DANGEROUS DREAMERS

Can sleep disorders explain brutal murder or unexpected suicide?

BY DAVID K. RANDALL | PHOTOGRAPHS BY FREDRIK BRODEN
As the sun set in the Welsh village of Aberporth in July 2008, 59-year-old Brian Thomas sat with his wife, Christine, in a motor home overlooking the sea. The pair had been married almost 40 years and now spent their retirement watching rugby together and traveling the countryside. After dinner, the couple went to bed, only to be awoken around 11:30 by rowdy teenage boys nearby. Unable to return to sleep, they drove to another site and bedded back down.

Then the night took a deadly turn. Brian woke to find himself with his hands around Christine’s neck as she lay unresponsive. In a panic, he called 999, the Welsh equivalent of 911. “I think I’ve killed my wife,” he told the operator. “Oh, my God. I thought someone had broken in. I was fighting with those boys, but it was Christine. I must have been dreaming. What have I done?”

In his sleep, Brian had strangled his wife to death. Sixteen months later, he appeared in court to face charges of murder. The question before the jury was stark in its simplicity: Was the death of Christine Thomas the fault of her husband or a tragic accident over which he had no control?

For most, a bad night’s sleep leads to little more than bleary eyes the next day. But for those who suffer from parasomnias, a group of sleep disorders that includes sleepwalking and nightmares, a bad night can quickly become a catastrophe. While asleep, these people have been known to dive into nightstands, drive, or make phone calls—with no recollection of their actions come morning. In extreme cases, they can pose a lethal threat to themselves or others, according to Mark Mahowald, director of the Minnesota Regional Sleep Disorder Center and a neurologist at the University of Minnesota. He has studied cases in which people ran into traffic while asleep or woke up and realized that they had their wives trapped in a headlock.

Those with parasomnias sometimes resort to tying themselves to their bed at night out of fear they’ll accidentally kill themselves or someone else. Comedian Mike Birbiglia jumped out of a window while asleep, seriously injuring himself. He has since described zipping himself into a sleeping bag each night so that he can’t harm himself again. The accident was the basis of his recent hit indie film, Sleepwalk With Me.

Sleepwalking and other parasomnias were long thought to be signs of an unresolved emotional conflict. Freud theorized that sleepwalking represented an attempt to fulfill an unconscious desire. Thanks in part to advancements in technology that allow researchers to better plot the workings of the brain, these conditions are now viewed as the result of a flaw in the sleep cycle, a wrong-footed step in the choreography of the brain’s functions that allows a person to be unaware of what the body is doing.

Yet while the science is sound, its application is notoriously difficult in the world beyond the lab. As more defendants claim they were asleep at the time they committed a violent act, prosecutors, judges, and medical experts are left grappling with the possibility that there are more shades of consciousness and culpability than previously thought possible.

There are few reliable statistics detailing how often sleep leads to violence, though researchers know that parasomnias are relatively common. Normally, the brain shifts between two distinct states during sleep: REM and non-REM. The latter makes up the majority of sleep time and can range from sleep that is so light that a person might not recognize he has fallen asleep to such a deep slumber that he becomes confused and irritated when aroused. REM sleep, meanwhile, consists of periods when the brain is as active as it is during consciousness and when most, if not all, dreams occur. During this stage, blood pressure rises, breathing becomes sporadic, and the brain effectively paralyzes the body so that a person doesn’t act out a dream’s storyline.

The brain switches between non-REM and REM stages about six times during a normal eight-hour sleep period, yet the transitions aren’t always smooth. In cases of parasomnia, there can be an overlap between the two mental states.

When someone is sleepwalking, the parts of the brain that control movement and spatial awareness are active, while the prefrontal cortex, which is responsible for reason and judgment, and the midtemporal cortex, which helps us recognize faces,
are inactive. As a result, a sleepwalker can have her eyes open and react to her surroundings, yet have no conscious thought.

A 2009 study in Sleep illustrated the mechanics behind sleepwalking: There is an increase in blood flow to the posterior cingulate cortex (a hub at the base of the brain thought to help integrate information we receive), while at the same time, blood flow decreases in the frontoparietal associative cortices, areas thought to be critical to our ability to exhibit conscious awareness. Normally, these parts work simultaneously during wakefulness; the nocturnal split suggests that a sleepwalker’s brain is essentially playing only a few keys rather than a whole melody.

About one in three adults will sleepwalk at least once in their lives, and between 3 and 4 percent do so regularly, according to a recent study in Neurology. Related parasomnias like REM sleep behavior disorder—a condition in which the brain doesn’t paralyze the body during REM sleep, so people are able to act out their dreams—are found most often in men and tend to run in families, though researchers don’t know exactly why. These disorders can also be precursors to degenerative neurological conditions. Nearly 45 percent of patients diagnosed with REM sleep behavior disorder go on to develop Parkinson’s disease and other conditions caused by a lack of dopamine in the brain, according to a study reported in The Lancet Neurology.

Parasomnia episodes can be triggered by excessive caffeine, sleep deprivation, chronic stress, or loud noises, all of which take a toll on the brain’s ability to cycle through the stages of sleep. A 2007 study published in Sleep revealed that up to 90 percent of violent sleepwalking cases are provoked by a person confronting a sleepwalker, rather than a sleepwalker seeking out or initiating a confrontation. No one knows why, but adult sleepwalkers often become violent when confronted, while children tend to be relatively lethargic. Michel Cramer Bornemann, codirector of the Minnesota Regional Sleep Disorder Center and an assistant professor at the University of Minnesota Medical School, says that the difference could reflect the fact that children spend longer amounts of time in deep slow-wave sleep, which makes them difficult to rouse, while adult sleep patterns tend to be more unstable and allow for more confusional arousals.

All told, nearly 2 percent of adults admit to acting violently during sleep, according to a study of nearly 20,000 patients published in Sleep Medicine, though Mahowald says that embarrassment may prevent more patients from coming forward. Of the patients who said they had acted violently while sleeping, for instance, only about 12 percent consulted a physician afterwards.

The consequences of sleep violence are often one of two extremes. If a woman throws an elbow and breaks her boyfriend’s nose while they’re asleep, the only authority involved will likely be the doctor who bandages him. “There is a large
tolerance from the family and even the medical community for episodes of somnambulism,” reports one study in The Journal of Trauma. Yet if a sleepwalker picks up the gun in his nightstand and fires it at his partner, criminal charges will likely follow.

BRIAN THOMAS WAS NOT THE FIRST PERSON TO CLAIM TO HAVE been sleepwalking at the time he committed a violent act. In 1987, Kenneth Parks, a 23-year-old Canadian who recently been fired for embezzling money to pay off gambling debts, got off the couch one night after watching Saturday Night Live and drove 14 miles on a busy highway to his in-laws’ house. He let himself in and proceeded to kill his mother-in-law with a carving knife and nearly choke his father-in-law to death. He then drove to a nearby police station. Without seeming to notice that his hands were cut nearly to the bone, he walked in and said, “I’ve just killed two people. My God, I’ve just killed two people.” He then looked down, and as if registering his bloody body for the first time, screamed, “My hands!”

The crime was baffling. Aside from the embarrassment of disclosing his money troubles, Parks had no motive for killing his in-laws. In fact, he was closer to them than to his own parents. There were no signs that he’d lost his temper, and driving directly from the crime scene to the police station did not seem the act of a guilty man. Most disturbing, Parks couldn’t remember anything of the time between falling asleep on his couch and surrendering to the police. In one unnerving moment, he asked if his in-laws were dead. A detective said that one of them was. “Did I have anything to do with it?” Parks asked. The officer couldn’t tell if Parks was delusional or the best actor he’d ever met.

Parks’s attorney considered an insanity plea, reasoning that a sleepwalker has no way of recognizing that what he’s doing is wrong. But Parks refused to entertain that notion because doing so might mean institutionalization—and prevent him from seeing his daughter. Instead, his lawyer argued that he couldn’t be responsible for something he never chose to do, and couldn’t be deemed insane for the temporary state of sleepwalking.

Rosalind Cartwright, then head of the psychology department at Rush University and one of the world’s preeminent sleep researchers, offered a pro bono review of the case on Parks’s behalf. After conducting several sleep studies and undertaking an extensive family sleep history, Cartwright concluded that he was in the midst of a complex parasomnia from the time he got up off the couch to the time he walked into the police station. “He was a gentle man stuck in a tragic circumstance,” she says.

Several clues pointed Cartwright in the direction of sleep violence. First, Parks had a family history of parasomnias. His grandfather, for instance, had been known to cook while sleepwalking, only to wander back to bed without eating. Several male relatives suffered from enuresis, or bed-wetting, an indication that the brain is unable to fully rouse itself from deep sleep. And, while lethal, Parks’s violent outburst was consistent with the actions of other sleepwalkers when confronted. The defense argued that Parks’s mother-in-law likely confronted him when he entered the house, which could explain why he harmed someone he loved without any clear motivation or intent.

Perhaps swayed by Cartwright’s analysis or Parks’s wife’s testimony on his behalf, the jury acquitted him on all charges. Soon, a stream of defendants claimed that they, too, were sleepwalking at the time they committed violent actions. Within seven years, there were in Canada alone five well-known trials that dealt with sleep violence. Prosecutors and psychologists became concerned about the prospect of malingering.

As courts around the globe began dealing with defendants claiming their crimes were committed while sleeping, top sleep research departments, like the University of Minnesota’s, increasingly received calls from prosecutors. Cramer Bornemann saw these cases as an opportunity to investigate sleep violence. Even if all the defendants were lying, he would glean valuable insights into how to spot a fake. So along with his colleagues, Mahowald and Carlos Schenck, he formed Sleep Forensics Associates in 2006.

Cramer Bornemann has since investigated over 250 cases. (He tells clients that he won’t guarantee a favorable opinion and donates his fee to the university’s hospital.) True instances of sleep crime are rare, he says, and extremely violent cases exceptional. The majority of his cases involve sexual assault, and he most often testifies for the prosecution, saying that a parasomnia was unlikely (in part because many cases involve alcohol, which can inhibit memory and decision-making—but isn’t likely to spur sleepwalking).

In his investigations, he looks for the same standard of voluntary action that the Parks case established. While some doctors who testify in sleepwalking-related cases turn to lab studies of the accused’s sleep to illustrate that he has a parasomnia, Cramer Bornemann says their results are irrelevant, as it’s difficult for sleepwalking—and extremely unlikely for violence—to be reproduced in a lab.

For her part, Cartwright argues that technology could eventually help courts at least establish whether a defendant is a sleepwalker. A technique called power-density scoring, for instance, has shown that sleepwalkers have lower slow-wave sleep activity during the early sleep cycle than other individuals, even on nights when they don’t sleepwalk.

Still, Cramer Bornemann thinks that the use of lab studies to support a defendant is unethical. He feels they provide circumstantial evidence that may unfairly convince a jury of something that’s not there: scientific certainty. A study doesn’t prove anything about the night a particular crime was committed, he notes, and judges who are more sophisticated when it comes to scientific evidence tend to rule such results inadmissible.
Cramer Bornemann’s approach is based on the premise that in order to develop a defense with merit, the defendant’s violent act has to have a behavioral pattern that is consistent with a recognized parasomnia. Through video, audio, witness accounts, and interviews of the accused, he seeks clues to help determine the likely brain state of the defendant at the time of an incident. If he was able to walk barefoot in the snow without feeling pain, for instance, that suggests his brain wasn’t processing sensory input, a function that is blocked through active pre-synaptic inhibition during sleep. If the defendant later said he woke up from a dream to find his hands around his wife’s neck, that suggests he was in the middle of the dreaming REM stage of sleep and could be suffering from REM sleep behavior disorder (the inability to remember a dream, meanwhile, would suggest the incident occurred during non-REM sleep, and was perhaps the result of a violent non-REM parasomnia). Cramer Bornemann stays on the lookout for consistency in the details, such as whether a person claims to have been dreaming or not, which helps prevent cases of malingering.

Some cases seem like obvious instances of sleep violence, such as a current one involving a man living in a Mid-Atlantic state. His girlfriend awoke around 2 a.m. to the sound of a loud bang, and saw him holding a gun. “Did you shoot me?” she asked. “I don’t know,” he responded, as he seemed to come out of a daze. She realized she had been grazed by a bullet on the scalp and her hand, but wasn’t seriously injured.

Concerned that the man’s past criminal record could pose a problem, the woman went to the emergency room alone. Doctors immediately recognized the bullet wounds, and the man was arrested later that day. Cramer Bornemann hasn’t yet reached an official conclusion on this case, but says it’s likely that sleepwalking or a confusional arousal could be at fault, since the shooter struggled to regain full consciousness.

Sleepwalkers aren’t danger to themselves, they can also harm themselves. A 2003 Journal of Forensic Sciences report detailed people falling from rooftops and shooting themselves. In 2010, Tobias Wong, a noted conceptual artist in New York City, was found dead in his apartment, an event that shocked the art world. The death was ruled a suicide by hanging, but Wong’s family suspected he had done it while sleepwalking, as he had a long history of parasomnias. “This wasn’t a typical suicide,” his partner told The New York Times. “He wasn’t angry; he wasn’t sad. We were always thinking about our future. We wanted kids. We wanted to find a house.” Determining that such cases are instances of parasomnia pseudosuicide—unintentional accidents—can have profound emotional and financial effects on a victim’s family, assuaging guilt and triggering insurance payouts that don’t cover suicide.

Perhaps because he deals with the bizarre every day, Cramer Bornemann accepts that certainty can be elusive. “I can never really know what happened on a particular evening,” he says.

“I’m different from other forensic investigators. I don’t have DNA. I don’t have formal material evidence to provide confirmation. All I have are behavior patterns, based on which I evaluate the brain state of a particular time and assess a likelihood.”

Even then, juries don’t always see things as scientists do. In 1997, Scott Falater, then 41, was a software engineer struggling with a stressful job at Motorola. Despite being a devout Mormon, he recently begun taking caffeine pills. Worried that the failure of a project he was overseeing would result in layoffs, he’d been sleeping less than four hours a night for a week. After discussing his work concerns with his wife one evening, he tried to replace a stuck part on the pool filter at his suburban Phoenix home—something she had asked him to do. Unable to complete the job, he headed to bed around 9:30 p.m. An hour later, a neighbor heard screams. Peering over the fence, he saw a body by the pool—and Falater standing over it with a “blank, staring look.” After entering the garage, Falater returned wearing heavy canvas gloves and dragged his wife’s body toward the water.

Police arrived minutes later and arrested Falater, who had a freshly bandaged hand, yet was confused about the situation. During an interrogation, he was unable to answer questions and even asked, “Why do you think I am the one responsible?” The detective indicated the bandage; Falater stared at his hand, perplexed. Still, the coroner concluded that he had stabbed his wife 44 times with a knife before holding her head underwater.

Falater—who had a history of sleepwalking and had, at 20, shoved his sister when she tried to prevent him from wandering in his sleep—claimed he was asleep while committing the murder. Family members testified that there’d been no obvious tension between the couple; they had a loving relationship, were financially stable, and according to their teenage children, rarely disagreed. The court ordered a barrage of psychological tests; they came back normal, and the psychiatrist reported that Falater was crushed by his wife’s death. Witnesses, including Rosalind Cartwright, concluded that Falater could have been attempting to fix the pool filter while sleepwalking, using the blade to dislodge the stuck part, and turned on his wife when she approached him. Yet, in part because four nights of sleep studies failed to demonstrate a sleepwalking arousal in Falater, the jury found him guilty. Falater was sentenced to life in prison.

I M A G I N E that both Parks and Falater are telling the truth. In the U.S. legal system, which views consciousness as an all-or-nothing affair, the outcomes of sleep violence can be very different, depending on the jurisdiction and the type of case. Research by Fordham University School of Law professor Deborah Denno revealed that there isn’t a set framework for assessing whether a defendant was likely sleepwalking when violence occurred—his fate can hinge on the sophistication of...
the attorney and the sleep experts who testify. Many judges and lawyers remain dubious that someone could execute a complex, violent act while sleeping. Determining whether a person was sleepwalking could mean the difference between a full acquittal or prison—with the possibility of the death penalty. There is no middle ground between incarceration and freedom, and no record of how often police deal with cases of possible sleepwalking.

Those extreme options spurred Denno to pen a 2002 paper, published in the Minnesota Law Review, arguing that the way courts view sleep needs reform. The foundations of the criminal code pertaining to unconscious and involuntary states such as sleepwalking haven't been thoroughly updated since the '50s, when Freudian interpretations of consciousness were widely accepted and scientific understanding of sleep was rudimentary. Courts have done little to reach uniform standards since her article was published.

Denno argues that judges and juries need a third way to classify a defendant's actions: semivoluntary. As an example, she cites Kenneth Parks. "Someone like him may need to be told, 'If for the next year you take your medication and keep out of trouble, we won't prosecute this crime,'" she says. In such a system, there would be a record of each incidence of sleep violence, and people with parasomnias would need to act responsibly or risk prosecution for any crime they committed. Such an approach would pull cases of sleep violence out of the shadows and give sleep crime researchers data they're sorely missing. All this could have major significance with respect to developing fair standards for sleep cases.

Meanwhile, Cartwright advocates for changes to the investigative process that would embrace the technological advances; she's working with an international team to establish a protocol that all sleep experts can follow when examining sleep violence cases. "It will take time to get everybody on the same page and get laws changed," she says. "In 20 years, we might have enough history to establish a standard."

Still, for sleepwalkers who wake to a crime scene, even a not-guilty verdict may do little to soothe feelings of guilt. Brian Thomas was described in court as "a broken man." The jury heard evidence that he had a history of sleepwalking and had recently come off of medication for severe night terrors—a parasomnia in which a person can scream and thrash for up to 20 minutes, yet form no memory of it. After a short deliberation, the jurors reached a verdict of not guilty.

The judge then addressed Thomas from the bench. "You are a decent man and a devoted husband," he said. "I strongly suspect that you may well be feeling a sense of guilt. In the eyes of the law you bear no responsibility."