Long before there was any talk of diamond-inlaid handcuffs, séances or "chasing the dragon," there was a phone call. That's how a case usually runs: from the mundane to the remarkable; from what happens in every case (the phone call) to what makes a case unique (jewel-studded sex toys and a séance to raise a dead man who, in life, liked inhaling the smoke of toasting heroin). The phone call to the office may bring a request to do or attend an autopsy, review another medical examiner's autopsy report, look at some slides or read a toxicology record. Eventually it will lead to the details of how someone lived and how he came to die.

This is how we move between the cause of death and the manner of death. They are two different things. Related, but different. The cause of death—what killed someone—is usually a quite simple and straightforward science. Most cops on the scene can point to it—"Look, Doc, two bullet holes"—and usually they are right.

But the manner of death is riddled with details. This is where you find the range of human imagination from the diamond-studded handcuffs to autoeroticism's elaborate pulleys and knots, which were meant to untie, but didn't. Whereas the cause of death can be a blunt trauma, the manner of death can be an accident from a fall, a suicide from a jump or a homicide from cheating on your fortune-teller and getting whacked with her crystal ball. As a body lies on the morgue table, the impact to the head—the cause of death—might look like it came from a bowling ball or even a fishbowl, but the story of who betrayed whom, and where and when the body was found, would tell the manner of death and lead to its classification as a homicide.

The questions the forensic pathologist deals with are what caused the death and how it happened. Notice, there is no discussion of who did it. I don't do that. That's not my job to decide. That's the job of the police, the prosecutor and ultimately the jury. I determine what happened, not whodunit.

The cause and manner of death fit neatly together. But while one may lead to the other, they can come to investigators in either order: A dead man with two bullets in him may turn up with no clues, or someone may be reported missing from a home in which the living room is pocked with bullet holes and spattered with blood.

You can get one without the other, or you can get neither, as happened on August 6, 1930, when Judge Joseph F. Crater told friends he was going to the theater and disappeared from the streets of New York without a trace. He is still referred to by many as the most famous missing man in America. Theories abound. Earlier that day, the judge had removed large quantities of paperwork from his office and had cashed a sizable check. Those details seem to point to someone who wanted to disappear: purge your files, get some cash, create an alibi. But to date there is no known reason for him to do so. And there is still no body, no manner and no cause of death.

The same was the case with Jimmy Hoffa, the longtime Teamsters Union boss, who others maintain is America's most infamous missing man. He certainly still draws a crowd, as he did on July 30, 1995, when two thousand mourners (including one member of the United States Congress) turned out to remember the man, who was officially declared dead in 1982. The service was held twenty years to the day after he disappeared from the parking lot of the Machus Red Fox restaurant in Bloomfield Township, outside Detroit, Michigan. No body was ever found, and no manner or cause of death was ever determined.

The medical examiner has certain options if no body is ever found, and declaring someone dead without a body is something medical examiners are occasionally asked to do. Such a declaration can be made after some time—as it was seven years following the disappearance of Hoffa—but it is always based on the circumstances.

On July 17, 1996, TWA Flight 800, a Boeing 747 bound for Paris, exploded shortly after takeoff from New York's JFK Airport, killing all 230 people on board. The medical examiners on the scene (of whom I was one) worked day and night to identify bodies. The issue arose as to how to issue a death certificate if no body was found. It was decided by Dr. Charles Wetli, the chief medical examiner of Suffolk County, that we would have to work from the passenger list as well as from interviews with family members to establish whether the person did indeed board the plane, and whether he or she was seen again after the plane departed. The airline roster is more reliable with international flights than with domestic ones because passports must be shown. Also, it is not uncommon in domestic disasters to have one or two people traveling under a different name.

As we struggled through the investigation of TWA 800, we agreed to issue death certificates for the missing at the end of the search. That turned out to be unnecessary: In the end, all the bodies were identified, some from very small pieces of tissue aided by

the new DNA technologies. But a judgment had been made that the circumstances alone would have dictated such a declaration.

Declaring a person dead based on something even as individual as a tooth is difficult: People sometimes lose teeth. It's the same with fingers and, in some instances, even hands. A half century ago, a young man in Boston faced the charge of murdering his girlfriend, who he claimed had simply wandered away from him in a wooded area and then disappeared. When a hand was found in those woods, he was indicted. But during his trial the estranged girlfriend walked into the courtroom—both hands intact.

The hand, it turned out, belonged to a bear that had been skinned for its fur. Bear paws on X ray are anatomically very similar to human hands. (Nowadays, of course, DNA analysis could identify the species of the hand.)

Identification becomes a matter of judgment for medical examiners and judges. Hands do not a dead body make, and courts have been disinclined to rule someone dead when only a tooth or a hand is found. But a whole jaw may be different, as is, of course, a torso.

Jimmy Hoffa was declared dead because his family requested that declaration and because of the story—the circumstantial evidence—that he had, in fact, disappeared under mysterious circumstances. Is it possible that he is alive and well and playing cards with Elvis? It is possible. But in my professional role as an expert, I would testify on the stand that to a reasonable degree of medical certainty he is not.

Sometimes the manner and cause of death appear to be complete with little to question: a body, a scene and a story to go with it. But such a neat package can lead to all kinds of assumptions. Assumptions can be wrong—and frequently are. And that was so in the case of Ted Binion, whose death involved the jeweled handcuffs and the smoke of tar heroin.

Lonnie Ted Binion was found dead on the floor of his million-dollar Las Vegas home on September 17, 1998. The next-day headline in the *Las Vegas Review-Journal* trumpeted, "Ted Binion, Troubled Gambling Figure, Dies," with this subhead: "After a life of tumult, a former gambling executive's body is found next to an empty prescription bottle." It hardly sounded like a homicide.

The story had begun to form at 4:05 P.M. on the day Binion died, when Sandy Murphy, his live-in girlfriend, dialed 911 and screamed for help. Paramedics were unable to revive Binion, and the police who were called to the scene seemed to accept what Murphy said—that it was a drug overdose and that she had found him there on the floor.

They were dead wrong, as cops in such circumstances sometimes are. This happens all the time. Regular police precincts usually send out their experienced homicide squads only when there has been a reported homicide; their least experienced officers protect the scene when the death is reported as natural. But an experienced homicide detective can see through a staged scene. Despite national attention given to such cases as the murder of JonBenet Ramsey, we have changed little about the initial police response to the scene of a death. In the JonBenet case, the initial call to the police reporting a kidnapping resulted in certain assumptions that led to the now-infamous destruction of evidence.

No homicide detective was sent to the scene of Ted Binion's death. Sandy Murphy told the responding police a story that matched the evidence: an empty bottle of Xanax, but no suicide note, next to the body of a known heroin user whose life had spun out of control. Police recorded that, along with Murphy's reference to Binion as her "husband" and the fact that she was "hysterical," screaming, "He's not breathing! He's not breathing!"

The day after the death, the local newspaper related the story of the dead man's life. Reporters and cops alike knew about his ties to organized crime and his long-admitted heroin addiction, both of which contributed to his losing his gambling license as well as

the ownership of one of Las Vegas's oldest establishments, Binion's Horseshoe, the family hotel and casino that is the site of the World Series of Poker.

It was a pure Las Vegas story, complete with a promiscuous start, a glittery midsection and a tragic finale: Two people on the outs find each other in a topless bar, live the high life together, and then one dies. It all seemed to make perfect sense.

The absence of a homicide detective from a murder scene means that there is no one present who is skilled in knowing how to protect the crime scene; no one to poke around the story being told by whoever found the body. Instead, all too often, the story is told, the body is removed and assumptions of innocence are born. And as soon as assumptions are made, trace evidence gets trampled.

Thinking you know what you are looking for is bad enough. Then you miss only the obvious. But history has proven that things get much worse when police officers assume that they are not dealing with a homicide and therefore are not supposed to be scouring the place for evidence. Then, they step all over it.

Many people feel that this is what happened in the O.J. Simpson case. As soon as the cops at the scene saw Nicole was murdered, knowing, as they did, the history of domestic violence between the estranged couple, the investigators assumed the killer was Simpson, figured there would be a quick confession and took less care than they should have in identifying, collecting, handling and preserving the evidence.

When I worked in the Office of Chief Medical Examiner of New York City from 1960 until 1985, I visited thousands of death scenes and saw an awful lot of trace evidence. These days I have a more diverse life. In private practice, I work as a forensic pathologist available for consultation, and I mostly review photographs

and reports—which are evidence, but not fresh—that are mailed to me after I get that first phone call. Then, if I pursue the case, I will look at everything that is available.

As the co-director of the Medico-Legal Investigations Unit of the New York State Police, where I have served since 1985, and as the forensic pathologist for Dutchess County, New York, I still occasionally travel to crime scenes.

Most of the calls I get in my private practice come from prosecutors, police, defense lawyers or distraught family members. Often the request is made for me to re-autopsy a body following a hospital death or a cause of death determination that the family simply cannot accept. This often happens with suicides. People don't like to believe their family members may have committed suicide, so they want a re-investigation. And sometimes they are correct.

A few years ago, a bright, successful, talented, popular Ivy League student was found hanging in the attic of his dormitory building at school. The medical examiner's office determined it was suicide. But this didn't make sense to the parents: They were a close, loving family and had detected no suggestion that the young man had been depressed.

Upon reviewing the case, I, too, disagreed with the medical examiner's findings. The boy had been experimenting in the world of autoeroticism. He would partially hang himself while masturbating and supposedly would experience heightened orgasm. This time he had passed out and hanged to death. I thought the family would find this to be more upsetting, but I was surprised to learn that they could accept their son's dying as a result of sexual experimentation. They couldn't accept his dying from suicide. This realization has helped me a lot over the years in dealing with families in cases of suicide.

There is a presumption against suicide in the courts. County medical examiners come up against this all the time and have to

prove that someone did, in fact, intend to kill himself and was, in fact, successful in doing so. It can be difficult to prove, especially when families challenge a cause of death finding that will exclude an insurance claim, as often happens if someone commits suicide within the two-year exclusionary period after taking the policy.

Early in my career, I was brought into court to testify about a woman I had autopsied and found to have taken more than thirty sleeping pills. In my opinion, that could only have been done intentionally. I classified her death as suicide.

But an expert psychiatrist testified for the defense that the dead woman had not been depressed. He said that on the night in question, she was tired and took some sleeping pills, after which she fell partially asleep and then developed a condition called automatism: She woke up, forgot she had taken the pills and took another two. She did this—wake up, take two pills, fall partially asleep, wake up, take two pills, fall partially asleep—fifteen times, the psychiatrist testified.

There was a double indemnity, $200,000 insurance policy on the line: If her death had been accidental, the payment would have been $400,000; if it was suicide, it was nothing. In this case, the family had brought a civil action against the insurance company for nonpayment of the policy.

It is my experience that judges tend to allow all sorts of testimony in cases like this because the parents, spouse and children of the deceased are typically sitting in the front row of the courtroom every day. It has a tremendous effect. Juries, too, see the suffering family. They don't want to punish the children for their parents' behavior, and they equally don't care about insurance companies. And so they tend to side with the plaintiffs—the potential recipients of the payment.

Civil cases like these become battles of experts, because all parties can afford to pay the fees: The plaintiff's lawyer is operating on a contingency basis; if he wins, he gets paid, but if he loses, the family pays nothing. The insurance companies are rich and can

pay experts plenty to protect their assets. Despite the way it is represented on television and despite the impression left by the O.J. Simpson case, most criminal cases do not include testimony by experts, for the simple reason that most defendants are typically poor, have inexperienced lawyers and cannot afford experts.

It's not that O.J. Simpson had too much expert assistance; it's that poor people have too little. In fact, one of the many problems with the death penalty that has only recently been brought to light is that most defendants do not have the money to hire such expert witnesses, and the court allowances do not give them enough to do so.

When a big tobacco company is being sued, the plaintiff's attorney taking on the case knows up front whether there will be a lot of money for expert testimony. Without that, the lawyer would not take the case. A large percentage of civil litigation is done by contingency. So a lot more attention is paid to the facts in a civil trial, in which money is involved, than in a criminal trial, when only the life of a human being is at stake. So, if you want to see an array of experts—forensic engineers, forensic climatologists, forensic linguists, forensic geologists—go to civil court.

In the overdose insurance case, I had done the autopsy and had testified in court. I was very young and inexperienced and took it personally when the jury ruled against my finding and in favor of the family. I felt that they did not believe me and that it was somehow my fault that justice was not being done. I felt they had ruled against *me.*

Over the years I have learned not to take these things personally. From the moment someone calls, a process is set into motion that could go any number of ways. My impact on the case can be only as good as the science I do and how well I explain it in court.

The phone call alerting me to the Ted Binion case came to my private practice. It was from Tom Dillard, a former Las Vegas

homicide detective turned private investigator. He said he had heard of me and asked if I would review an autopsy report and a toxicology report. That was all he had. That, and a backstory with all the seedy facets of film noir.

The characters were Sandy Murphy, Lonnie Ted Binion and Rick Tabish: the ex-stripper, her millionaire boyfriend and her secret lover. Spiking the drama were the facts that the lover was in serious financial debt and that he was arrested right after the death for digging up the late boyfriend's buried treasure in the desert; that the boyfriend was thirty years older than the ex-stripper; and that he had used heroin for fifteen years, but didn't shoot it, snort it or smoke it. He chased the dragon.

It is a method of heroin use popular in China and other countries where heroin is very cheap, but a method seldom used in America. Chasing the dragon involves heating tar heroin on foil and inhaling the resulting white smoke. This smoke curls upward and looks to some like the tail or the breath of a dragon. Other than geographic difference, chasing the dragon is distinguished by another exclusive quality: In this country, at least, no one has ever reportedly died from this means of heroin use.

One night Binion called his lawyer and instructed him to take Sandy Murphy out of the will in which he had left her his $900,000 house and $300,000 in cash. "If she doesn't kill me tonight," he added. Apparently she did. Within days her lover, Rick Tabish, was found by law enforcement officers in the desert digging up Binion's stash of silver bullion and coins, valued at $5 million.

Clark County Medical Examiner Lary Simms had been on the job only a few weeks when the body of Ted Binion turned up on his autopsy table. Despite Binion's known heroin addiction, one could not assume that he died of an overdose. And so toxicological tests were run. They revealed Xanax, an anti-anxiety drug that Binion was known to take when trying to stay off heroin. But the Xanax appeared to be present in a larger dose than could be taken acci-

dentally. Also found was morphine, a breakdown product of heroin. Because of these findings, along with what was known of the history and circumstances, Simms determined the cause of death to be a drug overdose and the manner of death to be homicide.

The Clark County Medical Examiner's office contacted another medical examiner in Reno to review the matter. She confirmed Simms's conclusions. Her report was typed up and sent to Clark County.

But all this had taken several months, during which time Binion's family had grown uncomfortable with the lack of a determination of homicide. And in the interim it had emerged that Murphy and Tabish were lovers.

Tom Dillard, hired by Binion's suspicious family, sent me the report from the Reno medical examiner. At the time of his initial call, the reports from the Clark County Medical Examiner's office had not yet been released. After reviewing the Reno report, I sent a one-page letter to Mr. Dillard stating that I agreed with Dr. Simms's conclusions on the basis of the information I had reviewed. I had not yet seen the original documents from Clark County nor any photographs. I followed up the letter with a call to Dillard and said that since I agreed with Dr. Simms, "I guess you don't need me anymore."

That is the way it usually goes: I concur with the findings of the local medical examiner and I don't get called to the witness stand. Or, conversely, I disagree with the local examiner and I don't get called to the witness stand. In fact, in the great majority of cases in which I consult, I do not get called to testify. Often the accused is apprised of the outside findings (mine) and then pleads guilty to a lesser charge. Then no one gets called to the witness stand, because no one goes to court.

But every once in a while you go the distance.

Tom Dillard told me that David Rogers and David Wall, the prosecutors in the Binion case, were a little concerned about the length of time it was taking Dr. Simms to establish the cause and

manner of death. Even though I was technically employed by the family, not the DA, the prosecutor wanted me to back up Simms's findings at the preliminary hearing. A preliminary hearing is like an open grand jury, where evidence is presented to a judge, but no jury, and witnesses are both examined and cross-examined. Then a decision is rendered whether or not to indict someone.

For that role, I thought I should do a more thorough review of the material. I needed to see it all—the autopsy photos, the tissue samples taken at autopsy, the clothing of the deceased, as well as any police reports and other documentation. And I needed to visit the scene of the death.

I flew into Las Vegas the day before the preliminary hearing and was met by Tom Dillard, who took me to the medical examiner's office.

The first things I saw when I got there were the photos. Right away I thought something was wrong. Simms seemed to sense this and grew visibly uncomfortable with my presence. It's odd, because I enjoy having people review my work. That way, if there is a misinterpretation of the evidence, it is caught long before trial. He didn't seem to agree.

The pictures of the dead man's eyes revealed distinct petechial hemorrhages inside the lower lids, suggesting compression of the neck.

Petechial hemorrhages are capillaries that have ruptured because of pressure. The circulatory system consists of arteries, veins and capillaries. Simply put, arteries pump blood out from the heart, the blood continues into the capillaries, where it provides oxygen to the cells and then continues into the veins, which bring the deoxygenated blood back to the heart. If pressure is put on the neck, the blood backs up and the capillaries, which are the weakest part of the vascular system, can rupture; this sometimes happens when you sneeze too hard, causing a blood spot to appear in your eye. It takes sixty to seventy pounds of pressure to collapse an artery, but only five pounds to collapse a vein.

In suffocation, the pressure is primarily on the nose and mouth, not on the neck, and usually you do not see petechiae. However, when a person struggles, this often inadvertently leads to pressure on the neck, as well. A finding of strangulation is a subtle one, and suffocation is much more rare than strangulation. Of the thousands of autopsies I've performed since 1960, only a few dozen were found to be adult deaths resulting from suffocation.

Dr. Simms and I differed on whether there was congestion in the capillaries in the eyelids or actual rupture of capillaries. However, we didn't differ on the presence of significant bruising or rubbing of the skin around the mouth. We also both noted the presence of small, circular bruises that looked like button imprints on the dead man's chest and another large bruise to the front of the ribs. There were also interesting bruises on both of the dead man's wrists—small, round marks, the type most associated with handcuffs.

While Simms and I agreed on the presence of all of these bruises—they were right there on the photos—we would come to differ about what they meant.

Simms had rightly taken tissue samples from various parts of the body and preserved them in formaldehyde. These samples are normally taken from every organ in the body—the heart, each lung, the pancreas, each kidney, the brain, the liver, adrenal glands, and so forth. To do the best job, samples of any bruises should be taken at autopsy, as well. In this case, only some had been taken at autopsy.

Looking at the photos again, I saw one bruise in particular that interested me. Thankfully, a tissue sample of that one existed. It was a bruise over the lower ribs, and by the looks of it, it could not have formed more than just shortly before the time of death. This suspicion was confirmed under the microscope.

At the time the body is bruised—say, a punch in the eye at a boxing match—little capillaries are ruptured and bleed, resulting in what we call a black-and-blue mark. Left to its natural devices,

the body will respond to that bruise within an hour. Its first response is to hemorrhage. Then, after an hour or so, it sends in the white cells, or inflammatory cells. A hemorrhage without this response is called a bland hemorrhage, and we know it is fresh. If the person dies before an hour has passed since the bruise formed, there will be no response, and all that can be seen under the microscope at autopsy is fresh red blood cells.

If Ted Binion had lived for an hour after this bruise, I would have seen cells from the body trying to repair itself when I looked at his tissue samples under the microscope. There were none.

This is very important to the forensic pathologist, but less so to the hospital pathologist, whose job it is to notice how we die, not necessarily when. When I was a resident doctor at Bellevue Hospital, most deaths were recorded as having occurred at about 6 A.M., when the nurses made medication rounds and found the bodies of anyone who had died during the night. The time of death did not matter in these patients, so times of death were listed as the time where the bodies were found.

I paused to reflect: If I can't see the body's normal repair process, I know the man died within an hour of being bruised. This could speak to a struggle. But could it speak to cardiopulmonary resuscitation (CPR)? Did someone trying to resuscitate him cause this bruising? Was this a case of death by friendly fire?

A friendly bruise or a hostile one—how do you know?

Many months later, in his closing argument at the murder trial, John Momot, Sandy Murphy's defense attorney, said, "She loves him. He loves heroin, and the heroin loves no one." It was a good defense. It had been Sandy Murphy's story from the start.

It was what she told the emergency medical technicians and then the cops when they rushed to the million-dollar home of Ted Binion. It was what Sandy Murphy had told anybody and everybody who would listen for a good long time before her boyfriend

turned up dead. When she told it to the cops at the scene of his death, they believed her. It sure looked like an overdose. He was a known heroin user and had been for fifteen years. Las Vegas is, after all, a small town; everybody knew that Binion had lost his gambling license, the ownership of his family's famous casino, as well as a long marriage because of the drugs. It all made sense.

Until the autopsy.

When CPR is performed on a living person, it can result in extensive bruising. Sternal rubbing, pounding on the chest, flipping over a person struggling for life—all of these may cause bruises to the body. There can be a lot of breaking of blood vessels in an effort to prolong life. A large hemorrhage, or bruise, develops when the heart is still beating and pumping blood. If the person is already dead when CPR is started, there may be some bruising, but it will be slight. This is because any bleeding will be passive, since the heart has stopped. That does not mean there is no blood in the body, only that it has little pressure behind it. Imagine cutting a garden hose when the water is turned off: You'll get a little leakage of water flowing passively. Cut the hose when the water is on, however, and the active pressure will make it spurt.

As I looked at the pictures and the tissues of Ted Binion, the story envisioned by Dr. Simms began to unravel for me. It was a troubling development. I had been flown out to support the conclusion that Ted Binion had died of a forced ingestion of a combination of Xanax and heroin. Suddenly that was not my opinion. I couldn't swear to that. And I wouldn't.

Usually if I am coming in on the same side and there are differing opinions, we talk about them freely: He sees this, I see that, but we are both there to advocate for the dead, for justice. We are both forensic scientists, so really we are on the side of the science. Any forensic scientist who feels that he must advocate for the side standing in the room is going to get into trouble.

This applies even when doing the job as the county medical

examiner. The position does not require you to side with the prosecution: You must always ally yourself only with the science. The job a person holds must not influence a scientific finding.

Dr. Simms and I ran into trouble when I said that what he had listed in his report as congested vessels in the eye looked to me like petechial hemorrhages. He said that he had his opinion and that I could have mine, and that he didn't think it was appropriate to discuss it further. But he did make all the records, photos and samples available to me.

While looking at the original reports, I realized that there was something amiss. Comparing them to the copies I had been sent and had reviewed, I saw that the report typed at the medical examiner's office in Reno—a copy of which I had originally been sent—had an error in the toxicology report. Instead of listing the Xanax found in Mr. Binion in nanograms per milliliter, it had been listed in milligrams, which is a million times more. Instead of typing "ng," someone had typed "mg."

It was from this information that I had drawn my original conclusion that the amount in the body was a lethal level. In fact, what was found in Mr. Binion was a therapeutic level and one that can be easily tolerated by most people.

As a medical examiner I know that at any time some other professional may come and review my work. He might be someone come to back me up or someone from the opposite side brought in to review things. The family, in particular, has a right to review what we've done, which is one of the reasons we contemporaneously document everything we see. We dictate, take photographs and X rays, make microscopic slides: Everything we do, in fact, is done so that another person can come in and make an independent assessment, not relying on us. In the old days we said, "Trust me." There were few photos, no clothing analysis, and no independent judgment. And that's how lots of mistakes were made.

When we got outside the lab where I had reviewed Dr. Simms's

findings and the data, I knew what I had to say. "This doesn't make sense now," I told Dillard. "I don't agree with Simms."

Dillard didn't look pleased.

There are five manners of death: accident, suicide, homicide, natural and undetermined. Dr. Simms had concluded Binion had died as a homicide due to overdose. But the facts, in my opinion, indicated that the levels of the drugs in Binion's system were not high enough to kill him. So while it may, in fact, have been a homicide, I told Dillard, it was unlikely that the homicide was caused by overdose. I based this finding on several things.

First, in my opinion you don't die from chasing the dragon. Certainly not in the United States. After thousands of heroin autopsies in New York City, several trips to Hong Kong (where heroin use by chasing the dragon is very popular) and an extensive search of the pertinent medical literature, I have not been able to identify a single such death. That makes the chances of Binion's dying this way very small—possible, but highly unlikely.

Then there was the fact that there were no injection marks on Binion's body. That means that not only did he not shoot the heroin but that no one injected him with it against his will. So how did the heroin get into his system?

Experience has taught me that it is very hard to force someone else to swallow enough of anything to cause death. I once had a case where a man had pointed a gun at his wife and said, "Swallow," as she downed what he thought would be enough sleeping pills to kill her. They weren't and they didn't. He was a physician, and even he didn't get it right. He had forced her to take enough medication to make her pass out, but she recovered and helped convict him.

Sometimes, of course, people die accidentally after taking drugs, especially as a result of drug interaction, when the combination of two or more drugs causes a reaction in the patient that one drug alone would not have caused.

The first photocopied autopsy report I had received and reviewed had indicated an amount of Xanax in Binion that he could not have taken by accident, and as a result, I ruled out accidental death, which left me with suicide or homicide.

Now, with the presence of the petechiae, the bruises on the chest, the freshness of those bruises, the circumstances of the death and the toxicological results, it was my opinion that although there were drugs in Binion's system, they were not sufficient to cause death. They were, I was convinced, just an incidental finding. I agreed that the manner of death was homicide. But I believed that the cause of death was suffocation.

As I was telling Dillard this, I could see that it was causing him concern. He had wanted my opinion. But he hadn't expected this one. He excused himself and went to call the DA, David Rogers. He too, it turned out, was concerned by this new and surprising opinion.

The preliminary hearing was scheduled for the next day; I had been flown in to act as backup witness to Simms. I wondered whether they wanted to put me back on the plane to New York with a big, "Thank you, but no thank you."

Dillard, Rogers, Wall and I went out to dinner to go over my findings. At 6 P.M. on the eve of the preliminary hearing, we sat down to do just that, and I explained to them what they had on their hands. In my opinion, it was a case of burking.

To *burke* means to murder by suffocation in a way that leaves few or no marks of violence. The name comes from an 1829 case in Edinburgh, Scotland, in which William Burke and William Hare were convicted of fifteen murders, after which they sold the bodies to the university's medical school to be used for anatomy classes. The bodies brought ten guineas each. Hare, the leader, turned against his partner and got out of prison in a few years. Burke, the follower, was hanged, and his body ended up on the very tables he had been filling. Their method of murder involved putting a hand over the nose and mouth of the intended victim

while sitting on the victim's chest, thus preventing breathing. They did this thinking it left no marks.

But it can.

At dinner I explained that when I pointed out to Dr. Simms what I thought were petechial hemorrhages, he stated that he thought they were congested capillaries in the eye—that while blood had flowed into them, they had not, in fact, ruptured. This turned out to be an important distinction.

The prosecution had every reason to believe its own medical examiner. And, equally important, so might the jury. Outside experts can be perceived in many ways: hired guns, carpetbaggers, big-city big shots or, preferably, consummate professionals. But this was a rare situation: two expert witnesses—one hometown, one from New York—testifying for the prosecution that the manner of death was homicide, but disagreeing on the cause of death.

I told them that I knew this was not what they expected, that I knew the problems this could create and, if they wished, I could just go back to New York. But there was a legal problem.

If these had been defense attorneys I was meeting with, they would not have been compelled to reveal my findings to the prosecution. But, under the so-called *Brady* rule, established by the courts, the prosecution is compelled to reveal anything that might be helpful to the defense. But if the defense attorney finds anything harmful to his client, he cannot turn it over. His job is to defend the client. If he thinks the client is going to lie on the witness stand, he can ask the judge to be removed from the case, since he cannot participate in a lie, but he cannot turn over evidence that might indict or convict his client. He cannot destroy the evidence, but he can't point it out, either. The legal system is designed this way so that the defendants can give any and all information to their lawyers in protected confidence without fearing that their counsel will snitch.

For a defense attorney, winning is not solely a matter of getting a client acquitted. It is also about the degree of guilt, which is

more subtle than simple guilt or innocence. Even if the defendant is guilty, he might not be guilty as charged. He might not be guilty of a capital offense, for instance, for which he could receive the death penalty, and the defense attorney is there to ensure that the verdict is not harsher than it should be.

The prosecutor's job, however, is to do justice. Sometimes that includes letting someone go. We are not supposed to prosecute people in this country just because we can make bad evidence fit the crime and the suspect. It is the prosecutor's job to find justice, and to do that, he must bring out all that he knows.

By my calling into question a portion of Simms's intended testimony, the defense could argue there was doubt on the accuracy of his findings—all of his findings. I was opening up the possibility that with this disagreement Simms and I could both be challenged by the defense counsel. We agreed on the manner of death as homicide but disagreed on the cause, and if the jury was confused by that concept, they might choose to disbelieve all of our other findings. It is hard to be perceived on the stand as a little bit wrong—wrong about one thing but not wrong about other things. And it appeared to me that Simms was wrong about the congested vessels in the eye and the source of the bruising on Binion's chest and around his mouth, and therefore about how Binion was killed.

But how would the jury react?

While I was sympathetic to the problems my opinion could create for the prosecutors, I was not about to change my medical determination. Under those circumstances, most prosecutors would have said, "Well, that isn't according to the evidence we have, so you must be wrong. Good-bye."

People frequently misunderstand this situation. When the public hears about these types of negotiations, they think there is some kind of intentional cover-up. But it isn't that. Experts can have different views.

Rogers and Wall made a bold decision. They chose to go forth and present both opinions in the preliminary hearing the next

morning. Interestingly, between the time Dillard first called me and when I flew out to Las Vegas to review the records, I had been contacted by lawyers for the defendants to review their material. Had I been called by them first and looked at Simms's reports and photos, my opinion would have been the same. It's the independent science that guides my opinion.

When it comes to testifying, it is important for an expert witness to review in detail all of his findings and opinions with the attorney. This is called preparation. No expert should go into court without sufficient time to talk through the case with the attorney who calls him to the stand. In my opinion, the three most important factors in testimony are preparation, preparation and preparation.

Often, this does not happen. This is especially the case with medical examiners working for large cities. An autopsy performed today on a man hit by a city subway may not come to trial for five years, during which time the doctor has performed or overseen many other autopsies. Imagine—hundreds or thousands of autopsies later, the doctor is called by the city's counsel and told to be ready to testify without ever having discussed the matter. Tomorrow.

That is the worst case scenario, but at least there is a reason for it: Both sides are overworked. The infuriating cases, to me, are those where the attorneys just say to the expert witness, "Oh, you're the expert, you know what to do" or "You have testified in more murder trials than I have, so just do your stuff."

What that tells the expert is that the attorney does not understand the importance of preparation or does not want to spend the necessary time in preparing the case. Even something as mundane as explaining my qualifications, or how the lawyer will ask, "What is your occupation?" should be discussed ahead of time. Some experts like the attorney to say, "Tell us about yourself," and then let the expert speak at some length about his qualifications.

Handled poorly, this can sound a lot like the expert is bragging, and I learned early in my career by watching others not to allow anyone to put me on the stand and let me talk for a half hour about myself. It has made me feel very uncomfortable. Instead, I prefer to have it dragged out of me in the judicial process called qualifying. Whenever an expert testifies he has to be qualified—that is, the judge has to approve that the proffered expert is really an expert in the matter at hand.

Ideally, the attorney who calls me to the stand should follow a logical sequence of questions that leads me and, in turn, the jury, through five topics: my qualifications, the science I practice, the introduction and chain of custody of evidence, the examination and analysis of that material and, finally, my opinion.

There are twenty-four specialties in medicine. Within each specialty there are subspecialties. I am board certified, or a diplomate, in three subspecialties of pathology: anatomic pathology, which involves looking at the anatomy of the body and includes examining surgical specimens and performing autopsies; clinical pathology, which has to do with the chemistry of the body as tested in the laboratory; and forensic pathology, which has to do with investigation of unnatural and traumatic conditions that affect the body. All are more concerned with finding out why someone is sick or has died rather than with treating a patient.

The expertise of forensic pathology has long been accepted in the courts. But what about forensic climatology, forensic entomology, forensic botany? How about handwriting analysis, fingerprinting and blood-spatter analysis? All of these are currently being challenged as expert disciplines.

And what do we do with the lay expert? Movie buffs remember the scene in *My Cousin Vinny* in which the girlfriend testifies as a lay expert in auto mechanics. Should such a witness be allowed in court? She provided crucial testimony in the movie, but many judges would refuse to allow her onto the stand.

Evidence may be anything that the judge determines relevant

to a trial. It is important stuff and must be handled with great respect. Perhaps Herb MacDonell, the authority on blood spatter, says it best in his book *The Evidence Never Lies:*

> You can lead a jury to truth, but you can't make them believe it. Physical evidence cannot be intimidated. It does not forget. It doesn't get excited at the moment something is happening—like people do. It sits there and waits to be detected, preserved, evaluated, and explained. That is what physical evidence is all about. In the course of a trial, defense and prosecuting attorneys may lie, witnesses may lie and the defendant certainly may lie. Even judges may lie. Only evidence never lies.

Just because evidence exists, however, does not mean that it will find its way into court. In this country, we leave it up to the presiding judge to decide what the jury should hear, the so-called admissibility of evidence.

Beginning in the 1920s in America, scientific evidence was allowed into the courtroom if it was generally accepted by the scientific community. In 1993, however, the United States Supreme Court ruled in *Daubert v. Dow* that instead of "general acceptance," the new test of whether or not something was admissible in court could require an independent judicial assessment of the "reliability" of that evidence.

The old rule was called *Frye,* based on the 1920s case that established it. The new rule is called *Daubert,* and it applies in all federal cases and in those state jurisdictions that have adopted it as to deciding what will be heard as evidence in court. All courts make a determination of admissibility in either a pre-trial hearing or at trial, at which time the relevance of the material and the competence of the expert witness are judged. It can be grueling as well as confusing.

For instance, under *Daubert,* ballistics generally is acceptable as

scientific evidence in the courtroom, while polygraphs are not. Under *Daubert,* cousin Vinny's girlfriend might not get in.

The language of the *Daubert* opinion gives broad discretion to trial judges and instructs them to consider at least four factors when determining admissibility: whether the theory or technique can be tested; whether the science has been offered for peer review; whether the rate of error is acceptable; and whether the method at issue enjoys widespread acceptance. Unfortunately, this is a huge burden on individual judges, who in general are not broadly educated in science.

Witnesses must be qualified in civil and criminal trials, preliminary hearings and grand juries, whether for the prosecution or the defense. I get up on the stand and am asked enough questions by the lawyer so that the judge can say, "Yes, you qualify to give expert opinions." This means that both my science and I can come to court. Then the judge will explain to the jury that the reason I have to be qualified is that from here on, I will be allowed, in this judge's courtroom, to give opinion testimony. Everyone other than the qualified experts will be giving fact testimony only: what they saw and when and where they saw it, not what they interpret it to mean.

The jury needs to know that the expert witness is in the courtroom to provide specialized information to assist it in interpreting the factual evidence. And the experts must be distinguished from fact witnesses.

Fact witnesses—the brother-in-law, the man on the street, the neighbor, the shop owner—come in and say, "I saw him." The expert witness comes in and says, "From my knowledge, experience, training and publications, I have found that you can't notice a reliable shape of the nose in this lighting condition." A fact witness who is a bank teller can say, "A woman came in, said, 'Give me a million dollars,' and then sat down and was twitching in her arms and her legs." An opinion witness who is a psychiatrist may say, "Based on my observations of her behavior, I can say that she was mentally ill at that time."

The forensic pathologist is usually both a fact and an expert witness—he both testifies to the facts of the autopsy findings and interprets their meaning. I may find that there are three gunshot wounds in the back. When I am called to testify about those facts, I am also usually asked to give an opinion about what the facts mean. The question will usually be "What is your opinion as to the cause of death?" The three bullet holes in the back are fact. Whether they are entrance or exit wounds is a matter of opinion. So in my testimony, I give a mixture of fact and opinion.

What the judge rarely mentions is something that attorneys love to bring out in court—who is paying whom and how much. Everybody loves to talk about the money expert witnesses make. There is an attitude that outside experts are hired guns because they get paid for their testimony, and the local medical examiner is trustworthy because he doesn't.

In general, medical examiners work for municipalities and are paid a salary to do the autopsy. Medical examiners are getting an annual salary, health benefits, job security, time to publish, academic advancement and promotions, which the outside expert does not get for his testimony.

Consider a civil litigation in which, for example, a person dies of multiple fractures. I can be called by the lawyer for one side and can certify the cause of death as multiple blunt force injury after being struck by a vehicle. That's all fact. He then may ask me, "How long did he live? How long was he conscious? How much pain and suffering did he endure? Could he have been saved if the ambulance had come sooner?"

When an expert is called into a criminal or civil matter for which he did not do the original fact work and for which he is not receiving a salary, he should be paid a fee. That's how our system of justice works. In the Binion case I was initially retained by the family to review what they thought was a murder but in which, after some time had passed, the local medical examiner had not yet made a determination. Subsequent to my involvement he did