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JUDY MELINEK, M.D.

and

T.J. MITCHELL

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TWO YEARS, 262 BODIES,

AND THE MAKING OF A

MEDICAL EXAMINER

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*To Rutka, Tom & Rita,
and in memory of Frank Cimerol
and Dr. Menachem Melinek*

This Can Only End Badly

“Remember: This can only end badly.” That’s what my husband says anytime I start a story. He’s right.

So. This carpenter is sitting on a sidewalk in Midtown Manhattan with his buddies, half a dozen subcontractors in hard hats sipping their coffees before the morning shift gets started. The remains of a hurricane blew over the city the day before, halting construction, but now it’s back to business on the office tower they’ve been building for eight months.

As the sun comes up and the traffic din grows, a new noise punctures the hum of taxis and buses: a metallic creak, not immediately menacing. The creak turns into a groan, and somebody yells. The workers can’t hear too well over the diesel noise and gusting wind, but they can tell the voice is directed at them. The groan sharpens to a screech. The men look up—then jump to their feet and sprint off, their coffee flying everywhere. The carpenter chooses the wrong direction.

With an earthshaking crash, the derrick of a 383-foot-tall construction crane slams down on James Friarson’s head.

I arrived at this gruesome scene two hours later with a team of MLIs, medicolegal investigators from the New York City Office of Chief Medical Examiner. The crane had fallen directly across a busy intersection at rush hour and the police had shut it down, snarling traffic in all directions. The MLI driving the morgue van cursed like a sailor as he inched us the last few blocks to the cordon line. Medicolegal investigators are the medical examiner’s first responders, going to the site of an untimely death, examining and documenting everything there, and transporting the body back to the city morgue for autopsy. I was starting a monthlong program designed to introduce young doctors to the world of forensic death investigation and had never worked outside a hospital. “Doc,” the MLI behind the wheel said to me at one hopelessly gridlocked corner. “I hope you don’t turn out to be a black cloud. Yesterday all we had to do was scoop up one little old lady from Beth Israel ER. Today, we get this clusterfuck.”

“Watch your step,” a police officer warned when I got out of the van. The steel boom had punched a foot-deep hole in the sidewalk when it came down on Friarson. A hard hat was still there, lying on its side next to a pool of blood and brains, coffee and doughnuts. I had spent the previous four years training as a hospital pathologist in a fluorescent-lit world of sterile labs and blue scrubs. Now I found myself at a windy crime scene in the middle of Manhattan rush hour, gore on the sidewalk, blue lights and yellow tape, a crowd

gawkers, grim cops, and coworkers who kept using the word “clusterfuck.”

I was hooked.

“How did it happen?” my husband, T.J., wanted to know when I got home.

“The crane crushed his head.”

He winced. “I mean, how come it toppled over?” We were at the small playground downstairs from the apartment, watching our toddler son, Danny, arrange all of the battered plastic trucks and rusty tricycles in a line, making a train.

“The crane was strapped down overnight because of the hurricane warning yesterday. The operator either forgot or never knew, and I guess he didn’t check it. He started the engine, pushed the throttle, and nothing happened. So he gunned it—and the straps broke.”

“Oh, man,” T.J. said, rubbing his forehead. “Now it’s a catapult.”

“Exactly. The crane went up, hung there for a second—and crumpled over itself backwards.”

“Jesus. What about the driver?”

“What do you mean?”

“Was the crane driver hurt?”

“Oh. I don’t know.”

“Well, what about the other workers?”

“I don’t know,” I repeated. “None of them were dead.”

T.J. was looking off into the trees. “Where did this happen?”

“I told you, on Sixth Avenue.”

“And what?”

“I don’t remember! What does it matter? You’re going to avoid that corner because a crane could drop on your head?”

“Well?”

“It doesn’t happen that often, believe me.” Our raised voices had drawn the attention of the other parents on the bench.

“Civilians,” T.J. warned under his breath, reminding me that no one on a playground full of preschoolers wanted to hear our discussion of a grisly workplace accident. “Did he have a wife, kids?” he asked quietly.

“He had a wife. I don’t know about kids.”

My husband looked at me askance.

“Look, I don’t deal with these things! The investigators take care of all that. I only have to worry about the body.”

“Okay. So tell me about the body.”

As part of my medical school training I had done autopsies before—but they were all clinical, patient

who had died in the hospital. I had never seen a corpse like this one. “We had to do a full autopsy because it’s a workplace accident. It was amazing. He was a big guy, muscular. No heart disease, vessels clean. Not a scratch on his limbs or torso—but his head looked like an egg you smash on the counter. We even call it a ‘eggshell skull fracture.’ Isn’t that cool?”

“No,” T.J. replied, suddenly ashen. “No, it isn’t.”

I’m not a ghoulish person. I’m a guileless, sunny optimist, in fact. When I first started training in death investigation, T.J. worried my new job would change the way I looked at the world. He feared that after a few months of hearing about the myriad ways New Yorkers die, the two of us would start looking up nervously for window air conditioners to fall on our heads. Maybe we’d steer Danny’s stroller around sidewalk grates instead of rolling over them. We would, he was sure, never again set foot in murder Central Park. “You’re going to turn me into one of those crazy people who leaves the house wearing a surgical mask and gloves,” he declared during a West Nile virus scare.

Instead, my experience had the opposite effect. It freed me—and, eventually, my husband as well—from our six o’clock news phobias. Once I became an eyewitness to death, I found that nearly every unexpected fatality I investigated was either the result of something dangerously mundane, or of something predictably hazardous.

So don’t jaywalk. Wear your seat belt when you drive. Better yet, stay out of your car and get some exercise. Watch your weight. If you’re a smoker, stop right now. If you aren’t, don’t start. Guns put holes in people. Drugs are bad. You know that yellow line on the subway platform? It’s there for a reason. Staying alive, as it turns out, is mostly common sense.

Mostly. As I would also learn at the New York City Office of Chief Medical Examiner, undetected anatomical defects do occasionally cause otherwise healthy people to drop dead. One-in-a-million fatal diseases crop up, and New York has eight million people. There are open manholes. Stray bullets. There are crane accidents.

“I don’t understand how you can do it,” friends—even fellow physicians—tell me. But all doctors learn to objectify their patients to a certain extent. You have to suppress your emotional responses or you wouldn’t be able to do your job. In some ways it’s easier for me, because a dead body really is an object, no longer a person at all. More important, that dead body is not my only patient. The survivors are the ones who really matter. I work for them too.

I didn’t start off wanting to be a forensic pathologist. You don’t say to yourself in second grade, “When I grow up, I want to cut up dead people.” It’s not what you think a doctor should do. A doctor should help people. My dad was that kind of doctor. He was the chief of emergency room psychiatry at Jacobi Medical Center in the Bronx. My father instilled in me a fascination with how the human body works. He had kept all his medical school textbooks, and when I started asking questions he would pull those tomes off the

high shelf so we could explore the anatomical drawings together. The books were explorers' charts, and he moved with such ease over them, with such assurance and enthusiasm, that I figured if I became a doctor I could sail those seas with him.

I never got the chance. My father committed suicide at age thirty-eight. I was thirteen.

People kept coming up to me during his funeral and saying the same thing: "I'm so sorry." I hated that. It roused me out of my numbness, to anger. All I could think to say was, "Why are you saying you're sorry? It's not your fault!" It was his fault alone. My father was a psychiatrist and knew full well, professionally and personally, that he should have sought help. He knew the protocol; he had asked his own patients the three diagnostic questions all of us learn in medical school when we believe someone is having suicidal ideation. First, "Do you want to hurt yourself or kill yourself?" If the answer is yes, then you are supposed to ask, "Do you have a plan?" If again the patient answers yes, the final question is, "What is that plan?" If your patient has a credible suicide plan, he or she needs to be hospitalized. My father's suicide plan was to hang himself, an act that requires considerable determination. After he succeeded in carrying out that plan, I spent many years angry at him, for betraying himself and for abandoning me.

Today, when I tell the families and loved ones of a suicide that I understand exactly what they're going through—and why—they believe me. Many have told me it helps them come to terms with it. Over the years some of these family members have continued to call me, the doctor who was on the phone with them on the single worst day of their lives, to include me in the celebration of graduations, weddings, new grandchildren. You miss the person who was taken away from you most deeply during the times of greatest joy. Getting those calls, thank-you cards, and birth announcements—exclamation marks, wrinkles, newborns, new life—is the most rewarding part of my job.

This personal experience with death did not cause me to choose a profession steeped in it. My dad's suicide led me to embrace life—to celebrate it and cling to it. I came to a career performing autopsies in a roundabout way.

When I graduated from UCLA medical school in 1996 I wanted to be a surgeon, and I began a surgical residency at a teaching hospital in Boston. The program had a reputation for working its surgery trainees brutally; but the senior residents all assured me, conspiratorially, that the payoff outweighed the short-term cost. "You work like a dog for five years. Tough it out. When you're done and you become an attending physician, you've got it made. The hours are good, you save lives all day long, and you make a lot of money doing it." I bought the pitch.

Before long I started noticing that many of the surgeons' offices had a cot folded away in a corner. "Who keeps a bed in his office? Somebody who never has time to go home and sleep, that's who," a veteran nurse pointed out. My workweek started at four thirty on a Monday morning and ended at five thirty Tuesday evening—a 36-hour shift. A 24-hour shift would follow it, then another 36, and the week would end with a 12-hour shift. I got one full day off every two weeks. That was the standard 108-hour work schedule. Sometimes it was worse. On several occasions I was wielding a scalpel for 60 straight hours relieved only by

brief naps. I clocked a few 130-hour workweeks.

T.J. started buying lots of eggs, red meat, protein shakes, boxes of high-calorie snack bars he could stick into the pockets of my lab coat. He had to cram as much fuel into me as he could during the predawn gloom of breakfast, and again when I dropped into a chair at the dinner table, still in my dirty scrubs, the following night. During my fifteen-minute commute home, I'd often take catnaps at red lights—"I'll just close my eyes for a minute"—and wake to the sound of the guy behind me laying on his horn, the light green.

Boston is T.J.'s hometown. His family was overjoyed when we moved back there from Los Angeles. We were eighteen when we started dating—college freshmen, practically high school sweethearts—and had entered our twenties happy, and serious about each other. I wanted to get married—but he had begun to have his doubts. He doubted, I would later find out, that he wanted to be married to a surgeon. I was fading into a pallid, shuffling specter and was steadily losing the man I loved, and who loved me.

Then, one day in September, I fainted on the job at the end of a thirty-six-hour shift. I dropped to the linoleum right next to a patient in his sickbed and awoke on a gurney being wheeled to the emergency room, an intravenous glucose drip in my arm. The diagnosis was exhaustion and dehydration. The head of the residency program, my boss, came in and stood next to the IV drip bag, obviously impatient but not visibly concerned. "Okay," he said, "you're just tired. Go home, take twelve hours off, and sleep. Drink plenty of fluids, all right?" I was in a daze, wiped out and ashamed, and could only nod back. "I'll get somebody to cover your next shift," the surgeon told me, his back to my bed as he hurried out the door.

As soon as the boss had left me alone in that ER bed, I was no longer ashamed. I was infuriated. Nobody should be expected to practice clinical medicine, much less perform surgery, on the three hours' sleep I had been living with. But I had wanted to be a surgeon since I first picked up a scalpel in medical school. I had been in the operating room and watched lives saved, and wasn't ready to give it up just because my body gave out on me one time. I went back to work.

Less than a month later I was forced to consider the hazards my patients might be facing at the hands of their exhausted doctors. The hospital pharmacy paged me during morning rounds. When I called in, a woman's voice asked, "Do you really want to put two hundred units of insulin in this patient's hyperal Doctor?"

I had had a full night's sleep and was as alert as I ever got to be, but I still blurted out the first thing that came to mind. "What? No! That'd kill a horse!"

Hyperal, short for hyperalimentation, is a type of intravenous nutritional supply that puts food energy directly into your bloodstream. It has to include a carefully calibrated number of insulin units—fifteen or twenty units, for instance—so that your body can maintain its healthy cycle of fuel storage and release. Instead you were to receive two hundred units of insulin, you would pass out from hypoglycemia and die within minutes of a fatal cardiac arrhythmia, a terminal seizure, or both.

"I didn't write that order, did I?"

“What’s your name?”

“Dr. Melinek.”

“Melinek. Let’s see.” There was a shuffling of papers on the other end of the line. “No,” the woman finally replied, and I was able to breathe again.

“Okay,” I said. “How many units of insulin did the patient get in his hyperal yesterday?”

“Twenty units.”

“And the day before?”

“Twenty.”

“Let’s just make it twenty units, then.”

“Right,” confirmed the pharmacy technician, who had just saved somebody’s life.

The doctor who wrote that order during the last shift was a fellow surgery resident. He had almost killed a patient by writing an extra zero on a nutrition order. I didn’t fill out an incident report about the near-fatal mistake. Nobody had been hurt and nobody had died, so there was no incident. During one of those 13-hour workweeks, had I hurt patients without even knowing it? Had I killed anyone?

The end of my surgical career came three months later, when I caught the flu—ordinary seasonal influenza—and tried to call in sick. “There’s no one to take up the slack this time,” my boss scolded, although my trip to the hospital ER in September had been some sort of shirking ploy. I swallowed two Tylenol, stuck the rest of the bottle in my pocket, and went to work.

The shift was a blur. The Tylenol wore off after a couple of hours, and I started shaking with chills. I took a moment to slip into an empty nurses’ alcove and measure my temperature: 102°. While I was gulping two more pills, an emergency came through the door, a young woman with acute appendicitis. Somebody thrust the medical chart in my hand as I followed the gurney down to the operating room. The patient’s fever was 101.2°—lower than mine.

My hands didn’t shake. I opened her up, tied off the appendix, cut it out, and sutured the site of excision. The room was swaying, and I was sweating in sheets—but I took a deep breath, focused all my attention on the needle, and finished stitching. That was the sixty-first operation I performed during six months of surgical residency, and the last. The minute I scrubbed out of the operating room, I told the chief resident I was too sick to work and had to go home right away. “Don’t feel too bad,” she tried to comfort me. “I once had a miscarriage while on call.”

I called T.J.—feverish, despondent, bawling. When he arrived at the residents’ call room, he closed and locked the door without a word. Then he crouched down by my bunk and asked, “Do you want to quit?” I confessed that I did. “Good,” T.J. said with conviction. “You should.”

“But what are we going to do? What hospital is going to take me if I quit?”

“Doesn’t matter,” he said. “Not anymore. Quit.”

He was right. It didn’t matter. All that mattered was getting out of there. I resigned my position as surgery resident the next day. T.J. and I started spending time together again. On Valentine’s Day of 1999,

we were walking down a street we had traversed on our first date, nine years before to the day, back when we were teenagers. When we reached the spot where we had first held hands, he stopped, took both of mine and lowered one knee to the icy sidewalk. I was surprised, delighted, giggling helplessly. “Would you give me an answer, yes or no?” he pleaded. “My knee is getting cold.”

I was happy for the first time in nearly a year—but scared too. I had learned only what kind of doctor I did *not* want to be, and was convinced no hospital would take me as a new resident in any specialty now that I was damaged goods. The happiest I’d been in medical school was during the pathology rotation. The science was fascinating, the cases engaging, and the doctors seemed to have stable lives. The director of the pathology residency program at UCLA had tried to recruit me during my last year of medical school. “No, no,” I had told her back in the day, driven and cocksure. “I’m going to be a surgeon.”

More than a year later, I called her to ask if she knew of any pathology jobs, anywhere, for a failed surgery resident.

“Can you start here in July?” she asked.

“What do you mean?”

“Judy, I’ll keep a pathology residency position for you right here at UCLA if you’ll start in July.”

Even more shocking was T.J.’s enthusiasm for the idea. “You’ll be leaving your family behind again,” he pointed out.

“Doctor,” my fiancé replied, “I’ve followed you to hell and back. I’ll follow you to Los Angeles.”

They'll Still Be Dead Tomorrow

It's no big deal if you don't have a birth certificate. Other forms of identification will suffice to secure a job, open a bank account, even file for Social Security. However, if your survivors cannot produce a death certificate after your demise, they will descend into bureaucratic purgatory. They can't bury your body, transport it across state lines, liquidate your investments, or inherit anything you have willed them. The death certificate comes from a forensic pathologist.

Pathologists study the causes and effects of human disease and injury: all sorts of disease, all manner of injury, in every part of the human body. As a resident physician in pathology at UCLA, I spent four years studying what every single cell, tissue, and structure in the body looks like. On top of that, I learned what all the things that go wrong look like, and how to tell them apart.

A *forensic* pathologist is a specialist in this branch of medicine who investigates sudden, unexpected, violent deaths by visiting the scene, reviewing medical records, and performing an autopsy—all while collecting evidence that might be used in court. Like a clinical pathologist, she has to recognize what everything in the body looks like, but the forensic pathologist also has to understand how it all works. She has to know how all the things that go wrong with the body can kill you, and all the ways that trying to fix those things might also kill you. The forensic pathologist is the medical profession's eyewitness to death—answering all the questions, settling all the arguments, revealing all the mysteries contained in the human vessel. “One day too late,” my clinician friends like to joke.

Forensic pathologists work for either a medical examiner's office or a coroner. The latter is a public administrator or law enforcement official (often the sheriff) who investigates untimely deaths in his or her jurisdiction. The coroner hires doctors to perform autopsies, but these doctors usually don't play an active role in the investigation beyond their work in the morgue. A medical examiner is a physician trained specifically in death investigation and autopsy pathology, who performs both the prosection (Latin for “cutting apart”) and all other aspects of the official inquiry. The ME is always a doctor and often trains other doctors as well, in a one-year fellowship program that follows four years of residency training in hospital pathology.

I ended up training at the New York City Office of Chief Medical Examiner because I wanted to escape the mandatory monthlong forensics rotation at the Los Angeles County Coroner's notoriously grim office.

“They only give you decomp and car accidents,” I had heard fellow residents complain.

“What do you expect? That’s what they’ve got over there,” the UCLA chief resident pointed out. I always enjoyed stopping by this doctor’s desk because he had a passion for forensics, and the academic journals he collected featured articles like “Heroin Fatality Due to Penile Injection,” and “Sudden Death After a Cold Drink.” Compared to those titles, “Apoptosis in Nontumorous and Neoplastic Human Pituitaries: Expression of the Bcl-2 Family of Proteins” didn’t stand a chance of holding my attention. Wouldn’t you rather read “Suicide by Pipe Bomb: A Case Report”? I would—and I did.

“If you really want to learn forensic pathology, do a rotation at the New York OCME,” my chief resident advised. “All kinds of great ways to die there, and the teaching is brilliant. That’s where I did my first rotation, and I loved it.”

“Move to New York for a month?”

“Why not?”

T.J., to my surprise, said the same thing when I proposed the idea to him. I was pregnant with our first child, and he had decided for both financial and family reasons to become a full-time stay-at-home dad. That liberated us to move wherever we wanted, whenever we needed to, without struggling to reconcile our career goals. “Babies are portable,” he pointed out.

So in September 1999, six months before Danny was born, we flew out to New York, and I took up a visiting rotation at the Office of Chief Medical Examiner. By the end of that monthlong assignment, I had decided that forensic pathology was the career for me—and that the New York OCME was the place to pursue it. I enjoyed the intellectual rigor and scientific challenge of death investigation. Everyone there, from new students to the most senior doctors, seemed happy, eager to learn, and professionally challenged. None of the medical examiners had cots in their offices. “There are no emergency autopsies,” another resident pointed out to me. “Your patients never complain. They don’t page you during dinner. And they’ll still be dead tomorrow.”

I completed the application for the full one-year fellowship at the New York office as soon as we returned to L.A. Four months later, while I was on maternity leave, I got a call from Dr. Charles Hirsch, chief medical examiner for the City of New York, offering me a position as an assistant medical examiner starting in July 2001.



My first day on the job, I woke before dawn in our Bronx apartment. T.J. snored softly on one side of me and Danny, by then sixteen months old, echoed his dad from a bassinet on the other. I listened to the traffic heading for Manhattan just beyond the window and reverted to an old vice, biting my nails as I worried whether I had made another life-altering wrong turn—this time with a husband and child in tow.

I left the apartment early, wanting to give myself plenty of time for the commute to Grand Central Station from Spuyten Duyvil, where the Henry Hudson Bridge arches out of the Bronx to plunge into the

green mound of Inwood Hill. At Grand Central I descended with the crowd to the Lexington Avenue subway and emerged at 28th Street, growing more nervous as I walked east into the summer sun. A few blocks, I came to a corner, and there it was: 520 First Avenue.

My new place of work was a soot-streaked blue cube trimmed in dingy aluminum and crowned with a naked boiler, its fiberglass insulation flapping in the wind. The front door hid in the shadows, behind a wall of rickety scaffolding with great chinks showing half-painted, rusty bars between uneven boards. This square eyesore was the Office of Chief Medical Examiner of the City of New York.

The security guard looked up when I entered the lobby. High-relief stainless steel letters on the wall above her read, *TACEANT COLLOQUIA. EFFUGIAT RISUS. HIC LOCUS EST UBI MORS GAUDET SUCCURRERE VITAE.* I stared at the words. “Can I help you?” the guard asked, and when I told her my name, her face lit up. “The new pathology fellow? Welcome aboard, Doc!”

Something in me had frozen. Two weeks before, I had been living the good life in Los Angeles. I had just finished my formal medical training and was a full-fledged physician. I could’ve taken a nice mellow laboratory job anywhere in the country and sat behind a microscope all day looking at slides, making diagnoses on paper. Instead, I had uprooted our family to the unforgiving city where I grew up, a harsh place that held bad memories. And for what, exactly?

The security guard’s expression softened; it was clear she had greeted a lot of stunned people walking into that building. She glanced back at the polished silver motto and said, “Let conversation cease. Let laughter flee. This is the place where Death delights to help the living.”

The two of us stood alone in the cool, quiet lobby. “Oh,” I said at last.

“Welcome to the OCME, Dr. Melinek.” The guard held out a sticker that read, *VISITOR.*



Dr. Mark Flomenbaum was the deputy chief medical examiner, Dr. Charles Hirsch’s right-hand man and my immediate supervisor—so I was surprised when he greeted me with a hug. Six foot two, with a long gentle face, round glasses, and immense hands, Flome was famous around the office as a karate champion who broke boards for fun. He introduced me to the MLIs and the Identification staff on the first floor, then showed me upstairs to the office, right across from his own, that I would share with the two other fellows in forensic pathology for the year.

Dr. Stuart Graham was already settling in. Stuart had spent fifteen years in private practice running a clinical pathology lab in Florida until he decided to branch out. “I mostly sat at the microscope or reviewed charts in the blood bank. I don’t think I performed more than one autopsy a month for over a decade.”

“We’ll fix that,” Flome said cheerfully.

Stuart had a bone-dry sense of humor, a sliver of a drawl, and a fondness for bow ties. He and I were destined to share adjoining desks in the fellows’ room, our swivel chairs butting against each other. The office held a third desk behind a cubicle divider, for Dr. Doug Freeman, a lanky man with long legs and

slow stride, and wavy blond hair tied in a ponytail. He seemed like a genuinely nice guy of the midwestern mold. Flome explained that Stuart, Doug, and I would spend that first week of July going through administrative processing, which involved fingerprints, a physical examination, and a pile of red-tape paperwork. When that was done, we would each be issued a badge—an ornate shield set in a heavy leather wallet. He looked at his watch. “Okay. It’s time for morning Hirsch rounds. Let’s go down to the Pit.”

Nobody seemed to know who had dubbed the autopsy suite the Pit. It isn’t a pit. It is, in fact, remarkably neat and tidy place. Eight parallel stainless steel autopsy tables—ample, well-scrubbed, and shiny work surfaces with raised edges like a ship’s gunwales—line one wall of the long room. A high-powered dishwashing sprayer hangs behind each table, and metal slats support the body, allowing blood and fluids to drain into a shallow catch basin underneath. This leads directly to a biohazard sink—and if the case is homicide, its drain remains plugged until absolutely all bullets, knife points, and other foreign objects have been accounted for. I was informed that hapless junior medical examiners have had to take apart the drain after they inadvertently flushed a piece of evidence.

Suspended over the foot of the autopsy table is a scale with a metric dial face, for weighing organs. A bucket of formalin, the 10 percent formaldehyde solution that is the catch-all preservative for human tissue, rests in a corner. Against another wall, a soft whir comes from behind the glass doors of the curing cabinets. Inside these, on hangers, blood-soaked garments drip—homicide evidence drying out for laboratory tests, for trial.

Autopsy is morning work. Dr. Flomenbaum advised me and Stuart and Doug to be gowned up and standing at our assigned tables in the Pit by eight o’clock. That would ensure us enough time to finish an external examination of the day’s first case before the boss appeared.

Dr. Charles Seymour Hirsch made morning rounds surrounded by MLIs and medical students at nine thirty sharp. A pipe-smoking, avuncular doctor right out of a Norman Rockwell painting, Hirsch always arrived wearing slacks, a tie, and suspenders, his keen eyes standing out over a surgical mask. Each morning we would deliver a summary of our cases to him while he scrutinized the X-rays and our findings from external examination. You had to have something to say about each case, but shouldn’t venture anything you weren’t prepared to back up on the spot. Morning Hirsch rounds could be the most nerve-racking part of the day.

Dr. Hirsch set a tone of quiet dignity in the autopsy suite, and the rest of us emulated it. He showed a fondness for epigrams we called “Hirschisms”—and like any teacher he had his pet peeves. It didn’t take us long to learn them. He hated the phrase “consistent with” if the finding was, in fact, perfectly obvious, and he gritted his teeth if we described anything as “massive” or “mild”—marked and slight are more specific. When presenting a case to Dr. Charles Hirsch, you had to refer to the decedent as a man, woman, boy, or girl—not as a male or a female. During our first week doing cases, Stuart presented the body of a man who had been “shot by a lady—”

“Shot by a woman,” Hirsch interrupted to correct him. “Ladies don’t shoot people.”

Morning rounds in the autopsy suite were brief; our opportunity for follow-up came every afternoon at three o'clock rounds, when all the medical examiners got together in a conference room to discuss (and sometimes debate) the day's cases. Dr. Hirsch could take the most jumbled, messy case history and find a way to simplify it for the death certificate. "We are not trying to be all-inclusive when we write the DC," he stressed, "just concise and accurate."

For the first two months of our training, Dr. Hirsch also led a separate teaching session with the fellows, offering detailed feedback about our diagnoses and early autopsy reports. He taught the three of us that the medical examiner's most solemn duty was to make two distinct determinations for the death certificate: the cause of death, and the manner of death. "The cause of death is the etiologically specific disease or injury which starts the lethal sequence of events without sufficient intervening cause," Hirsch recited. "Write that down and commit it to memory. Think of it as the answer to the 'what' question—what is the one thing that began the chain of events ending in death. The manner of death is a medicolegal classification of the circumstances—the answer to the 'how' question. We group all deaths into six categories: homicide, suicide, accident, natural disease, therapeutic complication, and undetermined." We would come to learn that the manner of death affects a whole range of institutions—from insurance companies to the district attorney, from the police department's Homicide Division to the landlord of the deceased. As one of the Medical Identification staff put it during my first week on the job, "Maybe nobody cares about you when you're alive, but lots of people take an interest once you're dead."

Before I was assigned my first postmortem investigation as an assistant medical examiner, I spent a week in the morgue observing while the senior MEs cut their cases. Dr. Susan Ely guided me through the first day. She was a slight, attractive woman with a daughter the same age as my son, so we bonded and commiserated while changing into scrubs and netting our hair in the locker room. I replaced my glasses with plastic prescription racquetball goggles, which Susan thought were hilarious. I told her I had the same opinion of her disco-vintage platform shoes. "They bring me up to autopsy table height," she half-joked.

In the Pit, I alternated between her table and Flome's, observing how two different doctors approached the task of performing the last and most thorough physical exam you will ever have. An autopsy is not the same as the cadaver dissection I had done in medical school gross-anatomy class. "Autopsy" means "see for yourself," and it has more to do with figuring out what went wrong in the body than with exploring the anatomy.

An autopsy can take anywhere from forty-five minutes to over four hours, beginning with a thorough external examination and proceeding from the outside in. I learned to document every piece of clothing and every item of jewelry on the body—not excluding pieces of precious metal studded into unlikely flaps of the human anatomy. If you knew how much hardware some of your fellow citizens are toting around in their knickers, you might see the world as a stranger and funnier place.

Since the body and everything on it is my responsibility, I often have to reach into a dead man's pockets and pull out whatever might be there—and people who meet with violent deaths are often engaged in some

aspect of the underground cash economy. I once collected \$12,400 in hundred-dollar bills off a body. I know the exact amount because I counted it very, very carefully—twice. Whenever I found any cash, I would make a point of showing it to the technician, and if no tech was working with me at that moment, I would hold the money up in the air and announce to everyone in the autopsy suite, “I have a wad of cash here!” People working for medical examiners have lost their jobs for stealing money off the dead, so it is a standard practice for us to announce, loudly and in public, the discovery of hard currency.

Once the body has been reduced to its natural state, I examine it closely for signs of injury, and document all findings. To a trained eye, bruises, scrapes, cuts, and penetrating wounds can tell a story. If the body is in rigor mortis, I will pry its fingers open to see if there is anything grasped in the palm of the hand. I’ve found the hair of murderers in the clutch of their victims this way. Suicides by poisoning sometimes still have the pill bottle in their death grip, and drug abusers who overdosed may have the needle dangling from an arm.

“In addition to trauma, we document tattoos, scars, unusual physical features, circumcision, amputations, and birthmarks,” Dr. Flomenbaum taught me over the autopsy table. The families of the deceased take the written description in the autopsy report very seriously, and if there is any inaccuracy—if I missed a single old scar—the validity of the entire death investigation may be cast into doubt. Dr. Barbara Sampson, who also trained me in my first New York autopsies, cautioned that seemingly trivial physical characteristics might be important to the family. Tattoos, for instance. I learned this lesson the hard way after receiving a piqued phone call from the girlfriend, named Vera, of a dead shooting victim. In my report I had written that he had “Nera” tattooed on his upper chest. I’d also failed to note a scar on his face. Vera thought I had autopsied the wrong guy.

I apologized to Vera and offered to amend the autopsy report. When I pored over the identification photos later, though, I still couldn’t find the scar, even though the skin was still its natural color, mostly. It could be that the scar had been obscured in the furrow of his brow or under a five o’clock shadow. Maybe it stood out in Vera’s memory more vividly than it did on the body. Maybe it had some personal significance to her. Maybe she’d given it to him. Probably, though, Vera just didn’t trust me because I’d misread the name on her boyfriend’s chest.

“Never hurts to be careful,” counseled Dr. Monica Smiddy, another of the senior staff. Monica had a distinctive way of speaking, with a lilting and falling cadence in a muted Boston accent. She taught me to count everyone’s fingers and toes. If the dead man had lost the tip of a finger in a supermarket cart accident when he was eight years old, everyone in the family would expect that detail to be included in the autopsy report, even if it was totally irrelevant to the cause and manner of his death. Fail to note it, and the family won’t trust your conclusions. The same rule applied for the appendix—sometimes the presence or absence of a high-profile organ proves crucial in establishing the identity of the deceased. Dr. Smiddy instructed me to always take sample cuts of the testes in men and ovaries in women, “and always—*always*—count the organs. Some men have one, and some have prostheses, and believe me, the wife will notice what you write in the report. So be thorough and cover your bases. It pays to count to two.”

Day by day I practiced the rhythm of the medical examiner's routine—autopsies all morning, the meetings and paperwork, interrupted and enlivened by occasional trips to crime scenes, or to the courthouse to testify. Though it would take weeks before the jitters settled and I became comfortable with my diagnostic skills, I was officially prepared to start working on my own. On July 6, 2001, after five days of watching other doctors perform autopsies, I did my first—and failed.

See for Yourself

Terrence Booker was a hospital case, a twenty-six-year-old with sickle-cell trait who had died on the inpatient floor of NYU Medical Center. Sickle-cell trait is the most common genetic aberration in the world, and almost everyone who carries it goes through life showing no symptoms. Some carriers of the trait, however, can develop sickle-cell anemia, a disease in which their normally disk-shaped red blood cells mutate into crescents and jam up their capillaries, impeding the flow of blood. Sickle-cell anemia is usually easy to diagnose because patients display a clinically characteristic set of symptoms, including fever, tachycardia (a racing pulse), and abdominal rigidity.

There is, though, one complication of sickle-cell anemia, vaso-occlusive pain crisis, which cannot be objectively evaluated. The blocked blood vessels cause ischemia: Tissues throughout the body starve for oxygen, resulting in acute, systemic pain. Ischemia can lead to fatal organ damage in a matter of minutes, so when a person with a history of sickle-cell anemia comes into a hospital with severe cramps all over, the medical staff take that complaint very seriously and start treatment right away. Treatment is straightforward enough—put an oxygen mask over the patient’s nose and mouth, hydrate him through an intravenous line, and administer an opioid analgesic painkiller, typically oxycodone or codeine. You know what else happens to be an opioid analgesic? Heroin.

Terrence Booker was a documented heroin addict who was probably malingering—faking a pain crisis to get drugs. Doctors have no way of knowing whether somebody’s lying about pain, really. You can’t fake a fever or tachycardia, but pain is purely subjective and there’s no test for it. When Booker showed up at the emergency room reporting that he “had sickle-cell” and was hurting all over, the ER staff had to treat him for a possible vaso-occlusive pain crisis. They admitted him as an inpatient and dosed him with the powerful clinical narcotic oxycodone.

In the middle of the night, Terrence slipped out of the hospital; he returned a couple of hours later looking glassy-eyed and slurring his speech. A nurse found him unconscious, called a Code Blue, and the medical team rushed in with a crash cart. They put a breathing tube down his throat, started CPR, administered a drug to reverse the effects of opiates, and then sparked him up with a defibrillator. The Code Blue team succeeded in restarting Booker’s heart, but it was too late. He was brain-dead. His heart kept beating for another eight days. Then it stopped, and Terrence Booker’s corpse came to me.

My first postmortem investigation as a New York City assistant ME should have been simple. I started with an external examination of the body, removing the tangle of tubes Booker's hospital caregivers had inserted into his veins and down his throat during their attempts to keep him alive. I documented all of them, along with the defects they left in the dead man's skin, and then picked up a large-bore syringe to perform the first invasive step of the autopsy—inserting the needle into the side of each eyeball to aspirate a sample of the vitreous fluid. I watched through the eye's open pupil as the tip of the needle came into sight. Dr. Flomenbaum had taught me that if I poked too far, the needle could hit the retina and cause what we call "postmortem artifact." (I would later learn to abide, too, by Monica Smiddy's "count to two" rule when I pushed the needle into a cadaver's eyeball and it popped out and clattered to the floor. Glass eyes are no longer made of glass; they're made of plastic, and thankfully they don't shatter.) Next I tried to take a sample of peripheral blood from the big vein behind Booker's collarbone. I wasn't able to get any, so I went instead to the femoral vein in his groin. I knew that once I opened the body up, all kinds of fluids were going to start moving with the pull of gravity, so it was important to get a needle sample of the closed circulatory system before making the first incision.

That first incision is the Y-cut. Using a scalpel, I sliced from the edge of each collarbone to the breastbone, pushing through the skin, fat, and muscle of the chest. Then I cut from this point all the way down the abdomen to the bone at the front of the pelvis. Once this was done I was able to open Terrence Booker's chest like a book, filleting the connective tissue off the rib cage and peeling away the flesh of the belly to expose the peritoneum. The inside of the human torso is divided into five major cavities, which contain associated organ systems. The peritoneum is the largest of these and features the digestive tract. Behind it is the retroperitoneal space, home to the kidneys and a few other organs. Each lung is surrounded by a separate pleural cavity, and between these lies the pericardial sac—the heart's own pocket. An autopsy generally tackles each of these enclosed spaces separately, since bodily fluids and blood may be contained in each without the others being affected.

I had been taught that in an ordinary autopsy like this one, without bullet holes or other obvious external complications, I should start with the peritoneum. I slit through the thin lining that surrounds the cavity to take a look. The presence of fluids of different colors (and odors) might point to liver or heart failure, infections, tumors, and various diseases—and I had seen during my training week that a laceration of the spleen or the aorta can leave half a gallon of blood in the peritoneum. Booker's peritoneum didn't have a lot going on. If a patient has a significant amount of liquid in the belly, I have to collect it for measurement using the stainless steel soup ladle I had bought at a housewares store on East 23rd Street. Many of the medical examiner's tools are a good deal less shiny and exotic than the instruments our colleagues at other hospitals use. T.J. was aghast the first time I dragged him on a tour of my workplace (on a slow afternoon with no autopsies in progress), and he saw a long, age-worn butcher's knife that looked exactly like a family heirloom his mother uses to carve roasts. Our staff keeps it saber-sharp for slicing organs. It works beautifully. One workstation has a set of kitchen knives in a wooden block. Hanging on a wall is a collection

of hacksaws, and a pair of large spatulas.

“A hammer and chisel?” T.J. said in deepening horror. “What do you—no, don’t tell me.” Turning to my workstation, he pointed to a set of long-handled pruning shears, the kind used for cutting back tree branches. They were engraved with the name of a hardware store. “What are those for?”

“You don’t want to know,” I assured him.

But he insisted he did want to know, so I told him. “Snapping ribs.”

After examining Terrence Booker’s ribs to make sure there were no visible fractures, I clipped each one with those pruning shears and lifted off the whole breastplate, exposing the two pleural cavities and the pericardium. I knew that, as with the belly, it was important to note the color of any liquids in the cavities surrounding the lungs. Green fluid indicates infection, probably pneumonia. Clear fluid means heart failure. Blood—trauma. Booker’s lungs showed a little bit of the expected damage from spending a week under mechanical ventilation, but they were otherwise healthy—pink, spongy, and soft. A smoker’s lungs are bubbly, black, hardened lumps, exactly like those photographs used to scare middle school children away from cigarettes. The worst ones crunch when you handle them.

The heart is hidden behind the opaque pericardial sac, which I opened gingerly with my scalpel, looking for evidence of bleeding caused by trauma or a torn vessel. The week before, I had watched Flome autopsy a patient whose heart wall had ruptured in a massive cardiac arrest, blowing out like an overinflated inner tube and resulting in a tremendous mess inside the pericardial sac. There was no hemorrhage in Terrence Booker’s pericardium, and no sign of heart disease either.

Now that the major cavities were all open and cleared of fluids, it was time to remove the organs, one by one. While I did so, I took tissue samples. I keep a kitchen-variety plastic cutting board on the autopsy table lined up with histology cassettes that I fill with the things I want to look at under the microscope—heart tissue, pieces of lung, liver, kidney, spleen, adrenal gland, and pancreas. I also took separate samples for the clear plastic stock jar that sits uncovered on the cutting board. This resembles a take-out soup container filled halfway with formalin, and serves as a sort of investigative insurance. Bits of tissue from each organ go into the preservative formaldehyde solution so that the case can be reexamined in the future, if the need arises. Each autopsy gets its own dedicated stock jar, which is sealed up and stored for about a year, or sometimes longer in unresolved cases.

I cut the left lung, right lung, and heart loose from their vascular moorings and slid them down to the cadaver’s feet, where there was plenty of room to examine and dissect them later. Some of the other MIs preferred to collect the organs on the side of the autopsy table, next to the body, but experience had taught me there is a danger of somebody’s lung ending up on the floor that way. Organs are slippery. Livers are the worst. Alcoholics, especially, have fatty livers. Those things are as slick as greased piglets and get bobbed all the time in the autopsy suite.

The entrails are one long piece. I reached down into the pelvis through the bottom of the Y-cut, and with a scalpel detached the bowel at the top of the rectum. I trimmed away the mesentery, a curtain of fatty tissue

that anchors the intestine, and then fed it out by hand as a single rope, gathering the lower gut into a ball and dropping it into a metal mixing bowl. Once I severed the duodenum (the origin of the small intestine, just south of the stomach), the intestinal tract was out.

The liver is tethered by only three major vessels and a bunch of ligaments that attach it to the stomach and duodenum, so it's easy to remove once the intestines are out of the way. When I lifted up Terrence Booker's liver, I could see enlarged lymph nodes at the insertion point of the major blood vessels. This is a "soft sign" of drug use—an indicator but not proof. His spleen, right opposite the liver, looked perfectly normal; if it were bright red and mushy, he might have had a serious infection. I didn't see any evidence of traumatic injury either—spleens are very delicate, full of tiny blood vessels and liable to rupture. Quite a number of people have two or three accessory spleens, like bright red mushrooms. Others have no spleen at all. Sometimes patients who had spleens removed due to trauma will have sprouted lots of little accessory spleens all over the abdominal cavity. The spleen is a weird organ.

I pulled out the duodenum, pancreas, stomach, and esophagus together and sent the whole long coil of upper gut onto the pile at the body's feet, providing me easy access to the retroperitoneal space. I peeled each kidney and its attached fat tissue away from the underlying musculature of the back and took a moment to examine Booker's adrenal glands, a pair of greasy little pyramids that perch atop the kidneys like yellow garden gnome caps. Unless the adrenals are bloody and red (a sign of overwhelming systemic infection), I can't tell much by looking at them with my naked eye, so I cut a stock jar sample of each and then moved on. The last things to come out of the abdominal cavity are the bladder and rectum. Removing them requires me to reach really deep down into the pelvis, cut around the anus from the inside, and pull them out. There is a horrible sucking sound that takes some getting used to, and if the bladder is full it feels like a water balloon. I am careful not to burst it.

Since my patient was male, I finished the prosection by collecting his testes. This is not done in the manner you might expect. Instead of cutting open Booker's scrotum, I reached down and inverted the body, gaining access to his sex organs while leaving them outwardly intact. I examined the testicles one at a time, took a small section of each to save in the stock jar, and then poked them back down where they belong. Families can be very particular about the testicles, and I had been taught to replace them unless there was a tumor or signs of injury.

That first autopsy took me more than two and a half hours, twice as much time as I would need after a couple of weeks' practice. The prosection went smoothly, I collected all the necessary samples, I didn't bobble any organs—but I learned nothing about Terrence Booker's cause of death. The lab tests were no help either. Histology could neither establish nor rule out an acute sickle-cell crisis. I strongly suspected Booker had died of an opiate overdose, but couldn't prove it because there was no tox report. During all the excitement that night in the hospital, with the Code Blue alarms and the intubation and defibrillation, nobody had kept a blood sample. No blood sample, no toxicology—and no way of knowing what chemicals were in his bloodstream at the moment the patient went brain-dead.

After performing a meticulous autopsy with no findings, I couldn't say for sure what had killed this man. I wrote the cause of death as "anoxic encephalopathy due to loss of consciousness of undetermined etiology." This translates as "lack of oxygen to the brain from fuck-if-I-know." Worse, because I couldn't establish whether Terrence Booker's loss of consciousness was due to natural disease or toxic insult, the manner of death had to be "undetermined." Inconclusive. Supremely frustrating. Not the way I wanted to close my first case.

During the next week at my new job I would come to appreciate the wisdom of the medical school maxim, "When you hear hoofbeats, think of horses—not zebras." In other words, most things are exactly what they seem, and the simplest answer is usually the right one. I autopsied a seventy-eight-year-old man with advanced heart disease and peripheral vascular disease one day, and a fifty-five-year-old woman with even worse heart disease the next. Both had died in hospitals a few days after undergoing surgery. Both were against family requests; the families thought the operations had contributed to the deaths. When I opened up each body, though, I found the same thing: heart disease so far advanced that I couldn't blame the surgery, even a little, for the demise of either patient. In the coming two years I would write those five letters, ASCVD, on a lot of death certificate worksheets. Arteriosclerotic cardiovascular disease, the biggest cause of excess mortality in the United States, kills a whole lot of New Yorkers.

Traumatic death investigation is unique to forensic pathology and something I hadn't seen during my residency training; hospital pathologists perform autopsies only on patients who have died of natural causes. My first trauma cases came over the weekend. On Saturday I got a sixty-two-year-old man, Johannes Roskam, who was rescued from a fire in his home only to die three hours later in the NYU hospital emergency room. During the morning meeting, Susan Ely handed me a burn diagram dividing the body into regions, each representing a percentage of skin surface area—one arm worth 9 percent; one leg, 13 percent, for instance. As a part of Roskam's external examination, I shaded the injured areas on the diagram and calculated that thermal burns covered approximately 20 percent of his body.

After I removed Roskam's bandages and the thick white ointment beneath them, I found that most of the injured skin was red and sloughing, with blisters around the edges and raw dermis showing underneath, characteristic of a second-degree burn. Some areas showed third-degree burns, with all the layers of skin reduced to carbonaceous debris, exposing yellow subcutaneous fat and muscle tissue the color of burgundy wine. This body did not exhibit fourth-degree burns—black and white, charred all the way down to the bone.

The thermal burns were severe, but they hadn't killed Johannes Roskam. He had perished, like most fire victims, of carbon monoxide poisoning. Carbon monoxide is a gas released during combustion, which binds to the hemoglobin in red blood cells, forming carboxyhemoglobin and crowding out oxygen molecules until you asphyxiate. Once I opened up Roskam's body, I found a thick coating of black soot in his airway—nasal

passages, throat, and windpipe—indicating that he'd been breathing during the conflagration. When the toxicology report landed on my desk several months later, it said his carboxyhemoglobin reading was 60 percent, well into the lethal range. The fire marshal's report came two weeks after that, showing that the decedent had been smoking a cigarette in bed. The fire was accidental, which made my ruling of manner of death "accident" too.

At the same time on that Saturday that I had been examining Johannes Roskam's airway, thirty-six-year-old Yuliya Koroleva jaywalked into traffic in the middle of Amsterdam Avenue. She stepped out between two parked cars a few blocks north of the subway at 72nd Street and got creamed by a white minivan. The emergency room doctors diagnosed her crushed pelvis on X-ray, but it wasn't until she was in the operating room that the surgeons discovered Yuliya was pregnant. She died on the table.

Just as I was starting the Y-cut on Sunday morning, a woman with a gold Homicide Division badge hanging from her neck came into the autopsy suite. She looked at Yuliya's naked corpse. "The driver of the van that hit her took off," the detective said, then turned her eyes to me with an unsettling scrutiny. "Have we worked together before?"

"It's my first week. I'm a new fellow. Judy Melinek."

"Cheryl Wallace." We nodded; nobody shakes hands in the autopsy suite. Cheryl had a solid build and wore a no-nonsense suit. I couldn't read her features behind the surgical mask, but I could tell she wasn't spooked by the macabre tableau—a dead woman, mangled below the waist, with another woman holding a scalpel to her breast.

"Okay, Dr. Melinek—"

"Judy."

"Judy. Okay. Here's the deal." She moved a little closer to the table, looked up and down Yuliya's body. "We're gonna need scalp hair for DNA testing, and tell me if you find any paint or metal fragments." If the police found the vehicle that did this, a stray hair on the bumper or a matching paint chip on the body could cement a successful prosecution. Wallace's eyes stopped at Yuliya's belly. "You know she was pregnant?" I told her I did. "Do you know if it was viable?"

"Not until I take a look at the fetus—and even then, maybe not conclusively. I can guess by looking at her that she's still in the second trimester. The earliest a fetus can live outside the womb is twenty-four weeks, and she looks less pregnant than that. I'll be able to say for sure when I get in there to measure the feet."

"How can you be sure? What if it's a big baby?"

"Fetus size is pretty predictable unless the mother has gestational diabetes, and the most accurate measure of gestation is the foot length. Boys and girls, big and small, they all have the same foot length at a given week in utero. I have a chart in my fetal pathology textbook that matches the size by dates."

The detective nodded. "That's good." I could see her filing the fact away. I took a liking to Detective Wallace. Brusque, maybe, but smart.

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