

CASE REPORT

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An Unusual Bloodstain Case

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ABSTRACT: A body was discovered associated with a series of bloodstains on a sunken loading ramp of a supermarket. The initial evaluation of the scene by the local police determined that the victim was crushed by the rear wheels of an 18-wheel grocery truck when it backed down the ramp for a delivery. However, a careful examination of the photographs of the scene and the victim revealed that the victim was dead and in rigor mortis before the truck entered the ramp. The truck's rear wheels never came into contact with the deceased. The truck interacted with the deceased and his bicycle to create series of unusual bloodstain patterns.

KEYWORDS: forensic science, criminalistics, reconstruction, bloodstain, bloodstain patterns

Workers at a supermarket in southern California discovered the body of a 27-year-old man at the bottom of the market's sunken loading ramp one morning in early spring of 1990. The local police investigated the scene and determined that the mode of death was due to the rear wheels of an 18-wheel grocery truck when it backed into the ramp for a delivery earlier that morning.

The family of the victim filed suit against the supermarket for wrongful death. The plaintiffs cited the police reconstruction which alleged that the victim mistakenly road his bicycle over the edge of the unprotected side of the ramp. The impact was theorized to have caused him to become unconscious. A plaintiff's expert found that poor lighting of the area likely contributed to the victim inadvertently riding into the ramp from the side and also made it impossible for the truck driver to see the unconscious victim prior to running over him.

The authors were hired by the defense to ascertain the mode of the victim's death. We had the police report, scene drawing and a number of photographs to work with. The scene drawing had little use in our reconstruction due to measurement and drawing errors. The police report was written with the erroneous assumption that the truck tires came into direct contact with the victim.

A complete autopsy was not performed to confirm the alleged mode of death although a superficial examination of the body revealed a palpable skull with a lateral compression of the head and an abrasion on the upper lip. Toxicological analysis of the

spleen showed the victim with a BAC of 0.38%, 0.05 mg/L of cocaine and 0.57 mg/L of cocaine metabolite!

It was apparent by the bloodstain pattern and the condition of the body that there was no direct contact with the victim by the tires of the grocery truck. Intriguing bloodstain patterns associated with the deceased suggested that the body had been moved after death.

Reconstruction

Several photographs of the head of the victim showed a possible additional defect to the right temple. Some blood flow appeared to have originated from this area as the victim was on his back with his head turned to the left. Considering the large amount of the bleeding through the mouth and nose, and a bruising of the eyelids (with the right more pronounced than the left) it appears likely that the victim sustained a high-energy/velocity wound to the head. This could be produced by a gunshot or bludgeoning.

A small blood pool formed under the victim's head while he was initially on his back. The position of the body in relationship to the victim's dark glasses and bicycle is shown in Fig. 1A. A blood stream on the victim's face (Fig. 2A) indicates he was initially on his back. The victim either rolled over to his left on his own or by another party and in this process his body shifted somewhat down the ramp (Fig. 1B). Profuse bleeding occurred and the blood formed a large pool in proximity to the head. The victim likely died in this position. A portion of the blood soaked onto the heavy jacket and shirt of the victim and some blood flow continued toward the bottom of the ramp. The position of the body in relation to the blood pool (Fig. 1B) was reconstructed by noting the areas of the victim's clothing that were blood soaked. The pants showed blood soaking only on the left knee.

Enough time passed prior to the arrival of the grocery truck for the body to enter full rigor mortis. The main indicator that the victim was in rigor at the time the grocery truck arrived was that the even though the body was pulled directly over the main blood stain (see below), it had to have been arced in rigor to keep most of the pants from becoming bloodied. Of victim's lower body, only his left knee contacted the blood.

The grocery truck arrived and proceeded to back down the ramp. The deceased's bicycle, which must have been lying further up the ramp as shown in Figs. 1A and 1B, became caught on the truck's undercarriage and was transported down to the victim's location. It was at this point that the truck stopped and apparently drove a short distance forward up the ramp. With the change in direction, the bicycle shifted and a portion of it (either the handle

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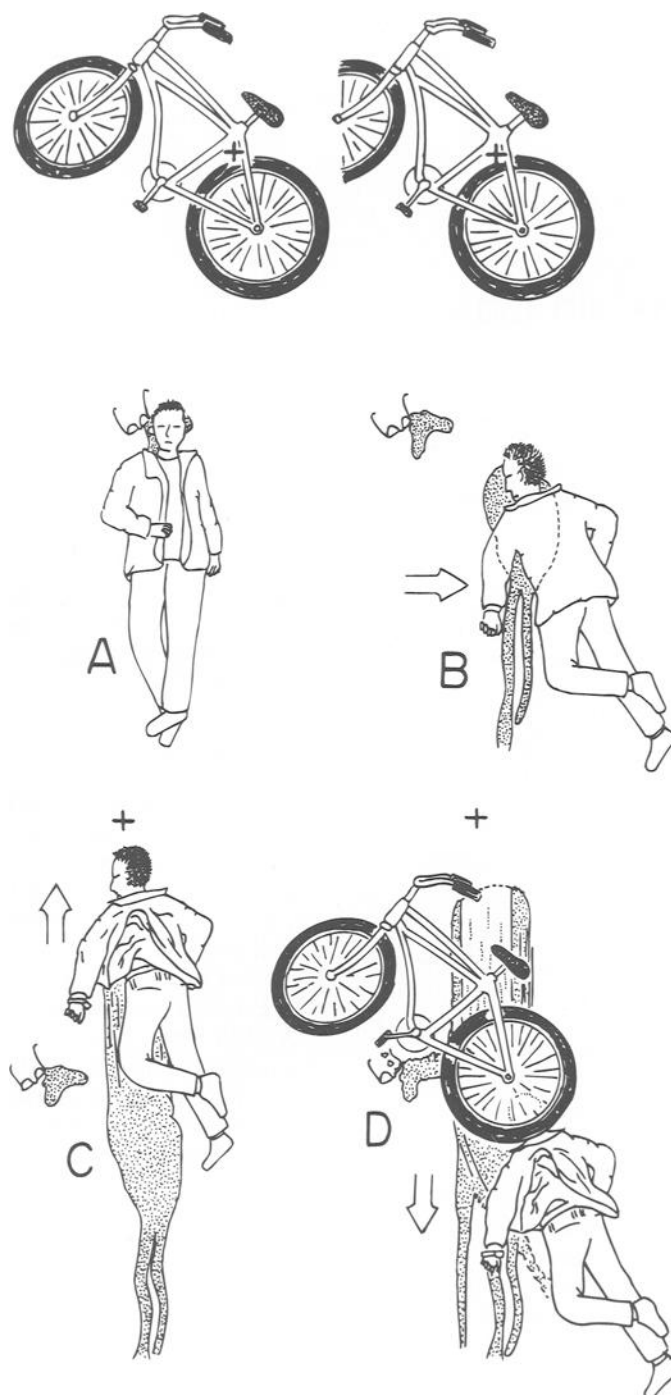


FIG. 1—Reconstruction drawings showing the position of the victim after each movement. The arrows show the direction of the movement of the body prior to the position shown. The “+” (near the bicycle seat in A and B) is for reference purposes. (A) The scene as it likely appeared just after the victim sustained his head injury. The ramp slopes down from the victim’s feet. The exact position of the victim’s bicycle is unknown, but it was likely located further up the ramp as shown here. The victim’s dark glasses were initially in close proximity to his head. (B) The position of the victim after he either rolled over on his own or by another party. Profuse bleeding through the nose and mouth occurred and the victim likely died in this position. (C) The victim, in full rigor, after being pulled up the ramp by the truck likely via the bicycle pedal or handle bar. (D) Reconstruction from the photographic evidence of the scene when the victim was discovered. The head of the victim is covered by the bicycle’s rear tire.

bar or more likely the pedal) caught on the back of the victim’s jacket. The result was to pull the deceased a short distance up the ramp to the position shown in Fig. 1C with a resulting blood trail (in Fig. 1C the bicycle is not shown). Forward movement is documented not only by the folds in the back of the jacket but

also by the deceased’s watch which at this point now partially covers his left palm (Fig. 2B).

The final movement of the body occurred when the truck again went down the ramp. The bicycle repositioned and released the deceased’s jacket at the start of the truck’s movement back down

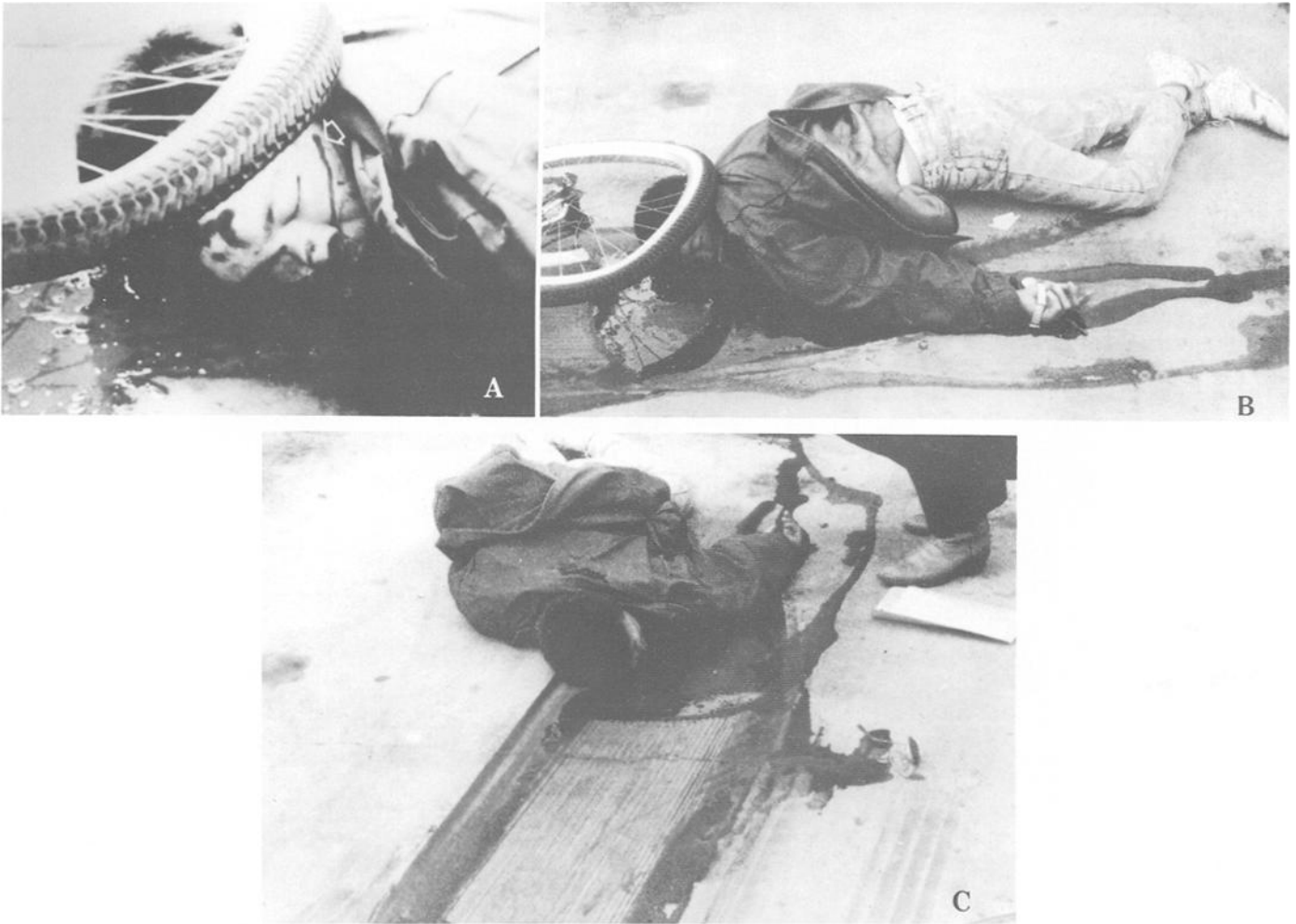


FIG. 2—(A) Photograph of the victim's face showing the bloodstain (arrow) that occurred when he was initially on his back. (B) Photograph of the left side of the victim showing the saw-tooth bloodstain pattern (arrow) created by the victim's knee (while in rigor) when he was pushed down the ramp by the backing truck. (C) Photograph of the victim and a part of the bloodstains after the bicycle was lifted off the victim's head. The fine blood streaks are from the side of the bike's rear tire tread. Small pieces from the victim's broken dark glasses are in close proximity to the frames, but are not visible in this photograph.

the ramp. However, the bicycle remained engaged on the truck's undercarriage and the bicycle's rear tire wedged onto the concrete surface of the ramp. The spokes of the rear wheel contacted the victim's head and pushed the body as the truck again proceeded down the ramp. The side of the bike's rear tire acted as a squeegee, pushing most of the blood that was initially transported up the ramp with the body down to its original puddle location (Fig. 2C). Photographs of the bicycle's rear tire showed that the rim was latterly distorted (Fig. 2B). This portion of the tire was also smeared with blood. The side of the bicycle's tire tread matches the blood streaks of the squeegee portion of the bloodstain which is shown in one of the scene photographs (Fig. 2C). The arc in the blood stain (Fig. 3) matches that of the tire circumference at the distorted area.

The inside of the grocery truck's left rear tire contacted a portion of the blood stain and the outside left rear tire likely crushed a part of the victim's dark glasses (Fig. 3). When the truck proceeded down the ramp the body which was in full rigor shifted slightly to the right as it was pushed down (Fig. 1D). Distinctive marks

in the bloodstain pattern not only document that the body was in rigor during this movement (as described above) but also shows the body's final movement. The left knee created a saw-tooth pattern (Fig(s). 1D, 2C, and 3) and the left forearm of the victim's jacket also created a pattern documenting the deceased's final movement before being discovered. A blood/plasma stream toward the base of the ramp (Fig(s). 1D, 2C, and 3) occurred a short time after the deceased's final position was attained.

The truck unloaded its cargo and left. Upon leaving, the bicycle again shifted position and its rear tire landed on top of the deceased's head. The final position of the bicycle and the body are shown in Fig. 1D.

A composite of the blood pattern with the decedent removed for illustration is shown in Fig. 3. The major features of the blood stain are noted.

Discussion

The initial investigation of this case came to the wrong conclusion as to the mode of death. The scene drawing not only had

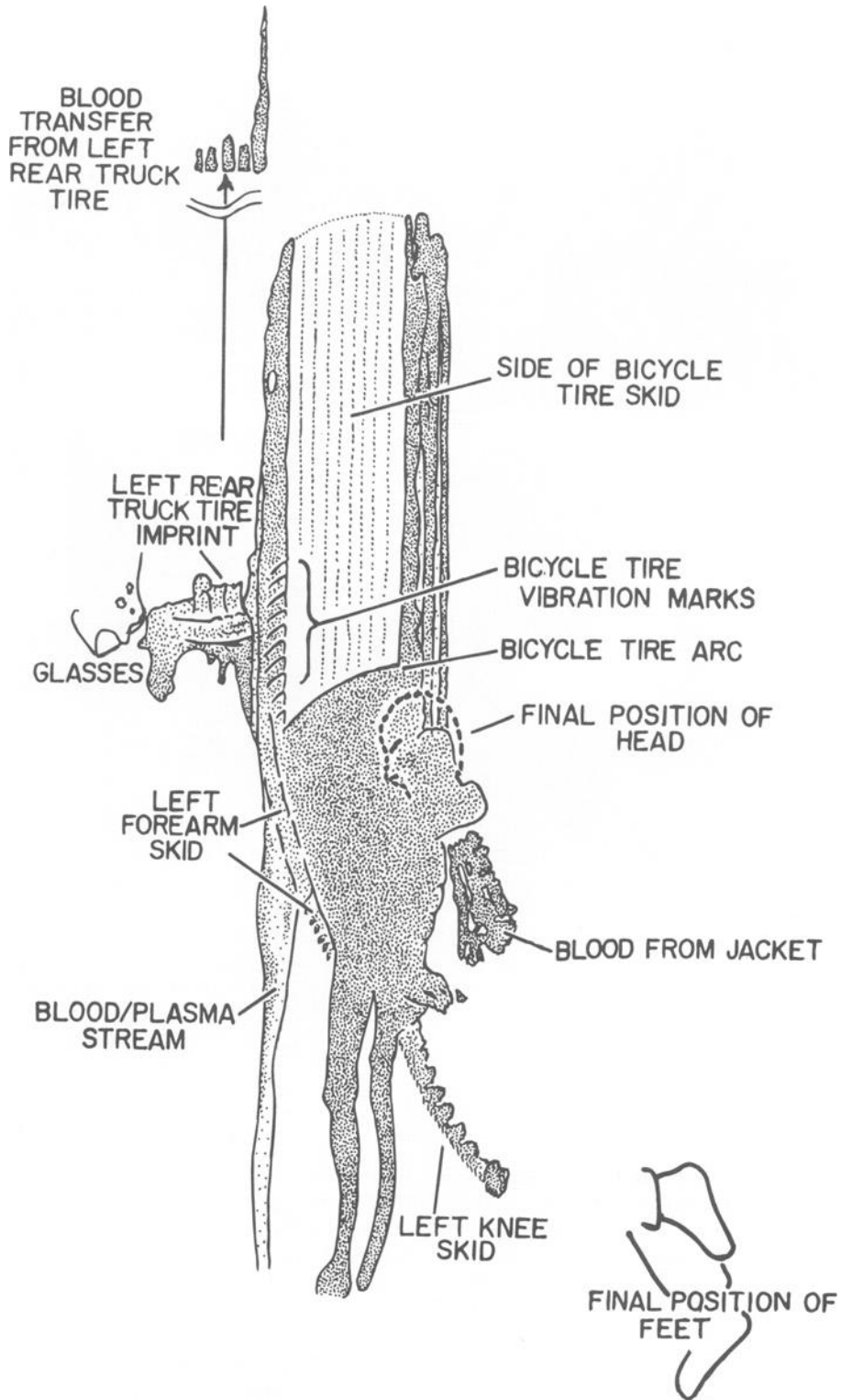


FIG. 3—A reconstruction from the photographic evidence of the bloodstain evidence with the body removed. Key features of the bloodstains are noted.

erroneous measurements, but also interpreted the squeegee marks caused by the bicycle's tire as coming from the delivery truck's tires. One of the truck's tires did interact with the blood stain leaving two secondary bloodstains (one is shown in Fig. 3) further up the loading ramp.

This reconstruction was conducted solely on the photographs of the scene and the victim and shows even a complex case such

as this one can be resolved by a careful examination of the photographic evidence.

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