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here is little doubt that Americans throughout history have venerated and admired those who "do," those who accomplish, and those who excel at what they do. We are also proud of being a "practical" people (from the Greek "practikos," concerning action). Thomas Eakins, in this respect, in addition to being, arguably, the greatest American painter of the nineteenth century, was an American par excellence. He painted the "doers:" shad fisherman, pugilists, baseball players, sailboat racers, singers, spinners, actresses, scull rowers, ice skaters, chess players, swimmers, musicians, instrument makers, wrestlers, knitters, cowboys, sculptors, and, of course, scientists, and doctors. (Gordon, 1974: Fried, 1988)

Thomas Eakins was also authentically American, because he was an aficionado of technology (techno geek in modern parlance), who early on used photography seriously as a tool for his work. Photography had been invented only a few years before his birth. These tendencies to use technology in art are also reflected by the fact that he attended anatomy courses at Jefferson Hospital, where he studied human movement through the ingenious use of new photographic techniques.

The other aspect of his work that reflects his "Americaness" was his consistent use of American themes both human and natural in his work. Although influenced by European painters, thematically he painted the landscape of his surroundings with genuine parochial interest and intent. As a note, his favorite European painter was Velásquez, whose technique he greatly admired and whose paintings he viewed during his visit to Spain. His Spanish notebook records: "The Fable of Arachne is the finest piece of painting I have ever seen." He also notes that Velásquez "gives both delicacy and strength at the same time."

Eakins' work was considerably less influenced by the French nineteenth century art milieu than his expatriate contemporaries, Whistler and Sargent. Nevertheless the impact of Léon Bonnat seems to emerge in Eakins' "Crucifixion:" cringed hands, anatomical details, dirty feet nails that have seen the dust of the road, and bitterly criticized at the time as "unreligious." All tragic, moving, and shocking but not reverential.

So then, how did this authentic American painter begin this wonderful, yet, tragically, soon-to-be troubled career?

One of Eakins' grandfathers was a tenant farmer and the other was a Quaker cobbler in Valley Forge, Pennsylvania. His father, Benjamin, was a well-known and highly appreciated calligrapher, writer, and decorator of official documents. (Eakins painted a loving portrait of his father Benjamin, called the "Writing Master," which can be found in the collection of the Metropolitan Museum of Art in New York City.)

Thomas Cowperthwait Eakins was born in 1844 in Philadelphia and graduated from the local Central High School with honors in Mathematics, Science, and French. He distinguished himself by giving a science address during his commencement from high school. He applied for a position of Professor of Drawing at his alma mater, but failed. He then registered at the Pennsylvania Academy of Fine Arts, where he studied drawing from antique casts, rebelled at the absurdly outdated methods used in this art form, and ultimately changed over to anatomy classes, given by Dr. A.R. Thomas at the same Academy. Finally, he was admitted to life drawing classes at the Academy (and proceeded to pay \$25 to legally avoid conscription into the Union Army being assembled for the Civil War) but used his time, instead, to attend lectures on anatomy given by Dr. Joseph Pencoast at Jefferson Medical Center (Gordon, 1974; Fried, 1988).

In 1866, Eakins requested admission to the Ecole des Beaux Arts in Paris and received an encouraging letter that stated that this French Institution, which had previously consistently rejected American students, had changed its policy. Americans were now welcome. Eakins immediately sailed to France to attend the Ecole, but worked, in addition to his studies, in private ateliers. These ateliers were studios where a variety of artists gathered in search of privacy and where they explored their individual artistic inclinations, usually through painting. Called "ateliers" because they were located, usually, on the top floor of buildings, they offered not only space and camaraderie, but more importantly, exquisite natural light by which the artists could pursue their talents. Reporting on the assembled paintings that he viewed exhibited at the Salon of 1868, he writes, "no more than 20 of the paintings would I want."

Although he traveled extensively through Europe during this time, his most crucial visit was to Spain, where he hoped for relief from illness and depression. This trip turned out to be a milestone in his life. He



FIGURE 1 | The Gross Clinic (reproduced with the permission of Jefferson Medical College of Thomas Jefferson University, Philadelphia) (Philadelphia Museum of Art, 2001).

arrived in Madrid in 1869 and devoted himself to the study of Diego Rodriguez de Silva Velásquez's work, which was exhibited at the Prado Museum. He then moved to Seville, where his first finished composition was completed, called "A Street Scene in Seville." He returned to Paris only to have to leave for the United States, due to the political instability generated by the Franco-Prussian War (1870).

His return to Philadelphia was followed by the realization of a considerable body of work inspired by his experience in Europe. Once back in Philadelphia, Eakins continued to attend anatomy and dissection exercises at Jefferson Medical Center. He also registered for surgical demonstrations at the Jefferson Hospital Gross Clinic. These projects produced two of his major paintings, to be discussed below. In addition, during this time, some of his paintings were accepted at the National Academy of Design in New York (1871), underscoring Eakins' recognition as an American painter of note in his own land.

In his capacity as judge for the annual Pennsylvania Academy exhibition during those years, he gives Susan Macdowell the Mary Smith Prize, a prize reserved for the best female painter. Interestingly, Eakins married her subsequently, and fortunately her great talent continued, as she continued to paint for the rest of her life. Also important to note is the fact that Eakins, the year before his marriage, acquired sophistication in the use of photographic cameras to study human motion and as an aid in the painting of landscapes as well as other works. He demonstrated to the Photographic Society of Philadelphia a camera of his own design containing an "ingenious exposer for instantaneous work." He put this contraption to good use in the study of human movement. The Eadweard Muybridge Photography Project, in association with the University of Pennsylvania, funded this work. His wife shared his interest in photography and its potential uses for art.

In 1886, an event occurred during one of the anatomy lectures that forever changed Eakins' life and would affect his career. Eakins removed a loincloth from a male nude model in the presence of female students. Fully nude female models were acceptable for male students; but fully nude males were not accepted as models at the time, particularly in mixed company. This action led to the request that he resign as the Director of the Schools and Professor of Painting in the Academy in spite of his own strenuous defense: "Was ever so much smoke for so little fire?" Many students resigned in protest and created an alternative society, the Art Students' League of Philadelphia in an effort to provide Eakins with a teaching post. But his enemies hounded him and Eakins was expelled from the Academy of Fine Arts with vague charges of "conduct unbecoming a gentleman," which surreptitiously questioned his sexual orientation. To their credit, the Philadelphia Sketch Club members, in contrast, voted against his expulsion. These events elicited a new bout of depression in Eakins, which he treated by escaping to the BT ranch in the Dakota Territory, where he painted his "Cowboys" series. This series of events had serious consequences for his career and affected his wife considerably, as evidenced by the portrait that Eakins painted of Susan Macdowell Eakins during that period (Philadelphia Museum Art, 2001).

"The Gross Clinic" painting (1875) (Figure 1) leaves little doubt that this painting is Eakins chef d'oeuvre. First, it demonstrates his ability to use light as an enhancer of his message in an almost Rembrandtesque fashion. Here, the central figure is Dr. Gross, who is looking away from the operation being performed. Light from above, but at an angle, illuminates both the head of Dr. Gross and his unruly hair (given him a sort of aureole), but emphasizes his forehead (conveying pensiveness), obscures his eyes (which suggests an act of introspection), and highlights his bloody hands and the scalpel (underscoring the man of action) (Philadelphia Museum of Art, 2001).

The light in the painting reaches across to the thigh of the adolescent patient, the object of the surgery, to the second surgeon who is using the scalpel, to the anesthesiologist who is busy with his pale hands and the soaked towel, and to the assistants pulling with a tenaculum holding the incision open. The disease was osteomyelitis; the task was removal of the ailing bone. In addition, we see the presence of the patient's blue/gray socks, which today indicates a wonderful disregard for contamination, but at that time was a concept that had not been born yet.

Another attendant in the painting, the clinic clerk in a gesture reminiscent of a scribe, records the undertakings and commentaries. Here Eakins has painted a beam of light underlining the clerk's writing hand. Finally, in the central part of the picture, there appears a faceless non-medical figure, the mother of the patient, who is dressed in rigorous black (with the right to be present indicating her status: a charity case). In the depiction of the mother, the painter, indicating her profound fear and pain, illuminates only her cringing and claw like hands. The students are hardly visible in the dark background, an amorphous mass tightly filling the seats of the surgical theater.

Interestingly, Eakins painted this canvas with full knowledge of the working details of the Gross Surgical Clinic and all his pictorial acrobatics were carefully grounded in facts, because it was a place he had visited numerous times. He knew that operations were conducted at high noon so that the surgeons would not be dependent on artificial light, a fact he incorporated into the painting with great dexterity. It is believed that the presence of blood on the hands of the surgeons in this painting is a "first" in art history. Is this the consequence of his European training in Paris under the influence of a foreign place that was in the midst of exploring new things, or is

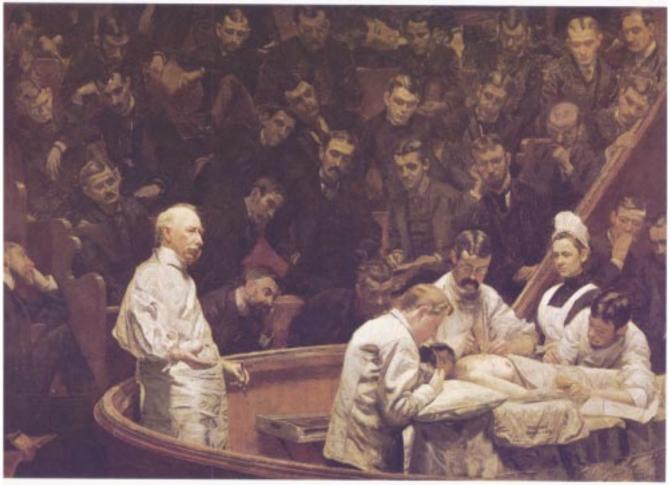


FIGURE 2 | The Agnew Clinic (reproduced with the permission of the University of Pennsylvania Art Collection, Philadelphia) (Philadelphia Museum of Art, 2001).

this Eakins about to find new artistic avenues inspired by his local experience having been present at numerous operations? Could he have so internalized the events as if he had been a penetrating observer? This wonderful painting reflects not only the praxis (from both the Greek prasso: doing, acting and pragma: deed, affair) of a high calling but also the brooding thoughtfulness of the main actor, that is, taking a moment to collect his thoughts and register with due seriousness the events that are unfolding.

This incredible artwork hung unceremoniously for many years in the main entrance of Jefferson Hospital, where I saw it, many years ago, when I arrived to give a seminar. I knew I was in the presence of greatness, but it took several years for me to realize the entire dimension of this work of art. I reported to my host that these were valuable paintings and did not belong unquarded at the top of the entrance staircase. When I visited three years later, they had been encaged in a different building, now behind metal bars and lock and key. I guess others complained too.

"The Agnew Clinic" painting (1889) (Figure 2) is a revisit by Eakins, 14 years later, of the surgical theater theme. The painting is similar, but at the same time different from "The Gross Clinic." Similar, because it reflects the actual life of the painter, but at the same time different, as it also reveals the changes that had occurred in the medical profession during the time elapsed (Berkowitz, 2001).

In the later painting of the new surgical theater of Jefferson Hospital, the light is stronger and covers the whole painting, although the light maintains its greatest intensity, like the first painting, in the center of the action. The student-populated background is more defined here; more animated and, of course, the scene

is neater by the introduction of white gowns, linens, and nurses – a detail that brings to the picture its own white light.

Why is the scene neater and cleaner? In other words, what progress had been made in surgery in the intervening years? The Hungarian Semmelweis (1847) was the first to establish that washing hands and scrubbing nails reduced surgical mortality. Joseph Lister (1967) (immortalized in Listerine) found that the use of carbolic acid had the same result. But it was Koch's studies that established the generalized use of steam sterilization of the surgical materials, instruments, linens, dressing and gowns, beginning in the late 1980s (University of Rochester Medical Center, 2002).

It is noticeable however that the surgeons are not wearing gloves in this painting. This is because the use of gloves as a measure toward sterility had to wait for Dr. William Stuart Halstead, who introduced them as a remedy to a nurse's complaints of dermatitis caused by contact with strong chemical disinfectants in the surgical theater. Dr. Halstead asked the Goodyear Rubber Company to create thin rubber gloves to resolve this problem; the gloves quickly became de rigueur in American operating rooms, not only for nurses but also for surgeons, in the mid-1890s.

Professor Agnew is detached from the operation per se; holding his scalpel in his left hand while his right hand suggests that he is about to say something of some weight. Again there is blood in the painting, however, much less profuse than in "The Gross Clinic" painting.

Interestingly, the students here are not as abstractly painted as in "The Gross Clinic." They are more animated, and we actually know who each one is, since their names were published in The Old Penn Weekly Review. We also know the names of all the well-known physicians and the nurses involved. Eakins himself is presented in the painting as the figure on the right in the passageway, most likely painted by his wife.

It is clear that this painting does not reach the dramatic tone that characterized "The Gross Clinic." Had the influence of France and Spain faded by then? Had his personal problems of depression and the scandal reduced his ardor? The answer is not clear, but the first possibility is contradicted by the marvelous painting of his father-in-law (1891), in which he experiments with an approach that reminds me of Francisco Goya, in his noir period. The second possibility, that his personal problems had intervened in his tone, is partially contradicted by some of the portraits of his later periods, in which he would capture the inner life of his subjects, by a display of brooding gesture (as in "Portrait of William D.H. Macdowell, 1904"); quiet desperation (as in "Portrait of his Wife, Susan Macdowell Eakins"); despondence (as in "The Veteran"); deep reflection (as

in "The Thinker"); exhaustion (as in "Dr. John H. Brinton"); arrogance (as in "Portrait of B.A. Linton"); depression ("as in Self-portrait," 1902); mischievousness (portrait of his friend "Walt Whitman"); among others. Nevertheless, while all of this is work is introspective and powerful, it is not adventurous. Something quite profound had happened to Thomas Eakins artistic outlook after the scandal.

While portraiture was a frequent occupation in his later years, he was an uncompromising painter of his subjects. No concessions, no efforts to flatter them, no intent of adorning was administered. Thus, he had trouble in securing commissions. Some of his portraits were rejected by clients, and were essentially "at large" until discovered by experts.

Of particular interest is the "Portrait of Professor Henry A. Rowland" (1897), a noted physicist from Johns Hopkin's University (Figure 3). While the subject sits contemplatively in a chair (Eakins complained that he was not one to pose patiently) with a striking but odd light diffraction grating in his hand, which he actively lit centering the attention of the viewer. He also spreads some light on the floor to balance the composition. An assistant is laboring in the background on an instrument to highlight the workings of science. Of note is the flat wood frame that Eakins designed for this portrait. Eakins decorated it with light diffraction patterns, formulas, electric circuits, resistance calculations, and more. Of Professor Rowland he said, "we get on famously, our tastes being similar." He was also proud to have "gotten an understanding" of the machine that Rowling has constructed. "I shall be a better artist" as a consequence.

To paint his landscapes and open-air scenes, the themes of his early period, he used his "projector" contraption, referred to above, to place human or animal figures in a canvas in progress. He projected photographs of people and then proceeded to mix and match, many times, figures belonging to different photographs. Sometimes he used them only to "mark" their placement in the canvas and at other times to outline the whole figure. Researchers in the Philadelphia Museum of Art discovered this technique recently, when guiding cross-marks in the canvas, involved in these efforts, were detected.

The use of these photography projections was not a "trick" employed by someone with no drawing skills. In fact, Eakins was a serious and accomplished draftsman, as his pre-European drawings attest. One can suspect that he used this technique in part by his attraction to new technology, since it may have allowed him to concentrate on the "painting" of the figures and the whole composition rather than the time-consuming distraction of "drawing" all of the figures.

Finally, we cannot forget the importance of his wife,

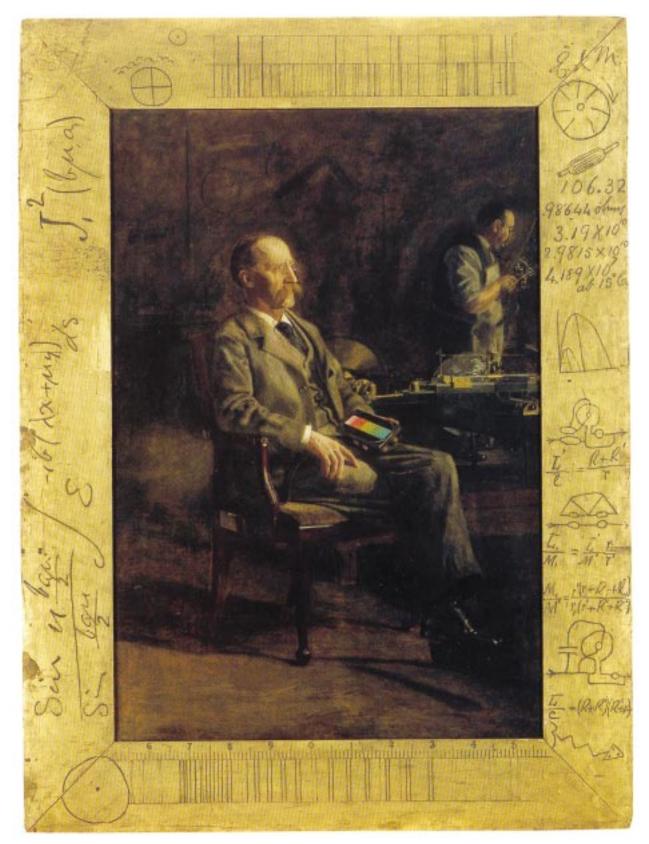


FIGURE 3 | Portrait of Professor Henry A. Rowland (reproduced with the permission of the Addison Gallery of American Art, Phillips Academy, Andover, Massachusetts. All rights Reserved.) (Philadelphia Museum of Art, 2001).

Susan Macdowell Eakins. At the same time that a retrospective exhibit of Eakins' work was being featured in the Philadelphia Museum of Art at the end of 2001, a parallel exhibit of her work took place in the Woodmere Art Museum in Philadelphia dedicated to women painters.

It is clear that Susan Macdowell Eakins had the talent of a significant painter, but as critics have said "she was under the gravitational pull of her husband." A student of her husband, her career pursued a parallel course, including the use of photography as an artistic technique. Her portrait of her husband, finished after his death, is a very interesting effort, and may show some influence from the self-portrait painted by Velásquez, found in one of the corners of "Las Meninas."

The twentieth century has been kinder to Thomas Cowperthwait Eakins than the nineteenth century. Many recognized him as the greatest American painter of that period. The twenty-first century might be even kinder by recognizing the panoply of his talents and his multiple technical abilities, in the best tradition of the eternal classics, Leonardo da Vinci and Michelangelo

Buonarotti. In Eakins' own words, "The big artist...keeps a sharp eye on Nature and steals her tools."

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# Commentary

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