

***Factually Documented Articles on the Wild West***

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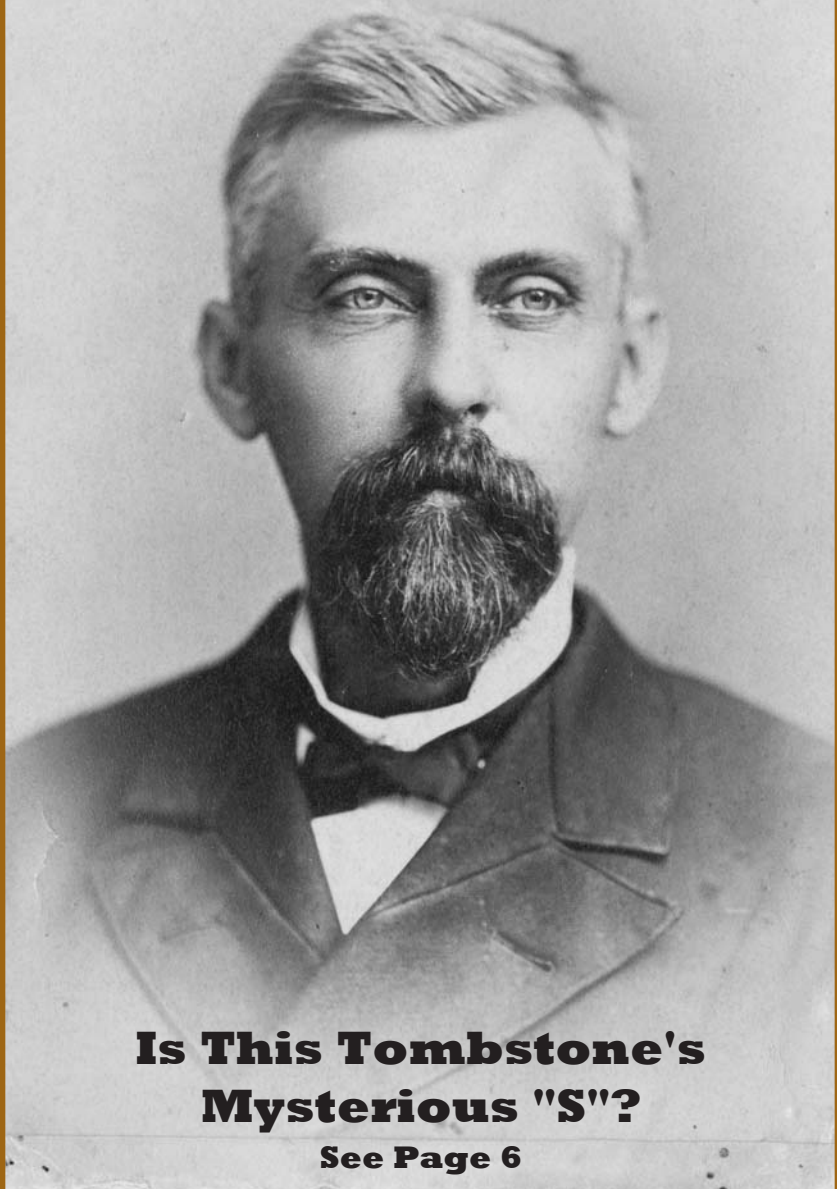
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## **Wild West CSI: Whodunits from Yesteryear**



**Is This Tombstone's  
Mysterious "S"?**

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# Billy the Kid Death Scene: Reviewing Ballistic Evidence

By James A. Bailey and Margaret B. Bailey

**Y**oung and notorious, Billy the Kid lived an extraordinary life as an outlaw in the New Mexico Territory. For decades Western writers, historians and investigators have speculated about Billy the Kid's exploits and circumstances surrounding his death.<sup>1</sup> For this investigation, newspaper articles and accounts describing Billy the Kid were reviewed. In addition to a retrospective examination of these sources, anecdotal accounts provided supplemental evidence associated with Billy and his death. In reviewing the case and contemplating a possible conclusion surrounding the circumstances of Billy's death, a forensic examination of bullet holes in Peter "Pete" Menard Maxwell's washstand was also conducted.<sup>2</sup> This forensic examination of the Maxwell washstand and related evidence will provide those interested in the death of Billy the Kid with important information to consider in the case.

In April 1880, Billy the Kid was tried and sentenced for his involvement in a deadly dispute known as the Lincoln County War that erupted following several years of conflict between rival

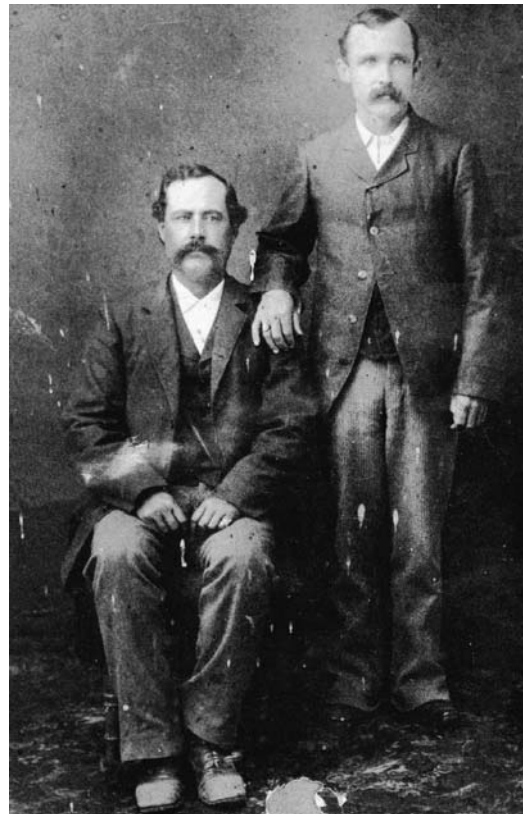
Irish and English businessmen in the New Mexico Territory.<sup>3-4</sup> Following the trial, Billy was jailed in Lincoln County Jail, Lincoln, New Mexico. Sheriff Patrick F. Garrett assigned two deputies to guard Billy while Garrett was out of town. On April 27, 1881, Billy killed the two deputies, escaped and sought refuge at Pete Maxwell's ranch



*Woodblock illustration from 1882 edition of The Authentic Life of Billy the Kid by Pat F. Floyd Garrett. The woodblock print has been reversed illustrating Billy with his revolver on the right side. (Authors' Collection)*

at Fort Sumner nearly a hundred and fifty miles from Lincoln.<sup>5</sup> Maxwell, son of Lucien and Maria de la Luz Maxwell, was well known by everyone in the Territory including Billy and Sheriff Garrett.<sup>6-7</sup>

In July 1881, following Billy's escape, Garrett received a letter from M.S. Brazil informing him that "the Kid was living near Peter Maxwell's on the Basque Grande, three miles from Fort Sumner on the Pecos River, disguised as a Mexican sheep herder."<sup>8-9</sup>



*Seated is Peter "Pete" Menard Maxwell, son of Lucien and Maria de la Luz Beaubien Maxwell. Standing is Henry Leis who participated in the Battle of the Adobe Walls. (Courtesy Kenneth L. Miller, III, Nashville, TN)*

In fact, Garrett not only received the letter from Brazil, he "received several communications from persons in the vicinity of and about Fort Sumner, that William Bonney, alias the Kid, had been there, or in that vicinity for some



When Lucien Maxwell purchased the Fort Sumner property it included several adobe buildings. Among those buildings was the structure that housed the commanding officers' quarters which became the Maxwell family residence. It was constructed of braces and scantling made from ponderosa pine timbered and transported from as far away as Turkey Mountain in northeastern New Mexico. The building's exterior adobe walls were twenty-four inches thick. Originally, the quarters were fifty feet wide and ninety-five feet long with eight rooms divided by a hallway ten feet wide and forty feet long. Four of the rooms were twenty feet by twenty feet, three rooms were fifteen feet by twenty feet, and one room was ten feet by twenty feet. There was a large uncovered corral approximately thirty feet by fifty-five feet on the northwest side of the quarters.<sup>19-20</sup>

The building weathered the harsh elements of New Mexico's climate providing Fort Sumner's officers and later the Maxwell family with comfortable, spacious living quarters. Five years after purchasing the property Lucien died. Subsequent to Lucien's death, Luz, Lucien's wife, owned the Fort Sumner residence and Maxwell belongings. Pete died in 1898 followed by Luz's death in 1900. After their deaths, the washstand was among the Maxwell items which Odile Maxwell Abreu inherited.<sup>21</sup>



*Stella Abreu Miller's "Billy the Kid Museum" in Santa Rosa, New Mexico circa 1940. (Courtesy Kenneth L. Miller, Jr., Albuquerque, NM)*

Up until 1936, Stella had Billy the Kid Museums in two different locations in the Fort Sumner area where she displayed the washstand and other artifacts. Then, sometime around 1940, Stella and her husband, Kenneth L. Miller, Sr., relocated to Santa Rosa, New Mexico where they operated a gas station. Again, the washstand went on display. This time in a portion of the gas station that housed her Billy the Kid Museum at Santa Rosa. In a few years, Stella and Kenneth moved to Albuquerque where the washstand and other museum items were once more stored at family residences in the Fort Sumner area. Throughout the years that followed, some of the museum pieces were borrowed, sold or given to interested individuals. To preserve the remaining pieces, in 1959 Stella stored them at her home in Albuquerque where they remained. After her death, Mannie, Stella and Kenneth's youngest son and caregiver, inherited the washstand and other museum items.<sup>22</sup>

Mannie kept the washstand stored on the property he shared with his parents in Albuquerque. Other than one public exhibit at the Albuquerque Museum, May 13-22, 2007, the items remained in storage at the Miller home. Mannie died March 20, 2011.



*Stella Abreu and Maurice G. Fulton outside "Billy the Kid Museum," in Fort Sumner, NM circa 1925. (Courtesy Kenneth L. Miller, Jr., Albuquerque, NM)*



*Manuel "Mannie" F. Miller, son of Kenneth L. Miller, Sr. and Stella Abreu Miller circa 1959-1960, taken upon Mannie's completion of Air Force Basic Training. It was taken about the same time his parents relocated to Albuquerque, NM (Courtesy Kenneth L. Miller, III, Nashville, TN)*

In storing the Maxwell belongings, Stella and her family preserved an important part of the Maxwell family's role in Western frontier history as well as evidence pertaining to Billy's death. So, when the heirs decided to sell the washstand and other artifacts, the procurer of choice was a private collector who also had an avid interest in

Western history preservation.<sup>23</sup>

Given the death scene inside Maxwell's room, the washstand is a significant piece of physical evidence in reconstructing the Billy the Kid shooting. Although photographs showing the layout of the room after the shooting are unavailable, relevant Billy the Kid items, including the washstand, are in the William I. Koch Collection.<sup>24-25</sup> A review and assessment of the washstand and these artifacts contributed to reconstructing the scene and events which took place the night Billy was shot.

In 2004 Kurtis Productions, a television documentary company was interested in Stella's

museum collection. The production company enlisted the assistance of internationally respected forensic scientist, Dr. Henry C. Lee, Chief Emeritus, Connecticut State Police Forensic Laboratory; and two of his associates, Calvin D. Ostler, forensic consultant; and Kim Ostler, crime scene assistant, to conduct forensic tests on the washstand and other items in the collection. Michael Haag, Firearms Examiner, Albuquerque Police Department Crime Lab also assisted. Dr. Lee's forensic report notes: "Visual examination of the external surface of the washstand reveals two holes, one single hole in each end of the side panel. Macroscopic examination of these holes indicates the holes are consistent with bullet holes."<sup>26</sup>

When viewing the washstand from the front, the bullet hole on the left side panel was described as consistent with a bullet entrance hole and the bullet hole on the right side panel was described as an exit bullet hole. The report also indicated the path of the bullet as it traveled through the left side panel, through the left side of the drawer, the right side of the drawer and finally exited through the right side panel. Dr. Lee, his associates and Haag performed a sodium rhodizonate test on the four bullet holes to determine if bullet wipe or traces of lead were present around each bullet hole.<sup>27-28</sup>

When a bullet passes through materials such as wood, traces of lead are often transferred to the wood around the periphery of the hole and will test positive for the presence of lead.<sup>29</sup> Dr. Lee's tests produced positive results confirming lead was present around the periphery of the holes tested in the washstand. Also, Dr. Lee used a laser beam in the examination to align the bullet-hole angles with the drawer when



*Winter panoramic view of Koch's western town beneath Ragged Mountains. (courtesy William I. Koch, Photo by Pat Sudmeier)*

closed. In so doing, he determined the bullet path was from the left panel downward approximately 4.47 degrees and from the back of the side panel toward the front approximately 5.22 degrees.<sup>30</sup>

In 2014 author James Bailey developed a new forensic technique that could be used for the examination of bullet holes using radiography. Radiography has been used in clinical and forensic medicine for decades to locate bullets in the human body but it has only been used recently to identify lead particles in other substrates such as wood in order to locate bullet metal in bullet holes. Until the development of portable radiography devices and digital sensors, it was not practical to make radiographs of bullet holes. Beforehand, the x-ray equipment was large and required special facilities for developing x-ray film.

On May 13-14, 2015, the authors traveled to Colorado to examine the washstand. A portable digital radiography unit was used to identify and confirm the bullet holes in the washstand. The washstand was located in one of several restored buildings relocated to Koch's creation of a western town.<sup>31</sup> The one-room building where Billy the Kid items were exhibited had previously been a one-room schoolhouse built during the late nineteenth century.



*Washstand with arrow indicating approximate downward path of bullet. (Copyright William I. Koch, Photo by authors)*

Upon examination, the washstand's style, finish and hardware were consistent with 19th century furniture. A pull-out dowel towel rack was located at the top of the right-hand panel near the front.<sup>32</sup> The washstand was dark in color with some exposed unfinished areas where some of the finish had worn away and all but one of the washstand drawer knobs were missing. The washstand measured approximately 29 inches in height, 28 inches wide and 15 inches deep. The entrance bullet hole on the left side was approximately 5 7/8 inches from the top of the washstand and 6 1/4 inches from the back of the washstand. The exit bullet hole was 7 5/8 inches from the top and 6 1/2 inches from the back. The left side panel had slipped downward from the cabinet frame mortise and was not representative of its 1881 position. Despite the slightly shifted side panel, the measurements were consistent with a downward bullet trajectory.

Whether the top drawer of the washstand contained any contents at the time of the shooting is unknown. Therefore, possible contents were considered in analyzing the washstand bullet holes. Items in the drawer could have altered the bullet's path through the drawer. Yet, according to the four bullet-hole measurements and alignment, the bullet path did not deviate significantly.

Additionally, a Nomad portable x-ray device was used to record digital radiographic images of the bullet holes. Typically, forensic odontologists or pathologists use this instrument for recording radiographs in mass disasters for the purpose of personal identifications and dentists use it for making radiographs of patients who cannot be transported to a dental facility.<sup>33-34</sup> Since its development, it has also been used in forensic applications specifically in examining bullet holes in bone, wood, plaster board, plastics and other substrates. Developments in this technology have simplified the process of producing radiographic images in forensic applications.

Bullet metal is an alloy, primarily containing lead but also a small percentage of tin and antimony. The addition of these two alloys improves the hardness and ductility of bullets and all three metals absorb more radiation than materials with lesser densities.<sup>35</sup> Therefore, to produce a radiographic image, an exposure setting was selected on the Nomad, the digital

sensor was placed behind the object to be x-rayed and an exposure was made. The various densities absorbed different amounts of radiation and differences in densities were observable in the radiograph as light or dark areas. The light areas on the radiographs were created by material that absorbed more radiation than the material in the dark areas.<sup>36</sup>

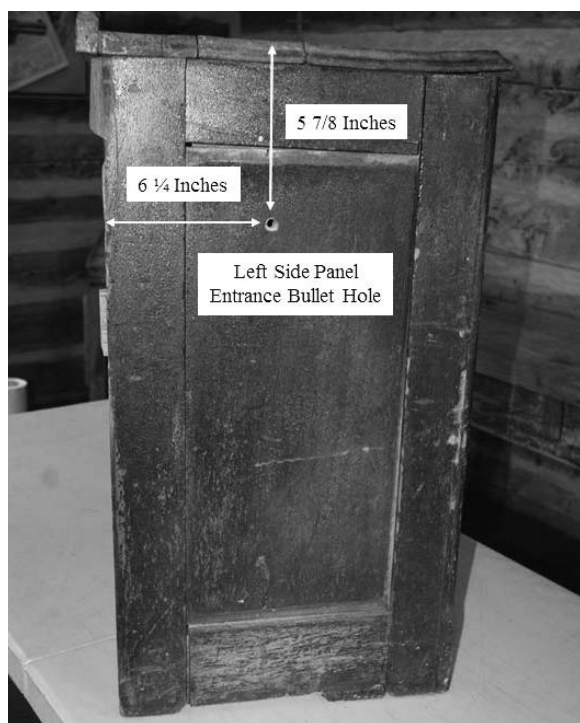
While the sodium rhodizonate test is generally applied in forensic cases to detect gunshot residue, it is not a conclusive test. In some cases, other sources of lead can yield a positive result for bullet residue. For example, lead in lead-based paint can produce positive results.<sup>37</sup> Likewise, radiographs recorded with the Nomad are not conclusive tests for bullet metal since the Nomad detects any type of metal or alloy. Therefore, the presence and pattern of metal detected with the Nomad radiographs around the periphery of the holes were evaluated. After careful examination, the holes in the washstand were determined to be consistent with the 2004 rhodizonate test results.<sup>38</sup>

Next, the top drawer of the washstand was removed and the x-ray device was positioned so the collimation cone was perpendicular to the digital sensor. Once an exposure was made, the raw data from the sensor travelled to a laptop computer where the raw data was

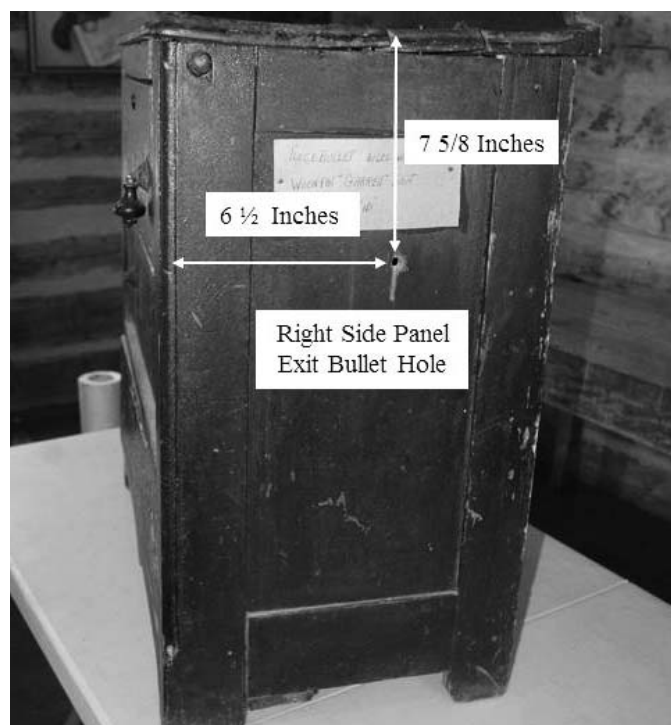
processed and converted into a digital radiographic image.<sup>39</sup>

Radiographic images have no depth of field; as a result, an x-ray beam was focused perpendicular to the bullet holes to determine the distribution of any metal particles around the periphery of the holes. The x-ray examination of the bullet holes on this historic artifact provided important forensic information. Persistence of bullet metal particles is unknown; however, in this case, after one hundred and thirty-four years, detectable traces of bullet metal, specifically lead, were found in two of the bullet holes in the washstand. The bright areas in the bullet-hole images represent a radiographic density consistent with metal fragments.<sup>40</sup>

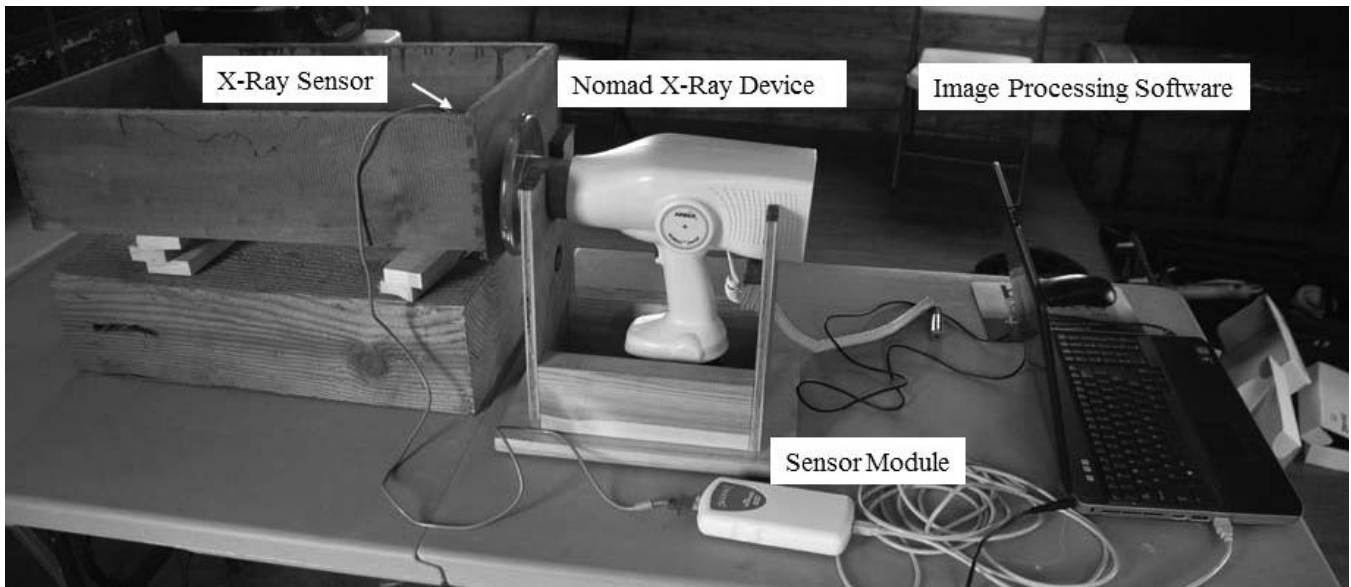
After the radiograph images were recorded, next a Dino Lite digital microscope was used to examine the periphery around the bullet hole at a magnification of approximately 20X. This type of examination was performed to determine if any visible presence of non-metallic trace transfer remained around the periphery of the bullet hole. If the bullet passed through any type of fabric stored in the top washstand drawer, potentially fabric fibers could have been embedded in the wooden fibers around the bullet holes. In this case, no trace transfer of any fabric fibers was observable.



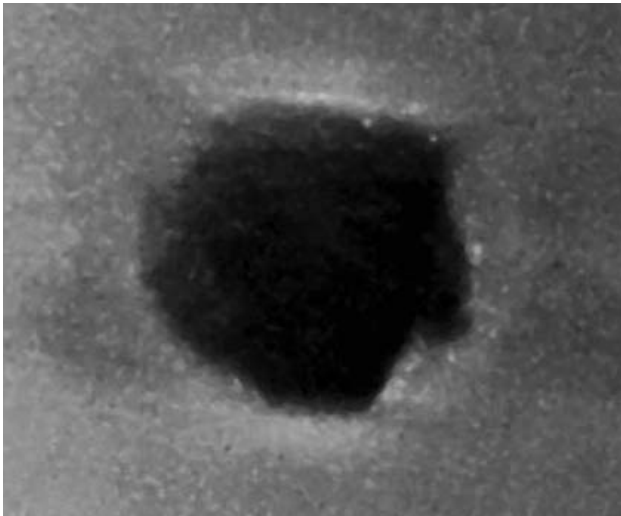
*Left washstand side panel with bullet entrance hole. (Copyright William I. Koch, Photo by authors)*



*Right washstand side panel with bullet exit hole. (Copyright William I. Koch, Photo by authors)*



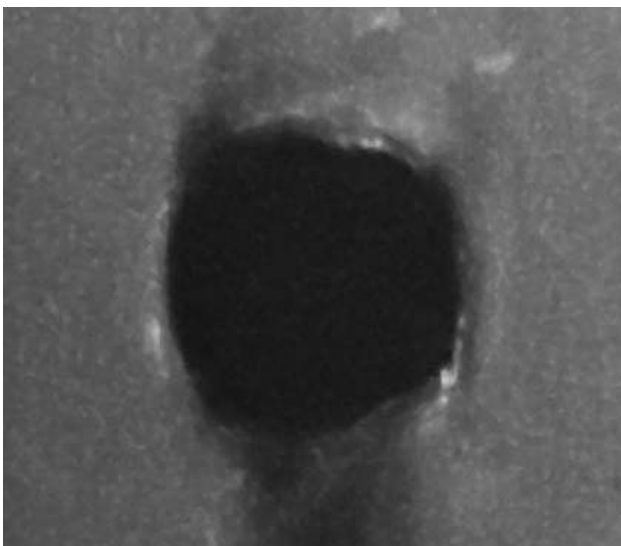
*X-ray equipment (Photo by authors)*



*Right washstand drawer radiograph (Radiograph by authors)*



*Outside of drawer on right side (Copyright William I. Koch, Photo by authors.)*



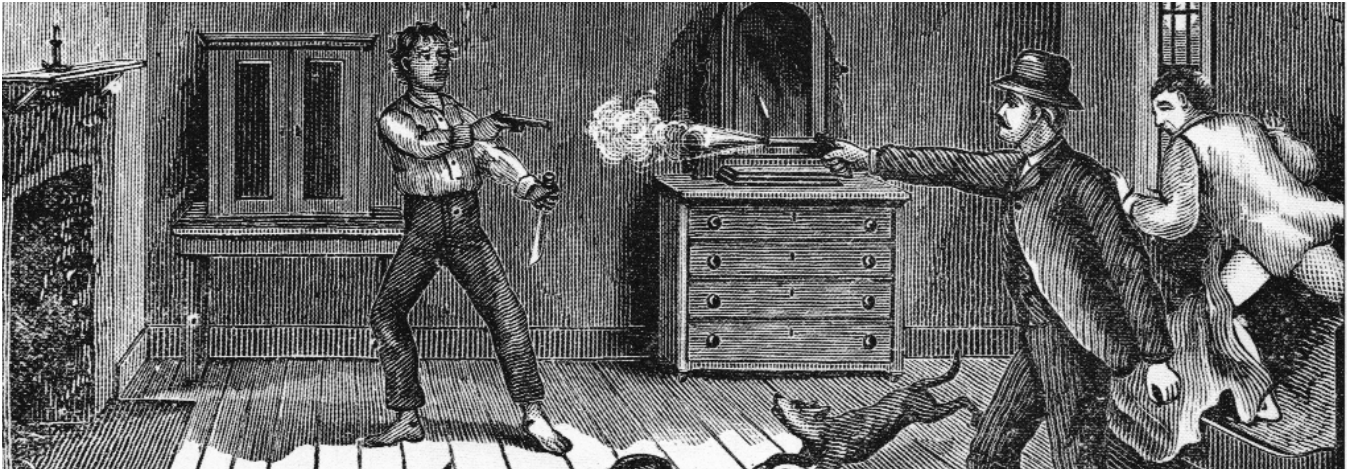
*Right washstand panel (Radiograph by authors)*



*Right washstand panel exterior (Copyright William I. Koch, Photo by authors)*



Once the holes in the washstand were confirmed to be bullet holes, attention was directed to the scene of the shooting to determine who shot the washstand. As noted previously, there are no known photographs identifying the arrangement inside the room where Billy was shot. Nevertheless, there is one woodblock plate image in Garrett's 1882 book illustrating the layout of Maxwell's bedroom at the time of the shooting.<sup>41</sup>



*Illustration from a woodblock plate in Garrett's 1882 book. (Courtesy Yale Collection of American Literature, Beinecke Rare Book and Manuscript Library, New Haven, CT)*

The perspective for the woodblock illustration appears to have been drawn while viewing the bedroom from a doorway. The woodblock image illustrates a barefooted Billy with no hat standing in the moonlight holding a knife and revolver with the full moon in the window to Billy's left. It depicts Maxwell leaping to the foot of the bed as Garrett fired his revolver. A cabinet is located near a corner of the room behind Billy to his right and another cabinet on the same wall is located to Billy's left with a mirror above it. Neither cabinet accurately illustrates the washstand.

In the right bottom corner of the woodblock image, "Baker Co Chicago" is visible but practically illegible. This company prepared the woodblock illustration for Garrett's book. According to George Miles, curator, Western Americana Collection, Yale University, and Will Hansen, director, Reader Services and curator of Americana, Newberry Library, Baker Company did inexpensive wood cuts for numerous publishers. Miles and Hansen noted the images by this company are generally drawn from photographs, written portrayals or reported descriptions. The depiction of the scene may or may not be accurate and only approximates a description of the shooting.<sup>42-44</sup>

Even though photographs of the room's interior are unavailable, there are photographs of the exterior of the Maxwell property prior to it becoming Maxwell's residence as well as after the Maxwell's renovated the building that housed the officers' quarters. The New Mexico Digital Collection hosted by the University of New Mexico Libraries has several photos in their archives of the Fort Sumner adobe structures during and after construction including a rear view of the officers' quarters dated 1864-1868. At least two of the photographs taken of the renovated adobe buildings are dated circa 1870-1880 and were at a vantage so the southeastern corner was visible where Pete Maxwell's room was located in 1881.

The photographs disclose details which provided some limited information about Maxwell's room, which was located beyond a gated paling fence that enclosed the south and northeast perimeter of the house. Some features possibly remained unchanged despite the structure undergoing renovations. Namely, the chimneys remained in the same location. Therefore, according to the chimney position on the roofline in the photos, a fireplace or chimney for a heater serviced the southeast corner room, Pete Maxwell's bedroom, and was located somewhere along the west wall of the room. Furthermore, in an adobe building with thick, twenty-four-inch wall construction, window and door openings in all likelihood remained in the same location even though window openings could more easily have been modified to become doorways. In identifying the approximate chimney, window and door locations in the room, the photographs aid in identifying some features of the layout of the room and the location of Maxwell's room in relation to the overall arrangement of the residence, nearby structures and surrounding grounds.

Moreover, in two of the New Mexico Digital Collection's archived photographs of the Maxwell residence, there were two evenly spaced windows on the southeast side of the house. On the south side, there was a window and exterior door southwest of the corner. Given this layout of the Maxwell residence at Fort Sumner and accounts of the shooting, the exterior door on the south side of the wall entered the corner room where the shooting took place. Maxwell's bed, which was about the size of a modern-day twin bed, has been described in many accounts as being positioned with the headboard against the south or east wall to the right of the exterior door and window both of which were located on the south wall.

Research notes written by Robert N. Mullin, author of *The Boyhood of Billy the Kid* and editor of Maurice G. Fulton's *History of the Lincoln County War*, are archived at the Haley History Center, Midland, Texas. In one of Mullin's sketches, he produced his interpretation of the Maxwell bedroom illustrating the arrangement of the furniture in Maxwell's room and referenced it

"as per Burns account."<sup>45</sup>

Mullin placed the washstand on the south wall and the fireplace on the west wall. Also, in Mullin's sketch, he illustrated the exterior door on the south side of the room hinged on the west side of the doorframe opening into the room. Mullin also depicted Garrett standing in front of the northeast window. But this was an unlikely position for Garrett to stand because as Billy entered the room, the light from the window would have revealed Garrett.

On July 19, 1881, a rudimentary diagram of Maxwell's room was published in the *Las Vegas Gazette*. Afterward, Mullin altered his sketch of the room. He changed the orientation of the bed from parallel to the south wall in the southeast corner of the room to parallel with the east wall still located in the southeast corner of the room. A second page of his notes archived at the Haley History Center, includes a penciled line drawn to the bed position indicating a change in the bed's orientation with a handwritten notation which read, "Las Vegas Gazette." Again, another note typed above the sketch references Burns, "Burns Saga p. 224."

The 1881 diagram published in the *Las Vegas Gazette* did not provide the location of the washstand or other items of furniture. Still, it provided five essential details: the position and loca-

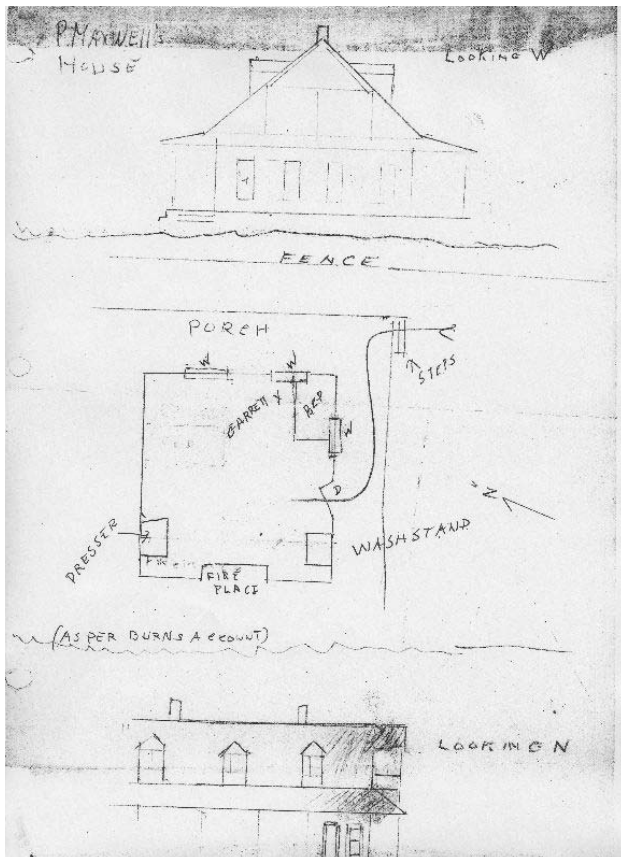


Diagram from Robert N. Mullin's notebook at the Haley History Center, Midland, Texas. (Courtesy Nita Stewart Haley Memorial Library, Midland, Texas. Robert Mullin Collection)

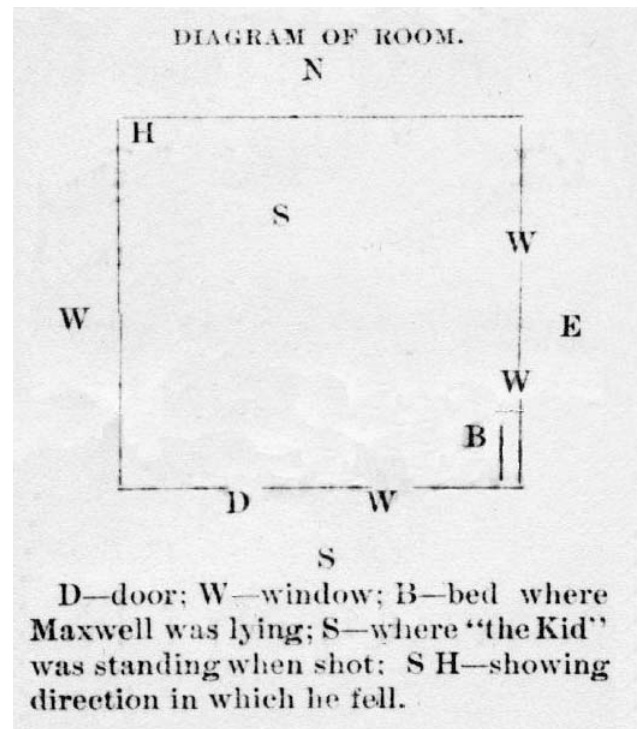


Diagram of Maxwell's bedroom illustrating Billy and Maxwell's positions. *Las Vegas Gazette*, July 19, 1881, np. (Authors' Collection)

tion of Maxwell's bed, where Billy stood when he was shot, location of Billy's body when he fell as well as the door and window locations. With this information, published descriptions of the shooting and knowing the approximate path of the bullet through the washstand, enough details were provided to reconstruct possible shooting scenarios in order to determine potential explanations in determining the origin of the bullet holes in the washstand and answer two important questions: Did Garrett's second bullet hit the washstand or did Billy shoot and hit the washstand?



In historical cases like the Billy the Kid shooting, scientific testing of artifacts, forensic examination of the case and review of written records can answer specific questions about who could have shot the washstand. Results corroborate or contradict witnesses' accounts or in some instances, witnesses' recollections.

In the Billy the Kid case, the confirmed facts identify Lincoln County Sheriff Patrick F. Garrett was the shooter of Billy the Kid in Pete Maxwell's bedroom at Fort Sumner sometime around midnight on July 14, 1881. Garrett admitted firing his revolver twice and he believed his first shot struck Billy just above the heart. "All this occurred in a moment. Quickly as possible I drew my revolver and fired, threw my body aside and fired again. The second shot was useless; The Kid fell dead. He never spoke."<sup>46</sup>

Maxwell's bedroom was twenty feet by twenty feet with one entrance door and one window on the south wall and two windows on the east wall. Additionally, there was a gibbous moon on July 14, 1881 the night Billy was killed.<sup>47</sup>

Since the moonlight was a factor in this case, the moon's illumination was also considered. The calculated moon conditions for July 14, 1881 at 11:55 p.m. in Fort Sumner confirmed it was a moonlit night but not quite a full moon. It was a waning gibbous moon with a relative brightness of 81 percent. Also, the moon was positioned about 18 degrees above the horizon and 114 degrees east of north on a compass after correction for magnetic declination of 8.3 degrees. With the moon in this position and brightness, shadows concealed Garrett assuming he was situated alongside the southeastern wall of the room.<sup>48-49</sup>

A national newspaper reported a southern moonlit night "silhouetted against the sand" the night of the shooting in 1881.<sup>50</sup> Garrett sat on Maxwell's bed in a "heavy shadow, while the rest of the room was brilliantly illuminated by the moon rays that streamed through the open windows."<sup>51</sup> It is conceivable that Maxwell's bed was positioned with its head against the south wall because this arrangement provided more suitable sleeping conditions. With the bed in this position, the moonlight would not have shone directly onto the head of Maxwell's bed during moonlit nights.

Lighting conditions in the room hindered Billy's ability to recognize Garrett. Not knowing the person's identity possibly explains why he hesitated to shoot. Garrett said, "It was the first time, during all his life of peril that he [Billy] ever lost his presence of mind, or failed to shoot first, and hesitate afterwards." After Billy escaped from jail he told several people should he meet Garrett, he would commence shooting because he would have to surrender, kill Garrett, or be killed. But the night Billy encountered Garrett in Maxwell's room, the scenario did not play out as Billy foretold.<sup>52</sup> After Garrett fired one shot, unsure if Billy was dead, he fired a second shot.<sup>53</sup> Within an instant of Billy entering the room, Deputy Poe who was outside on the porch overheard Billy ask Maxwell about McKinney and him on the porch and then, "a shot was fired in the room followed immediately by what everyone within hearing distance thought were two other shots."<sup>54</sup>



Following the shooting, Garrett, Poe, McKinney and Maxwell discussed the number of shots fired. Poe and McKinney initially said they heard three shots. "Poe asked me [Garrett] how many shots I fired; I told him two, but that I had no idea where the second one went. Both Poe and McKinney said the Kid must have fired then as there were surely three shots fired; yet, when we came to look for bullet marks, none from his pistol could be found. I told them that he had fired one shot, between my two. Maxwell said that the Kid fired; yet when we came to look for bullet marks, none from his pistol could be found."<sup>55-56</sup>

Provided three shots were fired inside

Maxwell's room, evidence of three fired bullets should have been found. The bullets could have lodged in the wall, furniture or other items present in the room; even so, at the time, they only located evidence of bullets from two shots. Therefore, unable to locate evidence for three bullets or three impact sites, they changed their statements and agreed only two shots were fired.<sup>57</sup>

Obviously, one bullet struck Billy which the description of his burial preparations proved. "The corpse was taken to Maxwell's carpenter shop in the old quarter master's buildings on the east side of the fort and laid on a workbench, where the women washed the body. A rag was stuffed into the hole in the Kid's back, and Pete Maxwell donated a clean white shirt for a shroud."<sup>58</sup>

It is also important to note from Garrett and Poe's descriptions of Billy's injury that Billy's death would not have been instantaneous as some writers suggests. Garrett described Billy's final moments of life as "a struggle or two, a little strangling sound as he gasped for breath, and The Kid was with his many victims."<sup>59</sup> After the shooting, Poe also described the sounds coming from Billy. He said, he "heard a groan and one or two gasps" coming from inside the room.<sup>60</sup>

A shot above the heart may have entered his lungs and accounted for the sounds Garrett and

Poe described. Billy could have lived for several minutes after he was shot. During that time, he could have fired his revolver. Thus, it's possible, after being hit in the upper chest as Garrett described, Billy pulled the trigger by spontaneous reaction or reflex even though the Colt Thunderer typically requires twelve pounds of force to operate its double-action mechanism.

The bullet that penetrated Billy's chest and exited his body came to rest somewhere in the room. Evidence of a second shot was discovered when a bullet was found lodged in the headboard of Maxwell's bed.<sup>61-62</sup> Since Billy was described as backing into the room while facing Maxwell's bed, the bullet in the headboard most likely originated from Billy's revolver due to Billy's described position during the shooting. In all probability, his aim was toward Garrett's position at the head of Maxwell's bed.

At first, both Poe and McKinney said they heard three shots fired during the shooting. In addition, Pete Maxwell reported during the inquest Billy also fired.<sup>63-64</sup> Initially, Garrett believed Billy must have fired between his two shots and a spent cartridge was found in Billy's revolver. But once again after finding no bullet hole in the room for the shot he first believed Billy fired, Garrett concluded Billy did not fire his revolver. "We searched long and faithfully-found both my bullet marks and none other; so, against the impression and senses of four men [Garrett, Poe, McKinney and Maxwell], we had to conclude that The Kid did not fire at all." Garrett explained the spent cartridge in Billy's revolver was there for safety purposes.<sup>65</sup>

At the time, some shooters practiced carrying a revolver with an empty chamber over the hammer. The purpose was to prevent the revolver from accidentally discharging if the revolver was dropped on its hammer. Those who engaged in this practice almost always carried the revolver with the chamber empty. There was no reason to carry a spent cartridge case in the chamber. Therefore, a spent cartridge in Billy's revolver's chamber suggests he fired one shot.

Garrett also said the "shell looked as though it had been shot sometime before."<sup>66</sup> His conclusion would have been improbable because determining when an empty shell was fired based on a visual inspection of a cartridge case is impossible. In most cases, within seconds after firing one shot, the revolver's barrel retains some detectable heat to the touch, but within



*Alan Tiller conducts trigger pull test on Colt Thunderer to determine the number of pounds needed to fire the double action revolver. (Photo by authors)*

minutes after the discharge, the barrel returns to the ambient temperature. No reference was made to the temperature of Billy's revolver after his death.

Even though there is some disagreement in later reports about the number of shots fired that night, at the time of the coroner's inquest, Garrett, Poe, McKinney as well as Maxwell concluded in their accounts that Billy fired his weapon once during the midnight confrontation and Garrett fired two shots.

In Poe's description of the three shots, he said he heard, "The third report as we learned afterward, being caused by the rebound of the second bullet, which had struck the adobe wall and rebounded against the headboard of a wooden bedstead."<sup>67</sup> Despite Poe's explanation, in general, bullet ricochets do not make any sound especially when the ricochet surface is wood or non-metallic material similar to the materials used in adobe building construction.

There is an explanation for a ricochet sound based on the principle that when a bullet strikes a hard surface, it can lose its gyroscopic spin and tumble. A tumbling bullet frequently produces a sound described as a ricochet whine which is not the same sound as the muzzle blast when a bullet is fired from a firearm. Conversely, some ricochets do not make the familiar "whine."<sup>68-69</sup> Consequently, Poe's explanation that the third shot he heard was a bullet ricochet from Garrett's second shot when the

ricochet hit the bed was based on faulty reasoning.

When considering whether a ricochet bullet fired by either shooter struck the washstand, it was unlikely since a round-nosed bullet becomes deformed after striking the first surface. The deformed bullet leaves an elongated entry hole on the next surface it strikes. So, if a bullet ricocheted off another surface, for example, the floor, wall or ceiling before hitting the washstand, the entry hole in the washstand would be elongated and not round. Since the bullet holes in the washstand are not elongated, in all probability the washstand was not struck by a ricochet bullet.

Another factor to consider in reconstructing the shooting is the angle of the washstand to the wall. Was the washstand parallel to the wall or was it positioned at an angle to the wall? The exact position and location of the washstand is an unknown. Therefore, for this analysis, the washstand was treated as if it were parallel to the wall.

In 1881 the lawmen attempted to reconstruct the shooting but they overlooked the bullet holes in the washstand. Perhaps a towel hung on the retractable dowel hid the bullet hole in the right panel from view and was unnoticed as a result. Although, the bullet holes in the washstand received no attention the night of the shooting when the bullet holes were discovered, their importance apparently was deemed insignificant

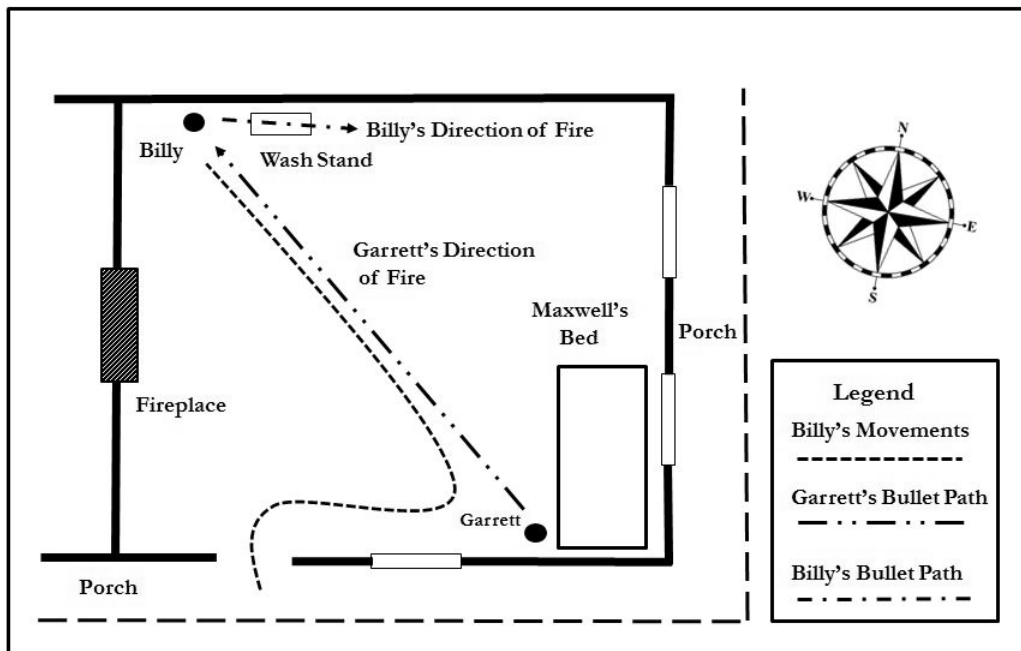
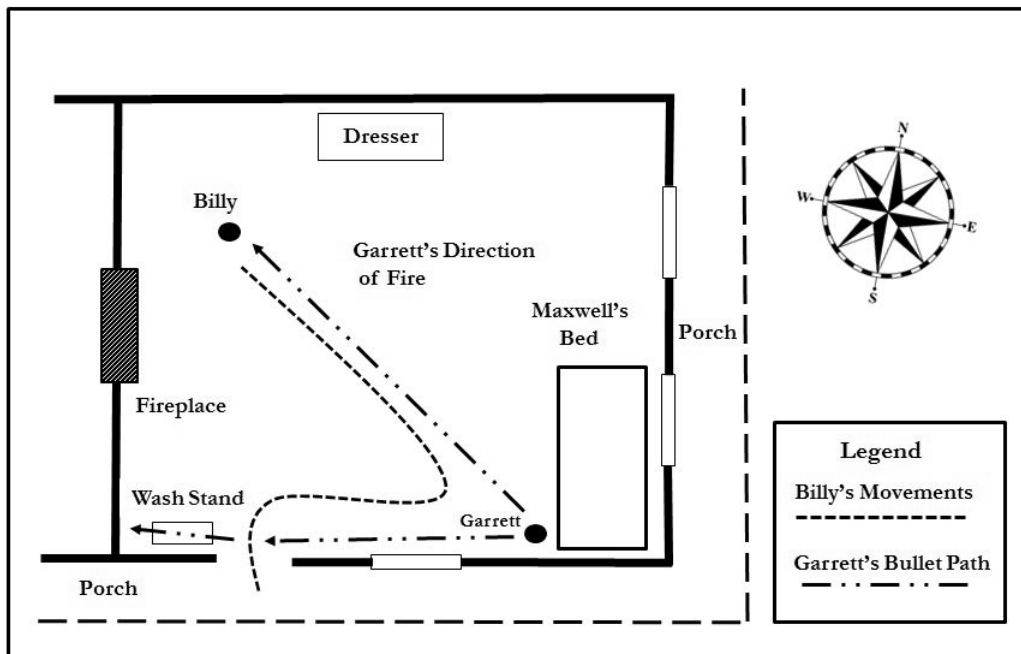


Diagram illustrating the position of the washstand on the north wall. (Diagram by authors)

except that they occurred the night of the shooting. Also, exactly when the bullet holes in the washstand were discovered and who found them are unknown details.

Given the diagram of Maxwell's room depicted in a July 19, 1881 Las Vegas newspaper article and provided the washstand was on the north wall, the path of the bullet in the washstand could be consistent with a shooter from Billy's position if he were standing near the northwest corner of the room close to the north wall and aimed toward the washstand. Yet, instead of aiming his revolver toward the washstand, it is more probable he maintained his aim toward the southeast corner of the room where he saw Garrett silhouetted near the head of the bed.

In this case, the bullet trajectory established the bullet passed almost straight through the washstand panels and top drawer at a downward angle with a slight deflection. It is important to note a bullet can deflect when passing through a wooden structure similar to the bullet path through the washstand without hitting anything in its path. Also, the downward angle of the bullet through the washstand suggests the shooter was standing or leaning but not sitting.



*Diagram illustrating the position of the washstand on the south wall. (Diagram by authors.)*

When reenacting the shooting sequence from Garrett's perspective, Billy entered Maxwell's bedroom and observed a figure near the head of the bed. Billy approached Maxwell's bed and then, after realizing the presence of someone in Maxwell's bedroom, Billy backed toward the northwest corner of the moonlit room. Garrett shot twice. Garrett's first shot hit Billy and Garrett fired again. Garrett was unable to account for his second shot. Possibly, it was obscured in some discrete location in the room and could have lodged in the wall, ceiling or hit the washstand.<sup>70</sup>

Reported accounts indicate all shots were fired in close succession which in some cases indicates the shooter generally does not change positions. After shooting Billy, within an instant, Garrett apparently fired as he said he turned. In that instant, he may have thought his first shot only injured Billy.

Provided the washstand was located on the south wall, when Garrett shifted his position pitching his body sideways and fired his second shot, his aim was toward where he imagined he saw the silhouette of Billy crouching in the darkness near the doorway. Instead, in the dim light, perhaps his sight was focused on the dark silhouette of the washstand near the room's southwest corner near the doorway.

Minor differences in bullet-hole diameters could suggest which revolver fired the shot although it would be circumstantial evidence subject to argument and debate. Billy was carrying a .41 caliber Colt Thunderer. Garrett and his posse "examined his pistol [revolver]-a self-cocker 41" and saw five bullets in the chamber and one empty shell under the hammer.<sup>71</sup> The Thunderer chambered a cartridge with a

a bullet diameter of 0.386 inches.<sup>72-77</sup> Garrett shot a Colt .44-40 caliber cartridge.<sup>78</sup> The .44-40 revolver chambered a cartridge with a bullet diameter of 0.427 inches. The difference in size between a .44-40 bullet and a .41 bullet is 0.041 inches. Sometimes it is distinguishable when fired through certain materials such as wood but not always. The ballistics evidence in the washstand is important but at this time, it cannot distinguish one shooter from the other.



*Sheriff Patrick F. Garrett confiscated this .44-40 Frontier revolver from Billy the Kid on December 23, 1880 at Stinking Springs, New Mexico Territory. Garrett used this same revolver to fire the fatal shot that killed Billy at the Maxwell residence. (Courtesy Dr. James H. Earle, Professor Emeritus, Civil Engineering, Texas A&M University)*

In reviewing the circumstances of Billy the Kid's death, due to two shooters' presence in the room, fired bullets should have been present and recovered from both shooters. Also, Garrett's second shot could have produced some additional evidence if it had been recovered and saved. Finally, the most logical origin for the one bullet that lodged in the headboard of Maxwell's bed was fired by Billy. He most likely would have aimed toward the stranger beside Maxwell's bed cloaked in darkness. This scenario could account for the three shots the deputies originally reported.<sup>79-81</sup> Today, if that bullet was available for comparison, it's plausible that test bullets fired from Billy and Garrett's revolvers could answer this question. However, in 1881 the recovered bullet from Garrett or Billy's revolver could not be compared because the science of matching bullets had not been developed.

Forensic analysis in historical cases generally involves an examination of witnesses' statements from published accounts in newspapers, court records, and interpretations from contemporary writers. These accounts combined with an evaluation of physical evidence allow researchers to form logical conclusions or likely outcomes. Meanwhile there is no definitive documented source identifying the location of the

washstand or the position of the washstand against the wall. Billy cannot be eliminated as the possible shooter who produced the washstand bullet holes. However, in the Billy the Kid case, prima facie evidence suggests when Garrett fired his revolver that one of his bullets was the most credible source for the bullet holes in the washstand. In conclusion, evidence suggests Garrett's second shot was the most likely source for the washstand bullet holes.

## Acknowledgements

We are grateful to those who so generously contributed their time and resources in providing us with materials, facts, and photographs. The authors would especially like to thank William I. Koch for permitting us to examine the Pete Maxwell washstand for ballistic evidence. Also, we are indebted to Roy Young, editor of Reading the West, for his support, encouragement and assistance in making this research possible. We appreciate Ms. Natasha Khandekar, Director and Curator, William I. Koch Collection, for coordinating the arrangements with Koch and the collections management team in Colorado. Tracy Edling and Nolan Lightfoot graciously assisted us during our visit to the western town. Their knowledge of not just the Billy the Kid Collection but western history and the Gunnison County area is extraordinary. In addition to Tracy and Nolan, we would like to acknowledge the collections team, Matthew, Melody, Diane and David who willingly assisted with special needs for this research. We appreciate Dr. Brandon Nichols, forensic radiologist, for providing expert analysis of the bullet-hole radiographs. Many archivists, museum curators and librarians assisted us and we sincerely appreciate their services, expertise and most importantly the generous contribution of their time to often search for and locate important details pertaining to 1881 Fort Sumner and New Mexico Territory: Tim Sweet, owner and curator, Billy the Kid Museum, Fort Sumner, NM; Dr. Paul Hutton, guest curator, Albuquerque Museum, Santa Fe, NM; Deb Slaney, Curator of History, Albuquerque Museum, Santa Fe, NM; Will Hansen, Director, Reader Services and Curator of Americana, Newberry Library, Chicago, IL; Grace Roybal, Ranger, Fort Sumner State Monument, Bosque Redondo Memorial; Chris Malpass, Librarian, University of North Carolina Wilmington, Wilmington, NC; WPA Interviews, Kathy Flynn, Executive Director, National New Deal Preservation Assoc., Santa Fe, NM; Dr. George Miles, Curator, Western Americana Collection, Beinecke Rare Book & Manuscript Library, Yale University, New Haven, CT; Anne Marie Menta, Reproductions Coordinator, Access Services, Beinecke Rare Book and Manuscript Library, New Haven, CT; Ingrid Lennon-Presssey, Beinecke Rare Book and Manuscript Library, New Haven, CT; Cathy Smith, Reference Librarian, Haley Memorial Library and History Center, Midland, TX; Lynn Shay, Reference Librarian, Serials, UNCW Randall Library, Wilmington, NC. Photographs are invaluable and often difficult to locate. We extend our sincere appreciation to those who generously permitted us to use photographs from their collections: Dr. James H. Earle, for photos of the revolver Garrett fired to shoot Billy the Kid; Robert McCubbin, photo of the old Fort Sumner Maxwell residence. Also, just as we were about to give up the search for locating any living descendants of Lucien Maxwell, a photograph Pauline Jaramillo posted lead us to additional surviving Maxwell descendants, namely Kenneth "Kenny" L. Miller, III who is Pauline's 3rd cousin once removed and Lucien and Luz Maxwell's great-great-grandson. Kenny contributed invaluable resources to us for our research and we are genuinely grateful to him, his father, Kenneth L. Miller, Jr.; and the Miller family for their generosity. They provided Maxwell and Abreu family photographs, articles, genealogy resources and most importantly, personal insight into the fascinating Maxwell and Abreu families who played significant roles in the history of the American Western frontier. Most importantly, we are especially appreciative of Stella Abreu Miller and the Maxwell family members' steadfast efforts in preserving the Maxwell family effects which concealed forensic evidence related to Billy the Kid's death for a hundred and thirty-four years.

**James A. Bailey, former Special Agent for the North Carolina State Bureau of Investigation and Professor Emeritus, Minnesota State University Mankato, conducts research on the Northfield Raid and 19th century Westerners. His wife, Margaret B. Bailey, retiree and graduate of the University of North Carolina, Wilmington, is interested in historical Western culture, family genealogy and incorporates her research in their articles.**



## Endnotes

<sup>1</sup> Authors' Note: In 1952, J. C. Dykes published *Billy the Kid: The Bibliography of a Legend*, in which he reviewed both fiction and nonfiction publications from 437 books, magazines articles, play and songs. Newspaper articles were not included in Dykes' reviews; however, he attributed much of Billy the Kid's legendary status to fictional publications as opposed to his actual exploits.

<sup>2</sup> Authors' Note: Pete Maxwell descended from a family of prominent, well-educated politicians, successful men. Pete's father, Lucien Bonaparte Maxwell (1818-1875) was the son of Irish immigrant Charles Hugh Maxwell (1777-1833) and Marie Odile Menard (1793-1862), who was of French-Canadian descent. Pete's father and grandmother, Lucien, and Marie Odile Menard were both born in Kaskaskia, IL. Maxwell family information compiled from Kenneth L. Miller, III, Interviews, U.S. Census Documents; and Maxwell family genealogy records.

<sup>3</sup> Robert M. Utley, "Who Was Billy the Kid?" *The Magazine of Western History*, Summer 1987, (37)3, pp. 5-8.

<sup>4</sup> Authors' Note: The Lincoln County War was a conflict that began in 1877 between two Lincoln town merchants who had a monopoly on the cattle business and two competing business partners who wanted to maintain control of the market. The Lincoln merchants were Lawrence Murphy and James Dolan and the competing partners were John Tunstall and Alexander McSween.

<sup>5</sup> Authors' Note: Congress authorized the construction of Fort Sumner in 1862 for protection to settlers in the Pecos River valley from the Mescalero Apache, Kiowa and Comanche. It was located in southeastern New Mexico in De Baca County. The fort was later used for the internment of Navajo and Mescalero Apache populations from 1863-1868. Fort Sumner was abandoned in 1869 and purchased by rancher Lucien Maxwell, Pete Maxwell's father. Lucien Maxwell renovated the quartermasters' quarters into a 20-room house. After the death of Billy the Kid the house was referred to as the Maxwell house.

<sup>6</sup> Authors' Note: Lucien attended St. Mary's of the Barrens School, Perryville, MO. About 1835 he moved west where he took a job with the American Fur Company. Charles [Carlos] Beaubien (c. 1800-1864), a French-Canadian and naturalized Mexican citizen and Lucien's future father-in-law co-owned one of the largest land grants in North America. Beaubien hired Lucien to manage his land grant property. Lucien, through inheritance, land grants and wise real estate investments, eventually became one of the largest private landowners in the United States. Information from U. S. Census and Maxwell family genealogy records.

<sup>7</sup> Authors' Note: While working for Beaubien, Lucien met Beaubien's daughter, Maria de la Luz Beaubien. The Maxwell family tree notes that Lucien and Luz were married in 1842. They had eight children: Pierre "Pete" Menard (1848-1898); Virginia (1850-1915); Emilia (1852-1884); Maria Sophia (1854-1887); Maria Eleanor (1856-1858); Verenisa (1860-1864); Paulita (1864-1929); and Bernice (1869-1935). Maxwell family information compiled from Kenneth L. Miller, III, Interviews, U.S. Census Documents; and Maxwell family genealogy records.

<sup>8</sup> "Details of the Killing of the Noted Desperado, Billy the Kid," *Jackson Citizen* (Jackson, MI) July 26, 1881, p. 8.

<sup>9</sup> "Billy 'The Kid,'" *Las Vegas Daily Gazette* (Las Vegas, NV) July 19, 1881, p. 1.

<sup>10</sup> James A. Spradling, "Kid the Killer Killed," *Rio Grande Republican* (Las Cruces, NM) July 23, 1881, p. 1.

<sup>11</sup> "Details of the Killing of the Noted Desperado, Billy the Kid," *op. cit.*

<sup>12</sup> John William Poe, *The Death of Billy the Kid*, Santa Fe, NM: Sunstone Press, 2006, pp. 29-30.

<sup>13</sup> Authors' Note: Billy's .44-40 Frontier revolver was confiscated by Garrett when Billy was arrested at Stinking Springs. It was reported Garrett kept Billy's revolver and ironically, Garrett shot Billy with that revolver.

<sup>14</sup> Authors' Note: Lucien, Luz Maxwell and family accepted Maria Guadalupe (c. 1856-DOD Unknown); William Julian (1856-1875) and Deluvina (c.1858-1927) as family members. Maria, William Julian and Deluvina's surname was Maxwell. Information from U. S. Census and Maxwell family genealogy records.

<sup>15</sup> Miguel Antonio Otero, *The Real Billy the Kid*, Santa Fe: Sunstone Press, 1936, p. 190.

<sup>16</sup> Authors' Note: In 1887 Odile Maxwell married Manuel Abreu three years after Manuel's first wife, Emilia Maxwell, died in 1884 in Fort Sumner. Emilia and Odile were sisters. Emilia and Manuel Abreu (1857-1925) had three children: Delia "DeDe" (1879-1964), Amalia (DOB/DOD Unknown) and Enriques (DOB/DOD Unknown). Maxwell family information compiled from Kenneth L. Miller, III, Interviews, U.S. Census Documents; and Maxwell family genealogy records.

<sup>17</sup> Authors' Note: Odile Maxwell Abreu and Manuel had seven children: Amelia Sofia (1888-1959), Luz Berenisa (1890-1936), Alfredo Napoleon Bonaparte (1895-1952), Manuel Francisco, Jr. (1898-1940), Maria Soledad "Sollie" (1901-1972), Odila Bernice "Billie" (1905-1980), and Stella Rebecca (1910-1998). Maxwell family information compiled from Kenneth L. Miller, III, Interviews, U.S. Census Documents; and Maxwell family genealogy records.



<sup>18</sup> Kenneth L. Miller III, interview, June 15 and 29, 2015.

<sup>19</sup> Grace Roybal, ranger, Bosque Redondo State Memorial, Fort Sumner, NM, interview, July 2, 2015.

<sup>20</sup> Edward Staski and Joanne Reiter. *Status and Adobe Quality at Fort Fillmore, New Mexico: Old Questions, New Techniques, Historical Archaeology*, Vol. 30, No. 3 (1996), pp. 1-19. Note: Adobe is an unfired mixture of sand, silt, and clay. The United States military used this inexpensive construction material throughout the southwest frontier. All adobe is subject to decay which can occur because of structural failure, chemical activities, or water activities. The ratio of sand to silt and clay affects the durability of adobe, with the most durable mixture consisting of 70-80 percent sand and 20-30 percent silt and clay.

<sup>21</sup> Miller III, *op. cit.*

<sup>22</sup> Authors' Note: Stella Abreu Miller and Kenneth Leslie Miller had six children: Robert R., Kenneth "Knute" L. Jr., Lucien M., Manuel "Mannie" F., Margaret Joan, and a half-sister, Rogene Ward-Fox. Manuel "Mannie" F. Miller's Obituary, March 21, 2011 and Kenneth L. Miller, III, interview, June 15 and 29, 2015.

<sup>23</sup> Miller III, *op. cit.*

<sup>24</sup> Authors' Note: William I. Koch, founder, owner, chairman and chief executive officer of Oxbow Corporation, an energy development holding company with offices in West Palm Beach, Florida. He is a graduate of Culver Military Academy and received a Bachelor of Science, Master and Doctoral Degrees in chemical engineering from Massachusetts Institute of Technology.

<sup>25</sup> Authors' Note: William I. Koch was a special guest speaker on July 26, 2014 at the 7th Annual Wild West History Association Roundup, Denver Colorado. He presented a PowerPoint presentation of the western town and some artifacts in his western collection.

<sup>26</sup> Dr. Henry C. Lee and Calvin Ostler, "Forensic Report," Forensic Research and Training Center, University of New Haven, New Haven, Connecticut, Feb. 25, 2005.

<sup>27</sup> John H. Dillon, Jr., "The Sodium Rhodizonate Test: A Chemically Specific Chromophoric Test for Lead in Gunshot Residues," *Association of Firearms and Tool Marks Journal*, 1990, (22)3, pp. 251-256. Note: A solution of sodium rhodizonate in distilled water is sprayed onto a surface; filter paper can be used to collect the residue. Next, buffer solution of sodium bitartrate and tartaric acid in distilled water is sprayed on the filter paper. When certain metals are present, a pink color reaction occurs. The surface is finally sprayed with a dilute solution of hydrochloric acid. If the pink areas change to blue-violet, the test is specific for lead.

<sup>28</sup> Barry A.J. Fisher, William J. Tilstone, and Catherine Woytowicz, *Introduction to Criminalistics: The Foundation of Forensic Science*, San Diego, CA: Elsevier, Inc., 2009, pp. 31-54.

<sup>29</sup> Suzanne Bell, *Forensic Chemistry*, Englewood Cliffs, NJ: Prentice Hall, 2006, pp. 441-448.

<sup>30</sup> Lee, *op. cit.*

<sup>31</sup> Authors' Note: The western town approximately 7,000 feet above sea level with the Ragged Mountains visible from the town. As noted in the Christie's sales catalogue: *Visions of the American West: American Paintings from the William I. Koch Collection*, the town represents a "faithful recreation of the 19th century settlement in the West-including a large number of authentic, historical 19th century Colorado log buildings, and new buildings with modern infrastructure designed faithfully according to historical architecture-represents a living museum in the spirit of the West".

<sup>32</sup> Miller III, *op. cit.* Note: Stella Abreu Miller's grandson, Kenneth L. Miller, III, learned about this feature in 2011 while the washstand was in the possession of the Maxwell family.

<sup>33</sup> *Portable X-ray System for Small Area Radiographic Imaging; User Manuel*, Orem, UT: Aribex, Inc., 2011, pp. 1-25.

<sup>34</sup> *TigerView Industrial NDT Manual: Digital Imaging Software*, Janesville, WI: Televere Systems, 2014, pp. 12-32.

<sup>35</sup> J. W. Richards, "The Commercial Valuation of Lead-Tin and Lead Antimony Alloys," *Journal of the Society of Chemical Industry*, Vol. 14 (March 1895), p. 304.

<sup>36</sup> B. G. Brogdon, *Forensic Radiology*, Boca Raton, FL: CRC Press, 1998, pp. 3-34.

<sup>37</sup> Ervine Jungreis, editor, *Spot Test Analysis: Clinical, Environmental, Forensic and Geochemical Applications*, 2nd edition, New York: John Wiley & Sons, Inc., 1997, 2nd ed., pp. 156-167.

<sup>38</sup> Authors' Note: Sodium rhodizonate forms a bright pink complex with lead ions which turns blue when a drop of hydrochloric acid is applied to the pink stain.

<sup>39</sup> Authors' Note: The Nomad uses a constant D.C. voltage therefore the exposure is set by increasing or decreasing the exposure time. The Nomad x-ray exposure setting can be adjusted in 10 millisecond intervals up to 999 milliseconds. The typical setting for the bullet-hole exposures was set at 50 milliseconds.

<sup>40</sup> Authors' Note: Radiologist, Brandon Nichols, MD, University of South Alabama Medical Center, Department of Radiology, Mobile, AL, reviewed the radiographic images on June 15, 2015.

<sup>41</sup> Authors' note: The illustrator of the image in Garrett's book depicts a piece of furniture with four drawers which could be perceived as the washstand but the actual washstand only has three drawers.

<sup>42</sup> George Miles, Curator, Western Americana, Americana Collection Beinecke Library, Yale University, interview, June 23, 2015.

<sup>43</sup> Will Hansen, Director, Reader Services and Curator of Americana, Newberry Library, Chicago, Illinois, correspondence, July 9, 2015.

<sup>44</sup> *Ibid.*, Note: According to Hansen the woodblock engraver may have discussed the scene with the author. Also, in some cases, woodblock engravers worked from photographs when photographs were available. However, in this case there is no information suggesting the source of details in the image of Maxwell's room at Fort Sumner.

<sup>45</sup> Authors' Note: Walter Noble Burns, author of *The Sage of Billy the Kid*, is described as a western writer, Spanish-American War soldier, journalist, literary critic and crime writer. Some of the newspapers he reported for included: *St. Louis Post-Dispatch*, *The Kansas City Times*, *The Denver Republican*, *The Ogden Post*, *The San Francisco Examiner* and *The Chicago Tribune*.

<sup>46</sup> Pat F. Floyd Garrett, *The Authentic Life of Billy, the Kid: The Noted Desperado of the Southwest, Whose Deeds of Daring and Blood Made his Name a Terror in New Mexico, Arizona and Northern Mexico*, Santa Fe, NM: New Mexican Printing and Publishing Company, 1882, pp. 128-129.

<sup>47</sup> Authors' Note: The lunar calendar indicates there was a full moon on Thursday night, July 14, 1881.

<sup>48</sup> Authors' Note: The moon position was calculated using a website identified as Daily Moon Position.com. The date, time, latitude and longitude were entered on the webpage and the software calculated the moon position. The zip code for Fort Sumner, New Mexico was entered to estimate the latitude and longitude.

<sup>49</sup> Authors' Note: The waning gibbous moon is when the moon appears to be more than one-half but not fully illuminated by direct sunlight. Since the fraction of the moon's disk that is illuminated is decreasing, the moon is described as "waning."

<sup>50</sup> "Killing of the Kid," *The Evening Star*, Washington, D.C., March 4, 1905, p. 8.

<sup>51</sup> *Ibid.*

<sup>52</sup> Garrett, *op. cit.*, p. 130.

<sup>53</sup> "A Report of Pat Garrett's Ambush of Billy the Kid," *Fort Wayne Daily Gazette* (Fort Wayne, Indiana) July 26, 1881, p.1.

<sup>54</sup> Poe, *op. cit.*, p. 36.

<sup>55</sup> Garrett, *op. cit.*, p. 129.

<sup>56</sup> Poe, *op. cit.* p. 14.

<sup>57</sup> *Ibid.*

<sup>58</sup> Frederick Nolan, *The West of Billy the Kid*, Norman, OK: University of Oklahoma Press, 1998, p. 287.

<sup>59</sup> Garrett, *op. cit.*, p. 129.

<sup>60</sup> Poe, *op. cit.*, p. 37.

<sup>61</sup> Robert M. Utley, "Billy the Kid: A Short and Violent Life," University of Nebraska Press, Lincoln, Nebraska, 1989, p. 194.

<sup>62</sup> Poe, *op. cit.*, p. 36-37.

<sup>63</sup> Alejandro Segura, Justice of the Peace, Coroner's Report, Lincoln County Records File, New Mexico State Records and Archives Center, Santa Fe, NM.

<sup>64</sup> Spradling, *op. cit.*

<sup>65</sup> Garrett, *op. cit.*, pp. 129-130.

<sup>66</sup> Garrett, *op. cit.*, p. 130.

<sup>67</sup> Poe, *op. cit.*, pp. 36-37.

<sup>68</sup> Tom Warlow, *Firearms, the Law, and Forensic Ballistics*, Boca Raton, FL: CRC Press, 2012, 3rd edition, pp. 175-176.

<sup>69</sup> Charles E. Woodruff, *Ricochet Bullets, United States Congressional Serial Set, The Executive Documents of the Senate of the United States for the Second Session of the Fifty-third Congress, 1893-1894*, Washington, DC: Government Printing Office, 1895, pp. 786-790.

<sup>70</sup> Authors' Note: Even in modern investigations, after extensive searches by trained crime scene technicians, when investigators know a shot was discharged at the scene, bullets are not always recovered at crime scenes.

<sup>71</sup> Garrett, *op. cit.*, pp. 129-130.

<sup>72</sup> John Taffin, *The Gun Digest Book of the .44, Gun Digest Books*, Iola, WI: F and W Publications, 2006, p. 10.

<sup>73</sup> Frank C. Barnes, ed., *Cartridges of the World*, 9th ed., Iola, WI: Krause Publications, 2000, p. 300.

<sup>74</sup> Nolan, *op. cit.*, p. 286. Note: Pat Garrett used a Colt Single Action Army.44-40 revolver, serial number 55093 when Billy was killed.

<sup>75</sup> Jay Langston, *American 100 Greatest Guns*, Atlanta, GA: Whitman Publishing, 2013, pp. 52-53. Note: The Colt Model 1877 or M1877 as the manufacturer referred to it. It was Colt's first double-action revolver chambered in three calibers. The .41 caliber was named the Thunderer by Benjamin Kittredge, a firearms distributor. Colt never referred to the revolver as the Thunderer.

<sup>76</sup> Authors' Note: One disadvantage of this new double-action revolver was the amount of force required to pull the trigger to operate the action. However, Billy would have had more control firing the revolver using his middle finger than his index finger because the middle finger is slightly longer and offers more control while applying pressure to the double-action mechanism. The Colt Thunderer typically requires twelve pounds of force to operate the double-action mechanism.

<sup>77</sup> Authors' Note: Allen Tiller, proprietor of Tiller and Lanier Guns, 8 Jacksonville St., Wilmington, N.C. and New Hanover County deputy conducted a trigger-pull test on a .41 Colt Thunderer, serial number 145049 on June 20, 2015. The revolver consistently required twelve pounds of force to operate the double-action mechanism.

<sup>78</sup> "Reward Offered for Gun that May Have Killed Billy, the Kid," *State Journal-Register* (Springfield, IL) March 9, 1983, p. 8. Note: Jarvis Garrett, Pat Garrett's son reported his father used a .44-40 Colt single action revolver when he shot Billy the Kid, serial number 55093. According to the article, the gun was sold to Calvin Moerbe of Round Rock, Texas in 1976.

<sup>79</sup> Utley, *op. cit.*

<sup>80</sup> Authors' Note: Today, micrometer measurements of the bullet that lodged in Maxwell's headboard could identify the revolver that fired that bullet if the bullet were available.

<sup>81</sup> Authors' Note: The .44-.40 Winchester, also known as .44 Winchester, .44 WCF (Winchester Center Fire), was introduced in 1873 by the Winchester Repeating Arms Company. It was the first metallic centerfire cartridge manufactured which could be chambered in both a revolver and a rifle.