. The rapid growth of this industry reflects the growing importance of electronic evidence management and discovery.

Id. *See also* George Socha & Thomas Gelbmann, *EDD Hits $2 Billion*, LEGALTECH NEWS (Aug. 1, 2007), http://www.legaltechnews.com/id=1202435504180/EDD-Hits-2-Billion?slreturn=20160113131003.

[33] *See* Juliana Kenny, *E-Discovery Market Set to Double by 2018*, INSIDECOUNSEL.COM (June 25, 2014), http://www.insidecounsel.com/2014/06/25/e-discovery-market-set-to-double-by-2018.

[34] *Id.*

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spurring leaps in digital forensics, which may detect intentionally or negligently altered photographs or their system metadata.[35] Metadata integrity can be verified by mathematical hash algorithms, also known as "digital fingerprints."[36] These hash values have been analogized to DNA evidence for metadata[37] and allow a forensic examiner to perform an "element-by-element verification" of the data's integrity by utilizing the unique hash signatures.[38] Forensic analysis is capable of recovering metadata within a digital file that has been either intentionally scrubbed or negligently deleted.[39]

As cell phones and their cameras "continue to saturate our culture and become more important in our personal and professional lives, it is only natural that they should become an increasingly important repository of evidence in nearly all civil and criminal trials."[40] The digital revolution, and the proliferation of cell phones "has changed fundamentally how people create, store, and communicate information."[41] Judges are continually faced with the evidentiary challenges that cell phones present, and because of the corresponding wealth of information they provide,[42] are now accepting metadata in digital photographs as particularly relevant in personal injury lawsuits.[43]

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[35] *See* Douglas Quenqua, *Software that Exposes Faked Photographs*, N.Y. TIMES (Aug. 19, 2013), http://www.nytimes.com/2013/08/20/science/software-that-exposes-faked-photographs.html. *See, e.g.*, Patrick A. Casey & Donna A. Walsh, *Electronic Evidence: The Ever-Expanding Frontier*, *in* UTILIZING FORENSIC SCIENCE IN CRIMINAL CASES 145, 152 n.39 (2013) ("Computer scientists from Dartmouth and the University of California-Berkeley recently developed software that utilizes complex algorithms to identify fake or altered photographs.").

[36] Hannon, *supra* note 27, at 318.

[37] *Id.*

[38] *Id. See also* AYERS, BROTHERS & JANSEN, *supra* note 30, at 26.

[39] Casey & Walsh, *supra* note 35, at 7.

[40] Erik Harris, *Discovery of Portable Electronic Devices*, 61 ALA. L. REV. 193, 194 (2009). *See also* SHARON D. NELSON, BRUCE A. OLSON & JOHN W. SIMEK, THE ELECTRONIC EVIDENCE AND DISCOVERY HANDBOOK xiv–xv (2006).

[41] *See* Hannon, *supra* note 27, at 314.

[42] *See E-Discovery Panel*, *supra* note 21, at 40–41. *See also* Casey & Walsh, *supra* note 35, at 7–8.

[43] *See* Michael Zhang, *The Use of EXIF Data in Digital Photographs as Courtroom Evidence*, PETAPIXEL (Oct. 22, 2012), http://petapixel.com/2012/10/22/the-use-of-exif-data-in-digital-photographs-as-courtroom-evidence. *See also 101 Uses for a Camera Phone*, CELLUTIPS.COM, http://www.cellutips.com/101-uses-for-a-camera-phone [hereinafter CELLUTIPS]. Camera phones are suggested for use in property inventory in a natural disaster or a robbery, or to document the scene of a car accident or the scene of a witnessed crime. *Id.*

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Digitally created and stored photographs, like the cell phone variety comprising the vast majority taken today,[44] are also the vast majority offered as exhibits at trial.[45] Courts have now definitively recognized that system metadata in digital photography is an indivisible element of the file itself, explaining that "at its core the electronic equivalent of notes on a file folder . . . constitutes a 'record' subject to disclosure."[46] Furthermore, courts have accepted that metadata is so central to digital media, and that its evidentiary value is so high,[47] that it should be produced in its "native format," as "it is regularly maintained," to "include all metadata."[48]

Industry experts are shouting from the mountain top that "everyone involved with digital images needs to recognize . . . metadata is an essential part of every digital image."[49] They insist that metadata "is essential to identify and track digital images."[50] For example, courts in public records law—an area of the law fundamental to the freedom, truth, and just administration of democracy—are recognizing a presumption in favor of metadata production in image files.[51] Although the increase in electronic information is "wreaking havoc with discovery rules and litigation practices,"[52] metadata in digital photography is being described as "electronic-evidence heaven" and extremely valuable in litigation.[53]

II. RECENT DEVELOPMENTS

ESI is playing a monumental discovery role in criminal and civil litigation and in trial proceedings as a whole. Metadata in digital photography, especially that produced by cell phone cameras, affects litigation in a variety of ways. Discovery disputes rarely reach the appellate

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[44] CELLUTIPS, *supra* note 43.

[45] *See* Lorraine v. Markel Am. Ins. Co., 241 F.R.D. 534, 561 (D. Md. 2007).

[46] *See* Matter of Irwin v. Ononaga Cty. Res. Recovery Agency, 895 N.Y.S.2d 262, 268 (N.Y App. Div. 2010).

[47] *See* Breen, *supra* note 18, at 440.

[48] Williams v. Sprint/United Mgmt. Co., 230 F.R.D. 640, 656 (D. Kan. 2005).

[49] *See* Houweling, *supra* note 28, at 1471, 1484 (quoting the Stock Artist Alliance "A Metadata Manifesto").

[50] *Id.* at 1483–84.

[51] Blake A. Klinkner, *Metadata Redux Now You're Telling Me I Need to Provide Metadata to the Other Side?*, WYO. LAW., June 2014, at 44, 45. *See, e.g.*, *Irwin*, 895 N.Y.S.2d at 267–68.

[52] *See* Breen, *supra* note 18, at 440.

[53] Sharon D. Nelson & John W. Simek, *Metadata in Digital Photographs—Should You Care?*, 87 WIS. LAW. (Jan. 2014), http://www.wisbar.org/newspublications/wisconsinlawyer/pages/article.aspx?Volume=87&Issue=1&ArticleID=11281 (last visited Feb. 16, 2016).

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level because they rarely constitute an abuse of discretion.[54] Most procedural issues involving e-discovery are addressed in pre-trial motions and conferences, resulting in foggy research conditions and limited judicial guidance.[55] Metadata evidence, especially in digital photographs, is routinely used to either prove or disprove claims, or validate or invalidate testimony. This can be seen in a non-exhaustive list of causes of action, such as in the following: personal injury and premises liability,[56] products liability,[57] construction defects,[58] vehicular negligence,[59] intentional torts,[60] breach of contract,[61] real property trespass,[62] intellectual property suits of all

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[54] *See* Harris, *supra* note 40, at 194. *See also* RICHARD VAN DUIZEND, CONFERENCE OF CHIEF JUSTICES: GUIDELINES FOR STATE TRIAL COURTS REGARDING DISCOVERY OF ELECTRONICALLY-STORED INFORMATION ix (2006), http://ncsc.contentdm.oclc.org/cdm/ref/collection/civil/id/56.

[55] *See* VAN DUIZEND, *supra* note 54, at ix. A simple Boolean search of "photo! /100 metadata" provided over 1,700 results. WESTLAW NEXT, https://a.next.westlaw.com (last visited Feb. 10, 2016) (select "All State & Federal" and, in the search field, enter and search "photo! /100 metadata"). A careful study provided deep insight into the jurisprudence from the viewpoint of the parties, non-parties, judiciary, litigators, trial experts, and jurists alike. A meticulous survey of available source material from case law, to treatise, to jury verdicts and settlements yield fertile ground to farm raw data of the countless roles and results metadata in digital photographs play in litigation. *See* Harris, *supra* note 40, at 194.

[56] *See* Defendant's Motion to Compel at 2, Smith v. Parkdale Mall, LLC, 2013 WL 8595897 (No. A-190-097) (Tex. Dist. Dec. 17, 2013). *See, e.g.*, Verdict and Settlement Summary at 1, Cohen v. Renaissance Hotel Mgmt. Co. LLC, 2014 WL 7038153 (24 Fla. J.V.R.A. 11:C4) (Fla. Cir. Ct. June 27, 2014); Supplemental Declaration of Carl A. Beels in Opposition to Defendant's Motion for Summary Judgment at 2, Villegas v. Sarraf-Yazdi, 2012 WL 10806709 (56-2011-00397978-CU-PO-VTA) (Cal. Super. Apr. 2, 2012).

[57] *See, e.g.*, Deposition of Robb Larson at 12–13, Johnson v. Am. Honda Motor Co., Inc., 2012 WL 10067147 (No. CV-10-126-M-DWM-JCL) (D. Mont. July 3, 2012). *See also* Exponent Failure Analysis Associates at 3–4, Tate v. Statco Eng'g & Fabricators, Inc., 2014 WL 2996257 (No. 6:12-cv-00002-JHP) (E.D. Okla. Feb. 5, 2014).

[58] *See, e.g.*, Report of Examination at 2, Autozone, Inc. v. Glidden Co., 2011 WL 9864799 (No. 2:08-cv-02851-SHM-cgc) (W.D. Tenn. Mar. 29, 2012).

[59] *See, e.g.*, Deposition of James Sobek at 12–13, Amesbury v. CSA, Ltd., 2012 WL 10085520 (No. 3:10-CV-01712) (M.D. Pa. Nov. 9, 2012).

[60] *See, e.g.*, Kineticorp Report at 1–2, Rupert v. Ford Motor Co., 2014 WL 2812304 (No. 2:12-cv-00331-CB) (W.D. Pa. May 5, 2014).

[61] *See, e.g.*, Declaration of Michael F. McGowan at 2–6, Ceglia v. Zuckerberg, 2011 WL 7693005 (No. 1:10-cv-00569-RJA) (W.D.N.Y. Oct. 14, 2011).

[62] *See, e.g.*, Damages Surrebuttal Expert Report at 7, United States v. Sierra Pac. Indus., 2011 WL 9520811 (No. 2:09-cv-02445-KJM-EFB) (E.D. Cal. May 31, 2012).

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types,[63] all manner of insurance claims,[64] workers' compensation claims,[65] workplace discrimination,[66] a variety of criminal actions,[67] and civil rights actions.[68]

Many of the cases were resolved by utilizing metadata to act as a silent witness, radiating a bright light to reveal the spectral shadow of false testimony.[69] Where previously an affidavit was sufficient to authenticate demonstrative photographic evidence, metadata now allows the underlying

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[63] *See, e.g.*, Declaration of Andrew Cromarty, Ph.D., in Support of Plaintiff Modavox's Motion for Sanctions for Spoliation of Evidence and Evasive Disclosure Practices at 5, Modavox, Inc. v. Tacoda, Inc., 2011 WL 2161555 (No. 1:07-cv-07088-CM) (S.D.N.Y. Mar. 24, 2011); Declaration of David T. Gallant in Opposition to Defendant's Motion for Summary Judgment at 3, Bryan Pringle v. Black Eyed Peas, 2011 WL 9159712 (No. SACV 10-1656 JST(RZx)) (C.D. Cal. Dec. 19, 2011); Declaration of Kevin Cohen in Support of Plaintiff Hallmark Hardwoods, Inc.'s Motion for Sanctions at 3–4, Hallmark Hardwoods, Inc., v. Omni Wood Prod., LLC, 2011 WL 12473317 (No. 2:10-CV-05896-SJO-JCG) (C.D. Cal. Dec. 17, 2011).

[64] *See* Knoderer v. State Farm, No. 06-13-00027-CV, 2014 WL 4699136, at *2 (Tex. App. Sept. 14, 2014). *See also* Examination of William L. Brogan at 19–20, Great N. Ins. Co. v. Wagner, 2010 WL 3427423 (No. 2:00-cv-03080-NS) (E.D. Pa. June 30, 2010); Deposition of Jasper E. Shealy, Ph.D., CPE, at 2, Zurich Ins. Co. v. Sunday River Skiway Co., 2009 WL 6740722 (No. 2:08-cv-00325-DBH) (D. Me. Nov. 20, 2009).

[65] *See, e.g.*, *In re* José Herrera v. Cargill Meat Sols., No. 4-741-111, 2009 WL 420596 (Colo. Ind. Cl. App. Off. Feb. 12, 2009).

[66] *See* Smith v. Asia Café, 246 F.R.D. 19, 20 (D.D.C. 2007). For an example of race discrimination, see Sirpal v. Univ. of Miami, No. 09–22662–CIV, 2011 WL 3101791, at *4 n.4, *4–5 (S.D. Fla. July 25, 2011).

[67] In particular, metadata in cell phone camera digital photography plays a prevalent role in child pornography cases (e.g., United States v. Post, 997 F. Supp. 2d. 602, 603–04 (S.D. Tx. 2014)) and where crime scene photographs are taken by police officers with their cell phone cameras (e.g., Holloway v. State, 426 S.W.3d 462, 466–67 (Ark. 2013)).

[68] *See* De La Torre v. City of Salinas, No. 509CV00626, 2010 WL 8470406, at *3, *13 (N.D. Cal. Aug. 12, 2010) (excessive force and wrongful death action).

[69] *See* JAY E. GRENIG ET AL., ELECTRONIC DISCOVERY AND RECORDS AND INFORMATION MANAGEMENT GUIDE § 2:13 (2015).

> In *Alfano v. LC Main, LLC*, [969 N.Y.S.2d. 801 (App. Div. 2013)] a plaintiff had slipped on ice and had allegedly taken pictures of the accident site on the day of the incident. During discovery, plaintiff produced these photographs and defendants, in response, moved for dismissal. The defendants obtained an expert forensic computer examiner that analyzed the plaintiffs' computer and the metadata of the photographs, and it turned out that the photographs were actually from 12 days after the incident. The court granted summary judgment to the defendants based on the metadata.

Id.

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truth to rise to the surface.[70] Therefore, the foundational goal of the Federal Rules of Civil Procedure—the just and expedient resolution of all claims on their merits—may be carried out with greater success.[71]

All too often, the current rules of discovery and evidence depend on unreliable testimony[72] at a time when the judiciary, and legal community as a whole, is acknowledging the inherent fallibility, or blatant dishonesty, of party [73] and third-party witnesses alike.[74] The following cases serve as

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[70] *See infra* Part III. *See also* Robert D. Brain & Daniel J. Broderick, *The Derivative Relevance of Demonstrative Evidence: Charting its Proper Evidentiary Status*, 25 U.C. DAVIS L. REV. 957, 968–69 (1992) (explaining that demonstrative evidence, as opposed to substantive evidence such as direct testimony, has historically referred to evidence used as an aid to explain or demonstrate witness testimony or documentary evidence).

[71] *See* FED. R. CIV. P. 1 (calling for courts "to secure the just, speedy, and inexpensive determination of every action and proceeding"). *See also infra* Part II.A.

[72] *See* Mark Curriden, *The Lies Have It: Judges Maintain That Perjury Is on the Rise, but the Court System May Not Have Enough Resources to Stem the Tide*, 81 ABA J. 68, 69 (May 1995).

> "It is much more serious a problem than most people believe," says V. Robert Payant, president of the National Judicial College in Reno, [Nevada]. . . . "For the last couple of years, we have been hearing this complaint from more and more of our judges. It's no longer a small twisting of the facts or a little white lie here or there. It's happening in almost every case."

Id. *See also* Jeffrey Rosen, *Is There a Perjury Epidemic?*, N.Y. TIMES, July 15, 2011, at BR17, http://www.nytimes.com/2011/07/17/books/review/book-review-tangled-webs-by-james-b-stewart.html. "'Mounting evidence suggests that the broad public commitment to telling the truth under oath has been breaking down, eroding over recent decades, a trend that has been accelerating in recent years.'" *Id.* (quoting JAMES B. STEWART, HOW FALSE STATEMENTS ARE UNDERMINING AMERICA: FROM MARTHA STEWART TO BERNIE MADOFF (2011)). *See also* Lisa C. Harris, *Perjury Defeats Justice*, 42 WAYNE L. REV. 1755, 1768–70 (1996). "The pattern that actually may be developing is that hardly anyone—defendants, police, plaintiffs or witnesses—is getting caught or prosecuted for perjury." *Id*. at 1770.

[73] *See* Cohen v. Renaissance Hotel Mgmt. Co. LLC, No. 24 Fla. J.V.R.A. 11:C4, 2014 WL 7038153 (Fla. Cir. Ct. June 27, 2014). Plaintiff submitted digital photographs taken with his cell phone along with his sworn affidavit testimony attesting to the time of the accident and the conditions at the location of his fall. Forensic examination of the metadata conclusively demonstrated the pictures were actually taken hours earlier than the plaintiff claimed, with warning cones present in the location in question that were not there at the time of the fall.

[74] *See* Better Bags, Inc. v. Ill. Tool Works, Inc., 939 F. Supp. 2d 737, 749–50, 750 n.45. (S.D. Tex. 2013). Forensic examination of metadata in photographic evidence offered by a third party witness refuted the testimony. *Id*. Not only were the pictures not taken in the years attested to by the witness (2007, 2008, or 2009), but worse still, the metadata demonstrated definitively that the photographs were taken on one day, subsequently attached and sent by email, all on April 1, 2011. *Id*. at 750 n.45. Furthermore, the metadata showed

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examples demonstrating the paramount importance of metadata in digital photographs as both demonstrative and substantive evidence, as well as the unreliability of testimony and affidavit authentication of photographs.[75] These representative cases show the need for judicial uniformity in the treatment of metadata in digital photographs, which consequently elevates the purpose and efficacy of the civil rules of procedure and provides a foothold in climbing the mountain that is e-discovery.[76]

A. Decisional Law Developments: Metadata Overcoming False Testimony

1. Smith v. Parkdale Mall, LLC

Smith v. Parkdale Mall, LLC[77] is an excellent exposition of the role metadata in digital photography can play in the administration of the just, speedy, and inexpensive resolution of a civil action. Stephanie Smith brought a negligence claim for premises liability against Parkdale Mall.[78] She alleged the incident to have occurred "on or about" November 15, 2009, because of a dangerous condition that existed and of which the defendant allegedly knew or should have known.[79] Namely, the plaintiff claimed that poor lighting of the entrance decreased visibility, causing her to strike her foot on a metal doorstop.[80] Ms. Smith claimed the defendant was responsible for her injured foot and sought punitive damages on a claim of gross negligence.[81]

The litigation plodded on for nearly four years, and during the course of discovery, the plaintiff took a family vacation to an amusement park.[82] The plaintiff's daughter-in-law posted pictures on Facebook, which cast serious doubt on the veracity of the plaintiff's injuries.[83] The defendant, in answer to the third set of plaintiff interrogatories, put the plaintiff on notice of the countervailing evidence, and in response, the plaintiff filed supplemental

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the photographs were not even taken by the third-party witness at all, but instead by an agent for the plaintiff. *Id.* at 750.

[75] *See infra* Parts II.A, III.D. *See also supra* note 70 and accompanying text for distinction between demonstrative and substantive evidence.

[76] Curriden, *supra* note 72, at 69.

[77] *See* Order on Defendant's No-Evidence Motion for Partial Summary Judgment at 7, Smith v. Parkdale Mall, LLC, 2014 WL 2152553 (No. A-190,097) (Tex. Dist. Jan. 21, 2014).

[78] *See Parkdale*, 2013 WL 8595897, at *1–2.

[79] *Id.*

[80] *Id.* at *2.

[81] *Id.*

[82] *See id.*

[83] *Id.*

(*continued*)

discovery responses producing a single photograph of herself in a wheelchair at the amusement park.[84]

The defendant then made additional discovery requests, including the photograph at issue and any other photographs relating to the family trip, in electronic format with metadata attached, to be reviewed in native format on her cell phone camera.[85] The plaintiff responded that she provided the only photograph she had, which she received via text message, taken and sent from her daughter-in-law's cell phone (of which she was not in possession).[86] On December 17, 2013, the defendant made a motion to the court to compel discovery.[87] On January 21, 2014, the court granted the defendant's motion and ordered the plaintiff to produce both her and her daughter's cell phone for judicial inspection, with the defendant paying all costs of obtaining any digital discovery from the devices should that be necessary.[88]

Over four years after the alleged incident, after untold legal expense and time devoted by the courts, final judgment was entered by the court on March 31, 2014, in favor of the defendant.[89] The order specified that the plaintiff recovered no award whatsoever from the defendant, and all parties were charged their own costs.[90] One might speculate as to the events that transpired after the court ordered the plaintiff to comply with the digital discovery request, including what was revealed by metadata potentially impeaching the plaintiff.[91] Beyond speculation is that, once the court compelled preservation and production of the metadata in the digital photograph, the case was speedily resolved in favor of the defendant.[92] Without the court's order concerning the metadata, this legal quagmire likely would have devoured further litigation expenses and court resources.

2. Knoderer v. State Farm

Once more, metadata in digital photographs became the epicenter of a case where nearly six years and millions of dollars were expended on

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[84] *Id*. at *2–3.

[85] *Id.*

[86] *Id.*

[87] Defendant's Motion to Compel, Smith v. Parkdale Mall, LLC, 2013 WL 8595897 (No. A-190-097) (Tex. Dist. Dec. 17, 2013).

[88] *See* Order on Defendant's No-Evidence Motion for Partial Summary Judgment at 7, Smith v. Parkdale Mall, LLC, 2014 WL 2152553 (No. A-190-097) (Tex. Dist. Jan. 21, 2014).

[89] *See* Final Judgment at 1, Smith v. Parkdale, 2014 WL 2152549 (No. A-190-097) (Tex. Dist. Mar. 31, 2014).

[90] *Id.*

[91] *Parkdale*, 2013 WL 8595897, at *3. The metadata likely would have revealed information damning to the plaintiff such as the date, time, and geolocation of the photograph.

[92] *See Parkdale*, 2014 WL 2152549, at *1.

(*continued*)

litigation.[93] *Knoderer v. State Farm*[94] came before the Texas State Court of Appeals after the trial court levied the procedural "death penalty" against the Knoderers for discovery abuses, along with monetary sanctions totaling over one million dollars.[95] The trial court determined that the plaintiffs intentionally destroyed the metadata evidence concerning six fabricated photographs, thereby warranting a finding in favor of the defendant and ordering payment of the defendant's attorneys' fees, experts' fees, and costs.[96]

The Knoderers appealed to the Texas Court of Appeals, attacking the sanctions as improper.[97] The appellate court delineated the evidence of the Plaintiff's reprehensible conduct.[98] The Knoderers, in a sworn statement before the court, attached six photographs to their motion to strike the defendant's expert testimony, implying that the defendant had fabricated evidence against them.[99] They provided the photographs in print, PDF format, in PDF format with the metadata printed, and JPEG format with the metadata deleted.[100] Eventually, and after numerous discovery requests, the digital photographs were produced in native format and examined by the defendant's expert, Dr. Gavin Manes.[101] Dr. Manes opined that the date and time metadata had been altered, refuting the Knoderers' sworn statement to the court.[102] The Knoderers presented the affidavit of a former police detective disagreeing with Dr. Manes' conclusion, and eventually the court ordered the Knoderers to produce their hard drives for forensic testing.[103]

Subsequently, it was proven that the Knoderers intentionally and manually erased the files by scrubbing the hard drives, making the evidence permanently unavailable.[104] The trial court decision levied the harshest of sanctions by striking the pleadings and imposing monetary sanctions representing the entirety of the defendant's costs.[105]

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[93] No. 06-13-00027-CV, 2014 WL 4699136 (Tex. App. Sept. 19, 2014).

[94] *Id.* at *1.

[95] *Id.* at n.1 ("Rule 215.2(b)(5) of the Texas Rules of Civil Procedure authorizes a trial court, in certain extreme cases of discovery abuse, to strike pleadings, dismiss with prejudice, or render a default judgment. Tex.R. Civ. P. 215.2(b)(5). Such sanctions are commonly called the 'death penalty.'").

[96] *Id.*

[97] *Id.*

[98] *Id.* at *4.

[99] *Id.*

[100] *Id.*

[101] *Id.*

[102] *Id.*

[103] *Id.* at *4–5.

[104] *Id.* at *5.

[105] *Id.*

(*continued*)

The appellate court agreed with the trial court's adverse inference and implied findings that the metadata examination and subsequent spoliation of evidence was reasonable to conclude that the Knoderers fabricated the photographs and provided false testimony.[106] Furthermore, monetary sanctions were found as warranted, limited to those associated with the sanctionable conduct.[107] However, the appellate court found that the "death penalty" sanction was too severe and the case should be remanded back to the trial court consistent with the opinion.[108]

In both *Parkdale* and *Knoderer*, the judicial response to the fallible, if not corrupt, testimony of the party witnesses utilized metadata's "veridical power."[109] The judicial acknowledgment that digital discovery offers relevant, substantive evidence critical to the case ensured that the claims would be decided on their merits and not by financial attrition meant to extort settlement.[110] The subsequent exposition of the proposed rules affirms the approval and codification of that judicial approach.[111]

B. Proposed Amendments of the Federal Rules of Civil Procedure Relating to ESI

The Advisory Committee on the Federal Rules of Civil Procedure developed a set of proposed amendments, implementing conclusions reached at the 2010 Conference on Civil Litigation, and composed a report explaining the amendments and proposed rules.[112] Participants in the Conference were federal and state judges, attorneys, in-house counsel from corporations and government agencies, as well as law professors—all chosen to ensure diverse views and expertise.[113]

Consensus among the experts was that the costs of discovery in civil litigation were disproportional to the issues presented by the claims, often resulting "in cases not being filed or settlements made to avoid litigation costs" and, therefore, cases not being decided on the merits.[114] Of the

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[106] *Id.* at *8.

[107] *Id.* at *14. The exact amount of those costs was to be determined by the trial court. *Id.* at *16.

[108] *Id.* at *16.

[109] Jennifer L. Mnookin, *The Image of Truth: Photographic Evidence and the Power of Analogy*, 10 YALE J. L. & HUMAN. 1, 54 (1998) (discussing the photograph and its "veridical power"). *See also supra* Parts II.B.1–2; *infra* Part III.

[110] *See infra* Part III.

[111] *Id.*

[112] COMMITTEE ON RULES OF PRACTICE AND PROCEDURE OF THE JUDICIAL CONFERENCE OF THE UNITED STATES, PROPOSED AMENDMENTS TO THE FEDERAL RULES OF CIVIL PROCEDURE Rules Appendix B-1 [hereinafter PROPOSED AMENDMENTS].

[113] *Id.* at B-2.

[114] *Id.* at B-5.

(*continued*)

attorneys surveyed, 80% of them agreed that "discovery costs are disproportionately high in small cases," and 40% agreed that this was true for large cases as well.[115] The National Employment Lawyers Association[116] (NELA) performed a survey, primarily of plaintiffs' lawyers, and found more than 80% of them believed that "litigation costs are not proportional to the value of small cases."[117] Furthermore, an Institute for the Advancement of the American Legal System[118] (IAALS) survey of corporate counsel found that 90% agreed that "the discovery costs in federal court generally are not proportional to the needs of the case."[119] The enormous financial burden of discovery is particularly evident in the area of e-discovery, which has spawned a new electronic data discovery industry.[120] As of 2010, the industry had already generated approximately $3.2 billion in annual industry revenues.[121] The rapid growth of the industry shows the importance of electronic evidence management and discovery.[122]

These statistical realities were not lost on the Committee, and a panel on e-discovery was formed as part of the Conference.[123] That panel unanimously recommended that the Committee draft a rule directed at the preservation and production of ESI and amend existing rules to address the growing issue of ESI in civil litigation, of which metadata is a critical component.[124] As embodied by the minor change made to the iconic Rule 1, all of the rules should "be construed, administered, and *employed by the court and the parties* to secure the just, speedy, and inexpensive determination of every action and proceeding."[125]

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[115] *Id.* at B-6.

[116] NAT'L EMP. LAW. ASS'N, https://www.nela.org (last visited Mar. 29, 2016). NELA advances employee rights and serves lawyers who advocate for equality and justice in the American workplace. *Id.*

[117] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-6.

[118] INST. FOR ADVANCEMENT OF AM. LEGAL SYS., http://iaals.du.edu/about (last visited Mar. 29, 2016). IAALS is a national independent research center dedicated to facilitating continuous improvement and advancing excellence in the American legal system. *Id.*

[119] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-7.

[120] VRA PARTNERS, LLC, INDUSTRY REVIEW: ELECTRONIC DATA DISCOVERY 4 (2012), http://www.vrapartners.com/sites/default/files/Industry%20Review%20-%20Electronic%20Data%20Discovery%203.28.12_0.pdf.

[121] *Id.*

[122] *See* Harris, *supra* note 32, at 947–48.

[123] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-2.

[124] *Id.* at B-2, B-12. *See also infra* Part II.B.1-2. The Committee accepted the challenge and drafted the amended Rule 26(b) and new Rule 37(e).

[125] PROPOSED AMENDMENTS, *supra* note 112, at B-13.

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1. Rule 26(b): Discovery Scope and Limits

The scope and limits of discovery are of massive import to the area of digital discovery.[126] The Committee's amended Rule 26, regarding the duty to disclose, is drafted to speak directly to the issues presented by ESI, and provides the requisite framework for the rational treatment of metadata within digital photographs.[127] The "explosion" in volume of digital discovery and its role in litigation have necessitated greater emphasis on scope, limits, and proportionality. The bulk of the amendment to Rule 26 addresses these issues.[128]

The Committee emphasized proportionality as a tool for affecting scope and limitation, by moving the proportionality factors previously present in Rule 26(b)(2)(C) to greater prominence in Rule 26(b)(1).[129] The attention to scope remains focused on "nonprivileged matter that is relevant to any party's claim or defense."[130] The relatively low bar to relevance is sharpened by the more exacting proportionality factors levied by the court, which is tasked with the responsibility to consider a "case specific determination of the appropriate scope of discovery."[131] The factors the court is to consider include: "[1] the parties' relative access to relevant information, [2] the parties' resources, [3] the importance of the discovery in resolving the issues, and [4] whether the burden or expense of the proposed discovery outweighs its likely benefit."[132]

The Committee provides insight into the nature and intent of the rule's amended language; digital discovery, such as metadata in digital photographs, is squarely in its crosshairs.[133] The Committee correctly holds that the requesting party should always "be able to explain the ways in which the underlying information bears on the issues as that party understands them."[134]

Metadata in digital photographs is an exemplary illustration of the type of discovery the Committee is referring to in this amendment.[135] In the 2000 Amendments and Notes, the Committee recognized and provided specific

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[126] *Id.* at B-8 (describing the need for proportionality in the scope of discovery for civil cases).

[127] *Id.* at B-30–31.

[128] *Id.*

[129] *Id.* at B-8.

[130] *Id.* at B-30.

[131] *Id.* at B-40.

[132] *Id.* at B-30.

[133] *See id.* at B-2.

[134] *Id.* at B-40.

[135] *See supra* Parts II.B.1–2; *infra* Part III. *See also* PROPOSED AMENDMENTS, *supra* note 112, at B-2; Nelson & Simek, *Photographs*, *supra* note 53.

(*continued*)

examples of suitably-focused information that would be relevant to the parties' claims or defenses, including "information that could be used to impeach a likely witness," and the present amendments do not "foreclose" such discovery.[136] The discovery of metadata in digital photographs is meant to do just that: discover information that would resolve fundamental issues relevant to the claim. Powerful visual tools, such as photographs, are often authenticated only by witness testimony; this testimony could be simply corroborated or impeached by the silent witness: metadata.[137]

2. Rule 37(e): Failure to Preserve ESI

The 2006 Amendments evidence how the Committee foresaw "the continuing expansion of ESI" and the need for "a more detailed rule."[138] Spurred by the explosion of ESI in recent years and the profound effect it has had on civil litigation, the 2010 Conference confirmed the 2006 Committee's clairvoyance.[139] It unanimously recommended action to resolve significant circuit splits over the issues confronting parties and courts in managing the preservation and loss of ESI, including metadata of all forms.[140]

The Discovery Subcommittee set out to create a "detailed preservation guideline" to address "when the duty to preserve arises, its scope and duration in advance of litigation, and the sanctions or other measures a court can take when information is lost."[141] The Subcommittee conducted extensive research into existing law with regard to the spoliation of evidence, and it solicited comments and suggestions from many sources.[142] The Subcommittee chose to craft a rule directed at the "actions courts may take when ESI that should have been preserved is lost."[143] The new Rule 37(e) codifies the decisional law already in existence, which "uniformly holds that a duty to preserve information arises when litigation is reasonably anticipated."[144] As if speaking about metadata in digital photography, particularly that generated by smartphone technology, the Subcommittee acknowledged the estimated "26 billion devices on the Internet" by 2020, and stated that "significant amounts of ESI will be created and stored not only by sophisticated entities with large IT departments, but also by

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[136] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-43.
[137] *See infra* Part III.B.3.c.
[138] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-14.
[139] *Id.*
[140] *Id.*
[141] *Id.*
[142] *Id.* at B-14–15.
[143] *Id.* at B-15.
[144] *Id.*

(*continued*)

unsophisticated persons whose lives are recorded on their phones."[145] These unsophisticated individuals are also affected by the complicated task of preservation, the increasing opportunity for spoliation or loss, and the litigation challenges presented by this ever-evolving area of practice and procedure.[146]

With this in mind, "[t]he rule calls for reasonable steps, not perfection."[147] The analysis begins with the court's determination of "whether and when a duty to preserve arose," and "the extent to which a party was on notice that litigation was likely and that the information would be relevant."[148] Although the court's sensitivity to the relative sophistication of individual litigants and their lack of familiarity with "preservation obligations" should certainly be evaluated in preservation efforts,[149] the quest for lost information should not be tempered where ESI can be "restored or replaced."[150] Furthermore, "substantial measures" should be employed where the digital discovery is of particular relevance and not "duplicative."[151] Undoubtedly, metadata in digital photographs, its corroboration of testimony, and the authentication of evidence it provides, should always be deemed to reach the low bar of relevance.[152]

a. Rule 37(e)(1)

The proposed rule "preserves broad trial court discretion" in the cure, by "means no greater than necessary," of prejudice caused by the loss of digital discovery that cannot be corrected by the restoration or replacement of the lost ESI, even in the absence of any intent on the part of the losing party to deprive the other of the information.[153] Although the rule does not place a burden of proving or disproving prejudice on one party or the other, the court is entrusted with the discretion to determine how best to assess prejudice on a case-by-case basis.[154] In circumstances where "the content of the lost information may be fairly evident," such as system metadata in digital photography (e.g., the time stamp nested in the picture), "placing the

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[145] *Id.*
[146] *Id.*
[147] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-16.
[148] *Id.* at B-59.
[149] *Id.* at B-61.
[150] *Id.* at B-16.
[151] *Id.* at B-62.
[152] *See infra* Part III.C.1.
[153] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-16.
[154] *See id.* at B-63.

(*continued*)

burden on proving prejudice on the party that did not lose the information may be unfair."[155]

The court has considerable discretion in evaluating the potential importance of lost information in litigation and in determining prejudice.[156] Although the party requesting lost digital discovery (such as metadata used to confirm witness testimony or the authenticity of a digital photograph) may reasonably be required to prove prejudice, the court may find that "serious measures are necessary to cure [the] prejudice."[157] In appropriate cases (such as an apparent contradiction by elements of the photographic evidence provided in conjunction with—and authenticated by—the party's sworn affidavit testimony, and when the negligent loss of metadata in that digital photograph reasonably could have been used for impeachment), the court may cure the prejudice by "forbidding the party that failed to preserve the information from putting on certain evidence," or allowing the prejudiced party "to present evidence and argument to the jury regarding the loss of information."[158] The implications for metadata in digital photographs, referred to by experts as "evidentiary gold," are obvious and are addressed by the Committees when drafting the proposed amendments.[159]

b. Rule 37(e)(2)

The question of when a court may give an "adverse inference jury instruction" relating to lost or spoliated digital discovery has been the subject of pervasive splits among federal circuit courts, and it is the primary issue addressed by this section of the new rule.[160] An adverse inference jury instruction directs or permits the jury to infer from the loss of information that the information was, in fact, unfavorable to the party that lost it.[161] A court may draw an adverse inference "when ruling on pretrial motions or ruling in bench trials."[162] Some courts may permit such an instruction upon a showing of mere negligence on the part of the party who lost the information, and others may require the higher, more ambiguous standard of bad faith.[163]

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[155] *Id.*
[156] *Id.*
[157] *Id.* at B-64.
[158] *Id.*
[159] *See* Nelson & Simek, *supra* note 53.
[160] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-17.
[161] *Id.* at B-18.
[162] *Id.*
[163] *See id.* at B-17.

(*continued*)

The Discovery Subcommittee analyzed the existing cases on the use of adverse inference instructions.[164] That analysis revealed that the historical basis for such an instruction has been rooted in the conclusion that when a party destroys evidence to prevent another party from using it in litigation, it is reasonable to infer that the evidence was unfavorable to the destroying party.[165] The Committee resolved the split among the circuits by drafting the rule to allow an adverse inference instruction only when finding that a party met a standard similar to having acted in bad faith, which it more precisely described as having "acted with intent to deprive another party of the information's use in the litigation."[166]

The adverse inference instruction should not be confused with remedies available under Rule 37(e)(1) that do not require the intent element.[167] For example, Rule 37(e)(1) may allow "the parties to present evidence to the jury concerning the loss and likely relevance" of spoliated ESI, and have the court instruct "the jury that it may consider that evidence, along with all the other evidence in the case, in making its decision."[168] Although Rule 37(e)(1) does require a showing of prejudice to the deprived party, Rule 37(e)(2) does not because the prejudice is subsumed by the intent.[169] Although the court "should exercise caution" in applying the measures specified in Rule 37(e)(2), the development of decisional law based on more discernable areas of digital discovery (like metadata in digital photographs) will provide footholds in the uniform application of discovery and evidentiary treatment of ESI.[170]

As a result, litigants and their counsel will be put on notice of expected standards, and courts will better meet the time-honored policy goals of Rule 1 for speedy, precise, and inexpensive justice.[171] Developing a rational and systematic treatment of the rules of discovery and evidence of metadata in digital photographs—particularly those generated by cell phone cameras—will light the way for future amendments to the Federal Rules of Civil Procedure and ensure that more claims will be decided on their merits, and the parties will be less likely to succumb due to the disproportional weight of discovery costs.[172]

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[164] *Id.*
[165] *Id.*
[166] *Id.*
[167] *See supra* Part II.B.2.a.
[168] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-18.
[169] *Id.*
[170] *See infra* Part III. *See also* PROPOSED AMENDMENTS, *supra* note 112, at B-67.
[171] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-2.
[172] *See infra* Part III.

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III. ANALYSIS

As modern technology and our litigious society collide, the judicial system has been spurring a mixture of judicial approaches and creating circuit splits.[173] "[T]hese issues remain largely ignored by both the bench and the bar, and are directed into unsuitable definitions or relegated to obsolescent analyses."[174] The proposed amendments to the Federal Rules of Civil Procedure acknowledge as much by unanimously recommending that the Committee draft a rule to address the preservation and loss of ESI,[175] such as metadata in digital photographs. However, the amendment's memorandum concedes that blazing the trail with a "detailed rule . . . is not feasible . . . and a rule that provides only general guidance on these issues would be of little value to anyone."[176]

An "ESI-only" rule, Rule 37(e), was forged from case law to plot the outer realms of e-discovery, providing punitive actions courts may take when ESI should have been preserved, rather than prescriptive rules specifying the trigger, scope, and duration of preservation.[177] "The e-discovery rules expressly provide that they will look to federal decisional authority for guidelines as the law develops. So much of what judges will tell us, you will eventually see mirrored in state court practice."[178] Although the proposed Rule 37(e) is a leap forward in advancing the goal of Rule 1,[179] more work remains to achieve consensus in the manageable areas of e-discovery (such as metadata in digital photographs), which, in turn, will provide the judicial uniformity and clarity needed to eventually spawn rules of civil procedure that offer prescriptive guidance.

Metadata in digital photographs, particularly those generated by cell phone cameras, provides a manageable foray into the vast field of ESI, and the tools at the legal system's disposal are those historically utilized by the

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[173] Steven W. Teppler, *Testable Reliability: A Modernized Approach to ESI Admissibility*, 12 AVE MARIA L. REV. 213, 217 (2014). The only constant among the circuit courts is being at least one step behind the pace of developing technologies. *See* Harris, *supra* note 40, at 194.

[174] *See* Teppler, *supra* note 173, at 217.

[175] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-2.

[176] *See id.* at B-15.

[177] *Id.*

[178] *See E-Discovery Panel*, *supra* note 21, at 9–10. Comments of Steven W. Teppler, partner at Edelson McGuire, L.L.C., and an adjunct professor at Ave Maria School of Law. *Id.* at 1. Professor Teppler is also Co-Chair of the E-Discovery and Digital Evidence Committee of the American Bar Association and a member of the Sedona Conference WG1. *Id.* at 1.

[179] *See supra* Part II.B.2.a.

(*continued*)

judiciary to assimilate new technologies: judicial analogy.[180] By proposing uniform treatment of metadata in digital photography, a familiar and digestible segment of ESI, the once-perceived obstacle may be surmounted to "bring about broader changes in both courtroom practice and the conceptualization of evidence."[181]

A. Judicial Analogy: Making "Legal Sense of New Technological Forms"[182]

Analogical thinking is an innately human means of organizing thought and is an essential tool to comprehend new concepts.[183] Analogical reasoning "is an established cognitive process which can render the alien, familiar; the obscure, comprehensible; the frightening, innocuous; the complex, simple."[184] Reasoning by analogy is the most dominant form of legal reasoning, and is the preeminent means of digesting "legal and moral questions," as well as "a characteristic part of brief-writing and opinion-writing."[185] The "common-law methodology" of *stare decisis*, and the entire precedent system, relies on "assessing policy analogies between previously decided cases and new fact patterns."[186] Judicial analogical reasoning is a "time-honored method for solving new problems in the law" by relating them "to pertinent common-law rules and principles."[187] Judicial analogy plays a profoundly important role in determining how a particular court, and

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[180] *See* Mnookin, *supra* note 109, at 5. This groundbreaking work was written by Professor Mnookin while at Yale Law School. *Id.* She is currently serving as Dean and the David G. Price and Dallas P. Price Professor of Law at UCLA School of Law. *Faculty Profiles: Jennifer L. Mnookin*, UCLA LAW, https://law.ucla.edu/faculty/faculty-profiles/jennifer-l-mnookin (last visited May 18, 2016). Professor Mnookin researches and writes primarily in the area of evidence—expert and scientific evidence in particular—and the use of forensic science in court. *Id.*

[181] *See* Mnookin, *supra* note 109, at 4.

[182] *See id.* at 5.

[183] Stephanie A. Gore, *"A Rose by Any Other Name": Judicial Use of Metaphors for New Technologies*, 2003 U. ILL. J. L. TECH. & POL'Y, 403, 403 (2003).

[184] Alexandra J. Roberts, *Everything New Is Old Again: Brain Fingerprinting and Evidentiary Analogy*, 9 YALE J. L. & TECH. 234, 236 (2007).

[185] Cass R. Sunstein, *On Analogical Reasoning Commentary*, 106 HARV. L. REV. 741, 741–42 (1993). "Analogical reasoning is at the core of how lawyers reason and how lawyers argue." Daniel Martin Katz, *Quantitative Legal Prediction—or—How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L. J. 909, 955 (2013).

[186] Francis A. Gilligan & Edward J. Imwinkelried, *Cyberspace: The Newest Challenge for Traditional Legal Doctrine*, 24 RUTGERS COMPUTER & TECH. L.J. 305, 342 (1998) (citing Edward H. Levi, *An Introduction to Legal Reasoning*, 15 U. CHI. L. REV. 501, 501–02 (1949)).

[187] NORMAN J. SINGER & J.D. SHAMBIE SINGER, 2B STATUTES AND STATUTORY CONSTRUCTION § 55:1 (7th ed. 2012).

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the common law as a whole, should decide the proper legal rules to apply to a new technology.[188] In addition, courts "risk[] creating bad law" when attempting to regulate a new technology without the historical guidance of analogical reasoning.[189]

One of the most "contentious" electronic discovery issues is metadata.[190] Although metadata has often been as reviled by the old guard[191] as the cell phones that are producing and storing it,[192] some are concerned that this apparent "ignorance or misapprehension" by the judiciary and litigants alike reflects "a basic misunderstanding of the nature of both computer-generated information and the variable nature of the computing environment by which such information is generated."[193]

Judicial approaches to metadata vary, but judicial analogy is the proper tool to clarify this area of general misunderstanding, illustrated by the heterogeneous mixture of judicial approaches.[194] Judicial analogy applies a three-step, rule-guided process to assimilate a suspect legal concept, rule, or technology by providing context and precedent to resolve doubt, and to bring order and uniformity to its treatment.[195]

> This three-step process consists of [1] an inference (of the type known as 'abduction') from chosen examples to a rule that could resolve the doubt; [2] confirmation or disconfirmation, by a process of reflective adjustment, of the rule thus inferred; and [3] application of the confirmed rule to the case that occasioned the doubt.[196]

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[188] *See* Joseph W. Rand, *What Would Learned Hand Do?: Adapting to Technological Change and Protecting the Attorney-Client Privilege on the Internet*, 66 BROOK. L. REV. 361, 374 (2000).

[189] *See id*.

[190] *See* Breen, *supra* note 18, at 440.

[191] *See E-Discovery Panel*, *supra* note 21, at 59–60.

[192] *Id.* at 41. *See also* Bill Haltom, *The Naked Truth About Cell Phones*, 39 TENN. B.J. 41, 41, (Nov. 2003). "I hate cell phones when I'm in a deposition and everybody in the conference room looks like cowboys with their little cell phone holsters strapped to their waists. It's a litigation cell-phone shoot-out as old Wyatt Earp the lawyer and Marshall Dillon the expert witness whip out their cell phones and fire off words to their offices." *Id.*

[193] *See* Teppler, *supra* note 173, at 217. *See also* Gore, *supra* note 183, at 406.

[194] *See* Gore, *supra* note 183, at 406. *But see* Williams, supra note 48, at 656; Kentucky Speedway, LLC v. NASCAR, No. 3:06MC408-MU, 2006 U.S. Dist. LEXIS 87310 (E.D. Ky. Nov. 29, 2006).

[195] Scott Brewer, *Exemplary Reasoning: Semantics, Pragmatics, and the Rational Force of Legal Argument by Analogy*, 109 HARV. L. REV. 923, 925 (1996).

[196] *Id.* (emphasis omitted).

(*continued*)

Because legislative prescription is predictably reactive, judicial analogy has been utilized by courts to assimilate and "create legal regimes" for new technologies such as computer software, biotechnology, and the internet.[197] In fact, judicial analogy has shaped much of the legal framework for new technologies. This story is told by the judicial response to a revolutionary new technology from the second half of the nineteenth century: the photograph.[198] This Comment looks forward, employing judicial analogy to proffer a uniform approach to the rules of discovery and evidence for metadata in digital photographs. To do so, it is necessary to trace the use of analogical reasoning applied to the rise of photographic evidence itself, and the resulting rules that may serve as the parallel form.[199]

B. "The Inference": The Development of the Rules of Discovery and Evidence for the Photograph Provide the Logical Framework for Treatment of Metadata in Digital Photographs[200]

The winding path photography took from a technological novelty and the fancy of the elite to a "significant evidentiary tool"[201] is marked by a history befitting courtroom drama itself. The case of the photograph charts a familiar course in the stream of technological innovation across the landscape of jurisprudence. The advent of DNA profiling provides an example of when a powerful new form of evidence is met with "[1] unreflective acceptance, followed by [2] a certain wariness about the power of a new form of evidence, ultimately resulting in [3] a more cautious approach."[202]

1. "Unreflective Acceptance": A New Evidentiary Form Sweeps America and Its Courtrooms off Their Feet[203]

A picture is worth a thousand words, but a picture is not necessary to comprehend the effect that photography had on the courtroom in the 1800s.[204] Photography was a common technology in American society by

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[197] Dan Hunter, *No Wilderness of Single Instances: Inductive Inference in Law*, 48 J. LEGAL EDUC. 365, 396 n.107, 401 (1998). *See also* Gore, *supra* note 183, at 424. Legislative responses to issues presented by common law, and corresponding circuit splits, are by nature reactive and understandably struggle to keep pace with rapidity of technological advancement.

[198] *See* Mnookin, *supra* note 109, at 4–6.

[199] *Id.*

[200] *Id.* at 5.

[201] *Id.* at 14.

[202] *Id.* at 14 n.52.

[203] *Id.* at 14.

[204] *See id.* at 4 (providing a summary treatment of early cases in state and federal courts, which illuminate photography as a revolutionary technology in litigation).

(*continued*)

the 1850s, and it did not take long to infiltrate the American courtroom with little fanfare.[205] In 1857, a district court judge made an offhanded reference to the use of a photograph in a land grant case as visual evidence of "correct representations of the appearances of the country."[206] Within two short years, photographs went from "visual evidence" demonstrating witness testimony to tools of the judiciary in fact-finding by authenticating signatures.[207] By 1871, this potent and effective use of photography, by the judiciary and litigators alike, spurred one contemporary commentator to assert, "[A]s a witness in the courts of justice, photography is constantly employed in detecting forgery, revealing perjury, and in telling the truth."[208]

Later in the century, the science of photography was further perfected and its application in litigation became increasingly frequent.[209] Photographs were being used as evidence in claims, much as they are today, for the purposes of illustrating the scene of an accident or proving the identity of a victim or defendant.[210] Amateur photography boomed, with photographs taken without the subject's knowledge or consent, and people being "caught in the act."[211] Popular opinion of the photograph climbed to new heights as "truth itself,"[212] prompting Oliver Wendell Holmes to extol, "Tourists cannot be trusted; stenographs can."[213] Amid a time of great technological innovation throughout the world, the courtroom sought to keep pace, and the photograph had become thought of by scientists as "a means to, and a symbol of, mechanical objectivity,"[214] and by many in American courtrooms as "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."[215]

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[205] *Id.* at 9.

[206] *Id.* (quoting Deposition of William Shew, Transcript of Record, Fossat v. United States, 1864 (Case No. 4206, RG 267.3.2, National Archives, Washington, D.C.)). *See also In re* Fossat, 69 U.S. 649, 676 (1864).

[207] *See* Mnookin, *supra* note 109, at 10.

[208] *Id.* at 11 (citing *Some of the Modern Appliances of Photography*, 1 PHOTOGRAPHIC TIMES 33, 34 (1871)).

[209] *See* Mnookin, *supra* note 109, at 13.

[210] *Id.* at 11, 11 n.38.

[211] *Id.* at 12–13.

[212] *Id* at 17, 17 n.65 (citing H.J. Morton, *Photography as an Authority*, 1 PHILA. PHOTOGRAPHER 180, 181 (1864)).

[213] *Id.* at 17, 17 n.63 (quoting Oliver Wendell Holmes, *Sun-Painting and Sun-Sculpture*, 8 ATLANTIC MONTHLY 13, 22 (1861)).

[214] *Id.* at 2 n.3 (quoting Lorraine Daston & Peter Galison, *The Image of Objectivity*, 40 REPRESENTATIONS 81, 120 (1992)).

[215] *Id.* at 19.

(*continued*)

As the nineteenth century came to a close, photographs were routine in the courtroom, and judges began to declare their use "only for illustrative purposes, rather than as independent proof."[216] The courts began with unreflective acceptance of photographs in courtrooms, and then viewed them as a threat to judicial authority,[217] to trial proceedings,[218] to the "hegemony of testimony,"[219] to fact-finding as a whole,[220] and to the judicial system all together.[221]

2. "Certain Wariness": Confronting the Potency of "A Most Dangerous Perjurer"[222]

The dynamism of photographic evidence carried "an aura of certainty and incontestability."[223] The ability to affect a jury in a "strikingly captivating fashion,"[224] posed an "institutional challenge" to the judiciary and necessitated the formulation of rules of procedure to tame its use. Adding fuel to the fire, instances of "inherent distortions," error by "human agency," and "outright manipulation" and fabrication evidenced photography not as "literal truth, perfectly rendered," but as a powerful sword forged with potential for virtue or deception.[225]

In analogizing photographic evidence to human testimony (acknowledged as "lamentably liable"),[226] the judiciary recognized the fallibility of each. Even so, judicial anxiety related to photographic evidence manifested an inclination to value words over images.[227] Judges demonstrated a reluctance to acknowledge "the veridical power of the photograph."[228] The novelty of both a "genuinely new form of evidence" and a "new path to truth in the courtroom" was "disruptive and destabilizing."[229] This compelled the judiciary to demote photographic

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[216] *Id.* at 13.
[217] *Id.* at 6.
[218] *Id.* at 57.
[219] *Id.* at 56.
[220] *Id.* at 20.
[221] *Id.* at 57.
[222] *Id*. at 20, 26 n.94 (quoting *The Photograph as a False Witness*, 10 VA. L.J. 644, 645–46 (1886)).
[223] *Id.* at 58.
[224] *Id.* (quoting Franklin v. State, 69 Ga. 37, 43 (1882)).
[225] *Id.* at 20–21.
[226] *Id.* at 24 n.91. *See, e.g.*, Cowley v. People, 83 N.Y. 464, 478–79 (1881); Webster, 34 N.E. 730 (N.Y. 1893); Schaible v. Washington Life Ins. Co., 9 Phila. 136 (D. Ct. 1873).
[227] Mnookin, *supra* note 109, at 54.
[228] *Id.*
[229] *Id.* at 54–55.

(*continued*)

evidence from "nearly irrefutable to the merely illustrative."[230] The general unwillingness of the judiciary to consistently innovate results in a preference to analogize new technologies to "familiar forms."[231] Thus, by the middle of the 1880s, the prevailing judicial approach was to "align" photographic evidence with that of "maps, models and diagrams."[232]

The judiciary and contemporary commentators emphasized that the newly-expanded category of "visual media of communication" was not independent substantive evidence, but rather "pictured expression of data."[233] The visual evidence was reasoned to be "the witness's own description in visual rather than oral form" and could be used as long as "[the] attesting witness proclaimed it a correct representation."[234] Therefore, the necessity of authentication applied just as it would to "a letter or other writing."[235] As a result, judges assured that photographic evidence would be denied special evidentiary status as "self-proving,"[236] maintained "their authority over the decision to admit,"[237] and cemented the "jury's fact finding function."[238]

In light of photography's veridical power born of its "mechanical" and "transcriptive" nature, the analogy to maps and diagrams was constrictive, and allowed the judiciary to "finesse questions about admissibility."[239] This foreshadows implications for the rules of procedure, evidence, and for "the epistemic category that emerged from the judicial response to the photograph," i.e., demonstrative evidence.[240]

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[230] *Id.* at 58.

[231] *Id.* at 54.

[232] *Id.* at 43 n.151 (citing Kansas City, M. & B.R.R. v. Smith, 8 So. 43 (Ala. 1889)). *See also* 1 JOHN HENRY WIGMORE, A TREATISE ON THE SYSTEM OF EVIDENCE §§ 790–793 (1st ed. 1904); Mnookin, *supra* note 109, at 43 ("As Wigmore explained in the evidence treatise that came to be 'the Bible of the courts': 'It would be folly to deny ourselves on the witness-stand those effective media of communication commonly employed at other times as a superior substitution for words.'" (internal citations omitted)).

[233] *Id*. at 43–44 (quoting WIGMORE, *supra* note 232, § 790).

[234] *Id.* at 44.

[235] *Id.* at 53–54 (quoting WIGMORE, *supra* note 232, § 2130).

[236] *Id.* at 53.

[237] *Id.* at 54.

[238] *Id.* at 58.

[239] *Id.* at 55.

[240] *Id.* at 67–68. *See infra* Part III.B.3.c.

(*continued*)

3. Cautious Approach: Defusing a "Power and a Potency Beyond the Word"[241]

The judiciary contemplated the popular notion that the photograph had become "a more correct and vivid idea being thus conveyed to the minds of the jury than could be done by any language of witnesses."[242] The judicial response was analogical reasoning "linking" photographic evidence to illustrations, providing this new technology with historical roots and therefore a far less threatening categorization as a "representational form" familiar to the courtrooms of the day.[243] "If this new form of evidence were substantially the same as already existing forms, it raised no troubling questions; indeed, it need hardly be deemed new."[244]

a. The Photograph as Demonstrative Evidence

Against the gravitational pull of actual practice, where photographs were exhibited to prove matters of fact (not only to clarify testimony),[245] judges insisted on viewing photographs "as nothing more than eyewitness testimony in visual form."[246] This analogical reasoning was sound in light of photography's "unwarranted" presumption of accuracy and potential to "lie."[247] In opposition to the principle that photographs, certified by a qualified expert as to their mechanical authenticity, could be "admitted into the courtroom as substantive evidence," judges assimilated this new technology into a demonstrative category "making any presumptions of accuracy unwarranted."[248]

The photograph as a demonstration of testimony or illustration of fact was indeed especially persuasive because it "let[s] jurors see for themselves, rather than hearing secondhand the reports of percipient witnesses."[249] This judicial doctrine allowed the jury to weigh the corresponding credibility,

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[241] Mnookin, *supra* note 109, at 66.

[242] *Id.* at 18 n.68 (quoting Hampton v. Norfolk & W.R.R., 27 S.E. 96, 98 (N.C. 1897) (Clarke, J., dissenting)).

[243] *Id.* at 58–59.

[244] *Id.* at 55.

[245] *Id.* at 48. *See, e.g.*, Commonwealth v. Morgan, 34 N.E. 458 (Mass. 1893). *See also* Trial Records, Commonwealth v. Morgan, 1893 (Supreme Judicial Court Records, Social Law Library, Boston, Mass.). In that case, a criminal defendant denied ever wearing "whiskers." A photograph was entered into evidence "not merely to illustrate the witness's testimony; rather, it was concrete evidence supporting the witness's assertion that the alleged thief had worn whiskers." 34 N.E. at 458.

[246] Mnookin, *supra* note 109, at 48, 58.

[247] *Id.* at 58.

[248] *Id.*

[249] *Id.* at 65.

(*continued*)

which did not limit the photograph's admissibility.[250] This cautious approach made the new technology a potent, if even "dumb witness."[251]

Yet despite their best efforts, judges could not entirely suppress the "special probative power" of the photograph.[252] As illustration and demonstration became synonymous forms in trial proceedings, photographs admitted to courtroom proceedings became understood as evidence that was "not officially proof but nonetheless compelling."[253] By the late nineteenth century, a federal judge proclaimed that "nothing should be accepted as sufficient, except upon the most indisputable and demonstrative evidence."[254] At the turn of the century, judicial vernacular included "demonstration, in evidence," defined as "absolutely convincing proof."[255] The term "demonstrative evidence" became synonymous with "evidence that expressed itself directly to the senses,"[256] and—not coincidentally—included explicit "mathematical overtones," seen as both a "privileged form of proof and as a mere illustration with no independent probative value."[257] Judges and lawyers explicitly addressed photographs as demonstrative evidence, and argued that they are relevant "whenever it is important that the place, object, person, or thing be described to the jury."[258]

b. Authentication by Pictorial Testimony

The photograph was judicially analogized to the existing category of illustrative forms and brought into existence the category of proof known as demonstrative evidence.[259] As demonstrative evidence, the photograph's low bar to relevance worked in tandem with its low bar to authenticity.[260] Just as the standard for relevance as applied to photographic evidence became codified in Rule 401 of the Federal Rules of Evidence, the standard for authenticity as applied to photographic evidence became codified in Rule

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[250] *Id.* at 47–48.

[251] *Id.* at 42 (quoting Franklin, *supra* note 1, at 43). *See also id.* at 54.

[252] *Id.* at 47.

[253] *Id.* at 64–65.

[254] *Id.* at 67.

[255] *Demonstration, In evidence*, BLACK'S LAW DICTIONARY (2d ed. 1910).

[256] *See* Mnookin, *supra* note 109, at 68.

[257] *Id.* at 67–70.

[258] *Id.* at 68 (citing Cincinnati, H. & D. Ry. v. De Onzo, 100 N.E. 320 (Ohio 1912)); Milton v. Cargill Elevator, 144 N.W. 434 (Minn. 1913); Stewart v. St. Paul City Ry., 80 N.W. 855 (Minn. 1899).

[259] *Id.* at 5.

[260] *See supra* notes 243–49 and accompanying text. *See also* FED. R. EVID. 401 (The test for relevance: "Evidence is relevant if: (a) it has any tendency to make a fact more or less probable than it would be without the evidence; and (b) the fact is of consequence in determining the action."). *See also supra* notes 252–56.

(*continued*)

901.[261] Demonstrative photographs were described as "pictorial testimony," used to explain and illustrate the testimony of the witness, and most commonly authenticated by a knowledgeable witness who testifies that the photograph accurately represents the scene depicted at the relevant time.[262] Judges steered away from extrajudicial authentication by photographic experts as a means to preserve their authority over admittance.[263]

Reluctant to acknowledge the "independent probative value" of authenticated photographs, this formal doctrine forged by analogy was soon tested by a new technology: the x-ray.[264] "Eventually, judges took judicial notice that properly taken x-rays resulted in correct representations, so that admitting an x-ray required only testimony establishing that in the instance at issue it had been properly taken and interpreted."[265]

Once more, evolving technological forms spurred judicial invention by analogical reasoning, and the surveillance camera provided the techno-diversity necessitating an advancement of the procedural and evidentiary treatment of photographs.[266] Judges could no longer sequester the photograph within the confines of explanatory aides, shackled to pictorial testimony and authentication by unreliable witness testimony.[267] Technology, such as cameras in automated teller machines (ATM), would break the chains of demonstrative, pictorial testimony, and judicial reasoning would give birth to an emergent doctrine recognizing the long-suppressed nature of photographs as substantive evidence.[268] Behold the rise of the "Silent Witness" Theory.

c. Silent Witness Theory and the Reliability of Process

As NASA was inventing digital photography in the 1960s, the judiciary was inventing new means of authenticating photographs that did not have a traditional sponsoring witness.[269] Where there was no witness to testify as to the contents of the photograph—due to the automated process which captured it (as opposed to a person operating the camera)—a doctrine was developed whereby the evidence may "speak . . . for itself."[270] Relevant

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[261] *See* FED. R. EVID. 901. *See also* 5 FEDERAL EVIDENCE § 9:23 (4th ed. 2013).
[262] FED. R. EVID. 901(b)(1).
[263] *See* Mnookin, *supra* note 109, at 54.
[264] *See id.* at 52–53, n.187.
[265] *Id.*
[266] *Id.*
[267] *See supra* Parts II–III.A.
[268] *See* Barakat, *supra* note 11, at 42.
[269] *Id.* at 38. *See also* FED. R. EVID. 901.
[270] *See* Barakat, *supra* note 11, at 38, 42. *See also* 3 JOHN H. WIGMORE, WIGMORE ON EVIDENCE § 790 (James H. Chadbourn ed., rev. ed. 1970).

(*continued*)

evidence often critical to a case had been inadmissible because of no sponsoring human witness. But courts could not allow this, especially where the process that generated the photograph was a more reliable deponent, constituting independent, substantive evidence.[271] No longer could judges evade innovation and deny the veridical power of photographic evidence.[272]

By 1972, the prevalence of technology, which generated automated photographs offering compelling substantive evidence free of fickle witness testimony for authentication, had already provided sufficient judicial rationale and circuit agreement to be codified in the federal rules.[273] Rule 901(b)(9) allows authentication via "evidence describing a process or system and showing that it produces an accurate result."[274] Common law has suggested several factors for evidencing system process and reliability:

> (1) evidence establishing the time and date of the photographic evidence; (2) any evidence of editing or tampering; (3) the operating condition and capability of the equipment producing the photographic evidence as it relates to the accuracy and reliability of the photographic product; (4) the procedure employed as it relates to the preparation, testing, operation, and security of the equipment used to produce the photographic product, including the security of the product itself; and (5) testimony identifying the relevant participants depicted in the photographic evidence.[275]

Courts ensure these foundational requirements to expose tampering and safeguard against the manipulation of evidence by placing the burden on the offering party to prove authenticity beyond the mere prima facie, anecdotal testimony of a sponsoring witness, as historically relied upon under the pictorial theory.[276]

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[271] 5 FEDERAL EVIDENCE § 9:23 (4th ed. 2013).

[272] *See* Mnookin, *supra* note 109, at 54.

[273] *See* FED. R. EVID. 901 Advisory Committee Notes. "The treatment of authentication and identification draws largely upon the experience embodied in the common law." *Id. See also* Midland Steel Prods. Co. v. U.A.W. Local 486, 573 N.E.2d 98, 105 (1991) (citing United States v. Rembert 863 F.2d 1023 (C.A.D.C.1988)); United States v. Goslee, 389 F. Supp. 490, 493 (W.D. Pa. 1975).

[274] FED. R. EVID. 901(b)(9).

[275] *See* Bakarat, *supra* note 11, at 42; Wagner v. State, 707 So. 2d 827, 831 (Fla. Dist. Ct. App. 1998).

[276] *See* Mnookin, *supra* note 109, at 4; Bakarat, *supra* note 11, at 42. *See also* State v. Hygh, 711 P.2d 264, 270 (Utah 1985) (explaining that the pictorial theory, as opposed to the silent witness theory, is that "the photographic evidence is illustrative of a witness's testimony and only becomes admissible when a sponsoring witness can testify that it is a fair

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Through the lens of judicial analogy, the judiciary's treatment of photographic evidence, which spawned the common law doctrine of the Silent Witness Theory and its codification in Rule 901, is inferred to that of metadata in digital photography.[277] Additionally, by abduction from the backdrop of amendments to the Federal Rules of Civil Procedure, a proposed treatment of metadata in digital photographs takes form as an instrument to help resolve the conundrum posed by ESI and to shed light onto an otherwise convoluted corner of digital discovery.[278]

C. "Reflective Adjustment of the Rule Thus Inferred": Presumptively Relevant, Authenticated by System Evidence, and Worthy of Heightened Protection

"Photographs are silent witnesses to otherwise fleeting moments. One can no more separate the photograph from the photographed; they are one and the same."[279] Like a parent and child, metadata in digital photographs seemed destined to walk a road familiarly traveled by its ancestor. Once a novelty of the elite, the digital camera found its way into the pocket of every teenager (and every police officer), as a vital component of the cellular phone.[280] Digital photographs are now the norm in native production of photographic evidence, and they are most often captured with cell phone cameras.[281]

The general perception of the system metadata in these digital images and the information provided (such as the time, date, and location the picture was taken), has evolved from fanciful innovation to a digital fingerprint capable of revealing doubtless truth.[282] Now viewed as so fundamental to the image and taken as an indivisible part of the whole,[283] metadata is no longer an afterthought to the picture, but capable of providing substantive evidence of the photograph's authenticity. Metadata is the foundation of the photograph's veridical power.[284] As with the advent of photographic evidence, ESI and metadata have been treated with great skepticism—if not repulsion—because of susceptibility to alteration and distortion.[285] Judges

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and accurate representation of the subject matter based on that witness's personal observation.").

[277] *See supra* Part III. *See also* Brewer, *supra* note 195, at 925.

[278] *See supra* Part III.

[279] *See* Maddrey, *supra* note 10, at 503–04.

[280] *See* Pramis, *supra* note 14; Ahonen, *supra* note 15.

[281] *Id.*

[282] *See* Quenqua, *supra* note 35.

[283] *See* Breen, *supra* note 18; Nelson & Simek, *supra* note 53.

[284] *Id.*

[285] *See supra* text accompanying notes 190–93.

(*continued*)

have expressed anxiety over the power and potency of metadata, and their inability to contain it in the epistemological box of demonstrative evidence denies its substantive evidentiary potential.[286]

1. Presumptively Relevant

The common law, supplemented by amended Rule 26, provides a basis for treatment of metadata in digital photographs.[287] Metadata in digital photographs will always clear the low bar to relevance when considered in the light of the proportionality factors.[288] The parties' relative access to it should not be burdensome—as it is digitally rooted to the photograph—and it should be undisturbed in its native format on the device that captured the image.[289] Metadata is easily accessed when electronic documents or photographs are in their native format, and the technology for forensic examination, although not excessively expensive, is already capable of detecting corruption.[290]

Metadata in digital photographs does not present the same challenges in protection and production as does metadata in digital documents.[291] Substantive metadata in digital documents can have an exponential number of embedded characters and fields and be compounded by potentially thousands of pages of discovery, which may be a great burden to the producing party.[292] On the other hand, discovery requests for metadata in digital photographs should rarely be beyond the parties' resources. The relevant case studies provided demonstrate that the importance of metadata

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[286] *Id.*

[287] *See* Harris, *supra* note 40, at 205–06. "[T]he effect of the court's order to preserve the images was to at least bring digital photographs on a cellular phone under the purview of Rule 26 of the Federal Rules of Civil Procedure." *Id.* (citing Smith v. Café Asia, 246 F.R.D. 19, 21–22 (D.D.C. 2007)).

[288] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-30.

[289] *See, e.g.*, Smith v. Parkdale Mall, LLC, No. A-190-097, 2014 WL 2152553 (Tex. Dist. Jan. 21, 2014); *supra* text accompanying notes 87–92 (*Parkdale* provides a simple example of how even in camera review by the court on the device is not burdensome and could account for cost-shifting to the requesting party.).

[290] *Id. See also* text accompanying notes 54–76. "Native format" refers to an "active file" is that electronic format, preserved in the ordinary course of business, where the metadata is intact and uncorrupted.

[291] *See* Breen, *supra* note 18, at 440. In metadata in digital documents lies much of the concern of the judiciary, litigators, and parties alike regarding the difficulty of ESI in discovery and overall litigation. *See id.*

[292] *See supra* notes 24–28. Metadata in digital photographs is far limited in its scope compared to the vast array, and quantity, of metadata that may be found in digital documents. *Id.*

(*continued*)

is always high when resolving issues where a photograph provides demonstrative or substantive evidence.[293]

Finally, the burden and expense of protecting and producing metadata in digital photographs should never outweigh the benefit because even the most unsophisticated party can maintain the photograph in its digital native format, and, in worst case scenario, present the device to the court for review.[294] The benefit of resolving, by a highly reliable process, the actual date and time a photograph was taken (beyond mere reliance on sponsoring witness testimony for authentication), should always outweigh any burdens and ensure more cases are decided on their merits.[295]

Therefore, metadata in digital photographs, particularly those generated by cell phone cameras, should be presumed relevant and be required to be produced in native format.[296] The producing party may then rebut the presumption, rather than requiring the seeking party to rebut the producing party's assertion that a photograph's metadata is irrelevant.[297] A rule that presumes relevance is consistent with the intent of the Federal Rules of Procedure as a whole, and Rule 26 specifically.[298] Furthermore, the presumed relevance of metadata in digital photographs better serves judicial economy, and cleaves to the Supreme Court of the United States' directive that discovery be carried out so that the parties may "obtain the fullest possible knowledge of the issues and the facts before trial."[299] The Rules Committees have repeatedly stressed that "information that could be used to impeach a likely witness" or corroborate testimony should be presumed relevant.[300]

2. Authenticated by System Evidence

As a silent witness, metadata in digital photographs will always provide substantive evidence of the time and date the image was created.[301] Unlike a photo log—in which a person transcribes the date and time a photograph was taken—system metadata creates an embedded time stamp, which may

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[293] *See supra* Part II.A.

[294] *See, e.g.*, Smith v. Parkdale Mall, LLC, No. A190097, 2013 WL 8595897, at *1–2 (Tex. Dist. Dec. 17, 2013); Smith v. Asia Café, 246 F.R.D. 19 (D.D.C. 2007).

[295] *See, e.g.*, *Parkdale*, 2013 WL 8595897, at *1–2; *Asia Café*, 246 F.R.D. at 19. These cases underscore the pivotal role metadata in digital photographs plays in meritorious decisions and resolution of protracted discovery disputes.

[296] *See* Breen, *supra* note 18, at 440.

[297] *Id.*

[298] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-30.

[299] Hickman v. Taylor, 329 U.S. 495, 501 (1947). *See also* Breen, *supra* note 18, at 440.

[300] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-43.

[301] *See* Van Houweling, *supra* note 28, at 1483.

(*continued*)

either corroborate or impeach a witness's testimony as to authenticity.[302] Furthermore, system metadata is generated automatically by the software that creates the image, instead of by an individual person, and therefore may not be excluded as hearsay.[303]

Technological developments in the past, such as the surveillance camera and ATM camera, have paved the way for a silent witness theory of authentication by evidence as to process or system, which is reflected in Rule 901(b)(9).[304] The system metadata in digital photographs, particularly that generated by cell phone cameras, should be authenticated by evidence describing the process or system used to produce the result, and a showing that the result was accurate.[305]

The common law factors—already in place to help flesh out Rule 901 analysis—are particularly analogous and useful in vetting the system process and results. Expert testimony may provide: (1) evidence of the system metadata that establishes the time and date of the photographic evidence; (2) any forensic evidence of editing or tampering with the metadata; (3) the operating condition and capability of the equipment producing the metadata as it relates to the accuracy and reliability; and (4) the procedure employed as it relates to the preparation, testing, operation, and security of the equipment used to produce the metadata, including the security of the product itself.[306] This factor-driven analysis, and the forensic technology and prevalence of experts in this growing field, provide the foundational protections against tampering and manipulation of the metadata.[307] Conclusive results are within the parties', litigators', and judges' grasp to ensure photographic evidence is substantively authentic and meritorious. In addition to its presumed relevance, its authentication by this proposed treatment should easily establish that the "condition precedent to

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[302] *See* 1st Fin. SD, LLC v. Lewis, No. 2:11-CV-00481-MMD, 2012 WL 4761931, at *2 (D. Nev. Oct. 5, 2012) (citing CA, Inc. v. Simple.com, Inc., 780 F. Supp. 2d 196, 224 (E.D.N.Y. 2009) (citing 5–900 WEINSTEIN'S FEDERAL EVIDENCE § 900.07[1][a]) ("[A]bsent proof of alteration, computer generated data, such as a time stamp attached to a file when it is saved, is generally admissible and taken as true.")).

[303] *Lewis*, 2012 WL 4761931, at *2. *See also* United States v. Khorozhian, 333 F.3d 498, 505 (3d Cir.2003) (citing 4 MUELLER & KIRKPATRICK, FEDERAL EVIDENCE § 380, at 65 (2d ed.1994)) (holding that a fax machine's automatically generated header was not hearsay because "nothing 'said' by a machine . . . is hearsay").

[304] United States v. Rembert, 863 F.2d 1023, 1028 (D.C. Cir. 1988); FED. R. EVID. 901 (notes of Advisory Committee on Proposed Rules, Subdivision (b)).

[305] *Rembert*, 863 F.2d at 1028.

[306] *See supra* Part III.B.3.

[307] *See supra* at notes 35–37. A fee of $200 per hour is average for expert services in this field. *See, e.g.*, Kineticorp Report at 20, Rupert v. Ford Motor Co., 2014 WL 2812304 (No. 2:12-cv-00331-CB) (W.D. Pa. May 5, 2014).

(*continued*)

admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims."[308]

3. Worthy of Heightened Protection

The Amendment Committee did not shy away from the momentous challenge of revising Rule 37 of the Federal Rules of Civil Procedure to address the ESI conundrum in discovery, and it also intended to craft a proscriptive rule addressing the curative measures a court may take when ESI, such as metadata in digital photographs, is spoliated.[309] The Committee acknowledged that the duty to preserve such digital discovery, which arises in reasonable anticipation of litigation, was not new;[310] it is only now being codified from decisional law.[311] It is no coincidence that the Committee provided in its pronouncement of the amended Rule 37(e) that there will be 26 billion devices on the internet by 2020, the bulk of which will be creating and storing ESI through "unsophisticated persons whose lives are recorded on their phones."[312] Subsections (e)(1) and (e)(2) of Rule 37 both apply seamlessly to the metadata in digital photographs and provide hope for taming of the ESI category as a whole.

a. Rule 37(e)(1): A Failure to Safeguard the Silent Witness

When a party or third-party witness captures a photograph relevant to a claim or defense in litigation, reasonable steps should be taken to preserve the photo in native format with the metadata intact.[313] The court should consider the party's sophistication, along with the party's efforts to preserve it.[314] Here, all that is required is that the photograph is not erased from the device that captured it, or ensure that any transfer of the original image file did not corrupt the metadata.[315] The court should consider when the duty to preserve arose, the extent of the party's notice of litigation, the nature of the spoliation, and whether the system metadata may be adequately restored. Cost-shifting measures may mitigate any burden on the producing party.[316]

If metadata cannot be restored, but its spoliation was not the result of intent to deprive the other party of the information, then the court should

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[308] FED. R. EVID. 901(a).
[309] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-17.
[310] *Id.* at B-16.
[311] *Id.* at B-15.
[312] *Id.*
[313] *See id.* at B-16. *See also* Harris, *supra* note 40, at 211.
[314] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-16.
[315] *See supra* Part II.B.2.
[316] Order on Defendant's No-Evidence Motion for Partial Summary Judgment at 7, Smith v. Parkdale Mall, LLC, 2014 WL 2152553 (No. A-190-097) (Tex. Dist. Jan. 21, 2014).

(*continued*)

decide how best to cure the prejudice on a case-by-case basis.[317] For metadata in digital photographs, the burden should be on the spoliating party to prove a lack of prejudice, because the metadata should always be presumed relevant.[318] In the absence of intent, the court should determine a curative measure, including forbidding the party that failed to preserve the metadata from admitting the photograph into evidence, or allowing the prejudiced party to present evidence and argument to the jury regarding the lost metadata, and permit the jury to make reasonable inferences about its content and absence.[319] The trial court's discretion in the curative measure should be wide in latitude, but no more than necessary to cure the prejudice, as metadata in a digital photograph is an indivisible part of the whole.[320]

b. Rule 37(e)(2): Intentional Homicide of the Silent Witness

Where metadata in a digital photograph has been spoliated intentionally, a judge should direct the jury to consider it as unfavorable to the party that spoliated it.[321] An adverse jury instruction is an extreme measure to be sure, but as the amended rules instruct, where a party "acted with intent to deprive another party of the [metadata]'s use in the litigation," such a use of judicial discretion is warranted.[322]

The amended rule permits the jury to apply the adverse inference rather than mandating a finding that the spoliated digital discovery was unfavorable to the destroying party.[323] The amended Rule 37(e)(2) and the proposal presented here are a softened stance from many of the circuit court holdings that would also find an adverse jury instruction warranted where only mere negligent spoliation was found.[324] The distinction in practical application for metadata in digital photographs will largely be rendered moot.[325]

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[317] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-63.

[318] *See supra* Part II.B.2 (the amendments to Rule 37(e) are seemingly tailored to the spoliation issues presented where metadata in digital photographs has been lost or destroyed).

[319] *See supra* Part II.B.2.a (the amendments to Rule 37(e)(1) account for delicate considerations of the spoliators' intent and the requisite process for determining curative measures).

[320] *Id.*

[321] *See supra* Part II.B.2.b. *See also* PROPOSED AMENDMENTS, *supra* note 112, at B-17.

[322] *Id.*

[323] *Id.*

[324] *Id.*

[325] *See infra* Part III.D.

(*continued*)

c. The Silent Witness Will Not Be Silenced

There is enough room remaining for judicial discretion in Rule 37(e)(1) and (e)(2) to ensure that the proposed rule amendment addressing ESI as a whole, and the specific common law interpretation for metadata in digital photographic evidence proposed here, may find the proper balance in curative measures and the application of the intent standard.[326] Although a reading of each may seem to be a bright line, the reality is that the available application for negligent spoliation under Rule 37(e)(1) offers many of the same curative implications for a jury as does an adverse inference instruction.[327]

Even under circumstances of mere negligent spoliation, the requesting party may argue to a jury that the producing party had digital photographs that it knew were critical to its case, the timing of these photographs was equally central to its claim, and it failed to protect or produce the substantive proof to definitively verify its claim.[328] Not only will the jury be allowed to consider the detriment to the requesting party that was denied an opportunity to fully defend its case, but the jury will know that the producing party is attempting to prove its case without the definitive, veridical confirmation of its claim.[329] Whether the jury has been given a specific adverse inference instruction or not, the damage has been done. Furthermore, the judge's discretion in the absence of intent, where there has been only mere negligent spoliation of the metadata, may result in denying the admissibility of the photographic evidence altogether.[330] This may be of even greater detriment to a spoliating party's claim, where, without a key piece of evidence, the claim may never reach the jury to receive the adverse inference instruction.

D. "Application of the Confirmed Rule": A Sixth Circuit Ruling Captures Clarity and Forges a Path in the ESI Wilderness

The matter of *Barbara Gilley v. Eli Lilly Co.*[331] came before Judge Guyton in the United States District Court, Eastern District of Tennessee.[332]

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[326] *See infra* Part III.D (the judicial discretion in determining the intent question also leaves room for determining the proper remedy, regardless of whether Rule 37(e)(1) or (e)(2) is applied).

[327] *See* PROPOSED AMENDMENTS, *supra* note 112, at B-64.

[328] *Id. See also* Part.II.B.2.a.

[329] *See supra* Part II.B.2.b. *See also* PROPOSED AMENDMENTS, *supra* note 112, at B-18.

[330] *See supra* Part II.B.2.a. *See also* PROPOSED AMENDMENTS, *supra* note 112, at B-64.

[331] Gilley v. Eli Lilly & Co., No. 3:10-CV-251, 2013 WL 1701066 (E.D. Tenn. Apr. 2, 2013) *report and recommendation adopted*, 2013 WL 1694436 (E.D. Tenn. Apr. 18, 2013). *See also* Gilley v. Eli Lilly & Co., No. 3:10-CV-251, 2013 WL 4647157 (E.D. Tenn. Aug. 29, 2013).

[332] *See id.*

(*continued*)

The defendant filed a "Motion to Dismiss as Sanctions for Discovery Abuse and for Spoliation."[333] The plaintiff, after being fired in December of 2008, brought a wrongful termination suit in June of 2010 against her former employer after she allegedly failed to complete a computer-based training course on time, allegedly lied about it, and allegedly falsified a completion certificate.[334]

In support of her claim, plaintiff testified that she took a picture of the completion certificate with her cell phone after it would not print out.[335] As the date and time of her completion of the course was central to her claim, the defendant requested to inspect the digital file to confirm the metadata, but the plaintiff claimed the phone was no longer in her possession.[336] The plaintiff then changed her story in deposition testimony to say that she had downloaded the photograph onto her computer and had taken a second picture of the completion certificate with her daughter's cell phone as well.[337] She acknowledged that she knew the photographs would be central to the litigation, hence the reason she took them in the first place.[338] Before Judge Guyton was the issue of the plaintiff's failure to preserve and produce the digital photographs with the metadata intact.[339]

The defendant argued that the plaintiff failed to preserve the digital photographs, or take reasonable steps to do so, and that the metadata in the digital images could have provided the precise date and time the photographs were taken.[340] The plaintiff did not dispute that she failed to preserve the digital photographs with the system metadata intact, but contended that the printed documents she provided were sufficient, and that the defendant never made a formal discovery request for the digital copies of the photographs.[341]

The court found that the plaintiff did fail to preserve the digital photographs in their native format, and the printed form is not equivalent.[342] The court ruled the metadata had been lost forever, and that the plaintiff had destroyed the evidence at least negligently, but certainly with a culpable state of mind in destroying evidence relevant to the claims where there was

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[333] *Gilley*, 2013 WL 1701066, at *1.

[334] *Id.*

[335] *Id.* at *2.

[336] *Id.*

[337] *Id.* at *2. The plaintiff eventually stated throughout deposition testimony that there were six digital photographs of the certificate taken either with her or her daughter's cell phone. *Id.*

[338] *Id.*

[339] *Id.* at *3.

[340] *Id.* at *4.

[341] *Id.*

[342] *Id.*

(*continued*)

a duty to preserve.[343] Because of the clear precedential standard set by federal law, the court did not have to address whether the plaintiff had intent to breach the duty to preserve in order to give an adverse inference jury instruction.[344]

Judge Guyton denied the defendant's motion to dismiss the suit as too extreme of a remedy.[345] Instead, the judge took the curative measure of allowing the defendant to ask the plaintiff in front of the jury why the digital images and metadata were not preserved, in the context of the other evidence to be presented.[346] The judge acknowledged that "the jury may be familiar with the ease with which digital images can be obtained and preserved . . . [,] remed[ying] any advantage the Plaintiff may have gained through her spoliation, while at the same time allowing the jury to fulfill its role as fact finder."[347]

Judge Guyton then took the additional step of allowing a permissive adverse inference instruction.[348] The defendant could draft a jury instruction, to be approved by the judge and objected to by the plaintiff, allowing the jury to infer—should they so choose—that the metadata in the digital photograph would have evidenced the certificate of completion was taken at a different time than the plaintiff testified.[349] By then, however, the damage would have been done. Intentional or not, the spoliation of the metadata was a crucial blow to the defendant's ability to defend its case, and resulted in a fundamental flaw in the plaintiff's ability to prove hers.[350] In fact, the adverse inference would never make it to the jury, as two months later, plaintiff's counsel withdrew.[351] Two months after that, the claim was dismissed with prejudice for the overall pattern of discovery abuses.[352]

After nearly five years of pre-litigation, pleadings, discovery, and courtroom drama, metadata in digital photography—even in its absence—struck the fatal blow to a questionable claim.[353] The plaintiff's attempt to hush this silent witness failed.[354] The mere specter of its substantive,

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[343] *Id.* at *4–5.
[344] *Id.* at *6.
[345] *Id.* at *7.
[346] *Id.*
[347] *Id.* at *9.
[348] *Id.*
[349] *Id.*
[350] *Id.*
[351] *See* Gilley v. Eli Lilly & Co., No. 3:10-CV-251, 2013 WL 2897954, at *1 (E.D. Tenn. June 13, 2013) ("citing a critical disagreement that has arisen between the Plaintiff and counsel about the representation").
[352] *See id.* at *11.
[353] *Id.*
[354] *Id.*

(*continued*)

veridical power brought a protracted and expensive discovery battle to a close, resulting in the just determination of the claim on its merits.

IV. CONCLUSION

In the twenty-first century, the mountainous challenges produced by ESI in discovery have continued to rise to new heights. The digitization of our culture, and its ever-expanding global influence, is forcing citizens and the legal system to continuously adapt. It seems new technologies are born every day, and with their conveniences come new responsibilities.

The photograph has long since dazzled the eye and the imagination with its ability to communicate beyond the power of words. In digital photography, images are created more readily and inexpensively,[355] and the volume of images—and the frequency of their capture—continues to grow exponentially. From the government's surveillance cameras to a teenager's cell phone, seemingly no photo opportunity is missed. The photograph's importance in litigation has been chronicled and is sure not to fade. Although the photograph has presented discovery and evidentiary problems for courts, its history has proven that it provides more solutions to ensure cases are decided on their merits.

The judiciary now finds itself locked in this familiar tussle, not with the photograph, but with electronically stored information attached to it.[356] Much like the photograph itself, ESI presents many problems and so much potential. Courts continue to struggle regulating this area of discovery and evidence,[357] and its form and applications are constantly growing and changing. But, there must be a methodical approach to tackling the subject.

Necessity is the mother of all invention, and out of this struggle, the proper resolution is apparent. The path to the summit of the mountainous obstacle of ESI is aided by a once perceived foe: the photograph. Digital photography is now the only viable form, and the cell phone camera is, by far, the device most often used in capturing images today and into the foreseeable future.[358] The system metadata within digital photographic evidence is a readily-accessible and applicable technology entering the

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[355] Michael Archambault, *Film v. Digital: A Comparison of the Advantages and Disadvantages*, PETAPIXEL (May 26, 2015), http://petapixel.com/2015/05/26/film-vs-digital-a-comparison-of-the-advantages-and-disadvantages.

[356] *See* Gilley v. Eli Lilly & Co., No. 3:10-CV-251, 2013 WL 4647157 (E.D. Tenn. Aug. 29, 2013).

[357] *Id*.

[358] Ben Taylor, *How the Smartphone Defeated the Point-and-Shoot Digital Camera*, PC WORLD (Aug. 19, 2014), http://www.pcworld.com/article/2466500/how-the-smartphone-defeated-the-point-and-shoot-digital-camera.html.

(*continued*)

courtroom with greater frequency by the day, carried by participants in their pockets, and often found at the heart of their claims.[359]

The cogent and digestible rules proposed here not only advance the policies at the heart of the Federal Rules of Civil Procedure and the Federal Rules of Evidence, but they bring calm to the troubled waters of ESI. The technology only becomes more stable, and the electronic discovery market more competent. By analogizing the path the photograph has taken in the courtroom, the court may find solitude in metadata's continued prevalence and positivism in the courtrooms of today and of tomorrow. As the Supreme Court of Georgia once said about photographic evidence over a century ago, one can imagine the Supreme Court of the United States proclaiming in the future the following about metadata in digital photographs: "We cannot conceive of a more impartial or truthful witness than the binary process, as it stamps and seals the photograph put before the jury; it would be more accurate than the memory of a witness; evidence is to show the truth, why not let this silent witness show it?"[360]

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[359] *Id*. (discussing how cell phone cameras have taken over and become more popular than traditional cameras).

[360] Franklin v. State, 69 Ga. 36, 43 (1882). *See also* Sumner Kenner, *Photographs as Evidence*, 60 CENT. L. J. 406, 406 (1905).