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Reading American Art

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11 *The Gross Clinic*, or *Portrait of Professor Gross*

Elizabeth Johns

In early 1875 Thomas Eakins turned a canvas of rowing studies upside down and covered it with a composition sketch for a portrait of the widely admired Philadelphia surgeon Dr. Samuel D. Gross.[1] Eakins had finished with painting scenes of leisure, even leisure that was morally pursued, and—with the exception of a brief foray years later into boxing and wrestling themes, and one painting about swimming—he would not take up the idea again.[2] Instead, he would record sitters and activities whose power stemmed from what had more endurance as "heroic." And, as he had in the rowing pictures, he would find this excellence in people and work that he knew, or that, with introductions, he could come to know.

No painting could have announced his resolution more prominently than the large work depicting Dr. Gross (fig. 11.1). Not only was it imposing in scale—almost ominous in prospect as a blank canvas to be covered—but truly epic in theme. Even when he had barely blocked it in, Eakins expressed confidently that the painting would be "very far better than anything I have ever done."[3]

For Gross's portrait, Eakins joined an elaborate setting and carefully selected details to give full meaning to Gross's work as a surgeon. The details are rich indeed. At the focal point of the painting, Gross holds in his right hand a blood-covered scalpel; he has just turned away from his patient and surgical assistants in order to lecture to his students in the amphitheater. The young patient lies on his right side, his knees pulled up near Gross.[4] His head is at the far end of the table under the anesthesia-soaked gauze, his sock-clad feet at the near end; a long incision has been made in his left thigh from which Dr. Gross is about to

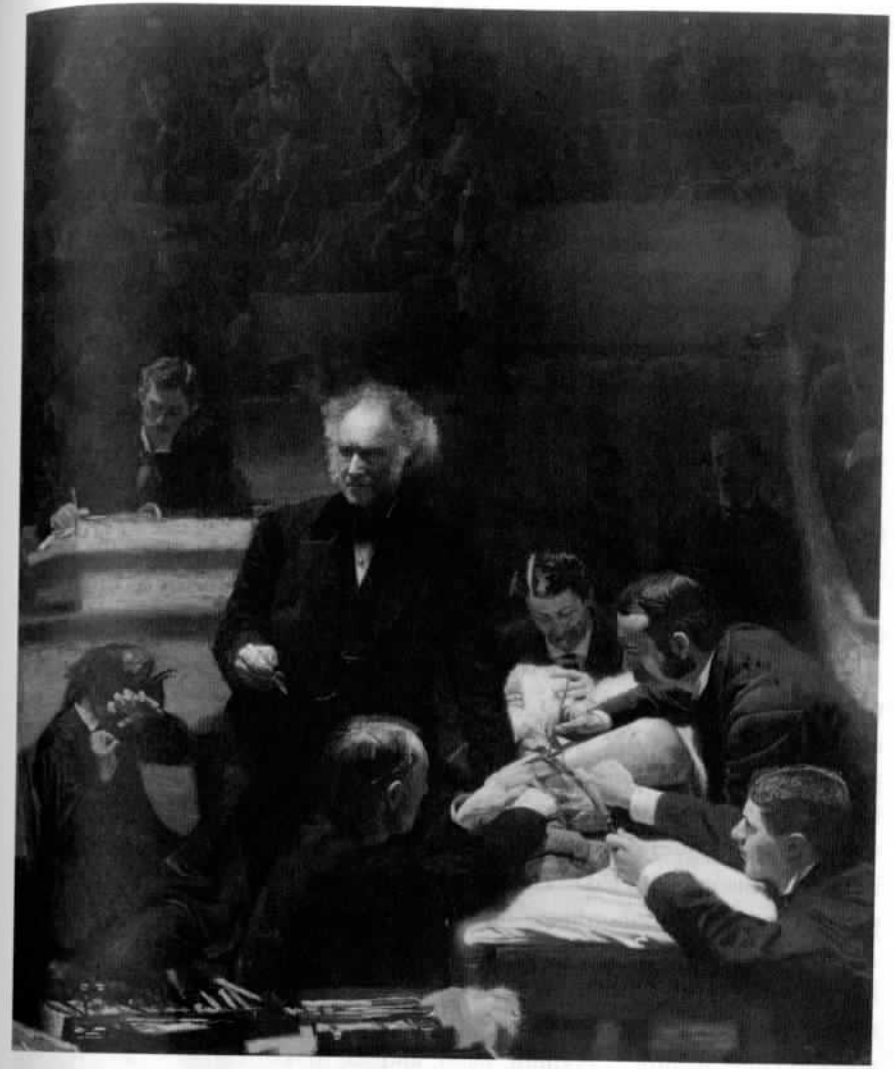

Figure 11.1 Thomas Eakins, *The Gross Clinic*, 1875. Oil on canvas, 96 × 78 inches. Jefferson Medical College of Thomas Jefferson University, Philadelphia.

remove a piece of dead bone.[5] An anesthesiologist and a team of four surgeons, one of whom is obscured behind the figure of Gross, assist in the surgery.[6] The anesthesiologist, Dr. Joseph W. Hearn, presides over the administration of chloroform;[7] on the middle right the intense figure of Dr. James M. Barton, Gross's chief of clinic, bends to his task of absorbing bleeding in the interior of the incision;[8] and at the lower right Dr. Daniel Appel holds a retractor in his right hand

to secure one side of the incision, while in his other hand he holds an instrument ready for Gross. At the lower left of the table is Dr. Charles S. Briggs, who grips the young man's legs to keep them in position during the surgery; and, obscured behind Dr. Gross at the upper left side of the table, another member of the assisting team holds a second retractor.

In front of Gross, at the lower left of the painting, is a tray of instruments and gauze. Behind him, at the middle left of the painting, the mother of the patient,[9] dressed in black, seems to shrink in her chair and raises her left arm to shield her eyes from the scene. Above her, at a brightly lit lectern in the first row of the amphitheater, Dr. Franklin West records the clinic proceedings. In the right middle distance of the painting, in the doorway to the amphitheater behind the operating table, stand two figures: in a relaxed posture, Hughey O'Donnell, the college orderly, and in a more intense pose, Gross's son, Dr. Samuel W. Gross, himself a surgeon. In the amphitheater audience, the twenty-one figures are all portraits, but only two have been identified: a young man who later became a poet and writer, Robert C. V. Meyers, leaning forward near the top railing, and Eakins himself, the first figure on the lower right, looking on the scene with pencil and pad in hand.

The scene is dramatic and intense. Gross does not occupy the precise center of the painting. Instead, he, his patient, and, by implication, the operation they are bound up in together form a large triangle, with the absolute center of the picture falling just off Gross's shoulder above his patient. At that plane the painting has the sharpest focus: from the blurred instruments in the foreground tray the focus clears until it reaches its most precise point in Gross's scalpel and the incision in the patient's leg.[10] The figures seated in the amphitheater fill out the picture but remain subordinate in the dim light. Indeed, lighting is Eakins's most dramatic tool. It sets apart from the dark clothing and dusky room the highlighted forehead and hand of Gross; the white of the bed sheets, anesthesia-soaked gauze, shirt cuffs of the assisting surgeons and thigh of the patient; and the clinic recorder's podium, hand, and notebook. This emotion-charged lighting emphasizes actual conditions in Jefferson's surgical clinics. There as everywhere else surgeons wore dark street clothes to operate until the general acceptance of asepsis in the late 1880s, and they performed surgery under skylights at mid-day on sunny days.[11]

Although tonal extremes dominate the painting, especially when it is viewed under unfavorable lighting and behind glass, or when it is studied in reproduction, Eakins suffused both lights and darks with a warm, unifying color. The warmth begins with the thin red underpainting with which he prepared the canvas. The red in the doorway and in the depth of the amphitheater brings the distances close, and in the foreground the heads and hands of the participants.

their flesh tones built on the underlying red, radiate immediacy and human presence. With direct touches of several local colors Eakins reported the details of the surgical setting. The instrument cases in the left foreground are lined with bright green and blue felt; a warm red layer underneath brings the areas into harmony with the rest of the picture. Pinks, blues, and purples describe blood-stained dressings at the very left of the table, and on the right of the table is gauze stained with the reds and pinks of fresh blood. Underneath the end of the operating table are the reds and purples describing the box of sand or sawdust traditionally placed there to catch the blood of the operation.[12] Even in local color, it is red that dominates, drawing the viewer across the painting and into the center: from the red of the pen of Franklin West on the left, across to Eakins's own pen on the right, to the dressings and surgical gauze in the foreground; then, in the center group, to the blood on the shirt cuffs of the assisting surgeons and on Gross's coat, in the incision of the patient, and, climactically, on Gross's hand and scalpel. In the blood-covered scalpel, Eakins brought together his most intense color and his sharpest focus.

In brushwork Eakins was no less varied, no less hard-working, than he had been in the rowing paintings. But he was considerably more self-confident. This sureness began with his studies for the painting. The composition study (fig. 11.2) is quick and deft, laid on with knife and brush to establish the composition as well as the tonal contrasts. He virtually sculpted his study for the head of Gross, painting it with a palette knife and juxtaposing the planes of opaque under-flesh tones to create not a surface but vigorous, even jarring, three-dimensional form. Certainly Dr. Gross did not have much time to pose, and, indeed, Eakins took

Figure 11.2 Thomas Eakins, *Composition Study for the Portrait of Professor Gross*, c. 1875. Oil on canvas, 26 × 22 inches. Philadelphia Museum of Art, given by Mrs. Thomas Eakins and Miss Mary Adeline Williams. Courtesy of the University of Pennsylvania.

photographs to complement his posed studies.[13] But in his study of Gross there is no deference to the certainty of a photographed image; there is instead a profound commitment to human bone and flesh, to that which moves and changes and can only be caught by boldness.

No perspective study for the entire painting exists. Although Eakins probably made one—on the canvas at least—his studies of heads suggest that with his work on this painting, he had passed a major point. From then on it would be the material reality of bone and flesh that would receive the hard work, the planning. Although his work was never to be without plan (to the end of his life, he made perspective studies and, to transfer sketch to canvas, used grids), Eakins was always to show more respect for the body than for abstract space. Indeed, in the portrait of Dr. Gross his preoccupation with the way bodies do things rather than with perfectly measured space led to a noticeable awkwardness in his central grouping around the patient: he had to show the thigh of the patient in order to demonstrate this type of operation; he had to put a surgeon behind Dr. Gross who would logically reciprocate the work of Dr. Appel in the right foreground; and he had to show the location of every hand involved in the surgery. Eakins eclipsed nothing—indeed, even exaggerated the knee of the surgeon behind Gross: the demands of a real situation took precedence over design, material over grace.

In this painting Eakins continued to explore ways in which he could use the brush. Across the canvas of the *Portrait of Professor Gross* are tight, precise strokes describing Gross's scalpel, opaque build-ups on the highlighted foreheads of the surgical team and of Dr. Gross, thin glazing over cheek hollows and eye cavities, dry-brushed wisps of Dr. Gross's hair, sketchy and thin strokes describing the surgeon's costumes, and short brushings scrubbed over the podium and the amphitheater wall. With the portrait of Gross Eakins had fully developed his repertory of expressive brushwork.

In his large cast of characters Eakins set forth a range of delicately nuanced expressions that was also new in his work: neither the delicacy nor the range had appeared—nor indeed had been called for—in his earlier paintings. As the hero of the painting, Gross emanates control, and his arrested pose conveys the thought that he insisted must dominate the physical activity of an operation. His white hair stands around his head like an aura; his eyes are in deep shadow (the pupils, in fact, lost). In his distant look Gross seems larger than life—his personality subordinate to his role. The other figures, in contrast, contribute very personal qualities. At the opposite pole of Gross's self-possession is the emotional surrender of the child's mother. The anesthesiologist almost smiles in his benign look at the face of his patient. Dr. Briggs, the surgeon on the lower left, holds the calves of the young patient with the gentle fatherliness that is consistent with

Eakins's rendering of his thinning hair and the aging contour and chin line of his face. The experienced Dr. Barton probes in the incision with scrupulous concentration; and the young surgeon on the right, just graduated from the Medical College, looks up at Dr. Gross with reverence.

The members of the audience—painted with only a few thin strokes—convey the many attitudes of students and witnesses.[14] Some lean forward, some place their elbows on the seat railings behind them, others prop or cross their legs, one grasps the handrail above the entranceway and leans his head against his hands; all focus on the arena with expressions ranging from solemnity to wistfulness. Eakins presents himself as short-haired and young, looking with direct intensity at Dr. Gross. He and the recorder are the only people using writing materials.

Eakins's presence in Gross's audience would seem simply to testify to his first-hand observation of the material for his painting. Actually, clinic audiences frequently contained members of the general public. Thus on one level Eakins's presence in Gross's clinic, like that of his friend Meyers and perhaps also some of the unidentified members of the audience, reflects this community interest. But it also points to two other phenomena, as did Eakins's presence in *The Champion Single Sculls:* first, he had been familiar with the surgical context for a long time, and second, he was such an expert that he was qualified to paint it.

He had come to a general familiarity with the medical world in high school. There his scientific courses in natural history, chemistry, and physics were taught by physicians who shaped their instruction in the natural sciences to reflect their primary—and medical—interest in the human body. Eakins studied human anatomy in detail in his natural history class, for instance, and in his course in "mental sciences" he learned about the physiology of vision and hearing. Students were encouraged to supplement their scientific instruction at the high school by attending anatomical and surgical clinics in the many medical facilities throughout the city; no one assumed that the students would go on to medical training, simply that an educated person should know human anatomy.[15] But the students did learn a special point of view, and they met specialists. Eakins, like his fellow students, absorbed a medical vocabulary of ideas and of words, and an introduction to the wider Philadelphia medical community. More conspicuously than did his friends, however, Eakins drew on it the rest of his life. The physician who taught Eakins chemistry and physics, B. Howard Rand, M.D., and who left Central High School in 1864 to join Dr. Gross on the Jefferson medical faculty, in fact posed for Eakins's first seated, formal portrait in 1874—thirteen years after Eakins had graduated from the high school.[16] It was the work with which he prepared himself to paint Dr. Gross, and he labored over it. Indeed, the painting (fig. 11.3) was a proving ground for textures, colors,

Figure 11.3 Thomas Eakins, *Portrait of Professor Rand*, 1874. Oil on canvas, 60 × 48 inches. Jefferson Medical College of Thomas Jefferson University, Philadelphia.

and brushwork that he polished almost without subordination to tell the story of Professor Rand: from the microscope on the extreme left to the bright pink shawl in the right foreground, from the brilliant figured rug on the floor to the dark cat under Dr. Rand's hand. A year later, Eakins was able to order and rank his details.

In 1862, once Eakins had made his decision to become an artist, he was not content with the generalist's knowledge of anatomy that he had absorbed in high school. He became a specialist, and he did so in a manner crucial to his painting of Dr. Gross: he studied anatomy with surgeons. For surgeons, precise anatomical knowledge was of such importance that they learned it through dissection and then reaffirmed it again and again by practicing dissection before each operation. For Eakins's first instruction in anatomy beyond his high school work, he enrolled in the anatomical lectures that accompanied his drawing class at the Pennsylvania Academy of the Fine Arts in 1862; those lectures, although taught by the physician A. R. Thomas, were couched for artists.[17] In 1864 he undertook more strenuous work, enrolling in the anatomy course of the surgeon Joseph Pancoast at Jefferson Medical College; not only was the instruction more rigorous because it was offered for medical students, but it called for dissection by

the students. Since the course was preliminary to the students' training as surgeons, they also attended surgical lectures and observed surgical clinics. At Jefferson they could see Dr. Gross lecture daily at eleven, and at noon on Wednesdays and Saturdays they could observe the two- to three-hour clinics over which he, and occasionally other surgeons, presided. Eakins, even after his study at Jefferson, did not feel he had finished: in Paris, from 1866 to 1869, he continued anatomical work, taking advantage of the opportunities to dissect and to watch surgical clinics at the Paris hospitals and at the Ecole de Médecine. Finally, after his return from Europe, he attended at least one more series of anatomical lectures and dissections—again at Jefferson Medical College, this time in 1874. There his apprenticeship ended. He had earned the credentials to paint the surgery in *The Portrait of Professor Gross* in 1875; to become the chief preparator/demonstrator in 1876 for the surgeon W. W. Keen, M.D., in Keen's lectures on anatomy at the Pennsylvania Academy of the Fine Arts; and to teach anatomy and dissection himself. He had joined an inner circle of professionals who knew precisely what was beneath the surface of the body and, more, who could tell from observation of a particular surface what anomalies they would find underneath as well.

Eakins was absolutely clear as to why he had studied anatomy: he was to tell an interviewer a few years later about his practice and teaching of dissection: "No one dissects to quicken his eye for, or his delight in, beauty. He dissects simply to increase his knowledge of how beautiful objects are put together to the end that he may be able to imitate them."[18]

Thus, Eakins was at home in a Jefferson clinic. Before 1875 he had not undertaken a picture so demanding as his portrait of Gross, and it was the upcoming Centennial exhibition that encouraged him to do so. Entries had been solicited from all over the world, for in one respect at least the exhibition was to be like world's fairs that had begun earlier in the century: it would recognize the international march of progress. But primarily the Centennial aimed to celebrate progress specifically American, and excellence exclusively American. Since the exhibition was to be in Philadelphia, cradle of so much of the nation's history, Philadelphia exhibitors had a unique chance to emphasize their city's contributions to American life.

Eakins seized that chance—almost the only artist to do so. For Philadelphia had very early been a major medical center. And in 1875, Dr. Gross, anatomist and surgeon of the top rank, was admired in Philadelphia medical circles, in the sphere of medical practice in America, and even in medical centers of Europe. Surgery had become in the nineteenth century a major professional opportunity for heroism.

A review of some of the history of surgery illuminates Eakins's choice of it as

a subject and, within that choice, the meaning of the particular operation in which Gross is engaged.

Traditionally, medical practice had been—and, of course, in its largest dimensions is still—divided into two provinces, one the responsibility of the physician, the other that of the surgeon. Although the distinction did not become codified until the Middle Ages, even in the classical era there was a line drawn between practice that was essentially internal, pursued by a physician who diagnosed and prescribed medicine for what he could not see, and practice that was primarily external, pursued by a surgeon who cut away cysts, pulled decayed teeth, and set bone fractures. With the establishment of university education in the Middle Ages, medicine—the discipline of the physician—became a liberal art, one which was practiced as an intellectual activity; surgery, on the other hand, was simply a skilled craft that called for manual work. Physicians came to be considered learned and aristocratic; surgeons, uneducated, of low social class. The more complicated surgical procedures, lithotomies and amputations, caused horrible pain, and the instruments associated with them—especially the scalpel—were disdained by the public. Such instruments were distinctively not the province of theory-oriented physicians.

During the Renaissance and thereafter, however, the new respect in all disciplines for the material world and for the process of investigation encouraged surgeons in their efforts to improve their surgical capabilities and to raise the intellectual and social status of their work. They became expert anatomists—dissecting with the scalpel, of course—and arrived at new understandings of the interior of the body. The famous picture by Rembrandt of Dr. Tulp (fig. 11.4)

Figure 11.4 Rembrandt van Rijn, *The Anatomy Lesson of Dr. Nicholas Tulp*, 1632. Oil on canvas, 18½ × 25 inches. Mauritshuis, The Hague. Photograph by Editorial Photocolor Archives.

delivering an anatomy lesson to a group of surgeons shows the new dignity that such guilds enjoyed. By the late eighteenth century, particularly in France, surgeons had come to be respected not only for their anatomical knowledge but for the manual dexterity that had enabled them to make impressive strides toward new operations—progress that was from some points of view more impressive than that made during the same period by physicians.

Then two developments secured the admiration in which surgeons were to bask after about 1800 and throughout most of the nineteenth century: scientific studies by a small group of brilliant surgeons working in Paris revolutionized both the practice and the teaching of surgery; and the French Revolutionary government proclaimed that both surgeons and physicians would be educated in the university—thus equalizing their status. Informed with new knowledge of how disease spread within the body, surgeons began to undertake operations they had never earlier even contemplated (although not until late in the century were they to operate on the lungs or the abdominal cavity). With a new "clinical" method of instruction they taught students by performing surgery in their presence and then monitoring, again with student audiences, the recovery or decline of the patient. They practiced and taught as "scientific" surgeons, who took no traditional outcome for granted but kept detailed records of the consequences of each procedure. They began to emphasize the effect of surgery on the entire body of the patient and taught their students that a surgeon was fundamentally a physician, concerned with the relationship of a local surgical problem to the general health.

By the 1820s the honor that French surgeons enjoyed was at a height, and students and trained surgeons came to Paris from all over Europe and America to study French surgery and the French method of teaching. There were detractors, of course—the caricatures of Daumier are the best evidence of that—for in the first part of the century even greatly improved surgical procedures, especially before the use of anesthesia, were often brutal. But surgeons mounted an impressive campaign for recognition. Editors of general periodicals featured biographies of surgeons; printmakers issued editions of portraits of surgeons; compilers of collections of engravings of eminent men began to include surgeons along with physicians in their selection of men eminent in medical life; the French government erected public monuments to famous surgeons. Surgeons began to write the history of their discipline and to stipulate the moral as well as the intellectual character that had identified surgeons throughout history. By the 1840s this character could be read like a litany, in interviews with famous surgeons, in necrologies, even in histories of surgery: surgeons were typically of humble birth, had taught themselves to read, and had worked indefatigably to enter the competition for surgical training; once educated they had

operated brilliantly, never lost their rural humility or, what was more important, their piety, and, their social potential fully developed by education and science, they moved easily at all social levels. French surgeons put themselves forward, in short, as the very embodiment of Enlightenment values and egalitarian opportunities taken seriously—as heroes of modern life.[19]

American surgeons were not yet in so fortunate a position. They had had to struggle simply for basic training, and in many areas of the country the distinction between physicians and surgeons was still a luxury. Philadelphia played a prominent role in the struggle of American medical men for training and recognition, and during Eakins's lifetime it actively cultivated (and indeed continues to do so) a sense of proprietorship about its early contributions to American medicine. Eakins's painting of Dr. Gross was as rooted in his pride in Philadelphia as was *The Champion Single Sculls.*

Before Philadelphia made its early contribution, medical care in the American colonies had been provided by men trained in the great medical centers of Great Britain and of Holland—notably London, Edinburgh, Dublin, and Leyden—and, as in any rural area, by people without special training who simply developed medical skills. Philadelphia, in its strong position in the mid-eighteenth century as a center of rising wealth, boasted a number of foreign-trained physicians who saw the desirability of providing medical training in the colonies, and they took several steps to develop Philadelphia as a medical center. As early as 1739 a physician returning from study in England delivered a course of anatomical lectures in the city. In 1751, Benjamin Franklin, the physician Thomas Bond, and a group of other dedicated citizens worked together to establish the Pennsylvania Hospital; and then in 1765 a group led by the physician John Morgan founded a medical school that was to become part of the University of Pennsylvania, modeling the educational program of the school, because of the training of the physicians that would teach there, on the system of the University of Edinburgh medical school. The establishment of medical education in Philadelphia led to a slowly growing cadre of professional men who early in their history encouraged each other to carry out research, first as members of the American Philosophical Society, which sponsored scientific studies, and then within their own professional society, the College of Physicians of Philadelphia, formed in 1787. In this atmosphere of support, members of the faculty of the medical college at the University of Pennsylvania made the pioneering publications in America in a variety of fields of medicine: psychiatry, anatomy, surgery, materia medica, and therapeutics.[20]

Philadelphians were also notable in the establishment of American medical periodicals. Early publications in medicine had appeared sporadically in New Haven and Boston, and a regular periodical had begun publication in New York in 1797. Philadelphia entered the field in 1804 and soon was contributing a number of journals. One of these, the *Journal of Foreign Medical Science,* played a central role in transmitting to Philadelphians and other readers the advancements in French surgical research. Another, founded in 1820, became as the *American Journal of the Medical Sciences* one of the most distinctive continuing medical journals in the country, and throughout the century kept Philadelphia at the center of American medical publication.

Although as late as 1876 the New York physician Austin Flint credited Philadelphia with maintaining the medical leadership of America it had established so early, by that time the city had long since been joined by Boston and New York, and then New Haven, Charleston, and cities to the west, in offering students and professional colleagues anatomical instruction, medical training, professional societies, and publications.[21] This spread of training and talent to several major medical centers encouraged scientific industry among American medical men, and they began to make original contributions to medicine and surgery. Two of the surgical contributions, conspicuous even in the large framework of Western surgical progress, were particularly important to American surgeons' self-confidence: first, the discovery of anesthesia in Boston in 1846, making possible intricate, time-consuming surgery that was unthinkable when the patient was conscious—and that turned European eyes to America for the first time—and second, several pioneering gynecological procedures. Other advances brought American medicine to international attention: the Civil War resulted in American improvements in the treatment of gunshot wounds, the setting up of hospital facilities, and the keeping of records, all of which were studied by European physicians. Finally, the founding after the Civil War of the National Medical Library set an example in bibliographic resources that was emulated in Europe.

Distinctive though the contributions were earlier in the century, American medical progress until considerably after the Civil War was a conscious struggle for autonomy from foreign training and literature. Even major surgical contributions were made in awareness of the domination by the long English and European traditions of American medical training, literature, and research. Americans felt that Englishmen especially, as previous colonial superiors, underestimated the potential of American scientific contributions—indeed, of all American contributions. In 1820 the acerbic Englishmen Sydney Smith wrote in the *Edinburgh Review:* "Who reads an American book? or goes to an American play? or looks at an American picture or statue? What does the world yet owe to American physicians or surgeons?" The Philadelphia-based *American Journal of the Medical Sciences* incorporated the last fling of the taunt—"What does the world yet owe to American physicians or surgeons?"—into its title page

masthead and kept it there throughout the century.[22] It was a powerful rallying point for American surgeons and physicians, who, with their colleagues across the Atlantic never far from their consciousness, worked vigorously to provide medical training on this continent, to stimulate their colleagues to research and writing, and to participate in American life as professionals meriting the highest social and intellectual respect.

Perhaps given extra encouragement by an American anti-British sentiment that increased after the war of 1812 and by the stubborn class consciousness that persisted in British surgery, Americans were prominent among the foreigners who flocked to Paris to attend surgical clinics, ward visits, and anatomical and surgical lectures—all available free to anyone with a passport.[23] They brought back the ideal of clinical teaching; they translated French texts for teaching and published French research in their American journals; they celebrated the democratic image of the French surgeon as profoundly appropriate for America. One American surgeon, writing a book in 1843 about his years of study in Paris, found a crowning lesson for aspiring Americans in the career of the great French surgeon Guillaume Dupuytren, who had risen from poverty to a rank in the aristocracy (and whom Gross was to cite as having been without question France's most eminent surgeon): "Had not *Monsieur* Dupuytren been compelled from poverty to trim his student's lamp with oil from the dissecting room, he never would have succeeded in becoming Monsieur le *Baron* Dupuytren."[24]

In emulating the French example, Philadelphia medical men were again distinctive leaders. In 1825, the surgeon George McClellan founded Jefferson Medical College. Establishing it in well-publicized rivalry with the medical college of the University of Pennsylvania (which had been modeled on the medical school at Edinburgh), he proposed that two tenets—French-inspired—would guide the curriculum: equal access to a medical education (he and others claimed that admission to medical training at Pennsylvania depended on "connections") and instruction carried out by the clinical method (at Pennsylvania, students were taught by the more private method of being assigned to follow the practice of one physician or surgeon). Taking the French ideal as Jefferson's guide, McClellan claimed that basic training for surgeons and physicians would be the same, that the practice of medicine was founded on fundamental principles common to both its branches.

Dr. Gross was in one of the earliest classes of students at the new college. When he entered in 1826, he had already pursued an introductory medical education despite discouraging difficulties. Born in 1805 near Easton, Pennsylvania, to highly moral, hard-working, and humble German-speaking parents, Gross had had what he later called "the strongest desire" to be a "doctor" since early

childhood. His father died when Gross was only nine, and his education was primarily at his own direction; after teaching himself mathematics, Greek, Latin, and English, he began medical study but went from one preceptor to another, disillusioned with their ignorance of classical and foreign languages and lack of scientific knowledge. Finally, on the recommendation of his last preceptor, he went to Philadelphia. There, in the fall of 1826, stimulated by the reputation of Professor McClellan for "brilliant achievements" in surgery, he enrolled at Jefferson Medical College. Two years later, after clinical course work in anatomy and surgery, complemented with long hours of dissection and courses in therapeutics, Gross received his medical degree.

He embarked on a career that fulfilled every dimension of the ideal surgeon. In his first two years of practice he translated four European texts and published the results of his own substantial original research on bone diseases. Over the next twenty-five years he taught at medical colleges in Cincinnati, Louisville, and New York, published a text on pathological anatomy, and conducted and published research on wounds of the intestines that was to prove invaluable in the treatment of Civil War wounded. In 1856, at age fifty-one already a man of national reputation, Gross was elected to the Professorship of Surgery at Jefferson Medical College and returned to Philadelphia. For the next twenty-six years, until he retired in 1882, he continued to work in many dimensions. He taught and operated brilliantly, dissecting almost daily; he edited and wrote for a major medical journal; he published voluminously, from short articles to major addresses to his two-volume *System of Surgery* that went through six editions; he maintained a large office for private practice. His writings and texts were known abroad; and he was honored with foreign degrees. In person Gross was both authoritative and compassionate, always conscious of his responsibilities as a human being; all his life he spoke of himself not as a surgeon but as a physician.

In choosing Dr. Gross as his sitter, Eakins selected a surgeon who was ideal not just in Philadelphia eyes but also by international standards: a man of humble origins, trained in the French clinical—the scientific—tradition, an untiring worker, and a brilliant researcher and writer. Dr. Gross was at the center of a community—a community of people, of values, of techniques, of history. Eakins's picture about that community rose through specific detail to make a general statement about Gross, Philadelphia and America, and modern surgery.

Eakins built his picture of Gross to illustrate the principles by which Gross and his community had worked: principles that Gross never took for granted but enumerated before his students in clinical sessions and formal addresses and put down for his reader in his *Autobiography*.

The first involved the fundamental role of clinical instruction in the training

at Jefferson Medical College. In his inaugural address as Professor of Surgery in 1856, Gross traced the heritage of the Jefferson clinics directly to those established in France. Not only was he proud that the Jefferson clinics, like those in Vienna, Padua, Berlin, and Edinburgh, had sprung from the very source of the clinical method, but he exulted that Jefferson in turn had become a model: that the many hospital clinics in existence in Philadelphia by 1856 had been formed on the example of Jefferson, so that "there is no city in the world, Paris and Vienna not excepted, where the young aspirant after the doctorate may prosecute his studies with more facility or advantage than in this."[25]

And clinical instruction as Jefferson offered it, according to Gross, provided for the best possible training of the future physician or surgeon. Advantageous as were the "hospital clinics" elsewhere in Philadelphia and throughout Paris in rounding out the student's familiarity with severe medical and surgical problems, it was also the case that hospital patients usually suffered from such grave problems that the student was unlikely to encounter them in general practice. Further, the acute condition of the hospital patient often prevented doctors from transporting him to the hospital amphitheater, where large numbers of students could study the symptoms or observe the surgery. If the attending physicians carried out the examination and surgery in the hospital wards, at the patient's bedside, only three or four students nearest the bed could actually learn from the procedure. Thus the "college clinic"—that offered at Jefferson—was best; first, because the patients were usually ambulatory, so that the student saw "every variety of chronic disease, both medical and surgical," and second, because the student could see the professor conduct a preliminary examination, diagnose, and prescribe. If the professor performed an operation, the student could see "the disposition and functions of the assistants, the arrangement of the instruments, the position of the patient, and the different steps of the procedure, from its commencement to its termination, including the dressings, and the replacement of the sufferer in his bed." Even though the college clinic specialized in common medical and surgical problems, Jefferson students saw their share of serious problems, too. Next door to the amphitheater, and connected to it with a passageway, were rooms in which care could be provided for as many as fifteen patients. If a relative could not stay around the clock to care for a patient, the professors and students of the college did.[26]

Another principle that underlay Gross's career—indeed had made it possible—and one that Gross reminded his students of frequently, was that Jefferson Medical College was the champion of the ordinary citizen. This was no idealistic claim. By the beginning of the Civil War, Jefferson had become the largest medical school in America, graduating more than one-fourth of the medical students in the country.[27] It attracted students from all states of the Union, from Mexico, and from Canada. In his first address in 1871 as president of the newly formed Jefferson Alumni Association, Gross celebrated with his fellow alumni the college's historically egalitarian character: "[Jefferson Medical College] has been emphatically the school of the people and of the profession at large, dependent upon no clique, combination of interests, or hereditary prestige for support and countenance. She has been, in every sense of the term, a self-made institution. . . . She rose from humble beginnings by rapid strides to gigantic proportions, outstripping, in the number of her pupils, every school of the kind in the country."[28]

Two of Gross's ideals were more personal. One was the importance to him of being a surgeon who taught. He noted that the most distinguished surgeons in recent history had almost inevitably held teaching positions, and that teaching usually made a researcher a better writer.[29] Even more important to him was the range of influence that the teacher of surgery had. He could inculcate into his students basic medical principles, and Gross matter-of-factly praised himself as a teacher who insisted that students know the principles underlying whatever particular instance they were dealing with. He taught his students to have a profound respect for knowledge, but only that which had been verified; and he set down his testimony in his *Autobiography:* "I never dealt in hypothesis, conjecture, or speculation." But the most important aspect of his influence as a teacher, Gross felt, was on the lives of the patients his students would treat. Writing of the poise with which he had addressed thousands of students in clinics over his career, Gross asked his reader: "Who would not, inspired by the occasion, be eloquent when he is addressing himself to a body of ingenuous students, in quest of knowledge designed to heal the sick, to open the eyes of the blind, to make the deaf hear, to enable the lame to walk, and to loose the tongue of the dumb? I never enter the lecture-room without a deep sense of the responsibility of my office—without a feeling that I have a solemn duty to perform—and that upon what I may utter during the hour may depend the happiness or misery of hundreds, if not thousands, of human beings."[30]

For Gross, neither the process nor the teaching of surgery was a performance. During the first part of the century, before the introduction of anesthesia, surgeons performed amputations and other operations with a haste that kept the acute suffering of the patient to a minimum; in clinical sessions many surgeons openly yielded to the temptation to make this haste as dramatic as possible—and with calculated gestures they won applause and cheers from the colleagues and students who were their witnesses.[31] Reminiscences and contemporary accounts of surgery in the Jefferson clinics in the 1860s and 1870s show that the taste for drama was not lost even then. Such clinics, in which surgeons took turns performing three or four spectacular operations, each surgeon

introducing the next as the "hero" of the upcoming demonstration, were held at the beginning of the college term when medical institutions were competing with each other for enrollment, or when famous surgeons from other cities or from abroad were visiting.[32] But Dr. Gross was not dramatic, and he would not permit such an atmosphere in his clinic. He wrote in his autobiography: "Nothing was more offensive to me than applause as I entered the amphitheater, and I never permitted it after the first lecture. I always said, 'Gentlemen, such a noise is more befitting the pit of a theatre or a circus than a temple dedicated, not to Aesculapius, but to Almighty God, for the study of disease and accident, and your preparation for the great duties of your profession. There is something awfully solemn in a profession which deals with life and death; and I desire at the very threshold of this course of lectures to impress upon your minds its sacred and responsible character.'"[33]

On this ideal he was as insistent to his colleagues as he had been to his students. In his *System of Surgery* he spelled out the proper atmosphere for a surgical undertaking: "The operation is proceeded with, slowly, deliberately, and in the most orderly, quiet, and dignified manner. All display as such, is studiously avoided; ever remembering, in the language of Desault, that the simplicity of an operation is the measure of its perfection. No talking or whispering should be permitted on the part of the assistants, and as to laughter, nothing could be in worse taste, or more deserving of rebuke. Every important operation should be looked on as a solemn undertaking, which may be followed in an instant by the death of a human being, whose life, on such an occasion, is often literally suspended by a thread, which the most trivial accident may serve to snap asunder."[34]

Gross's pride in Jefferson, his sense of the origin and the superior contribution of clinical instruction, his celebration of democratic opportunity in surgery—each of these found its way into Eakins's image. Trained in the teaching tradition with such an important heritage, born not to privilege but to discipline and hard work, Gross was not only shaped by Jefferson but in return gave its ideals their fullest confirmation. Thus Eakins showed him in the Jefferson surgical clinic, surrounded by students, who will rise to prominence in the very way Gross did, by hard work. Gross is assisted by an operating team several of whom were Jefferson graduates. The presence of the clinic recorder emphasizes the scientific modernity of the work: there is no authoritative anatomical text, as in the format of the anatomy lesson (typified by Rembrandt's *Anatomy Lesson of Dr. Tulp*, where the text is open at the feet of the cadaver), but a record to be passed on to the future. And Eakins sets forth Gross's more personal ideals, too: Gross considered his role as a teacher to subsume his work as surgeon; and Eakins shows Gross about to lecture on what he is doing, his act of explanation and interpretation being larger than his act of doing. Second, in the painting the

Figure 11.5 *An Operation under Ether at Massachusetts General Hospital*, c. 1850. Daguerreotype. National Library of Medicine, Bethesda, Md.

operating amphitheater over which Gross presides is indeed like a temple of healing hushed by a respectful, even reverent, quiet. From the point of view of the student, before whom Gross was so anxious to have everything laid out, the painting leaves nothing unclear: the disposition of the presiding surgeon, of the assistants, the arrangement of the patient, the location and display of the surgical instruments—precisely what each person is doing and with what. (fig. 11.5, a photograph of a surgical operating team in the 1850s, also sets forth meticulously the persons and equipment necessary for the procedure).

And Eakins makes very clear what the operation is. Like everything else in the painting, Eakins chose it to pay tribute to a particular quality of Dr. Gross.

One further principle was fundamental to Gross's practice, and that was his sense of the history of surgery. His clinical and formal lectures were dotted with references to past surgeons and techniques.[35] He wrote historical essays about surgeons, focusing early in his career on American surgeons who he thought deserved recognition; then turning his attention to the great sixteenth-century surgeon Ambroise Paré, who was honored then as now as the father of French—and in many ways of modern—surgery; and finally, during the months when Eakins was painting his portrait, writing two extended essays that have become landmarks in the history of American medical literature. One of these was a history of medical literature in America, the other a history of America surgery.

With a wide knowledge of the character of surgical procedures that extended even to those recorded by classical authorities, Gross was acutely sensitive to the rapid changes being made in surgery during his lifetime. In 1867 he exulted that recent progress in surgery had been "without a parallel in any age. . . . It would almost seem as if the millennium were actually close at hand. Look where we

may, progress, rapid and brilliant, nay, absolutely bewildering, literally stares us in the face, and challenges our respect and admiration."[36] Yet while Gross, like his colleagues, exulted in the new surgical procedures that scientific work in anesthesia, pathology, and medical instrumentation was permitting surgeons to perform, he also identified "conservative" surgery as one of the profession's most important recent developments.[37] Not a particular operation, but a philosophical approach to surgery, "conservative" surgery derived from the conviction that to amputate, so long as there was any other option, was to admit failure as a surgeon. The practice of conservative surgery applied primarily to diseases in the limbs; it often involved a long period of waiting for nature to take a positive course before the surgeon took drastic action. But the conservative attitude could illuminate the general practice of the surgeon; and in the mid-century years across Europe as well as America conservative surgeons occasionally accused their colleagues of being impatient, of being "too fond of the knife."[38]

In Eakins's portrait of him, Dr. Gross is performing conservative surgery. The operation underway, for the removal of a piece of dead bone from the thigh, is the last stage of Gross's treatment of his patient for osteomyelitis, or infection of the bone. A problem virtually eradicated by the introduction of sulfonamides and antibiotics in the 1930s, osteomyelitis was characterized by infection of the longer bones of the body, such as the femur, tibia, and humerus, to which few people but the young between the ages of five and twenty-two were susceptible.[39] Infection usually set in after a sudden chill, causing the patient to experience high fever and excruciating pain. Until the late eighteenth century surgeons routinely responded to osteomyelitis by amputating the limb just above the infection. However, through dissections and observation of ongoing cases, English surgeons discovered that the infected part of the bone, if left alone, would simply die and then slowly separate itself from the bone shaft (often penetrating the skin), leaving intact a shaft that would regenerate itself and resume its normal function. If the separation process proved too long, surgeons could intervene with resection and cut the diseased portion away from the healthy shaft. In either case, amputation would not be necessary. For his own competence in the procedure, Gross had drawn most notably on the work of the American surgeon Nathan Smith, who in the 1830s wrote a seminal paper on the subject that described his own long experience.[40]

Although his colleagues and many lay admirers esteemed Gross for the brilliance and tact of his lithotomies and complicated amputations, Gross himself felt his work on bone diseases to have been of superior importance. Whereas lithotomies and amputations were standard surgical procedures, in each instance of osteomyelitis the problem was slightly different, and solving it appealed to Gross's pride in being a physician. Gross had studied osteomyelitis for his first original publication, in fact, and in his *Elements of Surgery* of 1859, he set forth in detail careful procedures for treatment of the disease in its various manifestations.[41] In his clinics at Jefferson during the 1860s and 1870s, the treatment of diseased or dead bone occupied him more than did any other single surgical procedure.[42]

The problem demanded a great deal of patience: the surgeon did not dispatch his patient quickly as he would if he had removed a cyst or performed an amputation. For instance, the *Philadelphia Medical Times* reported on December 17, 1872 the successful conclusion of the necrosis of the humerus of a young patient whom Gross had been treating at the Jefferson clinic for a year and a half. During this time the boy had visited Gross's clinic "a number of times," and Gross waited for nature's own work on the disease to make it possible for his surgery to be most successful. From time to time, the report notes, Gross had removed small pieces of dead bone, "but did not find the necrosed portion sufficiently separated, or the involucrum [new, living bone] strong enough to maintain the shape and usefulness of the arm after an operation." On the clinic day reported, Gross determined that the healthy bone was at last sufficiently strong, and the reporter quotes Gross's lecture as he performed the surgery: "The patient being well influenced [by the anesthesia], we will enlarge this opening [made by nature on the surface of the skin, through which a piece of protruding dead bone would eventually pass] down to the bone and remove the necrosed portion. We will then carefully scrape out the cavity to remove all the carious particles of bone and unhealthy granulations that would interfere with the reparative process."[43] Such a procedure, such an explanation—except that the bone being treated is the femur, in the thigh—is taking place in Eakins's painting.

Although surgery for the removal of dead bone was tedious, it was not life-threatening. As early as 1830 Gross's authority Nathan Smith had written, on the basis of his years of experience with this type of surgery, "[even in the most advanced stages of osteomyelitis when the surgery demanded was some of] the most laborious and tedious, both to myself and the patient, which I have ever performed, yet I have never known any untoward circumstances to follow such operations, of which I have performed a great many."[44]

And surgery for the removal of dead bone did not create what Gross's faculty colleagues called a "show" clinic. Because Eakins was so attentive to the principles on which Gross conducted his work, his picture takes a remarkable place in the history of images about surgeons.

A standard early point of comparison, of course, is Rembrandt's *The Anatomy Lesson of Dr. Tulp.*[45] A group portrait with Dr. Tulp as the most important figure, the painting is certainly not too removed from Eakins's intentions in that

respect. Rembrandt was careful to show, as was Eakins two and a half centuries later, the precise nature of the procedure underway: the demonstration of certain muscles of the arm by a master surgeon to other surgeons. But what is being taught in Rembrandt's image, of course, is anatomy, not surgery. The standard anatomical text is open in the foreground to guide the instruction. And in 1632 there was no awareness that one could use that instruction for the performance of a particular operation. What the image celebrates is not healing but empirical investigation. And earlier, less imposing images had also set forth scenes of investigation: images of private dissections are found in manuscripts in the Romanesque period; and the well-known woodcut by van Calcar of Vesalius performing a public dissection in the amphitheater at Padua in 1543, which served as the frontispiece for Vesalius's famous work on anatomy, *On the Fabric of the Human Body*, was one of many such images in the Renaissance.

In the early nineteenth century, with the well-publicized advances in French surgery and the rise of the French surgeon to prominence, French artists began to explore ways in which surgeons might be depicted, both in history paintings and in portrait formats. An early subject was the surgeon Guillaume Dupuytren (whose career was admired by Americans), who won considerable renown for his operation for cataracts. In 1820 an anonymous artist pictured him in the hospital ward with one of his successes after cataract surgery; Charles X, who had made him a baron in recognition of his achievements, is shown on a visit to the ward to see the removal of the bandages of one of Dupuytren's patients. The patient, a woman, throws up her hands in delight that she can see; Dupuytren, the proud surgeon, stands modestly near her. Another image, part of a historicizing portrait, appeared in 1843 in the *Plutarque française;* this one honored the surgeon-pathologist M.-F. X. Bichat, whose research in the dissection laboratory on the character of disease (which cost him his life at age thirty-one) had made the single most significant early contribution to French surgical progress. The artist chose to show Bichat posed in a Napoleonic stance by a discussion table, the cadaver modestly covered, texts nearby to show that Bichat's research had led to a substantial increase in knowledge. These images of Dupuytren and of Bichat show the environment and the results of the surgeons' work; but they do not show that work in process.

With the revival of interest in Rembrandt in the 1840s, artists turned to the format of the anatomy lesson, both for historicizing paintings and for compliments to living surgeons. The Belgian painter Edouard Hamman chose the theme for his widely admired historical tributes to the anatomist Vesalius: one showing Vesalius delivering a famous public lecture in Padua in 1546, the other showing Vesalius about to undertake private anatomical study (engraved by Wisener, Bibliothèque Nationale, Paris). Anatomy lessons also honored contemporaries. Among the portrait medallions, allegorical scenes, and landscapes several Parisian artists did in 1859 for the all-purpose lounge of the interns at Hôpital de la Charité was an anatomy lesson with each participant a member of the professional or intern staff of the hospital. Articles in journals informed the public about hospital life and often included wood engravings of dissections or anatomical teaching. Even at the Salons, artists occasionally exhibited scenes of autopsies.

From the point of view of Eakins's achievement, the most pertinent image in the format of the anatomy lesson was a painting by F.-N.-A. Feyen-Perrin exhibited at the Salon in 1864 (fig. 11.6). With this painting the artist honored one of Paris's most famous surgeons, Armand Velpeau, the chief surgeon at Charity Hospital. As Eakins had done in Philadelphia at Jefferson (and in Paris, perhaps at Charity Hospital), Feyen-Perrin had attended dissections and clinics at the hospital. Thus Feyen-Perrin drew on his own experience to show Velpeau presiding at a dissection surrounded by a number of onlookers. A lithograph (in the collection of the National Library of Medicine) with identifications of the onlookers shows the company to have been a diverse one: other surgeons on the staff of Charity Hospital, medical students, poets, and artists—including Feyen-Perrin himself. Although Velpeau presides over the dissection with grandeur, dissecting is an activity that is not as central to his identity as a surgeon in 1846 as it had been to Dr. Tulp in 1632. Of course, anatomical knowledge of the most detailed kind was absolutely essential for the nineteenth-century surgeon, but what defined the modern surgeon's essential achievement, and especially that of Velpeau, was his pioneering and brilliant role in actual operations and his teaching in surgical clinics. Yet Feyen-Perrin chose to present Velpeau in the role of an anatomist, even with a text in evidence, and, what is more, to show him before an unblemished cadaver before the dissection has even begun. Even more noticeable is that nowhere in evidence in the painting is the anatomist's and the surgeon's tool, the scalpel. Classically balanced, discreetly lighted, the painting is a decorous one. But in defining the essence of modern surgery—its heroism—it serves as little more than a group portrait.

Against this background, Eakins's image of Gross is explicit.

He painted it to no order but his own. As Gross was no mere anatomist, Eakins did not choose an outdated convention to honor him. Gross's place was in the college clinic, performing surgery, where the scalpel and the blood were at the center of the procedure—the scalpel, the tool of investigation and of healing, and the blood, the flag of the living being on the operating table. Moreover, the surgery that defined Gross as a modern surgeon was not the heroic

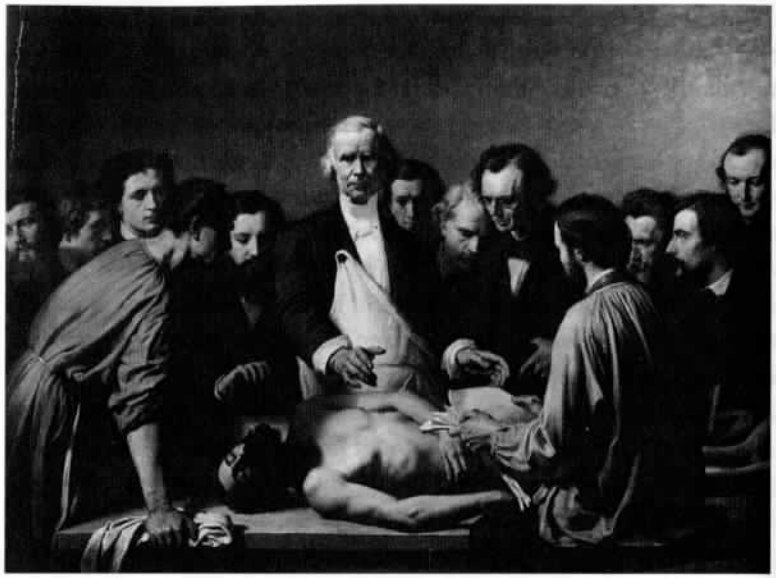

Figure 11.6 F.-N.-A. Feyen-Perrin, *The Anatomy Lesson of Dr. Velpeau,* 1864. Oil on canvas, 67 × 91¾ inches. Musée des Beaux-Arts, Tours. Photograph by Bulloz.

amputation or the bladder-stone removal that had been practiced by earlier surgeons for centuries, but a quiet surgical procedure that in its capacity to improve the life of a patient illustrated incisively the benefits of the evolution of surgery. Including the patient's mother to assure that his audience would not miss the youth of Gross's patient, Eakins makes a point that could be made only with this operation: the happy outcome of the surgery in Gross's clinic is a child with a whole leg instead of a stump. Dr. Gross and other conservative surgeons of the modern community have, in effect, applied to their own work the motto of Paré: "I dress the wound, God heals it."

Considering what he had painted earlier, and that he was only five years into his painting career, Eakins exercised an impressive authority in carrying out this project: at least six very busy surgeons besides Dr. Gross sat for him, as well as a number of students. Soon after he finished the painting Eakins painted a small black and white watercolor of it on which to have based an autotype and an edition of prints. Some of these he perhaps gave as mementos to the people who sat for him. Autotypes that survive today are those Eakins autographed and gave away years after the painting was completed: the work remained, in his own estimation as well as that of future generations, one of his finest achievements.

Even during his lifetime Eakins was not alone in his assessment of the work.

Although the Centennial jury, offended by the work's directness, refused to hang the painting in the regular art exhibition section—a decision for which we have no recorded reaction from Eakins—under the sponsorship of Gross himself the painting was exhibited in the medical section of the Centennial. There it took a proper place along with other medical exhibits—many of them related to the surgery in the painting—medical texts, and portraits of eminent medical men (fig. 11.7).[46] Nearly seven hundred physicians and surgeons from other cities and countries, in Philadelphia for an international congress, visited the medical exhibit and saw in Eakins's painting what a Nashville surgeon declared in his major address: "It was as late as 1820 that the taunt was uttered, 'What does the world yet owe to an American physician or surgeon?' [Yet, less than fifty years later] a French surgeon said to an American student, 'You ought to be proud of America, for she wields the sceptre of the whole world's surgery.'"[47] Eakins had caught ideals that were crucial to the entire medical community, and in 1878, after a new Jefferson hospital was opened, the Alumni Association of the college bought the painting and hung it in their museum.[48]

Sympathetic critics in the art community also recognized Eakins's achievement and gave it high praise. Eakins first exhibited the autotype of the painting, in fact, at an art exhibition at the Penn Club, founded just earlier to honor distinguished intellectual and professional leaders. The critic who reviewed the exhibition wrote of the image as one "of great learning and great dramatic power" and, later, on the exhibition of the painting itself at Eakins's dealer's, wrote further: "We know of nothing in the line of portraiture that has ever been

Figure 11.7 Ward of Model Post Hospital, Medical Department, Philadelphia Centennial Exposition, showing installation of *The Gross Clinic,* 1876. Photograph courtesy of the Library of Congress.

attempted in this city, or indeed in this country, that in any way approaches it. . . . This portrait of Dr. Gross is a great work—we know of nothing greater that has ever been executed in America."[49]

Yet in other situations, starting with Eakins's submission of the painting to the Centennial jury, the painting was not cordially received.[50] It made people uneasy, even angry. For the first time Eakins had two publics, "insiders" and "outsiders." These publics were divided not so much on whether they liked his painting as on whether they would acknowledge that a painter could insist that he had responsibilities that were beyond their ken. Eakins took his responsibilities as earnestly and self-consciously as Gross took his and was not swayed from that seriousness even though over the years his public of disgruntled outsiders grew.

And over the years surgery changed. In fact, in only a very few years progress obscured the earlier modernity of Gross.[51] Within a short time of his retirement, surgeons had accepted aseptic procedures and were operating in white gowns and with sterile instruments; they were entering the abdominal and lung cavities and making their first probes into the brain. Philadelphia surgeons and physicians had contributed notably to this progress, and Eakins painted many of them over the years in their various medical capacities as scholars, and lecturers, and, simply, as seated human beings. Not until fourteen years after his portrait of Gross did he paint his second, and only other, clinic portrait. In 1889 the medical class graduating from the University of Pennsylvania commissioned him to paint a portrait of Dr. D. Hayes Agnew, who was retiring that year. Agnew and Gross were almost contemporaries, Gross being only thirteen years older than Agnew and retiring only seven years ahead of him. Within the later years of these men's careers, surgery had changed at a breathtaking pace. Gross had retired before the most outwardly notable of these changes—the practice of asepsis—had won general acceptance, but Agnew had adapted to the new ways. Keenly sensitive to these changes, on receipt of the commission Eakins decided not to paint a conventional portrait of Agnew but to enlist the help of assisting surgeons and medical students to show the distinguished surgeon in the context of the newer surgical clinic.

In the *Agnew Clinic* (fig. 11.8) surgeons wear white; the sterilized instruments are in a covered case; a nurse is prominently in attendance; the pyramidal structure of the Gross clinic scene is transformed into a horizontal format that shows the teamwork more characteristic of recent surgery, which had to some extent replaced the individual heroism of Gross. The painting is much lighter in palette than that of Gross, revealing not only Eakins's generally higher key during these years but the physical circumstance that by 1889 surgery was performed under widely dispersed artificial illumination. And, painted in a rush, the work in many areas is thin. *The Agnew Clinic* is larger than the *Portrait of*

Figure 11.8 Thomas Eakins, *The Agnew Clinic*, 1889. Oil on canvas, 74½ × 130½ inches. University of Pennsylvania School of Medicine. Photograph, Philadelphia Museum of Art.

Professor Gross, but it derives its meaning, in Eakins's career, at least, primarily from its relationship to that earlier painting. It is a relationship grounded in change.

Soon progress that amazed Agnew had been surpassed, and eventually even the clinic faded into history. Surgeons abandoned it for teaching altogether as they began to appreciate the risk of infection from lecturing during surgery. Nostalgia for the clinic set in and, with the passage of time, the interest of the medical community in the portrait of Gross—and the interest of Eakins too—shifted from its focus on the surgical hero to its documentation of the near legendary clinic over which Gross had presided. By 1904, when Eakins exhibited the painting at the Universal Exposition in St. Louis, he was calling it the "Clinic of Professor Gross." After Eakins's death his friend wrote about the painting as "Dr. Gross' Clinic." It was but a short journey from there to the *Gross Clinic*, which the painting has been called ever since.

The confidence with which Gross presided in 1875—the self-conscious heroism of his career as a surgeon—had, in fact, its underside. Gross wrote to one of his favorite students after he had entered professional life himself: "God knows surgery is not a sinecure, but a most corroding, soul-disturbing profession."[52]

Sanford C. Yager, writing in the *Cincinnati Lancet and Observer*, explained why this was the case: "[The medical profession is] the most difficult, obscure, and complicated of all human learning. No other occupation in life involves such varied and minute knowledge, such careful observation of nature, such constant and absorbing study, such heavy responsibilities. The principles of other sciences are founded upon inanimate matter, are, therefore, well defined and not subject to change; and can be calculated on with certainty. Medicine, on the contrary, has to do with that which is in continual turmoil, and subject to a thousand

varying circumstances and affecting causes. Our science rests upon human life: than which nothing is more uncertain."[53]

This profound respect for the uncertainty of human life was increasingly to characterize Eakins's approach to portraiture. Like the surgeon who had to know what was inside the body in order to understand the meaning of what he saw outside, Eakins did not only know the visible dimensions of the body; as he matured he became increasingly sensitive to the invisible strains of spirit that moved it. Dr. Gross was inconceivable in his clinic without the blood that showed his full knowledge of and concern for the changing, living body; Eakins was to be inconceivable as a portraitist without the shadows, the slackening skin, the heavy shoulders that revealed his full awareness of the journeying human spirit.

Notes

This is an abridged version of an essay first published in *Thomas Eakins: The Heroism of Modern Life* (Princeton, N.J.: Princeton University Press, 1983).

1. A photograph of the X ray of this composition sketch, revealing the rowing studies, is on p. 173 of Theodor Siegl, *The Thomas Eakins Collection* (Philadelphia, 1978).

2. I except from the category "scene of leisure" Eakins's painting of 1879, *A May Morning in the Park*, now called *The Fairman Rogers Four-in-Hand* (Philadelphia Museum of Art). Coaching was not an egalitarian activity, but one pursued by the wealthy; Eakins painted the subject on the commission of coach owner Fairman Rogers, whose intellectual acumen and energy he very much admired, and he developed the painting primarily as a study of motion.

3. To Earl Shinn, April 13, 1875, Friends Historical Library of Swarthmore College.

4. Eakins's first reviewer, William J. Clark, criticized this part of the painting as a "decided puzzle" in his review of April 28, 1876, in the Philadelphia *Evening Telegraph*. "The only objection to the picture that can well be made on technical grounds," Clark conceded near the end of his enthusiastic review, "is in the management of the figure of the patient. The idea of the artist has obviously been to obtrude this figure as little as possible, and in carrying out this idea he has foreshortened it to such an extent, and has so covered it up with the arms and hands of the assisting surgeons, that it is extremely difficult to make it out."

5. The surgical operation was specified in the catalogue of the exhibition of the Centennial as "an operation for the removal of dead bone from the femur of a child"; see "Report on the Participation of the War Department in the International Exhibition," in *Report of the U.S. Board on Behalf of U.S. Executive Departments at the International Exhibition*, 2 vols. (Washington, D.C., 1884), 137.

6. Although Clark wrote in his review in 1876 that all the participants were portraits of actual persons, even the witnesses in the audience, identifications were first made in print by Charles Frankenberger, "The Collection of Portraits Belonging to the College," *Jeffersonian* 17 (November 1915): 1–10; Frankenberger did not identify any members

of the audience. Ellwood C. Parry (in the *Jefferson Medical College Alumni Bulletin* 16 [June 1967]: 2–12 and the *Art Quarterly* 32 [Winter 1969]: 373–90) discusses the now somewhat obscure figure behind Gross. The obscurity today is due at least partially to the darkening of the paint and the consequent merging of the dark clothing of this figure with that of Gross; when the painting was just completed, the figure provoked no critical comment. The tasks in this particular operation make the obscured assistant essential.

7. Gross discusses his preference of chloroform at his clinics at Jefferson Medical College in his *System of Surgery: Pathological, Diagnostic, Therapeutic, and Operative*, 2 vols., 6th ed. (Philadelphia, 1882), 1: 559; and his typical assignments of tasks to assisting surgeons at 1: 486. For biographical and professional material on Hearn and on the anesthetist in Eakins's later surgical clinic, *The Agnew Clinic*, see J. E. Eckenhoff, "The anesthetists in Thomas Eakins's 'Clinics,'" *Anesthesiology* 26 (1965): 663–66.

8. In *System of Surgery*, 1: 489, Gross discusses the tourniquet that he used in order to assure that such surgery would be relatively bloodless.

9. In 1876 Clark identified the woman less specifically as "a female relative." In January 1918, in a memorial tribute in the *Art World*, "Thomas Eakins," p. 291, William Sartain identified her as the mother.

10. Clark described Eakins's intentions thus: "The picture being intended for a portrait of Dr. Gross, and not primarily as a representation of a clinic, the artist has taken a point of view sufficiently near to throw out of focus the accessories, and to necessitate the concentration of all his force on the most prominent figure." *Evening Telegraph*, April 18, 1876.

11. Edward Louis Bauer, *Doctors Made in America* (Philadelphia, 1963), 104, indicates that the amphitheater, torn down in 1877, seated six hundred students. Jefferson Medical College announcements, preserved in the National Library of Medicine, Bethesda, show surgical lectures and clinics to have taken place between 11 and 3; Gross, *System of Surgery*, 1: 487, specifying the best time for surgery as between 11 and 3, discusses the need for bright sunlight.

12. John Chalmers Da Costa, *Selections from the Papers and Speeches* (Philadelphia, 1931), discusses the operating arena and arrangements in "The Old Jefferson Hospital," pp. 204–19, and "Last Surgical Clinic in Old Jefferson Hospital," 334–52.

13. Alexander Stirling Calder, in *Thoughts on Art and Life* (New York, 1947), 6, reports that when he entered a competition in 1894 to execute a standing sculptural portrait of Gross, he went by Eakins's house to get negatives of the "very fine photographs of Dr. Gross [that Eakins had made] for his own use."

14. According to Clark, the audience was composed of "students and other lookers-on."

15. For a discussion of the medical emphasis at Central High School, with detail about the backgrounds and interests of Eakins's teachers, see Joseph S. Hepburn, "Medical Annals of the Central High School of Philadelphia with a Historical Sketch of Medical Education in Philadelphia," *Barnwell Bulletin* 18, no. 72 (October 1940). See Franklin Spencer Edmonds, *History of Central High School* (Philadelphia, 1902), 164–65, for the reminiscences of Eakins's fellow student T. Guilford Smith, who later became an industrialist, of his visits during his student years to the Philadelphia School of Anatomy (a private dissection facility) and to the hospital surgical clinics. Joseph Boggs Beale noted in his diary (at the Historical Society of Pennsylvania) that he and his

brother watched Gross's clinics (Oct. 15, 1864; also Nov. 5, 1864), and John C. Da Costa remembered his early years of dropping in to Jefferson's clinics before he had any idea of studying surgery ("Last Surgical Clinic," 339).

16. An earlier portrait that may have been a formal image, however, has been lost: at the Union League Art Reception of 1871 (where Max Schmitt exhibited *The Champion Single Sculls*), a work by Eakins entitled simply "Portrait" was exhibited by M. H. Messhert. Professor Rand retired from the Jefferson faculty in 1873 (disabled, unfortunately, by an accident in his chemical laboratory—see Bauer, *Doctors Made in America*, 153–54); Eakins perhaps painted the portrait as a retirement tribute. Rand accepted the portrait and later gave it to Jefferson.

17. Beale records that the class had 80 to 100 students, and that for some of the lectures Thomas met the class at a medical amphitheater (Diary, Jan. 16, 1861).

18. William C. Brownell, "The Art Schools of Philadelphia," *Scribner's Monthly* 18, no. 5 (September 1879): 745.

19. For examples of this hagiography, an international phenomenon, see Félix Guyon, "Eloge d'Auguste Nélaton," *Bulletin et mémoires de la Société de Paris* 2 (1876): 76–95; Francis Dowling, "Some of the Former Medical Giants of France," *Lancet-Clinic* (Cincinnati) 104 (1910): 604–13; and R. J. Mann, "Of Guillaume Dupuytren, Who Feared Nothing but Mediocrity," *Mayo Clinic Proceedings* 42, no. 12 (December 1977): 819–922.

20. The work most well known in Europe was that of the Quaker Benjamin Rush (1745–1813) in psychiatry, published in 1813. Particularly notable from Dr. Gross's point of view was the work by Casper Wistar (1760–1818) in anatomy and Philip Syng Physick (1768–1805) in surgery.

21. Austin Flint, address to the International Congress of Physicians and Surgeons, published in the *Philadelphia Medical Times* 6 (Sept. 16, 1876): 603.

22. E. B. Krumbhaar, in "Early Days of the American Journal of the Medical Sciences," *Medical Life* 36 (1929) 240–56, discusses the effect of the Edinburgh challenge (*Edinburgh Review* 33 [January–May, 1820]: 79–80).

23. For the American excitement with the new ways and the opportunities in Paris, see August K. Gardner, *Old Wine in New Bottles: or Spare Hours of a Student in Paris* (New York, 1848). *Galignani's New Paris Guide for 1868* (Paris, 1868), 131–33, stressed the open nature of hospitals and clinics for visitors.

24. F. Campbell Stewart, *Hospitals and Surgeons of Paris* (Philadelphia, 1843), 214–15. Among the Philadelphians who studied in Paris were Dr. Gross's own teacher at Jefferson, Thomas Dent Mütter, and William W. Keen, with whom Eakins worked as his demonstrator of anatomy.

25. Gross, *An inaugural address introductory to the course on surgery in the Jefferson Medical College of Philadelphia, delivered Oct. 17, 1856* (Philadelphia, 1856), 25, 30. The clinic in the form in which Gross and his contemporaries practiced it had been established in 1841.

26. *Inaugural address*, 31, 29. Da Costa, " Old Jefferson Hospital," 214.

27. See John S. Billings, "Literature and Institutions," in *A Century of American Medicine, 1776–1876*, ed. Edward H. Clarke (Philadelphia, 1876), 359. By 1876 Jefferson had graduated 6,668 students, the University of Pennsylvania Medical School 8,845; the two schools led the country. Between 1850 and 1860 Jefferson graduated more students than the University of Pennsylvania, with a high point of 269 graduates in 1854. For comments by Gross, see *An address delivered before the Alumni Association of the Jefferson Medical College of Philadelphia, at its first anniversary, March 11, 1871* (Philadelphia, 1872), 9.

28. Gross, *Address*, 8.

29. Gross, *History of American Medical Literature from 1776 to the Present Time* (Philadelphia, 1876), 61.

30. Gross, *Autobiography*, 1: 160–61.

31. See H. E. Sigerist, "Surgery at the Time of the Introduction of Antisepsis," *Journal of the Missouri State Medical Association* 32 (May 1935): 169.

32. John Chalmers Da Costa discusses these clinics in "Old Jefferson Hospital," 204–91, and "Last Surgical Clinic," 334–52.

33. Gross, *Autobiography*, 1: 162.

34. Gross, *System of Surgery*, 1: 488.

35. These references may be found in the numerous reports of Gross's clinics published in the *North American Medico-Chirugical Review, 1856–1861*, and in the *Philadelphia Medical Times* in the 1870s. The manuscript clinic reports of John Roberts, "Reports of the Surgical Clinics of Professor S. D. Gross in the Jefferson Medical College, for the Term Commencing Oct. 6th, and Ending Dec. 30th, 1874," located at the College of Physicians of Philadelphia, are rich in historical references.

36. Gross, *Then and Now: A Discourse introductory to the Forty-third Course of Lectures in the Jefferson Medical College of Philadelphia* (Philadelphia, 1867), 4.

37. Ibid., 18–19.

38. American medical literature, particularly, was dotted with such accusations. See *North American Medico-Chirugical Review* 1, no. 2 (March 1857): 316 and 211; and, for an English point of view, Samson Gamgee, "Present State of Surgery in Paris," *Lancet* (London) 1867: articles beginning on pp. 273, 295, 392, 483.

39. Acute osteomyelitis (derived from the roots "osteo" for bone, "myelon" for marrow, and "itis" for infection) resulted in necrosis or death of the diseased area. A discussion that places the treatment of osteomyelitis in historical perspective is Richard H. Meade, *An Introduction to the History of General Surgery* (Philadelphia, 1968), 34. For discussions contemporary with Gross, see Gross, *System of Surgery*.

40. "Observations on the Pathology and Treatment of Necrosis," in Nathan R. Smith, ed., *Medical and Surgical Memoirs by Nathan R. Smith* (Baltimore, 1831), 97–127. Gross praised Smith in his *Autobiography*, 2: 208–9; and in *History of American Medical Literature*, 35–36.

41. Gross, *The Anatomy, Physiology, and Diseases of the Bones and Joints* (Philadelphia, 1830). He discussed it in detail in his *Elements of Pathological Anatomy* (Boston, 1839); and then in *System of Surgery* (1859 and subsequent editions).

42. This may be ascertained by following clinic reports in the *Philadelphia Medical Times* and in the Jefferson Medical College archives (the archives record begins in 1877, with the opening of the new hospital).

43. *Philadelphia Medical Times* 2 (Dec. 7, 1872): 151–52.

44. Smith, *Medical Surgical Memoirs*, 120–21. The postoperative record for amputations, on the other hand, was grim: in his *System of Surgery* (1882), 546, Gross reported the calculation by James R. Lane that the mortality rate for 6,000 cases was 36.92 percent.

45. In reproduction, the image of *The Anatomy Lesson of Dr. Tulp* was well known to Philadelphians. It was printed on the graduation certificate of the Philadelphia School of Anatomy (one such certificate is filed in the Medical History section of the Library of the College of Physicians of Philadelphia); and Eakins's friend Will Sartain wrote his father from Paris that he thought Philadelphians would subscribe to another copy of the painting by Bonnat, who had just made one for the National Museum of Copies in Paris (Sartain Collection, Historical Society of Pennsylvania, Aug. 31, 1872).

46. The Centennial catalogue of the medical exhibition reads: "This room also contains . . . a painting of Prof. Samuel D. Gross, loaned for the Exhibition by that gentleman, viz: No. 15. An oil painting by Eakins, of Philadelphia, representing Professor Gross performing an operation for the removal of dead bone from the femur of a child, in the amphitheater of the Jefferson Medical College, No. 16. A small photograph of the same" ("Report on the Participation of the War Department in the International Exhibition," 137). Other medical portraits included those of Physick; and texts those of Gross and Paré; see "Report on the Participation," 214, 227, 229, and passim. It is a historical irony that Feyen-Perrin's *Anatomy Lesson of Dr. Velpeau* was exhibited at the Centennial—in the French section—apparently to no objections.

47. Nashville surgeon Paul F. Eve's address is recorded in the *Philadelphia Medical Times* 6 (Sept. 16, 1876): 607. The remark "America wields the sceptre" attained a certain currency: in his *Autobiography*, for instance, Gross reported that in 1868 the French surgeon Pierre Marie Chassaignac had told him that "America at this moment wields the surgical sceptre of the world" (1: 319). About the same time, J. E. Erichsen wrote the highly complimentary "Impressions of American Surgery," *Lancet* (London) 2 (1874): 717–20 (rpt. in Gert H. Brieger, ed., *Medical America in the Nineteenth Century* [Baltimore, 1972]).

48. *Philadelphia Press*, March 9, 1878.

49. The critic was William J. Clark, writing in the *Daily Evening Telegraph*, on March 8and April 28, 1876.

50. The New York papers the *Herald* and the *Tribune*, for example, reacted very negatively to the painting (March 8, 1879) when Eakins exhibited it there at the second annual exhibition of the Society of American Artists. See Gordon Hendricks, "Thomas Eakins's *Gross Clinic*," *Art Bulletin* 51 (March 1969) for quotations. In good-natured recognition of the "objectionable" aspects of the painting, some of Eakins's students parodied it in a tableau about 1876; a photograph of that parody, and another one of a spoof on an anatomy lecture, are in the collection of the Philadelphia Museum of Art. See Siegl, *Eakins Collection* for reproductions.

51. In fact, Gross was one of the last physicians of his scope and depth to advocate bloodletting, a procedure that many had abandoned decades earlier. Gross delivered a "discourse on bloodletting considered as a therapeutic agent" at the annual meeting of the American Medical Association in Louisville, Kentucky, on May 5, 1875 (printed by Collins, 1875). Public interest in the rapid changes in surgery was notable. See W. W. Keen, "Recent Progress in Surgery," *Harper's New Monthly Magazine* 79 (October 1889): 703.

52. John Janvier Black, *Forty Years in the Medical Profession* (Philadelphia, 1900), 94.

53. Sanford C. Yager, "The Medical Profession," *Cincinnati Lancet and Observer* 9 (1866): 592–93.