

CASE REPORT

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Signature Murders: A Report of the 1984 Cranbrook, British Columbia Cases

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ABSTRACT: Two females, Denean Worms and Brenda Hughes, were murdered in separate events in Cranbrook, British Columbia in 1984 within three months of each other. Terrence Wayne Burlingham was found guilty of both murders and he appealed. The Supreme Court of Canada granted Burlingham a new trial in the Worms case, but no evidence from Burlingham's confession nor the murder weapon could be used. The Crown counsel requested an evaluation of the two murders to determine if they were committed by the same person. The analyses of those murders revealed that they were linked by a personal "signature" of the killer. The murder cases reported here demonstrate a control-oriented signature. The killer used a .410 shotgun as his method of control and death, engaged in overkill of each victim by shooting them twice in the head, and left the victims in sexually degrading positions. Another signature feature was the absence of typical wounds to the victims which would be expected from a serial sex offender. All of these characteristics, in combination, accounted for this killer's personal expression.

KEYWORDS: forensic science, serial murder, signature murder, criminal profiling, crime scene assessment

Background

Terrence Wayne Burlingham appealed his conviction for the first-degree murder of Denean Worms, age 20, committed in October, 1984 at Cranbrook, British Columbia. Burlingham had been convicted earlier of the first-degree murder of Brenda Hughes, age 16, committed in December 1984, also at Cranbrook. This appeal concerned only the trial and conviction for the murder of Denean Worms. At the time of the Worms appeal, Burlingham was serving his sentences of life imprisonment without eligibility for parole for 25 years on both convictions (1).

The Supreme Court of Canada provided the following case information. In both murders, committed only a few months apart, each victim was a young woman who had been violated sexually. Each was found naked, and was shot twice in the head at contact range with a .410 shotgun. Ms. Worms was killed by No. 5 pellets; Ms. Hughes, by No. 6 pellets (1).

Burlingham was arrested almost immediately after Ms. Hughes was found dead. In the course of his interrogation, he confessed to the killing of Ms. Hughes and took police authorities to his parents' home, where a sawed-off .410 shotgun and some No. 6 pellet shells were found. As the officers believed that Burlingham was also responsible for the death of Ms. Worms, they continued their interrogation. By this time, however, he had consulted a lawyer (who was not counsel at trial or his counsel on appeal), who advised him to say nothing to the police (1).

As recorded through testimony, it was reported that the investigating officers made many disparaging remarks to Burlingham about his counsel during their interrogation. Among other things, they questioned his loyalty, commented adversely upon his proposed legal fees, and criticized or ridiculed his absence on a weekend. The officers suggested to Burlingham they were more trustworthy than a lawyer (1).

When the officers found they were not making any headway with this approach to Burlingham's interrogation, they consulted with Crown counsel of British Columbia, but not counsel for Burlingham, and then they offered Burlingham a deal. If Burlingham would cooperate by admitting to the Hughes murder, or by supplying physical evidence for this crime, they would reduce the charge for the death of Ms. Worms, but not for that of Ms. Hughes to second-degree murder. The accused then made some incriminating admissions in the Hughes murder and took the police to where a second .410 shotgun, the murder weapon, was found under the ice in the Kootenay River (1).

Notwithstanding this "deal," Burlingham was charged with the first-degree murder of Ms. Worms. It appears that Crown counsel only authorized the officers to say that a plea of guilty to second-degree murder would be accepted, not that the accused would be charged with second-degree murder (1).

The outcome of his appeal was that Burlingham was awarded a new trial on the Worms case in 1995. Significantly, the Supreme Court of Canada's rulings prevented the Crown Counsel from using Burlingham's confession to police and evidence (the .410 shotgun) derived from that confession at the new trial (1). Because the police misled Burlingham, the only evidence that can be used is evidence from the crime scene and any new evidence and testimony. Therefore, prior to the retrial of Burlingham on one count of first-degree murder in the Worms homicide, Crown Counsel from British Columbia contacted this author and requested a signature analyses of the two murders to determine if they were committed by the same person. The Crown's theory was that evidence of the killer's signa-

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ture in the two murders would be considered new evidence. The analysis could not include any information about Mr. Burlingham or evidence about why he was connected to either case because a credible signature analysis cannot consider that evidence.

For purposes of linking murder cases, regardless of whom criminal justice authorities have filed charges against, experts have been called upon to testify about certain crime scene characteristics that have proved to be significant in various crimes. Experts have noted changes and similarities in a killer's method of operation or *modus operandi* (MO) (2–6). In particular, the way a murder is committed, for the most part, is influenced to some extent by the victim's response to the killer's actions. The MO of a killer includes only those actions necessary to perpetrate the murder. Many serial murderers are not satisfied with just committing the murder but feel compelled to go further. Actions beyond those necessary to commit the killing demonstrate behavior unique to that particular killer. The killer's personal expression is called his signature. Unlike MO, the signature remains constant (2–4,7–10).

Signature murder testimony has been admitted at trial and upheld under appellate scrutiny in the United States several times. Those adjudicated cases are *State of Louisiana v. Nathaniel Code* (8,11), *State of Delaware v. Steven Pennell* (8,12), *State of California v. Cleophus Prince* (8,13), and *State of Washington v. George Russell* (8,9,14). Also, in *State of Washington v. Robert Parker* in 1998, the court refused to permit a required separation of charges in a pre-trial hearing. This decision was based in part on signature murder testimony. The Burlingham case was to be the first occasion when signature testimony would be used to link one murder to another in a Canadian court.

The materials used for the Worms and Hughes murders analyses were police reports from the initial investigation of the crime scenes and victims' backgrounds, crime scene diagrams, evidence reports, crime laboratory examination reports, autopsy reports, and photographs. The following facts were examined in the analyses from the Worms and Hughes murder cases.

Introduction to the Details of the Murders

The Cranbrook, British Columbia vicinity averaged less than one murder per year for the ten-year period preceding 1984. In that year, however, the locale experienced two separate atypical murders within ten kilometers of each other during a three-month period. Brenda Hughes lived twelve blocks south and five blocks west from the location where Denean Worms was last seen alive, a disco in Cranbrook.

Details of the Denean Worms Murder Case

The body of a 20-year-old white female was found October 16, 1984 at 1800 hours by target shooters at a gravel pit/shooting area outside Cranbrook. Police investigators discovered that she was nude except for white gym socks on her feet. The body was covered with a tree stump and several boards.

The victim was identified as Denean Worms. She was 5'3" tall, and weighed 140 lbs. She had dark brown curly hair, cut short, and brown eyes. She was last seen on Wednesday, Oct. 10, 1984 at 0150 hours, leaving a disco, in Cranbrook, BC. She was reported to be last seen wearing blue jeans, a white shirt and/or red vest, and running shoes. She worked at the disco as part-time cleaning staff and shared a nearby apartment with a male roommate.

Investigators located three blood-stained areas on the grounds near her body. Blood stain pattern #1 was 7.4 m away, blood stain pattern #2 was 4.5 m away, and blood stain pattern #3 was 2.7 m

away. At pattern #1, 23 shotgun pellets, six metal pieces, and five pieces of teeth were recovered. This evidence revealed to investigators that the victim was initially shot at the location of pattern #1, then drug to the location where her body was found. Several kilometers away, back toward town, the victim's purse and shoes were found.

Autopsy results indicated that Worms was shot twice. Gunshot wound #1 through the left hand, exited the planar surface, and re-entered the left side of her face. It was determined that Gunshot #1 was the first shot fired. Gunshot wound #2 was an entry wound to the right side of the victim's head near her ear. It was *coup de grace* style. Both shots were fired from a .410 shotgun. There were no shotgun casings found at the scene. Multiple lineal abrasions were present over her back. They were consistent with being found on a person who had been dragged over a rough irregular surface. Semen was discovered in the vaginal area.

Details of the Brenda Hughes Murder Case

Brenda Hughes was a 16-year-old white female who lived with her family in Cranbrook, B.C. She was described as being 5'7" tall and weighing 120 lbs. She had brown hair and hazel-colored eyes. On Dec. 30, 1984, the victim's father, mother, and brother, left their home at about 1045 hours. She remained behind because she wanted to take a shower. The front door of the residence was left locked, but the carport entrance to the basement was left unlocked. The victim was last seen wearing pink night clothes.

At approximately 1230 hours, the family returned home from church. They entered the residence through the carport entrance, which was still unlocked. They immediately noticed blood on the head of the family's dog. The mother found the victim on the couch in the downstairs family room. The pink night clothes, which the victim was last seen wearing, were found in her brother's bedroom floor. Three dollars had been taken from his wallet, which was left on the dresser in his upstairs bedroom. The mother's purse was found on top of a toilet. It had been opened and appeared to have been gone through by someone. A gray-metal locking box was missing from the floor of the master bedroom closet. The father found that the victim's hair was wet, thus confirming that she had taken a shower. He noted that the volume to the stereo had been turned down, which was not normal for his daughter. He also noted that one load of wash had been done and removed from the washing machine, while another load had been washed and left in the machine.

Blood found on the stairway walls was determined to be the victim's blood deposited by the dog's fur. There was no splatter that came directly from the victim. A dented wallboard on the stairway wall was not there prior to the murder. There was no other evidence of a struggle. A pillow that had served as a buffer between the victim's head and gun barrel was also found.

The victim was found nude on the family room couch. She was face-down with her left side visible. Her head was resting against the armrest-pillow on the couch. Her left arm was bent with her hand near her shoulder. Her right hand was resting on top of her buttocks. She had sustained two gunshot wounds to the left side of her head. Gunshot wound #1 was an entrance wound to the left ear area. Plastic wrapping, cloth wadding, and lead pellets of the shotgun shell from a .410 shotgun were found inside her head. Gunshot wound #2 was located about 2 cm above gunshot wound #1. It is near contact in type. Lead pellets, plastic wrapping, and cloth wadding from a .410 shotgun were found inside victim's head. There were no exit wounds. As in the first case, no shotgun casings

were found at the scene. A small fresh bruise was found in the posterior left mid-calf area. Semen was found in the vaginal area.

Signature Analyses

The following discussion summarizes the author's report to the Crown counsel in *R. v Terrance Wayne Burlingham*. The main question was: What features distinguished the killer's *modus operandi* and signature?

The distinction between a killer's MO and signature is important, particularly in these cases where the MO varies substantially between the first murder and the second murder. For example, in the Worms case, the killer picked up the victim on her way home from the bar. She was taken from public view so the killer could privately attack. But, in the Hughes case, the victim was raped and murdered in her own home. Thus the killer changed his MO from the first case to the second.

Whether the killer operated outdoors versus indoors was an additional characteristic of his MO. In Worms' case, the killer left her outdoors in an area from which he could escape without being detected. In the Hughes case, the killer appeared to feel very comfortable with a victim indoors. With that change in approach, the killer altered his MO.

Another MO factor was the killer's decision regarding transporting his victim from one location to another. Whereas he chose to transport Worms from one site to another, the killer chose not to do so with the second victim. By attacking Hughes and leaving her in her own home, the killer avoided the uncomfortable and risky situation of transporting Hughes' body from her home to another location.

Rape-murderers are driven by their anger and power. They need to express their emotions through control over their victims. After studying the case files of thousands of killers and interviewing many violent offenders, such as the one in these cases, the author concluded that most signature killers know they are committing a crime, but that knowledge is secondary in importance to the sexual excitement of terrorizing victims. The key to the signature in these cases was the manner in which the offender accomplished immediate and sustained domination and terror to the victims. The distinguishing signature of the killer in these cases is as follows.

First, in both cases, the offender demonstrated pre-planning and vast experience by his actions. Carrying any version of a sawed-off .410 shotgun is highly intimidating and terror producing. It wasn't necessary for him to carry such a power-oriented weapon when other weapons could have been used. The offender in these cases needed the terror that such a weapon produces with its size and ferocity, resulting in dominance over any victim. The .410 shotgun is not the weapon of choice by most killers, and certainly not the weapon of choice by most sexually-oriented murderers (15). This weapon was pre-selected and brought to the scene of each murder. The use of a .410 shotgun to intimidate his victims was one element of this killer's signature.

Second, it was necessary for the killer to leave both victims nude in sexually degrading positions. The intent of the killer was to present these victims as disposable, serving no value, and tools of ridicule. Therefore, the victims were not allowed any sense of decency by the killer. In Worms case, she was left nude, thrown away like a piece of trash, covered by a stump and boards in a reasonably remote area. But she was not left as though the killer didn't ever want her found. If the killer didn't want Worm's body found, he would have used more thorough and more elaborate concealment. In Hughes' case, the killer left her nude and prone on a sofa in her

own home for relatives to discover. Leaving both bodies in positions that the finder would believe was sexually degrading and, also, demonstrating to the finder that the victims were extremely vulnerable, was a signature of this killer.

Third, the absence of damage to each victim's body is vital evidence of this killer's signature. In each case, there was no evidence of a struggle, binding, strangulation, physical torture, or post-mortem mutilation. The overpowering presence of the .410 shotgun rendered both victims helpless and, therefore, demonstrated this killer's need for complete compliance without the use of other implements or assaults. Many rape-murderers do not refrain from other types of violence. The failure of Worms' killer to use such violence, as evidence by the lack of pre-fatal and postmortem wounds is unusual. Physical assault and mayhem are common in rape-murder crimes. The unique absence of damage reflecting a struggle or torture is a signature for this type of offender. When one considers rape-murderers in general, to find no additional marks other than the death producing injuries is exceptionally rare.

Finally, the placement and number of gunshots to each victim's head is a signature element of this killer. The killer chose (felt he had) to fire a second shot, even though the first shot proved fatal in both cases. Additionally, the near-contact and *coup de grace* type wounds to the left side of each victim's head indicate this killer's need to assure himself that the victims were indeed dead. The additional shot reflects force beyond what was necessary to commit the murder.

In these two control-type rape-murders, the killer acted in a way that established his highly personalized signature. The author's conclusion was that both victims were killed by the same killer.

HITS Data Search

Independent from the above analyses, a computer search was performed to determine how frequently the main characteristics of these two murders have been seen in other murders. The search was conducted in the Homicide Investigation Tracking System's (HITS) data base. HITS is a central repository of homicide cases for the states of Washington and Oregon. It also contains additional murder cases from other states, British Columbia, and other provinces. This information is gathered from law enforcement officers and their reports (4,16). The search was conducted on March 17, 1998. At that time, there were 5960 murder records in the HITS data base. The following results of those searches were:

Total murder records	5960
Female victims	2295
Victims left nude	284
Major trauma to the head	56
Weapon was a shotgun	0

The most extraordinary finding for murders in which women were found nude, raped, and shot in the head was that, as of March 1998, no murder victims, shot with a shotgun had appeared in the entire HITS data base. The search findings clearly support the initial analyses that murderers who rape and murder female victims, leave them nude, and shoot them in the head with a shotgun are truly rare.

Discussion

The single most important issue for the signature killer is control. Signature killers use a specific series of actions to assume and exert control. Some take pleasure in luring the unsuspecting victim through deception to a safe place where they can establish control.

Other killers need immediate confirmation that control has been established and use overpowering implements and actions to achieve it (2,3,8). In the Worms and Hughes cases, the killer used a sawed-off .410 shotgun to gain control.

The central thread of Burlingham's signature was the imposing, and therefore controlling, nature of the .410 shotgun. Burlingham and a friend stole two guns two days before Denean Worms was murdered. One of these guns was the .410 shotgun used on Worms. Burlingham showed the shotgun to his friend a few days later, by which time the barrel had been substantially sawed off. Eventually, Burlingham hid the shotgun in the Kootenay River. His need for that type of weapon did not diminish. In fact, it was a requirement for his next homicide. Therefore, he used another .410 shotgun at the Hughes murder scene. That particular shotgun he had stolen from another burglary of a home while the people were asleep.

An interesting feature at both murder scenes was that no expended shell casings were found. Burlingham was careful at the Worms scene to retrieve the expended shotgun shell ejected from the first shotgun blast. This demonstrated an effort to not leave evidence. The second shotgun was double-barreled so the gun did not eject the expended rounds.

Investigative follow-up work and crime laboratory analyses further corroborated the opinion that the same person committed both murders. As mentioned earlier, given the Canadian Court's ruling, if evidence was to be introduced, it would have to be new testimony unrelated to Burlingham's confession or to evidence derived from that confession. While my analysis was being performed, Crown counsel and investigators realized that DNA testing had not been completed in 1984. So the semen samples found in both victims were tested and compared to Burlingham's DNA. Burlingham's blood sample positively linked him to the semen found inside the vaginas of both victims.

Finally, facing insurmountable new evidence against him, Terrence Burlingham pled guilty to the murder of Denean Worms.

Signature murder testimony is yet to be offered in the Canadian judicial system.

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