1. Temple on Fruit Street

Massachusetts General Hospital is hardly general.
Aphorism

The Harvard residence, Vanderbilt Hall, was a two-story building, partly covered by creeping ivy, stretched along Longwood Avenue. It housed students from Harvard Medical School, as well as visiting students. I reached my second-floor corner room at the farthest end of the hallway by late afternoon.

I plunked my suitcase on the unmade bed by the window, surprised to see another bed in the corner, with baggage slipped under its metal frame. Exhausted and jet lagged, I made my bed and gladly fell into it. There was no last thought as I escaped into a deep sleep.

The Vanderbilt door monitor told me, with a heavy German accent, to catch the Green Line's first tram at 5 a.m. He kindly gave me change for a dollar bill, instructing me to feed the coins into the machine inside the first car and to get a transfer ticket.

I waited in the semi-darkness along the track. When the half-empty train came, I was surprised to find it a two-car tram. On entering, I noticed people were dozing in their seats. I had expected an underground similar to London's. The cars rocked back and forth along the open track, eventually sliding underground as we approached the high-rise offices of downtown Boston. At Park Street, I disembarked and waited by the track for the red line. At last, a light emerged from around a corner, and a single tramcar wobbled down the track toward me, stopping some distance down the line. The car was crowded with women and men wearing white. I followed them off the train at the next stop, the Charles/MGH station, reasoning they were heading to the hospital entrance on Fruit Street. In the early morning mist, crews worked their skiffs on the Charles. It was 5:45 a.m., an unearthly time to start rounds, but a sign that surgery was serious business here.

I joined the surgical team, a group of about twenty people, outside the emergency room (ER). I was quite conspicuous in my gray suit among the others in white. There were two teams of residents: the white service for private patients, and the ward service for indigents. The senior resident, who introduced himself as Everett Sugarbaker, directed me to the second group. The medical students introduced themselves, as did Dr. Levin, the chief resident, who explained the routine we would follow. The welcoming friendliness and my immediate inclusion were entirely different to the reserved, hierarchical British system.

Rounds began in the emergency room, where we identified overnight surgical patients awaiting a semi-urgent operation. Dr. Levin added their names and the procedures to the daily operative schedule—the "add-ons." These patients came to the ER with surgical problems and were subsequently worked up during the night after they were seen and deemed in need of an operation.

From the ER, we rode up the elevator to the intensive care unit (ICU**)**. The ICU concept was entirely new to me. About sixteen bays distinct from the nearby operating suites were staffed with specially trained and dedicated nurses for the most seriously ill surgical patients who needed specialized care and close monitoring "24/7"—an American idiom I immediately understood. The concept made immense sense to me when I thought back to Mr. Hart's lung patient.

Finally, we started rounds on the ward service. These patients did not have an attending surgeon and often lacked insurance; they were the responsibility of the chief resident, who was in his fifth year of general surgical training. A student would present their patient's progress during the night, with the intern chiming in to provide the latest developments or additional data, such as the results of tests ordered during the night. I noticed a professional camaraderie, an attitude of mutual help, regardless of the level of training. The stress of the surgical situation and the common goal of wanting to help patients survive forged solidarity among the different levels of staff, nurses, and students. The sicker the patient, the more the common concern among the group, and the more the individual group members expressed the emotional responsibility, all of which was strikingly different from the pecking order in England to which I was accustomed.

Another glaring distinction from rounds back home was that the nurses did not accompany us. Orders were written into a book, flagged by patient name, which a secretary transcribed, freeing the nurses from administrative work. I had my doubts as to the efficiency of this system, for I much preferred the nurse's presence on rounds. The advantage was that one could hear the nurses' professional opinions concerning patient progress and communicate directly to them the changes that were wanted.

One of my lasting impressions from my first day of ICU rounds was of a recent Italian immigrant, a Mr. Renaldo, who was unconscious and suffered from hemorrhagic pancreatitis—a condition I had never encountered. Intubated and paralyzed, the relatively young patient had an open abdominal wound extending from the xyphoid at the lower sternum to the pubis, covered by moist, large gauze pads to keep his guts from spilling out. There was a tube in every orifice—a nasogastric to drain stomach, bile, and GI juices, a Foley to empty the bladder, an arterial catheter to monitor blood pressure, a central venous catheter to draw blood, and one to input saline into the abdominal cavity, with a sump suction to drain fluid output.

Dr. Sugarbaker must have seen me grow pale. He explained that in hemorrhagic pancreatitis, the digestive juices were attacking its organ. There was no definitive or curative treatment; they washed out the destructive enzymes in the hopes of ending the cycle. Earlier, Dr. Sugarbaker had used a sterile teaspoon to scrape out dead pancreatic tissue. I learned that binge drinking had caused the patient's condition.

The effort, energy, and cost invested in trying to save one human being with a self-inflicted illness amazed me. I realized that in America, medical care and treatment decisions were not influenced by moral judgment or hopelessness. These complicated and challenging surgical problems were approached with a resolve to overcome them. The overwhelmingly upbeat attitude impressed me tremendously. Such a work ethos was pervasive and infectious, and I felt free of the constraints of tradition and was thriving in this positive atmosphere—the eagerness, the can-do approach to surgical problems, and life in the department.

Mr. Renaldo consumed an enormous amount of our time. I was not sure if he would recover, but he did serve to draw together my disparate physiological knowledge. I began to appreciate that in this unconscious man, who was covered only with a cotton sheet and surrounded by life-support machinery, the sum of the physiological parameters—temperature, pulse, respiration, blood pressure, fluid status, and level of consciousness—painted the picture of his condition. Standing by his bedside, I understood that God had

to be here in his fullest presence for Mr. Renaldo to make it—an awareness or prayer I would revisit many times in my career.

One duty on the medical student's scud list was to calculate Mr. Renaldo's daily fluid status because with him being unconscious, he could not compensate for his losses by drinking water. The patient's twenty-four-hour fluid intake had to equal his output, with additional fluid to offset losses from the skin, increased evaporation occurring with each one-degree of temperature rise, and losses from the open abdominal cavity. The change in daily body weight, although crude, was an integrator of these calculations. The details made my head spin. A summary of these figures was part of the daily presentation of the patient's status during morning and evening rounds. Despite such fine-tuning of patient care, over time, Mr. Renaldo developed anasarca—the general bloating of his body with swelling of his brain. I was overwhelmed by the complexity of managing such patients, the likes of which I had never seen at the Whittington or even at UCH.

A separate, specialty-trained trauma team managed the ICU's trauma patients, whose all-encompassing care was beyond my grasp in my initial days for lack of exposure to this discipline during my training. Despite my "greenness" doing rounds and being available at all times to assist on operative cases, trauma gave me the opportunity to integrate my basic science knowledge and begin to apply this to pre- and post-operative care, an aspect poorly emphasized in my training up to then. Operating was a skill that improved with time, but it had to stand on a solid foundation and understanding of basic science—the knowledge of how the body worked.

From the ICU, we visited the pre-operative patients on the wards to ensure that nothing was overlooked in preparing the patient before surgery. At this stage, either Dr. Levin or Dr. Sugarbaker assigned the residents who were to assist on the two to three simultaneously functioning operating rooms; usually, the student who worked up or followed the care of a patient joined the team. Throughout rounds, the intern made scud lists of tasks for those students not assigned to the OR that day. After the group dispersed, we went to the cafeteria. We sat together as a group, dividing up our workload. I had my first meal since arriving in America.

Sitting next to me was Tom Sos, who also lived at Vanderbilt Hall. He invited me to ride with him to and from the hospital. On the days when the operation where I was assisting went into the late evening, he suggested I could sleep in the on-call room. He was interested in becoming a radiologist, like his father in New York City. The other students eating their breakfast were very welcoming, friendly, and helpful. I was unaccustomed to being on a first name basis from the moment I met someone, let alone to their nicknames. A jovial student introduced himself as Stu, which I assumed was short for Stuart. You would never call anyone Stu in London! Jan Breslow was a tall, broad-shouldered, and handsome fellow with a particular interest in the hyperlipidemias; he was planning to be a pediatrician and had previously done some research with the hope of heading up a cholesterol-lipid research unit in New York. Lastly, there was Edith, a quiet, friendly student who planned to become an internist or psychiatrist. I was the only one seriously committed to surgery and could assist in as many operations as I wanted—an operative feast for me. Both Jan and Edith were married. They did not hang around much after taking care of their chores and learning obligations, which included admitting and working up their assigned patients and, like in London, attending mandatory morning and afternoon teaching seminars for those not scrubbed.

I was impressed by their visionary paths for the future. Mine was relatively ambiguous. I wanted to become a surgeon but had no idea how I would make this happen. At that time in England, training and upward mobility depended in part on which attending one knew—a more hit-or-miss approach. Promotion to consultant or professor took longer to achieve, more due to the filling of "dead man's shoes." Did this fit in with my imagined short life expectancy?

The American system of surgical residency was more straightforward. After completing medical school, graduates entered a residency program of their choice and underwent systematic training for a specific number of years. On completing residency, one sat for the specialty exam to get a certificate, following which one started a practice in their specialty. The concept was appealing to me—a bit like being back at school: there were measurable landmarks. In practice, I could be a professor a year sooner—and with more certainty—than if I trained in England.

Despite my jet lag, I went to Dr. Gerald Austen's office to sign in and announce my presence. His friendly secretary welcomed me and gave me a key to an on-call room and food coupons—limited to $2 per day—usually used for breakfast. Dinner was free after the refectory formally closed at 11 p.m., when we could eat whatever leftovers were available.

The secretary told me that one of the surgeons, Dr. George Nardi, had invited me to his home for Thanksgiving dinner in three weeks—a very kindly gesture that I would accept. She added that I *could* participate in the students' oral surgical test, which was done in early December. She further suggested that I should read Dr. Nardi's surgical textbook and added that the end of the rotation would be December 15, 1967. The news was a shocker. My return ticket was December 30. What would I do in freezing Boston, alone for two weeks, and where would I live? It would cost a pretty penny to change to an earlier return flight, even if I could get a seat during the Christmas season on my inexpensive London-Boston round-trip ticket.

My thoughts went to Victoria, wanting her company and the security of our relationship. I could see us lying under the coconut trees on the red blanket set on the yellow beach, lapped by the warm, azure Caribbean. I wondered if such a holiday would interest her, for she, too, had time off at Christmas. We could fly to Antigua from New York for a mere £60 round trip—a bargain, although we would have to depend on her mother for some of the funds. I was concerned that it might not seem proper to Victoria's mother to have her unmarried daughter gallivanting about a Caribbean playground with a man. The rumor would fly around the very conservative village of Sea View—a Peyton Place if ever there was one. Of course, Shirley had a good idea that we were sleeping together, if not at 95 Gower Street, then when I spent nights with her daughter in her flat at Ladbroke Grove, Nottingham Hill; that is what young lovers did. My German family would probably frown upon it, too, and it was surely taboo in Egypt.

Despite the cultural shift in American sexual attitudes happening in this time, I wanted the semblance of decency and respectability, perhaps because I now felt the responsibility that came with working in the highbrow surgical world in Boston. Some of the medical students were already married, and my newfound friends, who were probably four years older, saw me as a colleague. Victoria and I had discussed marriage before I left. Perhaps, we could get married in Boston; the last two weeks were a perfect time to honeymoon before returning to London when our busy schedules would resume. Shirley could always have her fancy wedding reception after I graduated in May.

The rest of the ward rounds that first day were a blur, given my jet lag and difficulty in understanding the numerous American medical acronyms. The patients here were sicker than I was accustomed to seeing and presented with more advanced stages of their illnesses; not to mention, the operations performed were more complex and sophisticated. I had difficulty understanding the various stages of a disease and found myself drawing on my physiological knowledge to follow the proposed therapy. The acronyms were so different from the ones I had learned in London. It would take me a few days of intense attention to catch onto the new lingo and still longer before I found myself using it with confidence.

The next day, we were finishing rounds when all the residents' pagers went off simultaneously. "Code Blue ER" squawked repeatedly from an overhead intercom. The team took off like a stampeding herd down the stairway. I was not sure what was happening but followed to catch up with them on the pavement

outside the ER door. A blur of white-dressed bodies stooped over a man on a gurney. One of the physicians was pumping the patient's corpulent chest with vigor, shouting out orders for meds. With focused intensity, a nurse drew them up from her cardiac cart. She handed a syringe to the team leader, who stuck the long needle straight through the undershirt into the patient's heart. As the resuscitation continued, the body lifted an inch off the gurney with each forceful thrust. Another resident frantically tried to start an intravenous line. Nurses attempted to cut off the man's trousers, while others pushed the gurney into the building. I was a helpless bystander, never having witnessed or learned to participate in a cardiac arrest, which made me acutely aware of how much I had to learn. An ambulance, a fire engine with flashing lights, and two police cars surrounded the scene. I noticed that all the first responders spoke with a peculiar Boston accent—or was it an Irish brogue? The firefighters refused to leave their colleague on the gurney.

The effort continued in the ER, with the patient surrounded by police, nurses, and residents. They intubated and oxygenated him. They stripped him naked and hooked him up to monitors. After thirty minutes, the enthusiastic effort ebbed. With no response from the patient to drugs, external cardiac massage, intra-cardiac stimulant, and defibrillation, the attempt ended, and they pronounced him dead. He looked so pale and young, with waxen facial features.

The nurses pieced together the story. The deceased had visited his girlfriend while her husband was attending church. During intercourse, he experienced chest pain and lightheadedness. Fearing a scandal, she dressed him, which explained the misaligned buttons on his shirt and his poorly fitting trousers. She clothed him in his winter coat while he was floating in and out of consciousness, losing valuable time before she telephoned his friends at the fire station, trying to keep matters confidential instead of dialing 911.

The resident team drifted away from the lifeless body. We left a chaotic scene of syringes, blood, catheters, and clothes strewn on the floor, presumably for the nurses to pick up. The mood was a somber one of reflection and defeat. Our usually upbeat, can-do spirits were slowly draining like water out of a sink. I wondered about the effect of repeated patient failure on our psyches over a lifetime. I was unfamiliar with the term "burn-out."

When faced with patient failure, I would first target myself, internalizing disappointment, hating myself and becoming depressed before scolding myself—it should not have happened—even if the odds were stacked against recovery from the outset. Illogically, my surgical self-confidence diminished. The haunting anxiety and baffling perplexities of losing a fellow human would persist. It was at such times that I tried to recall Professor Pilcher's comment that some deaths were due to "patient disease."

The low energy level among our team lasted only until Dr. Sugarbaker called us to order and reminded us of our tasks for the day—some to assist in the OR, others to the wards. I was to help Dr. Hermes Grillo, who, like Pilcher, was a thoracic surgeon. I met him at the scrub sink where he introduced himself. Immediately after scrubbing, we dipped our arms into a vat of alcohol up to our elbows—a sterility method I was sure would soon catch on in England. We toweled off, and the nurses dressed us in sterile paper gowns and gloved us, all while Dr. Grillo was relating pleasant memories of the various times he had spent in England. Unlike in London, the patient was rolled into the OR awake and only after Dr. Grillo greeted him was he put to sleep. My London brain imagined that this practice extended the turnover time between cases.

Dr. Grillo was reconstructing a man's trachea—the windpipe—located at a high level in the neck between the jaw and the sternal notch above the thyroid gland. The tracheal rings had previously been damaged during an emergency tracheostomy several months earlier when a tube for an emergency tracheostomy had been inserted during an emergency resuscitation. It saved the patient's life. As it healed, it narrowed the main airway, making it progressively more strenuous for the patient to breath.

After washing down the patient's neck and draping it, Dr. Grillo handed me the scalpel. I made a skin crease neck incision above the old scar with the intent to dissect out the old craggy scar. Grasping the scar tissue with a clamp, he raised it to assist my continued resection of the skin and its underlying fibrous tissue. A fresh bleeding plane of the neck tissue was entered. I could see what had to be done next: dissect down to the tracheal rings, resect the damaged old ring, and mobilize the entire trachea to obtain vertical mobility such that the new trachea could be sewn together again. This was beyond my current surgical skill. But watching Dr. Grillo do it would allow me to emulate the operative procedure.

"You did that elegantly." Taking a new scalpel, he proceeded. I felt a sense of usefulness and pride in my ability to assist him.

He opened the neck, exposed the trachea, and excised the damaged ring, giving a quiet blow-by-blow description of what he was doing while he mobilized the rest of the trachea in the chest, freeing it from its attachments to the surrounding lung tissues. He reconstructed the continuity of the windpipe by sewing together the upper and lower sections. I held the skin retractors to give him the exposure he required and ensured his operative field was as free of blood as possible. He knew I was a medical student from London, yet he sensed I was not a novice at the operating table. He told the scrub to give me the needle holder, which was preloaded with a small size chromic suture for closing the deep layer of the skin, telling me to start in the middle of the wound and to divide the remaining wound sections in half. This ensured that the wound would be closed evenly. He cut the suture above the knots and then showed me how to close the subcuticular layer of the wound with a single running stitch that approximated this layer, closing the shin with steri-strips to result in a fine-looking hairline incision. The nurse then placed a firm dressing.

While we were closing, he told me that he had built an entire career on reconstructing tracheas and excising tumors involving the windpipe. He had trained generations of surgeons in his techniques and had designed several surgical instruments specifically for these operations. I marveled at the strategy: learn a specialty, such as thoracic surgery, while focusing narrowly on an organ and becoming an expert in its care. I was awed by the proficiency needed to reconstruct a human windpipe—to restore normality for the patient.

Another professor I frequently scrubbed with was Dr. Paul Russell, who performed kidney transplants. Once more, the very concept of extending a person's existence and restoring their normal life through surgical intervention greatly impressed me. My horizons were expanding.

Reluctantly, I was drawn into a vascular emergency procedure. The vascular service's chief resident, a man with seven years of surgical training, and his crew of fellow residents wheeled in a middle-aged patient with an embolus that had lodged in the main artery of the leg. There were no measurable pulses in the foot by Doppler ultrasound, and the appendage was cold and white. I had nightmarish flashbacks of the evening of the Christmas Ball, when I was stuck in theater assisting on my first vascular case. The operating room was well equipped for vascular surgery, having overhead X-ray equipment worked by a radiology technician, who was also in the room. The appropriate instruments and specific sutures were available. Once the patient was asleep with his groin prepped and draped, the femoral artery was dissected out. Despite my dread, this operation was different.

The chief resident placed special vascular clamps above the artery to prevent hemorrhaging when he made a small cut into it. He passed a vascular catheter down the leg. Once the overhead X-ray scan showed its opaque tip was beyond the suspected clot, he inflated a small balloon and slowly pulled back the catheter into the incision, returning clotted red blood and a denser white embolus. I could hear the echo of blood flowing in the distal arteries, as measured by the Doppler, and the leg almost immediately pinked up.

He placed the embolus on a green towel that covered a side table, and there was a general "ah ha" among the residents. I missed the significance of this crucial piece of evidence. There was an air of

satisfaction in the room as the chief resident carried the specimen off to the lab, leaving his juniors to close the wound.

The pathology report, ready that evening, showed the white embolus to be myxoma tissue. It could only have originated from a tumor of the heart because 75% of myxoma tumors occur in the left atrium, the small chamber sitting on the ventricle. I now understood the triumphant "ah ha." I spent time reading about the condition in the library, waiting for the cafeteria to close to the public so that I could freely gorge myself on the day's leftovers.

A few days later, the heart-lung pump team stood by, ready to help divert the blood from the heart after they cracked open the patient's chest. The uniqueness of the case drew a crowd of spectators, who stood three-deep to watch the operation. On walking in, I first met my benefactor, Dr. Gerald Austen. After a very gracious and welcoming introduction, he placed me on a stack of stools to observe the procedure over the heads of the crowd. Once the patient was on the heart-lung machine and the heartbeat had stopped, the tension in the room rose as his resident opened the right atrium and cleared it of blood. A beautiful, delicate, sea anemone-type tumor, a few millimeters in size, grew on the cusp of the mitral valve. There were no other tumors. With the élan of a perfect golf swing, the surgeon swiftly cut the tumor off the mitral valve cusp to a crescendo of cheers. It was my first time observing open-heart surgery. I felt faint, stumbled off the stools into Dr. Austen's arms, and blacked out.

Lying in bed that night, I reflected on events of the previous few days. The level of eagerness among the residents and my fellow medical students was astonishing. Their dedication to surgery and teaching was impressive, and their resolve for patient care was like nothing I had seen before. There was an atmosphere of enthusiasm and a willingness to extend the boundaries of surgical knowledge, free of the constraints of tradition or rank. Mass General was the Mecca of surgery in the Northeast and drew difficult cases. The complexity and spectrum of surgical diseases and the numerous feats of operative skill left me in awe.

I felt that America was equivalent to a tempestuous teenager, full of energy and vigor, while Britain was the sedated grandparent straightjacketed by customs. Despite my admiration and respect for tradition, I was fast becoming addicted to the vitality, the "can-do" attitude, that surrounded me in Boston.