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Cases Where DNA Revealed that Bite Mark Analysis Led to Wrongful Arrests and Convictions

Forensic science errors are a leading cause of wrongful convictions nationwide. Scientific errors, fraud or limitations were a factor in 63% of the first 86 DNA exoneration cases, according to an August 2005 analysis of the cases published in *Science* magazine. These forensic science mishaps include everything from lab analysts who committed fraud to expert witnesses who relied on analyses of forensic disciplines which have never been adequately validated to identify a perpetrator such as: hair, bullets, handwriting, footprints, or bite marks. Using DNA – which provides a precise identification that other methods cannot – wrongful convictions were exposed years or even decades later.

Bite mark analysis is particularly troubling because of the almost complete absence of validated rules, regulations, or processes for accreditation that establish standards for experts or the testimony they provide. Unlike other areas of forensic analysis, forensic dentists are generally self-employed rather than employees of an accredited lab and hence they can avoid even that layer of oversight. Moreover, no government entity has ever reviewed the validity of bite mark evidence. “[B]ite mark analysis has never passed through the rigorous scientific examination that is common to most normal sciences,” according to the 2002 book *Modern Scientific Evidence: The Law and Science of Expert Testimony*.

There are approximately 100 forensic odontologists in the country who have been certified by boards controlled by other odontologists – generally speaking, their friends and colleagues – but not accredited by an entity that applies scientific rigor. Much forensic odontology work involves comparing dental records to well-preserved teeth of people who died in fires or other tragedies – but comparing an accused person’s teeth to marks on a victim’s body is far more subjective, and far more prone to error. As noted in *Modern Scientific Evidence*, “The rate of error in bite mark identification, particularly the rate of false positive errors, appears to be quite high.” In fact, only three studies have examined the reliability of bite mark analysis. All three show serious problems. One showed an error rate – a rate of false identifications – as high as 91%. Another (conducted by the American Board of Forensic Odontology) found a 63.5% rate of false identifications, and the third showed an error rate of 11.9% to 22% of false identifications among forensic odontologists and noted that the “poor performance” is cause for concern because it has “very serious implications for the accused, the discipline, and society.”

The Innocence Project believes that all forensic disciplines need to be scientifically validated through truly independent research and peer review before the methodologies are used in criminal cases where life and liberty are at stake. Moreover, even if the methodology is valid, bias, incompetence, or a lack of adequate internal controls can compromise the integrity of the results. The Innocence Project’s position is based on fundamental principles of good science and the disturbing narratives of innocent people, arrested and convicted of crimes based on bite mark analysis, only to eventually be proven innocent through DNA testing.

Following are five cases where people were convicted based largely on bite mark analysis, only to be proven innocent through DNA years later:

Willie Jackson in Louisiana

DNA testing exonerated Willie Jackson in 2006 and implicated his brother in a Louisiana rape. The victim identified Jackson as the assailant in a photo array and also in a live line-up. His brother also appeared in a line-up but was not identified by the victim. However, Jackson lived 185 miles away from the scene of the crime, while his brother lived in the area. Several other factors tied his brother to the crime: When police searched Jackson's mother's house, they found a sweater with his brother's name on it that was similar to the one described by the victim; Jackson's mother drove a car similar to the victim's description; and a bartender testified that he saw Jackson's brother, and not Jackson himself, in the same bar as the victim the night of the rape. In addition to eyewitness testimony, the prosecution presented a forensic odontologist who testified that bite marks on the victim matched Jackson's teeth. Just days after Jackson was convicted in 1989, his brother confessed to the crime but was not charged. Sixteen years later, Jackson was released based on DNA test results. In addition, a second, independent odontologist argued that the earlier finding was incorrect and that the bite marks actually matched Jackson's brother. His brother was already serving a life sentence for an unrelated rape.

Ray Krone in Arizona

Based largely on bite mark analysis, Ray Krone was convicted of murdering a Phoenix bartender and sentenced to death plus 21 years. Krone became known as the "snaggle-tooth killer" when an impression of his jagged teeth (in a Styrofoam cup) was said to match the bite marks on the breast and neck of the murder victim. She had been fatally stabbed, and the perpetrator left behind little physical evidence. There were no fingerprints; blood at the scene matched the victim's type; and saliva on her body came from someone with the most common blood type. There was no semen, and no DNA tests were performed. First convicted in 1992, Krone won a re-trial in 1996 and was convicted again mainly on the state's supposed expert bite-mark testimony. His death sentence, however, was reduced to life in prison. Finally, in 2002, Krone was released after DNA testing proved that he could not have been the perpetrator. Instead, saliva and blood found on the victim matched a convicted rapist.

Calvin Washington in Texas

Calvin Washington was convicted of murder and sentenced to life in prison in Texas in 1987. It was alleged that Washington, either acting alone or with Joe Sidney Williams, robbed, raped, and murdered the victim. An expert witness testified that bruises on the victim's body were bite marks that matched Williams' teeth. A jailhouse informant claimed that he heard Washington and Williams make incriminating statements when he walked by their hotel room one night. Meanwhile, the defense presented over a dozen Waco, Texas, police officers who testified to the unreliability of the jailhouse informant. The prosecution also produced evidence that the defendants were in possession of the victim's car and had sold items belonging to the victim on

the night of the crime. Both Williams and Washington were convicted. Williams' conviction was overturned and the prosecution declined to retry him. Washington served 13 years in prison before DNA test results exonerated him in 2001. Testing also showed that fluids taken from the victim did not come from Washington, but rather from another man, since deceased.

James O'Donnell in New York

James O'Donnell became a suspect in an attempted sodomy case on the basis of a police sketch. A Staten Island resident, having seen the sketch in the newspaper, contacted the police and named O'Donnell. The victim later identified O'Donnell in a photo array and in a live line-up, but a second witness who was also at the scene of the crime did not identify him. The victim had passed out after struggling with the assailant. He bit her on the hand and she scratched him. The bite mark was said to match impressions of O'Donnell's teeth, but DNA testing of the saliva on the bite mark later disproved the finding. Testing of the fingernail scrapings matched the saliva and further proved that O'Donnell was not the perpetrator. He was exonerated in 2000, after over two years of wrongful incarceration.

Dan Young in Illinois

Dan Young spent 12 years in prison before DNA testing cleared his name in a Chicago murder. His conviction was based on a bite mark match and a false confession. Young was mentally handicapped and could not read or write. An initial analysis of the bite mark found a match between Young's teeth and the bite mark, but a more recent analysis, commissioned by the defense, contradicted this finding. The odontologist who aided in Young's conviction later said that the prosecution pushed him to exaggerate his results. Young was released in early 2005.

Bite mark analysis has also caused an unknown number of innocent men and women to be arrested and charged with crimes they did not commit. Some of these people became ensnared in police investigations on the basis of nothing more than an erroneous bite mark "match." The following people languished in jails awaiting trial until DNA testing lead to their release:

- In 1994, Anthony Otero of Detroit was charged with first-degree murder, rape, and larceny in the death of a 60-year-old woman. A forensic odontologist testified at a preliminary examination that Otero was "the only person in the world" who could have inflicted bite marks found on the victim's breast and thigh. After Otero spent five months in jail awaiting trial, the state dismissed the charges after a newly available DNA test excluded him as the perpetrator.
- Dale Morris, Jr., was arrested in 1997 based on bite mark analysis matching his dentition to a mark on a nine-year-old murder victim. Morris was a neighbor to the little girl who



was found stabbed, sexually assaulted, and bitten in a field near her Florida home. He spent four months in jail until DNA tests proved his innocence.

- A police dog led officers to the home of Edmund Burke during an investigation in the murder of a 75-year-old woman from Massachusetts. The assailant had left a bite mark on her breast. The odontologist in the case compared photos of the bite wound with a mold made from Burke's teeth and concluded "to a reasonable scientific certainty" that Burke had made the mark. However, just weeks after his arrest, DNA taken from saliva from the bite mark was tested and Burke was released.