

## A HISTORY OF PHOTOGRAPHY:

With an emphasis on the legality and accuracy of photographic images and a discussion concerning the relative ease of the deception of the viewer when using film vs. digital media.

By: Sanford L. Weiss

Photography became a reality in 1827 when Joseph Nicéphore Niépce, a French lithographer, succeeded in permanently capturing, on a metal plate coated with bitumen, the view outside his window. In 1839 the French government purchased both the patent it had granted to Niépce and the one they had granted to Louis Jacque Mande Daguerre for a process by which he was able to capture images on silver coated copper plates. The French presented both inventions to the world as a gift and news of the discoveries spread rapidly. "To nineteenth-century enthusiasts of this new art, the making of a photograph, which fixed forever a moment of time, resembled an act of magic."<sup>1</sup> Within a very few years, photographers were practicing their craft upon architectural subjects, still lifes, portraits and landscapes. On July 5, 1853 George Barnard took the first known photograph for journalistic purposes of the fire at the Oswego Mill in Oswego, New York.

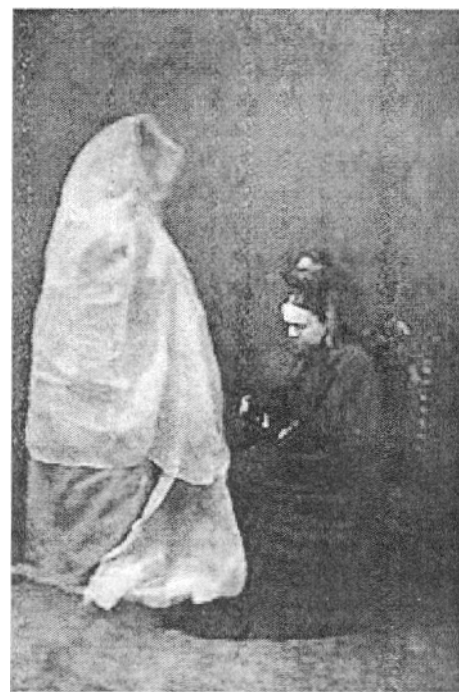


During the same year, the Crimean War became the first major conflict to be documented photographically. Photography was technologically well out of its infancy by the time the American Civil War was documented in the 1860's by some of our most famous early photographers, including Matthew Brady, Alexander Gardner and



Timothy O'Sullivan. Photography was, however, still an awkward discipline to practice and the photographers of the time needed to haul covered wagons as portable dark-rooms used to both coat and process their wet-plate collodion images. To avoid some of the danger, it was standard practice for a photographer to roll in after a battle and pose the dead in ways that made for the most graphic compositions, often using the same bodies for many different images.<sup>2</sup> Pre-battle images also exist that depict live soldiers posing as dead.<sup>3</sup> It would be an interesting point of discussion to address the question of whether images generated at that time, using those practices, should be considered inaccurate or deceptive. The intent of the images was to inform the viewers of the conditions of the war, not to create a scenario that could not have occurred. "Technical limitations made it necessary to 'enhance' the photographs by staging them, in order to give the public the most accurate depiction of the war."

One of the earliest known forms of photographic deception was Spirit or Ghost Photography. Due to the long exposure times necessary for early film media, subjects that were not moving in the frame came out looking normal in the finished photograph but subjects that were moving in the frame were often recorded in a see-through blurry manner.<sup>5</sup> After the discovery of this phenomenon, ghostly images were taken on purpose, intended for amusement and published and distributed to the public. When a photographer named Richard Mumler from Boston claimed to have actually photographed real ghosts, his work not only initiated a wave of international popularity with Spirit Photography but also started a scientific controversy that lasted well into the 20th century. It is human nature to practice deception to achieve personal gain and it did not take long before enterprising but dishonest photo-



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graphers were going door to door selling people photos of the people's dearly departed relatives. The photographer would send a fake "bible salesman" partner ahead to a home and have them look up the names of dead relatives in the people's family bible. Then the photographer would come by and take portraits of the living family only to miraculously discover "ghosts" of relatives floating about in the resultant images. By 1870, Richard Leach Maddox had discovered the process for making dry plate negatives and the "ghosts", who were also part of the scam, were exposed onto the plates ahead of time and the negatives were then double-exposed with the second image. Due to the fuzzy and see through nature of the ghosts, any person could pose as the ghost and then the photo-salesman would imply who the ghost was and the gullible customer would accept the explanation as the truth. A photo of long dead Aunt Lucy, Uncle Harry or Cousin Earl, would compel the family to pay large sums of money for the photos. In 1872 Richard Mumler himself was put on trial for fraud and his trial became the start of a battle between "Science and the Séance" that lasted for decades.<sup>6</sup> These photographs and the groups formed to

study them were afforded a degree of credibility by the people associated with them. Sir Arthur Conan Doyle was vice president of the Society for the Study of Supernatural Pictures and Harry Houdini was later to be a charter member.

Within a very short time after its invention, photography became a standard means of documenting evidence by the police departments of the world. The Belgian police had been using photographs of arrested persons as photo mug shots since 1843.<sup>7</sup> Photography in any of its forms, was then and is now the only way to permanently capture the "true image" of an object or event. By Written standard, "to be admitted in evidence in a court trial, a photograph must be a fair and reasonably



accurate representation of the subject portrayed."<sup>8</sup> That has been the major prerequisite for the admissibility of courtroom photographic images since they were first introduced in 1859.<sup>9</sup> Most of the very early use of photographs in the courtroom was for the analysis of questioned documents.<sup>10</sup> Photographic evidence always has been challenged by enterprising individuals that find the content of the images in question to be damaging to their side of a case. This quote was entered into evidence in 1899: "It is common knowledge that as to such matters, either through want of skill on the part of the artist, or inadequate instruments or materials, or through intentional and skillful manipulation, a photograph may not only be inaccurate but dangerously misleading."<sup>11</sup> It should be remembered that the photo-

graph itself is not the evidence. The testimony of the witness is the evidence and the image is an exhibit to that testimony.<sup>12</sup> "The party seeking to introduce the photograph into evidence must be prepared to present testimony that the photograph is accurate and correct."<sup>13</sup> This rule applies no matter what the media of the photograph.

With regard to forensics, in 1983 John Duckworth wrote that, "We carry photographic evidence into court that tells the story and that is accurate and understandable."<sup>14</sup> The question is, how accurate does a photograph have to be in order for it not to be determined inaccurate? " **All (2D) photographs are an abstraction** in one way or another. Even if the picture reveals a completely realistic and recognizable subject, it is only a two-dimensional representation of a three-dimensional scene, consisting of a pattern of dyes on a piece of chemically treated paper a few millimeters thick."<sup>15</sup> This reasoning does not seem to jeopardize the admissibility in court of 2D still or motion images. Many factors contribute to the definition of a photograph as an abstraction. Perspective changes through the use of wide-angle and telephoto lenses, differences in magnifications between print and reality, variable viewing distances, hardware distortions, film limitations that either expand or contract the contrast of the scene as compared to human vision, color limitations, etc are just a few. It is not even necessary to go past the inherent differences between the human eye and the media that we use to capture images to explain the fact that there is no way for us to ever create an artificial image that totally duplicates what we can see. Our eyes are very much like cameras except that our eyes are able to adjust to a lot wider range of brightness than any camera/film combination possibly could. Normal human vision operates at a range between strong sunshine with a light intensity approaching 10,000-foot candles (fc) and moonlight at about 1/1,000 of an fc. Night vision after full dilation of the

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pupil may reach limits of 1/1,000,000 of an fC.<sup>16</sup> The eye cannot see this whole range at one time but it adjusts from one brightness range to another by a process called accommodation. The maximum brightness ratio that the eye can perceive at anyone point is about 1000: 1. The camera/film or digital' cam- era combination can capture a brightness range of about 150: 1 at most. "The intensity level of illumination depicted in a photograph is inferred rather than seen."<sup>17</sup> People With normal color vision can discriminate about 1,000,000 distinct colors, Photo reproduction, either on print or electronic media, does not come close to recreating that range although the computer is also able to distinguish more than that number.

The factor that allows us to accept photographs, films and television as reasonable facsimiles of reality is that we see what we expect to see. "Photographic identification requires that the pattern in the picture be relatable visually to the image the observer has formed of it, or is expected to form of it, in his mind."<sup>18</sup> "Today's ubiquitous television and video productions have made Americans a truly visually oriented people. Regardless of language differences or degree of literacy, most persons can understand a picture or drawing; hence, visuals can be regarded as a "universal language".<sup>19</sup> "People are so used to seeing 2D representations of 3D subjects that their minds automatically reconstruct the 3D image for examination. There was no color in photographic images until well into the 20<sup>th</sup> century. Black and white photographs were accepted as representations of reality. Even the small percentages of people in the world that ate color blind are still able to distinguish some colors. Obviously, people are able to recreate reality in their minds by viewing images that ere only minimal representations of that reality.

Commercial photographers often attempt to enhance certain details of a photograph through the use of special

lenses, filters, or lighting. Evidence photographs should be totally honest and un-enhanced in any way to most accurately portray the subject photographed.<sup>20</sup> All of the equipment related limitations that affect the capture of an image seem to be acceptable in the eyes of the court as long as there has been no attempt to consciously deceive the viewer. Only changes in the contents of the image should be classified as affecting authenticity. Changes in contrast, color, brightness and density do not necessarily alter the ability of an image to accurately depict the original scene.<sup>21</sup> "Certain procedures for enhancing digital imaging files are analogous to using basic darkroom techniques to enhance film images. They are applied gene ally to an entire image. Digital imaging software can, for example, be used to control the contrast of images or to enlarge them."<sup>22</sup> The idea of deception can become an interesting point when the deception is not a conscious effort but instead the limitation in knowledge on the part of the photographer. For example, the representation of a night scene on film that is meant to show a jury what the actual scene "looked like" to the original viewer, is a physical impossibility. Given enough exposure a moonlit scene will not only show a normal brightness range but it will also look like it was taken in bright daylight.<sup>23</sup> However, images of this type often go unchallenged.

Most people think that it is harder to alter 35 mm film images than it is to alter digital images. This mind-set is worth acknowledging because juries art; made up of "most people". Almost everyone has taken conventional film photographs at some point in their lives and have some prior conception of what a negative is and what it takes to create one. Those same people would think that it would be very difficult to alter or fake a film negative. Film offers a concrete object to study and after long years of experience, many experts in the field have learned to recognize what an original negative should look like. A reliable

expert in conventional photography has an excellent chance of spotting an alteration in film media: The famous "shoes" photographs in the O.J. Simpson civil trial are a perfect example of how hard it may be to get away with 35 mm fakery. They are also a prime example of how different experts perceive the same subject. Photographs of O.J. wearing Bruno Magli designer shoes were put into evidence. Bloody footprints from that type of shoes had been found near the bodies of Nicole Simpson and Ron Goldman. O.J. denied wearing that type of shoes. His less than expert quote in rebuttal to the photographs was that they were "ugly assed" suede and that he wouldn't wear them in Buffalo in September.<sup>24</sup> Robert Groden, the man who spent years analyzing the JFK assassination photographs, testified for the defense in the trial that the shoes photos were probably forgeries.<sup>25</sup> Groden testified that there were 10 separate signs of forgery in the negatives. One of the easiest of the signs to understand was that the frame of the first shoes photo was physically larger than all of the other negatives on the same roll. He stated that unless the photographer changed cameras between frames that



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would be impossible. Gerald Richards, an expert with wonderful credentials testified for the plaintiff that the images were 100% genuine.<sup>26</sup> The source of the roll of film was the *National Inquirer*. Even with film and film experts, controversy is not an unusual occurrence.

Digital photography is new enough that most people have had some exposure to it but would have no idea as to what it would take to capture a digital image. The inner workings of computers and the methods of image digitization are difficult concepts. "Digital imaging dramatically changes the rules (of photography). It creates a condition in which the image maker may choose among many different devices and procedures for mapping from intensities in a scene to intensities in a display or print, in which image fragments from different sources may quickly and seamlessly be combined, and in which arbitrary interventions in the image construction process are easy to introduce and difficult to detect."<sup>27</sup> In 1985 an article in the *Whole Earth Review* predicted the "end of photography as evidence of anything"<sup>28</sup> due to the ease of manipulation of digital images. As recently as February 2000, digital images were being thrown out of court as being too difficult to defend as tools to properly investigate, evaluate and defend a claim in the insurance industry. "Good photographs don't lie; people do. And people can make digital images lie."<sup>29</sup> There is, however, a company distributing a software solution to the digital image admissibility problem. VeriPic,<sup>™</sup> of Sunnyvale, California, makes photographic authentication a reality.<sup>30</sup> They have a software that is able to reside within most digital cameras that locks in photo contents and is able to prompt the viewer with a message that states that the photograph is or is not in the same state as when it was exposed, when the photo is accessed on a computer within their software. This software can only guarantee that the accessed image is unaltered if the software is installed in the camera at the

time of the exposure. Digital photos can be altered without possibility of detection anytime between exposure and display. It is possible for anyone with a computer to alter any digital photograph up until the time that the photograph has been subjected to authentication software. It would be possible to detect the alteration if the person doing the alteration left an earlier version of the same photograph on the same disc. That has been known to happen but is not a likely scenario.

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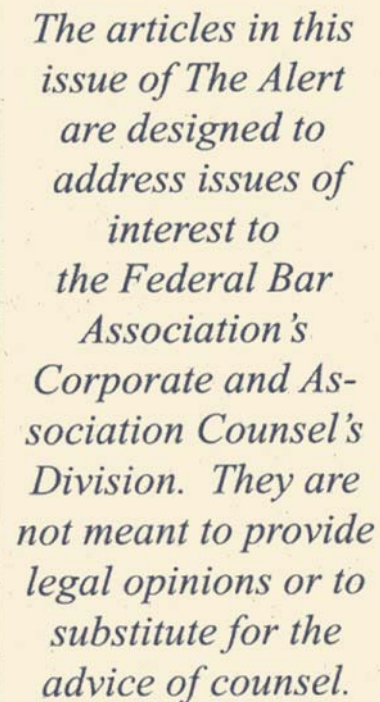
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"One way or another, a photograph provides evidence about a scene, about the way things were, and most of us have a strong intuitive feeling that it provides better evidence than any other kind of picture. We feel that the evidence it presents corresponds in some strong sense to reality, and that it is true because it does so."<sup>31</sup> The issue of choice between film and digital imaging should not be about which media is easiest to fake. The choice between the media should be about which better suits the purpose of the individual assignment. Both technologies are there for us to use. Both media are currently being accepted into court as exhibits. As with any other type of evidence, it is the responsibility of the people that are introducing it to make sure that it is a fair and accurate representation of the truth. It should be the job of the person presenting the exhibits to be able to testify as to how the exhibits were prepared. There have been instances where digital photographs that have been known to be enhanced have been admitted into evidence. In two trials, *State Of California vs. Phillip*

*Lee Jackson and State of Washington vs. Eric Hayden*, enhanced digital images of fingerprints passed Kelly-Frye hearings and were used to convict the accused.<sup>32</sup> There may come a time when digital imaging becomes predominant in legal proceedings. With the state of our technology, an attorney should now be able to go into court with a laptop computer and have access to all documents and images pertinent to the case and be able to easily find them and even put them up on a screen in large size for all to see. The time of reluctance to use digital imaging because of fear of fakery is rapidly coming to a close. <sup>8</sup>

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*Sanford L. Weiss is a Certified Forensic Evidence Photographer with Packer Engineering, Inc. in Naperville, IL.*



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issue of The Alert  
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