

Dissecting Gross Anatomy

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ON THE COVER

Mike Javernick,
Georgetown
University School
of Medicine,
Amnion, pastels and
charcoal on paper,
91.4 × 106.6 cm.

IN THE 1951 FILM *PEOPLE WILL TALK*, DR NOAH PRAETORIUS, A PHYSICIAN played by Cary Grant, is followed everywhere by a large, silent man. The man is with him as he addresses an anatomy class, as he conducts the student orchestra, as he stands over a patient in the operating room. The man speaks only at rare moments, each crucial, coming to Noah's aid as the voice of wisdom, of conscience, or of the past. When Noah is finally challenged by a university tribunal to defend his relationship with the odd man he calls "my friend," the story comes out: the man is a convicted murderer, executed by hanging and sent 20 years earlier to Noah, a medical student who needed "a cadaver of my own." The "cadaver" awakened as soon as Noah stuck a gloved finger in his mouth, and has never since left his side.

Early experiences in the anatomy laboratory underpin later practice in ways that are not easy to articulate. The knowledge gained there guides diagnosis, allows us to link phenomena that seem on the body's surface to be unrelated, and gives us fluency in a discourse that lets us to describe what is happening to our patients. Visualizing the structures hidden beneath the skin allows us to identify conditions otherwise beyond our grasp. Although the overwhelming bulk of the knowledge we use to care for patients is learned outside the lab, and the centrality of the experience wanes even by the end of first year, what we learn in anatomy lab is somehow, quietly, always there.

In this issue of MSJAMA, literature professor John Bender recounts his season as an outsider in the lab and describes how the process serves as a ritual entry into the medical profession. Beyond the technical knowledge it affords, anatomy lab links us to the past and begins our socialization to future practice. We dissect knowing that we are making the same cuts and seeking the same structures as physicians centuries earlier. But today, we pride ourselves on taking more from the experience, on engaging with the gift that is the donation. Samantha Stewart and Rita Charon describe anatomy study as an initial confrontation with life and death that will follow us throughout our careers, and discuss a way these early lessons might be retrieved. S. Ryan Gregory and Thomas Cole describe the history of dissection across centuries, while Aaron Tward and Hugh Patterson account for the shift from grave robbing to cadaver donation in the United States. Finally, to launch our new creative writing section *murmur*, Matthew Ehrlich evaluates his cadaver's chief complaint.

The first body in our care has neither the needs nor the agency of a patient, and yet for many of us, it is the body we will envision as we examine the intact surface of each patient who comes to us. Whether it is our initiation into "the professional tribe of physicians" (Bender), "the scientific method" (Gregory and Cole), or "the use of affective responses" (Stewart and Charon), anatomy lab is as much a part of how we see as what we know.

"The trouble with you, Elwell," Noah's ally says to his accuser at the end, "is you've never had a cadaver of your own."

From Theater to Laboratory

John Bender, PhD, Stanford University, Stanford, Calif

AS A PROFESSOR OF COMPARATIVE LITERATURE AND A SPECIALIST in 18th-century literature and art, I was a freak when in the fall of 1995 I joined 3 first-year medical students—and a 50-year-old woman dead of heart disease—on a team in the Stanford Medical School's introductory anatomy course.

My purpose was not to lay the foundation for a career in medicine but to gain a richer understanding of early anatomical works and the old culture of dissection that I had been studying as part of a project on science, the novel, and the visual arts.

My research has explored the crossover between ways of visualizing the body in anatomical atlases and in pornography. Expensive books of both kinds were often shelved together in private libraries in the 18th century, the period when, according to today's experts, modern pornography was invented.¹ The kind of strict, linear perspective associated with painting from the Renaissance onward fused in this period with new analytic ways of making mechanical and scientific diagrams. This fusion produced both a modern level of precision in works of anatomy and new erotic effects arising from close-up looks at the body that seem to come from secret, hidden vantage points. In fact, for me, the most chilling experience in the dissection room was not cutting open the penis and testicles of the male cadaver at the next table, although friends asked about this and fellow males in the class worried about it. Rather—and perhaps not surprisingly for a historian of art and vision—my crisis came when one of my partners dove into the globe of an eye, extracting the iris, lens, and retina.

From the rise of modern anatomical studies in universities and academies in Italy of the 16th century to the era of increasingly rigorous professional education and certification during the 19th century, the spectacle of dissection was quite available to members of the public. They might be patrons, artists, or even ticket-buying curiosity seekers who had paid a high price, but they certainly were not aspiring physicians.^{2,3} The title page of Andreas Vesalius' 1543 *De Humani Corporis Fabrica* shows a veritable mob straining to see the open female corpse in the foreground. Apart from its formal architecture, the scene is more like a booth at a fair than a contemporary laboratory where medical students learn anatomy. Much later, William Hunter, who published the first complete atlas of the pregnant uterus in 1774, gave demonstrations at the Royal Academy in London for painters, sculptors, and paying members of the public. This contrasts with today's experience, in which physicians walk through society with the aura of privileged initiates to a mysterious and frightening priesthood.

Compulsory study in gross anatomy works to initiate the newly arrived into the professional tribe of physicians. Medical students experience this aura in part through the placement of the gross anatomy course as a threshold experience at the beginning of their curriculum. The daily encounter with the cadaver throws a veil of mystery around them for family members and friends. Like them, I quickly noticed that it only took a few minutes before friends asked whether we were cutting up corpses.

The anatomy theater lies at the mysterious heart of medicine in the public fantasy and the professional imagination. To open a human body is to enter the realm where life and death cohabit, and the didactic dissection of corpses traffics in death and disrepute. (The corpses for anatomical demonstrations used to be stolen from graveyards or cut down from gallows.) In the past, however, transgression of the taboo did not coincide with professional initiation as it does now. In contemporary medicine, anatomy works as a threshold experience for medical professionals because they alone violate the taboo as part of their training. The content of the knowledge depends on the violation of the taboo (access to the interior of the body and to death); its professional efficacy, on the transformation of the anatomy theatre into a delimited professional space.

What did I learn in my anatomy course? I saw that the Latin terms used to identify structures remain identical to those of the 18th century, a time when atlases on the pregnant uterus and the larger structures of the brain essentially completed the subject. But I also saw that the sense 18th-century anatomists had of educating not only physicians but sculptors, painters, and a literate scientific public has disappeared as the first-hand experience of anatomical dissection has become a guarded professional ritual, a marker of special knowledge. Modern professional medicine has deprived the larger public of first-hand visual experience of the body's interior and its immense variability from person to person. In this sense medicine has become less tangible to patients. I count it a piece of great good fortune that my months of anatomical study allowed me to recover in a small way something of the 18th-century encounter with death and life.

REFERENCES

1. Hunt L, ed. *The Invention of Pornography: Obscenity and the Origins of Modernity, 1500-1800*. New York, NY: Zone Books; 1993.
2. Carlino A. *Books of the Body: Anatomical Ritual and Renaissance Learning*. Tedeschi J and Tedeschi AC, trans. Chicago, Ill: University of Chicago Press; 1999.
3. Richardson R. *Death, Dissection, and the Destitute*. Chicago, Ill: University of Chicago Press; 2000.

The Changing Role of Dissection in Medical Education

S. Ryan Gregory, MA, and Thomas R. Cole, PhD, *University of Texas Medical Branch at Galveston*

NO OTHER CURRICULAR COMPONENT HAS FIGURED AS PROMINENTLY as anatomy in modern medical education. While the most basic purpose for dissection (to learn structure and function) has not changed since its introduction into the curriculum centuries ago, the attitudes of medical educators toward dissection have evolved according to the particular societal and professional demands of their time.

During the Middle Ages, theologians and philosophers considered the material world (including the frail human frame) to be fleeting and unimportant compared to eternity, and the body was therefore not a focus of rigorous study. Anatomical dissection, in particular, was culturally construed as desecration and thus prohibited. In the 15th century, however, a small cadre of French and Italian university professors—inspired by the humanist rediscovery of the ancients—began to use cadavers to illustrate lectures from ancient Greek and Latin texts.^{1,2} In science and medicine, as in sculpture and painting, the Renaissance inaugurated a period of renewed interest in the human body and human potential in this world. Prior to the mid 16th century, however, anatomical dissection was not physically performed by professors or students of medicine. The professor lectured from a chair elevated above the cadaver while lowly barber-surgeons demonstrated various structures at the professor's command. Students were completely passive—they engaged the dissected body only through their eyes and their ears, never with their hands.³

Occasionally, exceptional students might inhabit the role of the barber-surgeon in demonstrating structures for the lecturer. One such student, Andreas Vesalius (1514-1564), became so enthusiastic about dissecting that he continued to dissect as a professor and insisted that his students do likewise. Vesalius' most important book, *De Humani Corporis Fabrica (On the Structure of the Human Body)*, drew on the most recent techniques in illustration and helped solidify his pedagogical innovation. Anatomy, through Vesalius and his successors, became the fulcrum of a major shift in medical education away from the study of ancient Greek and Latin texts and toward direct observation. For these Renaissance medical educators, the dissected cadaver became the definitive text and the students' own observations became a source of authoritative knowledge about the human condition.⁴

Although anatomy was not a static field for the following 350 years, the next major shift in thought about medical education occurred around the end of the 19th century, this time with its epicenter in the United States. In the early 1870s, leading US medical schools initiated reforms that brought medical faculty under the direct control of the university and formalized teaching relationships with major hospitals. These reforms, epitomized by the legendary Flexner

Report in 1910, also included dramatic curricular reforms. Students were expected to enter medical school with a substantial background in the sciences and to apply the scientific method to their medical studies and clinical exercises. A major conceptual component of this application was the development of problem-solving skills, and innovative professors advocated for curricula that would teach students not only the retention of anatomical facts but also the ability to reason from structure to disease.⁵

While the early 20th-century shift in medical education was not as essentially centered on anatomy as the Renaissance reforms, dissection still played a central role. It was seen as a place to begin schooling students in the "scientific" method of reasoning, from evidence to theory and back again. Educators feared that a student who could not reason would become a "shoemaker physician who drives into ruts and cannot get out of them."⁶ This concern was a by-product of the dogmatism that plagued medical thought for much of the 19th century, as well as the desire of medical educators to distance themselves from the two dominant dogmas of "empiricism" and "rationalism." Empiricists had insisted that theory had no relevance in medical practice—whatever treatment appeared to cure a particular patient had to be embraced, even if the mechanisms underlying the cure were completely unknown. At the opposite extreme of practice, rationalists maintained that the only effective treatments were those derived directly from systematic theories of diseases. The new breed of "scientific" medical educator sought to combine both direct observation and theory while avoiding the "ruts" of dogmatic thought.⁷

One example of this new breed of educator was Franklin Mall, an anatomist at Johns Hopkins University, the flagship institution for progressive reform in medical education at the time. Professor Mall did not lecture to his students on how to dissect nor did he encourage the use of dissectors; instead he encouraged students to devise their own methods while he circulated around the room, answering questions as they arose. Although the teachers and students at Hopkins did not represent the situation at most medical schools of the time, this pairing of active learning and scientific reasoning with anatomical dissection was the ideal championed by educational reformers like Flexner.

Another result of these reforms and standardization movements was the desire to scrutinize the product of hospitals and health care for accuracy.⁸ Clinical pathology filled this need by allowing physicians to work backwards from the cadaver to determine whether diagnoses and treatments during life had accurately matched the patient's illness as confirmed through postmortem examination. Given that autopsy (derived from the Greek "autopsia," seeing for oneself) became the yardstick by which all diagnostic and therapeutic

efforts could be measured, it made more sense than ever to emphasize dissection as a critical part of a physician's education.

As medical technology flourished over the following decades, however, the autopsy lost its centrality as the definitive measure of clinical accuracy. By the last quarter of the 20th century, sophisticated imaging techniques and molecular biological assays became more common than post-mortem examinations⁹ and drew concepts of disease into increasingly abstract models. In contrast to Renaissance thinking, the body was no longer the text but rather the object of machines and procedures that produced authoritative knowledge about the body. Disturbed by the tendency of technology to reduce patients to their diseases, educators sought to place "humanistic" values at the fore of medical education in the late 20th century.¹⁰ While objectification of patients certainly occurred without the aid of technology, the radical advances in medicine that occurred after World War II raised unprecedented questions about the appropriate limits of scientific medicine—indeed, the bioethics and medical humanities movements were born largely out of such concerns.^{11,12} In response to such societal concerns that modern medical care could dehumanize patients, medical educators sought creative ways to emphasize humanistic values in the curriculum. The use of cadavers for teaching humanistic values is one example of this response and represents a "new" role for dissection in medical education. Thus, changes in the instructional approach to the anatomy lab have included trends toward emphasizing death and dying during the dissection experience and towards consideration of the patient-physician relationship.^{13,14} While the process of dissection still provides students the opportunity to utilize the human body as an authoritative text for mastering structural knowledge and to develop active learning skills, these new curricular changes attempt to emphasize and nurture humanistic attitudes and behaviors toward human bodies, dead or alive.

It would, however, be inaccurate to infer that anatomical dissection in medical schools has been reduced to a scientifically unimportant component of modern curricula that is retained only for its ability to occasion reflection on humanistic values. On the contrary, the remapping of many curricula into organ-based systems has facilitated the return of students to the anatomy lab at multiple points dur-

ing the educational experience to study and explore different areas of the body. Furthermore, the development of sophisticated computerized learning aides has allowed for greater integration of clinical material such as radiographs, computed tomography, and magnetic resonance imaging. Although these changes have effectively reduced the amount of time spent on dissection, many students and educators still believe that the physical procedure of dissection develops a spatial and tactile appreciation for the fabric of the human body that cannot be achieved by prosections or computerized learning aides alone.

The attitude toward dissection in medical education has shifted according to the prevailing social norms and professional demands of each time period considered here, but these changes are not necessarily signs of declining relevance.¹⁵ Today, anatomical dissection in American medical education combines the ideals of the profession in the new millennium: acquisition of scientific knowledge and skill balanced by the development of humanistic attitudes and behaviors.

REFERENCES

1. Persaud TVN. *The Early History of Human Anatomy: From Antiquity to the Beginning of the Modern Era*. Springfield, Ill: Thomas Books; 1984.
2. Singer C. *A Short History of Anatomy From the Greeks to Harvey*. New York, NY: Dover; 1957.
3. Lind LR. *Pre-Vesalian Anatomy*. Philadelphia, Pa: American Philosophical Society; 1975.
4. O'Malley CD. *Andreas Vesalius of Brussels*. Los Angeles: University of California Press; 1964.
5. Ludmerer KL. *Learning to Heal*. Baltimore, Md: Johns Hopkins University Press; 1985.
6. Mall F. The value of research in medical school. *Michigan Alumnus*. 1904;395-396.
7. Shryock RH. *The Development of Modern Medicine: An Interpretation of the Social and Scientific Factors Involved*. Madison: University of Wisconsin Press; 1974: 35-40.
8. Morman ET. *Efficiency, Scientific Management, and Hospital Standardization*. New York, NY: Garland Publishing Inc; 1989.
9. Hill RB, Anderson RE. *The Autopsy—Medical Practice and Public Policy*. Boston, Mass: Butterworths Publishers; 1988:191-214.
10. Pellegrino ED. *Humanism and the Physician*. Knoxville: University of Tennessee Press; 1979.
11. Rothman DJ. *Strangers at the Bedside*. New York, NY: Basic Books; 1991.
12. Jonsen AR. *The Birth of Bioethics*. New York, NY: Oxford University Press; 1998.
13. Marks SC, Bertman SL. Experiences with learning about death and dying in the undergraduate anatomy curriculum. *J Med Ed*. 1980;55:48-52.
14. Nnodim JO. Preclinical student reactions to dissection, death and dying. *Clin Anat*. 1996;9:175-182.
15. Dyer GS, Thorndike ME. Quidne mortui vivos docent? The evolving purpose of human dissection in medical education. *Acad Med*. 2000;75:969-979.

Art, Anatomy, Learning, and Living

Samantha Stewart and Rita Charon, MD, PhD, *College of Physicians and Surgeons of Columbia University, New York, NY*

ARTIST BARBARA KERSTETTER FIRST CAME INTO CONTACT WITH medical students when she decided that spending time in an anatomy lab was an irreplaceable part of her education as a figural artist. To bring the learning experience full circle, she decided to teach an art class to medical students. This simple idea has become a six-week drawing course taught both with live models and in the sculpture section at the Metropolitan Museum of Art as part of our medical school's second-year requirement in the humanities. While the humanities are often used in the medical curriculum to inspire reflection and interpretation, a course in making art is rare.¹ Both students and instructors have found that the activity of drawing is specifically relevant to the first year student's experience in the anatomy lab.

To accurately convey the human form, one has to know it through and through. Beneath the surface lie bone, muscle, guts, and—as any first-year medical student can tell you—lobular yellow fat, webby fascia, stringy flesh that gives, cords of the nervous system that do not, intestines that look as if they live at the bottom of the sea, and a brain that could not survive anywhere but in the skull. In a drawing class, the medical students relinquish the tactile access of the anatomy lab, and as in a Renaissance anatomy theater, place their collective visual attention on a single body in the center of the room. They begin to use their knowledge of anatomical depth as they will in the clinical setting, faced with the intact surface and presence of a live human being.

To draw the body—after having dismembered it—trains the medical student in disciplined acts of seeing and creating “expressive form” that, in the words of Suzanne Langer, “expresses . . . human feeling . . . meaning *everything that can be felt*, from physical sensation . . . to the most complex emotions . . . of a conscious human life.”² Kerstetter adds, “There is more to it than form and function; when drawing one must also capture the emotion of the model. How the model feels changes the entire pose and what poses the model will take.”

We are struck with the earnestness with which nonmedical people—Ms Kerstetter, the tourists who stop to watch medical students sketching in the museum, the models who are themselves art students and actors funding their own education—agree to the value of cultivating a physician's ability to see what is beautiful and human. The urgency derives from each person's desire to have a physician who will see what is beautiful and human in him or her, and the fear of having one who does not.

Anatomy lab can be the beginning of a physician's training in how to isolate and restrict affect, or it can be the beginning of a training in the use of affective responses. The experience is a powerful engagement with life and death, raising fundamental questions about what it means to be made of flesh. If the study of anatomy implicitly challenges the medical student's powers of coherence, imagination, and sensitivity, the creative study of the human form—drawing the living, supple, flabby, stooped, or taut bodies—can provide students with access to the full continuum from science to art and cultivate a capacity for empathy.³ While sitting quietly and drawing living bodies, medical students have the time and the distance from routine to hang onto a wave of responses that are in continuity with their experiences in the anatomy lab. They experience a quickening of their consciousness of body, of aesthetic, of culture, of compassion, of shame. It is this vast and murky sea of human experience that an artful physician navigates.

Anatomy lab need not be a hazing necessary for entrance into medical culture, nor a purely functional exercise for learning the streets of the human body. It is an introduction to a medicine that is both visual and intimate and hints to the nature of future practice. Few of us can articulate this lesson in those early months of first year. Indeed, the solemnity of the first day in anatomy lab is succeeded by the long commonplace afternoons and jocular late-night study sessions. And in the second year, sensory experiences and visceral responses are exchanged for dense texts and exacting lectures. Frank Netter's careful drawings and our emotional reactions to what is to be learned—its very texture—begin to recede. Unless cultivated, the early quickening is lost, and we risk sacrificing our experiences of anatomy lab to the lore of what we suffered to become physicians.

We do not propose that adding an art class to the medical student's curriculum is a salve for time spent in the anatomy lab, nor that the anatomy lab is a trauma from which we need to be healed. We believe, instead, that anatomy lab is the initiation to an art of medicine, but one that requires disciplined training in the creative acts of seeing begun in the gaze at that first body in our care.

REFERENCES

1. Berg G. *The Visual Arts and Medical Education*. Carbondale: Southern Illinois University Press; 1983.
2. Langer SK. *Problems of Art*. London, England: Routledge & Kegan Paul; 1957:15.
3. Bertman S, Marks S. The dissection experience as a laboratory for self-discovery about death and dying. *Clin Anat*. 1989;2:103-113.

From Grave Robbing to Gifting: Cadaver Supply in the United States

Aaron D. Tward, MA, and Hugh A. Patterson, PhD, University of California, San Francisco

ALTHOUGH THERE ARE REPORTS OF DEMONSTRATIONS OF HUMAN dissection in America as far back as 1638, pressing demand for cadavers most likely began in 1745 with the first formal course in anatomy taught at the University of Pennsylvania.¹ At that time, the only legally available cadavers were those of executed criminals, provided under laws such as the Massachusetts' *Body of Liberties*. The remainder of the demand was most likely met by the grave robbing activities of the anatomy instructors and their students.²

Interestingly, the few dissection laws that existed in the late 18th century were not aimed at meeting the educational needs of those in medical training. Rather, by preventing a formal burial, dissection was viewed as a form of supra-capital punishment. For example, to discourage dueling, a 1784 Massachusetts law dictated that a slain duelist would be either buried in a public place without a coffin with a stake driven through his body, or given to a surgeon for dissection. To this day the only federal law pertaining to cadaver supply was passed in 1790 and gave federal judges the right to add dissection to the sentence of death for murder.^{1,3}

The early 19th century saw a proliferation of medical schools and a concurrent explosion in demand for cadavers. Grave robbing was rampant despite laws in some states forbidding the activity, and at least a dozen riots occurred between 1765 and 1852,¹ the most famous of which was the New York Doctors' Riot of 1788. A doctor working in the anatomy lab at the Hospital Society waved the arm of a cadaver at a boy looking in the window. The boy ran home and told his father who, upon visiting the grave of the boy's recently deceased mother, found that it had been robbed. In the ensuing events, the laboratory was burned down and seven rioters killed, marking this as the bloodiest riot of its kind. In response, New York passed a 1789 law forbidding grave robbing and allowing the bodies of criminals to be used for dissection.⁴

Perhaps no incident, though, affected public opinion (and soon thereafter law) more than the infamous case of William Burke and William Hare of Edinburgh. Hare owned a lodging house where a lodger died in 1827, leaving a debt of £4. Hare and his friend Burke were paid £7,10 shillings for the body by a local laboratory, and were so impressed with the profit that they conspired to lure people to the lodging house, intoxicate them with alcohol, then suffocate them. Burke and Hare were caught and put on trial in 1829 after

murdering 16 people. Hare turned King's evidence in exchange for immunity, and Burke was hung, dissected, and put on public display for a throng of 30 000. This episode inspired the Warburton Anatomy Act of 1832, which provided unclaimed bodies to anatomists, ultimately ending grave robbing in Britain.^{1,5} In response to the Burke and Hare case, Massachusetts passed the similar though less strongly worded Anatomy Act of 1831.¹

Several states received the incentive they needed to enact such laws in 1878 when US Senator John Scott Harrison (son of president W. H. Harrison and father of president Benjamin Harrison) died and was buried three days later in Ohio. Having received word that the body of William Devin, a friend of the family, had been stolen from its grave and transported to the Medical College of Ohio, Senator Harrison's son and his nephew surveyed the college. Although they found no trace of Devin, as they were about to leave, they spotted the body of Senator Harrison being hoisted into the dissecting room! Soon thereafter anatomy laws were passed in Ohio and Indiana.¹

Other states followed suit and by the beginning of the 20th century, cadavers were supplied almost exclusively from unclaimed bodies. This remained true until 1968 when the adoption of the Uniform Anatomy Gift Act (UAGA) by all 50 states replaced the patchwork of legislation and ensured the right of a donor to bequeath his or her own body to medical science and education.⁶ Subsequently, the proportion of cadavers from unclaimed sources dwindled, and in the modern day the vast majority of cadavers are supplied by donor bequest.⁷ This spirit of volunteerism reflects the drastic shift in public perception, from dissection as desecration, to bequeathal as a gift that enables the next generation of physicians to provide competent care.

REFERENCES

1. Lassek AM. *Human Dissection: Its Drama and Struggle*. Springfield, Ill: Charles C Thomas; 1958.
2. Jones DG. *Speaking for the Dead: Cadavers in Biology and Medicine*. Brookfield, VT: Ashgate Publishing Co; 2000.
3. Shultz SM. *Body Snatching: The Robbing of Graves for the Education of Physicians in Early Nineteenth Century America*. Jefferson, NC: McFarland & Co; 1992.
4. Haggard HW. *Devils, Drugs, and Doctors*. New York, NY: Harper & Brothers; 1929.
5. Richardson R. *Death, Dissection, and the Destitute*. New York, NY: Routledge & Kegan Paul; 1987.
6. Dalley AF, Driscoll RE, Settles HE. The uniform anatomical gift act: what every clinical anatomist should know. *Clin Anat*. 1993;6:247-254.
7. Davidson M. Body trouble. *New Physician*. 1995;44:30-55.

Identification/Chief Complaint

Matthew Ehrlich, University of California, San Francisco

Patient is an 88-year-old male who presents having been
Immersed in formalin for over a year. Though some would call him
Well-preserved, it does not accurately reflect his state.
Patient is unresponsive to questioning. No significant history can be
Elicited. One might say, though we are told not to, that the patient is a poor historian.
We are told instead that we are the historian, and that if
A poor historian is present, he is often wearing scrubs or a stethoscope.

Review of the chart shows patient had an arrhythmia for six months, eventually fatal,
Preceded by atrial fibrillation of two-year duration. Three year history of severe
Aortic stenosis. CAD ten years. Chronic renal insufficiency. Hypertension, CHF,
Peripheral vascular disease, venous insufficiency, DVT, degenerative joint disease,
Raynaud's phenomenon, depression, and hypothyroidism. Scars include 7-inch vertical at
Right hip and 3 and a half inch diagonal at appendix.

Upon inquiry into his identity and past history, I receive mail from the curator.
(I was an art historian and to me a curator is concerned with physical
Care and presentation of an object, but may also be an historian.
Curate, meaning care for, shares a Latin root with cure. Body appears cured.)
The curator shares an uncommon name with my sister and e-mails me to say

Hello Matt,

I'm sending some personal information on your cadaver. It is very unusual
That we would have this much information on a donor, but there was a
Brief biographical sketch in his donor file, so perhaps he "knew" that
You would be asking. . . . Nathan, your donor, was born in Illinois in May of 1911.
His father was also born in Illinois; his mother was born in Texas. Nathan had been
Widowed for many years, but had four children—three sons and a daughter—
and five grandchildren.

As a young man, he lived and received part of his education in Europe.
He later attended a prep school in Vermont. He was successful in business,
And had his own manufacturing business in Illinois. He was very proud of his family,
And his children's accomplishments. Nathan spent most of his adult life in Illinois.
One of his children lives in Maryland; two in New York,
and one son in San Francisco. Perhaps it was because of the son in
San Francisco that Nathan came to California.
I hope this information is helpful to you, Matt.
Regards, Dori

Upon physical exam, patient is extremely thin, with an upper arm easily
Encircled by my small right hand. His hands and head are swaddled in
White muslin and plastic bags, like Magritte's drowned mother, a suicide
Found with her nightdress veiling her head on the banks of the river Sambre.
His father was a salesman, too. On removal of the plastic bag and muslin
Covering the head, eyes are sunken, teeth are absent, expression is sour,
Patient appears judgmental, perhaps dissatisfied with the care he has received.
Three days beard growth lines his cheeks. Integument is compromised at
Right jugular vein, 1 centimeter superior to the clavicle and in the right inguinal area.

Sutures of coarse string in each area close a deep laceration.
Penis is circumcised, limp, and shrunken.
Upon palpation, his abdomen is cold and dense,
As if waterlogged. Limbs appear heavy, as turgid as the belly.

How can we lift things with arms that are themselves such slaves of gravity?
He appears Jewish, for no other reason than he wears my great-grandfather's nose,
Maybe his expression too. Countertransference discussed and noted. He appears in my
Dream that night and sees me, is clearly aware of me cutting into the skin
Over his heart, though he remains motionless and unresponsive. Should I apologize?
Thank him? Ignore his attention? In the end I decide to pretend all is
Normal and ask him routine intake questions. Any previous surgery? Family
History of heart disease? Do you get around OK? Were you breast-fed?
As a baby, did you learn to crawl early, or did you refuse to turn over
When set on your back, as I find you today? Better this dream than the one
Where a child has drowned and I cannot remember CPR.
Better to ask unanswered questions of the dead than to clog your lungs with
Sea water in a wrong-headed attempt to breathe a stranger's breath for them.
When I left art history for medicine, I thought I had
Relinquished the job of polling the dead. I committed to
Forty years of salt on my lips.

As the exam progresses, patient appears markedly worse.
Pneumothorax of a stupefying extent. Rupture of the great vessels.
His foramen ovale breaks open again, returning his heart to a state it hasn't
Seen in ninety years. I crack a rib during examination of the heart. Maybe two.
I accidentally rupture the inferior vena cava. I tear the left vagus or the left phrenic
Or both. Bowels are intact, though stained a Crayola green near the gallbladder.
Each night they return to their original configuration, since I'm afraid he might
Feel violated by any rearrangement. Duplication of the right ureter noted.
Examination of the pelvis reveals the first irreversible disfigurement:
Each leg is separate from the torso, split from its twin,
As Sacks' 'Man Who Fell Out of Bed' put it, "*Like nothing on earth.*"

Extremities are emaciated but structurally normal. Palmaris longus is absent, but that's
A finding, not a diagnosis. I discover with some regret that I feel satisfaction at
Having sawed through his cheek, his mandible,
At the name and the use of rongeurs. Further examination reveals a hemisection of the
Cranium. I keep the left side: reason and language live there, at least in men.
I have a difficult time handing his emotions, his spatial abilities to the woman
One table down the line. Brain appears intact, with no visible masses, infarctions, or
Atrophy. Resemblance to marine life noted. No thoughts, emotions, or sensations
Apparent on surface examination of cortex. Salty taste on examiner's lips noted
Once more. Lacrimal gland easily visualized and
Palpated. Contains no tears.

Note: Please send *murmur* submissions (personal essays, fiction, or poetry on either medical or nonmedical topics) to Teri Reynolds at treynol@itsa.ucsf.edu.