

# The Confluence of Allegory and Technology in Gendered Public Space: Emily Roebling and the Construction of the Brooklyn Bridge

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On May 24, 1883, a monumental vision of the future of American industry assumed a prominent site over New York's East River. The Brooklyn Bridge spanned not only geo-political boundaries between Manhattan and Brooklyn (and technological frontiers of stone and steel construction) but also nineteenth-century notions of gender and authorship. Although most canonical accounts attribute the bridge to its patriarchal creators, John A. Roebling (1806-1869) and his son Colonel Washington Roebling (1837-1926), its final builder was the Colonel's wife, Emily Warren Roebling

(1843-1907), a remarkable woman accomplished in the field of engineering.

Using both journalistic accounts collected by Emily Roebling in scrapbooks during the bridge's construction and later printed sources, this essay investigates the exclusion, silence, and subterfuge that have characterized descriptions of Emily Roebling. Her management of the project for the last decade of construction (1872-1883) inspired conflicting accounts of a woman at once ensconced in traditional family life yet at the forefront of social and technological advance-

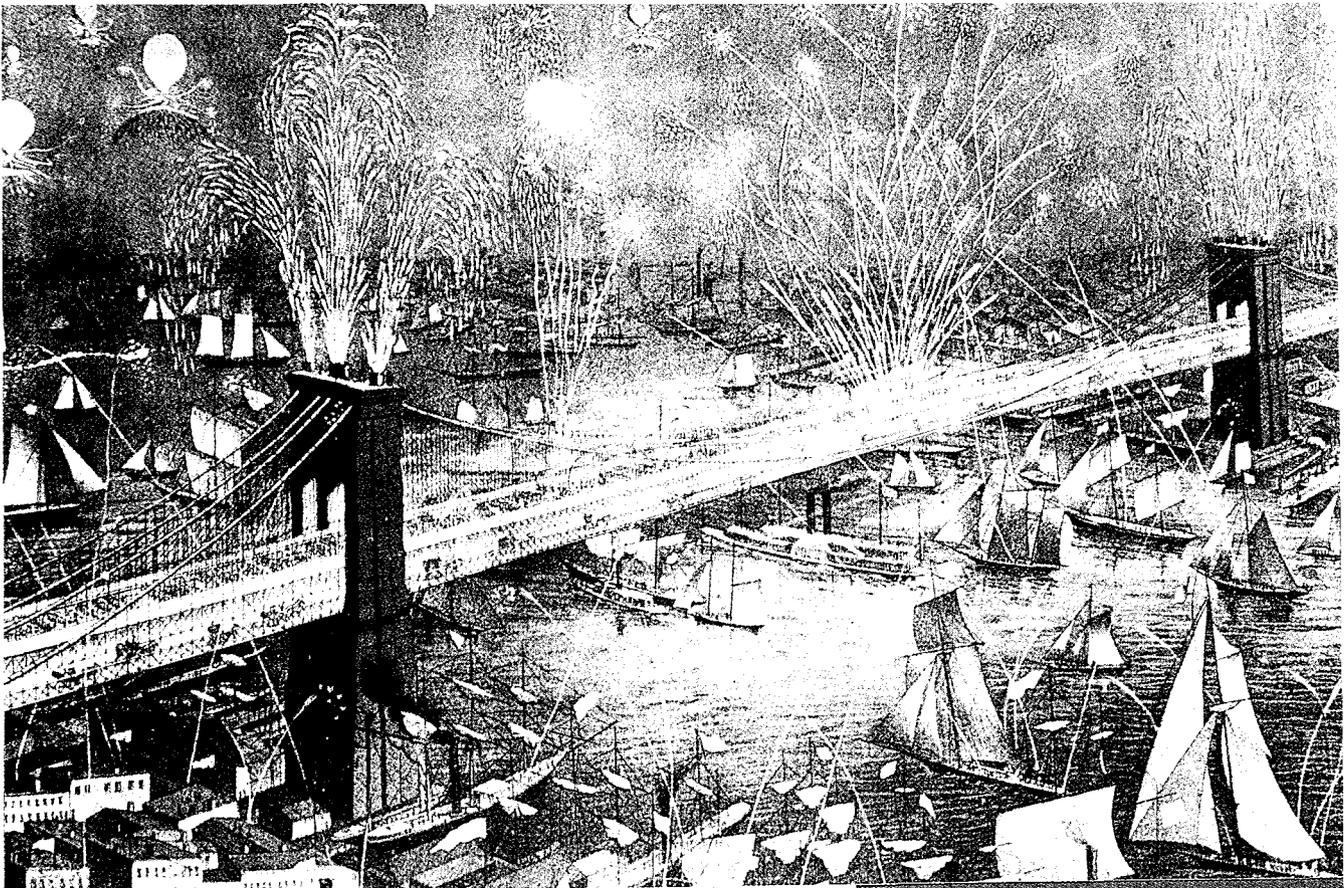


Fig. 1. Anonymous, Bird's-eye View of the Great New York and Brooklyn Bridge and Grand Display of Fireworks on Opening Night 1883.

ment. Portrayals of Emily Roebling emphasized her femininity while excluding her from the public sphere of construction, a civic activity dominated by male participants. Yet as Emily Roebling educated herself in the field of civil engineering and later became a leader in the struggle for women's suffrage and legal equality, depictions of her as the quintessential Victorian woman must be questioned. Including Emily Roebling in the history of the bridge's development also serves to locate the project within a broader discussion of gender and public space. The image of Emily Roebling constructed in accounts of the time can be traced to a complex series of political motivations on the part of Roebling herself, as well as the predominant, masculine public which desired her exclusion.<sup>1</sup>

Public perception of the bridge's authorship was blurred almost from its inception and contributed to an inconsistent picture of Emily Roebling's achievements. John A. Roebling, an entrepreneurial cable manufacturer and suspension bridge engineer, served briefly as the bridge's chief engineer from 1867 until he died from tetanus--the result of a foot injury incurred while surveying the site in 1869. Most of John Roebling's construction details remained undocumented at the time of his death and were left to be completed by his eldest son, Colonel Washington Roebling.<sup>2</sup> Shortly before his father died, Washington Roebling returned home from a year in Europe, where he had studied pneumatic caisson technology. His most important tasks on the bridge involved the design and construction of the submerged wooden caissons, which permitted the excavation of the riverbed while the towers were constructed overhead. In 1872, just as work in the caissons was coming to an end, Washington Roebling was debilitated by the bends, or caisson disease, a result of the sudden changes in air pressure during his long hours directing the work on the riverbed.<sup>3</sup> He was to remain bedridden, with various degrees of paralysis, for the duration of the bridge's construction. During this period Emily Roebling worked to ensure the successful completion of the project. Just as her husband had, she administered construction of the bridge, often spontaneously improvising details needed to continue work on the site.<sup>4</sup>

Although the bridge progressed rapidly in the first years of Washington Roebling's service, his interest appears to have waned after 1872. In an 1898 letter to her son, John A. Roebling, Jr., Emily Roebling described her husband's and her own commitment and enthusiasm for the project:

I am still feeling well enough to stoutly maintain against all critics (including my only son) that I have more brains, common sense and know-how generally than any two engineers civil or uncivil that I have ever met and but for me the Brooklyn Bridge would never have the name Roebling in any way connected with it!...Your father was for years *dead* to all interest in that work.<sup>5</sup>

With his failing eyesight and intolerance for visitors, the incapacitated engineer delegated many of his duties to Emily



Fig.2. Anonymous, Photograph of Emily Warren Roebling circa 1880.

Roebling, one of the only people with whom he spoke during his period of retirement.<sup>6</sup>

Because of this relationship, the *New York World* portrayed Emily Roebling as strong and energetic and her husband as physically weak and dependant, striking a contrast to predominant depictions of the nineteenth-century family. The paper's correspondents spoke of Emily Roebling's ability to "stand as a shield between him [her husband] and the hundreds who call...to see him." In response to what seemed to be an inversion of gender and marital roles, an elaborate program of obfuscatory propaganda developed around the Roeblings and their bridge. This program hinged on efforts to convince the public of Washington Roebling's ability to supervise the construction of the bridge by telescope, despite the fact that he spent much of his retirement living far from Brooklyn Heights.<sup>8</sup>

The extent to which myths were exploited to re-establish Colonel Roebling's traditional role in both the family structure and the professional domain becomes apparent in an 1883 account by the *New York Evening Post*:

For many long and weary years this man, who entered our service young and full of life and hope and daring, has been an invalid and confined to his home. He has never seen this structure, as it now stands, save from a



Fig. 3 Vincent A. Svoboda, *Watching the Progress of the Work through a Spyglass*.

distance. But the disease which has shattered his nervous system for the time seemed not to have enfeebled his mind. It appeared even to quicken his intellect. His physical infirmities shut him out, so to speak, from the world, and left him dependent largely on the society of his family, but it gave him for a companion day and night this darling child of his genius - every step of whose progress he has directed and watched over with paternal solicitude.<sup>9</sup>

According to the papers, while Washington Roebling was physically incapacitated by his illness, he was nevertheless intellectually invigorated. This idealized image of his cerebral power eclipsed his domestic environment, Emily Roebling, and all other contributors to the construction of the bridge. While Washington Roebling transcended the privatizing influence of his domestic confines, Emily Roebling was often positioned firmly within hers, deflecting discussion of her intellectual contributions toward issues of her femininity.

On May 23, 1883, over a decade after the onset of Washington Roebling's illness and one day before the Brooklyn Bridge's official opening ceremonies, the *New York World* published one of the most laudatory accounts of Emily Roebling's contributions to the project. Entitled "A Tribute to a Noble Woman: How Mrs. Roebling Aided Husband in the Great Undertaking," the article began:

While so much has been written about the great Brooklyn Bridge and those who have had a share either in planning or building it, there still remains one whose services have not been publicly acknowledged.<sup>10</sup>

The short homage then divulged Mrs. Roebling's relationship to the project:

A gentleman of this city well acquainted with the family said that as soon as Mr. Roebling was stricken with that peculiar fever which has since prostrated him Mrs. Roebling applied herself to the study of engineering, and she succeeded so well that in a short time she

was able to assume the duties of chief engineer.']

The piece concluded with an account of the reaction of local mill representatives upon realizing that their business was with the wife of the engineer:

Their surprise was great when Mrs. Roebling sat down with them and by her knowledge of engineering helped them out with their patterns and cleared away difficulties that had for weeks been puzzling their brains.<sup>12</sup>

One of the only accounts to acknowledge the lack of credit given to Emily Roebling for her work on the Brooklyn Bridge, the *New York World* article represents an important commentary on the masculine exclusivity in the field of construction in the nineteenth-century. Emily Roebling is, however, presented through the voice of a man who claims to be familiar with her sphere of influence, her family. The article defuses controversy over Emily Roebling's taboo professional life and renders her safely mute to the press and the public at large.

The day after the opening ceremonies, the *Brooklyn Daily Eagle* published a lengthy description of Emily Roebling's contributions to the bridge. Here her role in the project was more rigidly perceived within prescribed notions of idealized female behavior: silent, marginal and modest.

The true woman possesses, above all attributes, that loveliest and most womanly characteristic - modesty. Out of deference to Mrs. Roebling's aversion to posing in public and standing apart from her sex, those who have long been aware of her noble devotion and the incalculable services she rendered to the people of the two cities, to the world indeed, have discreetly kept their knowledge to themselves.<sup>13</sup>

Commentary in the *New York World*, gives no reason for the eleven-year media void surrounding Emily Roebling's service. In contrast, this article firmly equates silence with feminine modesty, a method often used in the subjugation of women. Her exclusion from public space was also a result of her (supposed) desire for gender conformity. However, as Mary Ryan suggests in her discussion of public ceremonies in the 1880's, women of this period were gaining acceptance in public through the organization of various gender-specific special interest groups.<sup>14</sup> The media's portrayal of Emily Roebling was antithetical to her own commitment to women's suffrage and legal rights and thus may be considered a defensive reaction to the challenge she presented to men. Efforts simultaneously to reveal and subvert Emily Roebling's accomplishments are epitomized by the tendency to diminish her role to that of communicator. *The Brooklyn Daily Eagle* reports:

Day after day, when she could be spared from the sickroom, in cold and wet, the devoted wife exchanged the duties of chief nurse for those of chief engineer of the bridge, explaining knotty points, examining results for herself, and thus she established the most perfect

means of communication between the structure and its author. How well she discharged this self-imposed duty the grand and beautiful causeway best tells.<sup>15</sup>

In this capacity she conformed to the expectations of wife and mother while hovering between the bridge and its author. The possibility of her involvement in any process of decision-making, as reported in the *New York World*, has disappeared. Moreover, as Emily Roebling competently performed the duties of chief engineer, some representatives of the engineering community chose to depict her primarily as a paragon of womanhood. In 1881, in a speech addressed to the engineering students at Rensselaer Polytechnic Institute, Rossider W. Raymond, an engineer, stated of Emily Roebling:

In the picture of the master workman directing from his bed of pain the master work, I see another figure - a queen of beauty and fashion - become a servant for love's sake; a true helpmate, furnishing swift feelings and skillful hands and quick brain and strong heart to reinforce the weakness and the weariness that could not, unassisted, fully execute the plans they form but that stand with this assistance almost as in the vigor of health.

Gentlemen, I know that the name of a woman should not be lightly spoken in a public place. I am aware that such a speech is especially audacious from the mouth

of a stranger, but I believe you will acquit me of any lack of decency or irreverence when I utter what this moment half articulates upon all your lips, the name of Mrs. Washington Roebling.<sup>16</sup>

Although tribute is paid to both her intelligence and endurance, Emily Roebling emerges as a perfected form of nineteenth-century feminine confection, "the chrysalis of female allegory."<sup>17</sup>

The representation of Emily Roebling can be better understood by reference to the use of classical female allegory in nineteenth-century America. One such allegorical figure may be seen in John Gast's oil painting of 1872, entitled *American Progress (Manifest Destiny)*.

The image features an allegorical female figure of Progress flying from the clear eastern skies over New York City into the murky, uncharted west. Trailing behind her is telegraph wire: a symbol of America's growing network of communication. Carriages and steam trains race forward around the figure, paths and tracks unfolding before them. In the distant background, Gast portrays the busy harbor of Manhattan complete with the fruit of Progress' labor, the Brooklyn Bridge.<sup>18</sup>

Gast's image of Progress, executed in the year that Roebling began working on the Brooklyn Bridge, shares several similarities with representations of Emily Roebling in the press. Draped in a diaphanous gown and exhibiting



Fig. 4 John Gast, *American Progress (Manifest Destiny)*, 1872.

flowing hair and a robust figure, Progress embodies the physical characteristics of female beauty. Her book and telegraph wire are symbolic of knowledge and technology, yet as an allegory she neither reads the volume nor watches the placement of the wires. Like the *Brooklyn Daily Eagle's* image of Emily Roebling, Progress is depicted as a medium through which information and technology are disseminated to the male actors involved in her march of advancement. She is empowered simply to carry the book and the wire from place to place without any part in their creation. Referring to allegory, Ryan comments that "the female image seemed to disarm and dissolve the contentious differences in industrial America. She was without a class, without a party, and bespoke differences that could be ascribed to nature rather than politics or economics."<sup>19</sup> This idea lends credence to the notion that a woman's place in technological progress was outside the space of decision making, and it supports the thesis that the eventual public recognition of Emily Roebling's involvement with the bridge was actually an attempt to divert attention from the numerous political and financial scandals that surrounded its construction.<sup>20</sup>

The relationship of female allegory to the Brooklyn Bridge is further defined by an image that was printed in the *Daily Graphic* of May 24, 1883, subtitled *A Union of Hearts and a Union of Hands*.<sup>21</sup> The piece depicts the allegorical figures of Manhattan and Brooklyn clasping hands as they stand over the Brooklyn Bridge, leaning on the Manhattan and Brooklyn towers respectively. Through the position of their grasp, the two women, rising over a busy East River, reenact the structure of the bridge through their own bodies. Their left arms, in compression, support them as they lean forward holding their right arms clearly in tension. Overhead a Latin text reads: "The Completion Crowns the Work." The



Fig. 5 *Finis Coronat Opus*, 1883.

union of the two cities or, as allegories, the union of the two women, is the ultimate goal of the bridge.

The metaphor of woman as tower, so clearly delineated in the *Union of Hearts and Union of Hands*, is also found in a description of Emily Roebling by her husband. Washington Roebling wrote:

At first I thought I would succumb, but I had a strong tower to lean upon, my wife, a woman of infinite tact and wisest counsel.<sup>22</sup>

By considering his wife in the language of the bridge, indeed as one of its most distinctive elements, Washington Roebling relegated his wife to the world of allegory and symbol, distinct from the actual construction tasks she performed on a daily basis.

Efforts to excise Emily Roebling almost entirely from the construction history of the Brooklyn Bridge have persisted into the twentieth century. In 1933, the fiftieth anniversary of the bridge's opening, a *New York Times* article focused entirely on the men involved in its construction. After reviewing her father's clippings on the Brooklyn Bridge, including the 1883 article from the *Brooklyn Daily Eagle*, a concerned New Yorker, Mary Parker Eggleston suggested that the *New York Times* consider utilizing such early accounts that referred to Emily Roebling's contributions, writing:

As this [Emily Roebling's involvement in the bridge's construction] happened before the idea of higher education of women was generally accepted, it suggests to the editors whether "the feminine mind...may not be peculiarly fitted for higher mathematics."<sup>23</sup>

Despite Eggleston's recommendations, press coverage of the seventieth anniversary largely reinforced myths perpetuated at the opening of the bridge. This should come as no surprise considering the retrogressive attitude of post-war America, when women who had worked towards the war effort returned to the "normalcy" of marriage and motherhood. On May 24, 1953, the *New York Times* recounted the canonical construction history:

A cripple thereafter, Colonel Roebling supervised the work of the next eleven years from a room on Columbia Heights, Brooklyn, watching the construction with field glasses. The strange, long-range direction necessitated an intermediary. The engineer found a remarkable one in his wife, Emily Roebling..<sup>24</sup>

Later in the article, captions below photographs of the three "Builders of the Bridge" read "John A. Roebling - He projected the bridge. Washington A. Roebling - He executed the plans. Emily Warren Roebling - She saw the dream through." After the concrete achievements of projection and execution by the male contributors to the bridge, Emily Roebling's contrasting accomplishment of executing a dream demonstrates an aura of ambiguity. With no voice of her own, this dream becomes a reflection of public expectations

of normalcy rather than unusual achievement. In other words, the dominant record is simply reinforced. Emily Roebing's pioneering role in the history of female engineers is excluded.

Although much of the fiction surrounding Washington Roebing was muted in the centennial literature of 1983, Emily Roebing's position as "inspector, messenger, ambassador and spokesman" remained, for the most part, firmly in place. Of recent works featuring discussions of Emily Roebing, Marilyn Weigold's 1983 monograph stands out as the most promising.<sup>25</sup> Nonetheless, it is problematic. Her investigations into the reasons for Emily Roebing's silence perpetuate traditions established by the press over the past century. Of Emily Roebing, Weigold states:

The epitome of Victorian womanhood, her objective was to obtain neither glory nor immortality for herself, but to give her husband an opportunity to realize the dream for which...he himself had sacrificed his health.<sup>26</sup>

Weigold identifies an issue relevant to the construction of Emily Roebing's public image. If one reconsiders the letter written to her son John in 1898, in which Emily takes complete responsibility for her family's connection to the bridge, her own incentive to create an idealized feminine image comes to light. In other words, rather than aspiring to be the sincere epitome of Victorian womanhood, Emily seems to have participated in the subterfuge in order to allow her own work on the bridge to continue.<sup>27</sup>

Like earlier descriptions, current depictions of Emily Roebing also attempt to raise her above and beyond the realm of human nature. In this more rarified atmosphere her uncomfortable connections to the society in which she lived can be overlooked. Weigold conforms to this notion in her summary of Emily Roebing's graduation ceremonies from the Women's Law Class at New York University, which was held in Madison Square Garden in 1899. Weigold writes:

The second of several such buildings bearing that name, the Garden of the 1890's, designed by McKim, Mead & White was an ornate structure complete with a tower crowned by Augustus St. Gaudens' statue of Diana. On the night of her commencement, Mrs. Roebing was as regal as the sculptured goddess as she strode confidently to the platform to read an essay on "a Wife's Disabilities" which had won her an award of \$50.<sup>28</sup>

The timing and character of Emily Roebing's "outing" as a contributor to the Brooklyn Bridge are inextricably bound to the fact that the project was actually viewed as a public boulevard, which, certainly more than most public spaces at the time, suspended public safety in its technologically adventurous structure. In a letter of 1857, considered the first mention of the bridge in print, John A. Roebing suggests to the editor of the New York Tribune that he will create the crowning civic achievement of two cities celebrated for their public parks, squares and grand avenues. The engineer writes:

Strangers to the city will be induced to **make** a trip for the sole purpose of enjoying the grand sight such passage will present. As a work of engineering, the bridge will be without rival. It will form one of the grandest and most attractive features of the two sister cities.<sup>29</sup>

From the bridge's inception, however, public distrust was evident. Only one week after the Brooklyn Bridge's opening ceremonies, twelve people were crushed to death as thousands tried to exit the bridge simultaneously.<sup>30</sup> According to published accounts, a stampede occurred following a woman's cry that the bridge was falling. It would be incorrect to suggest that the panic was due in some way to the recent revelation that a woman had been involved with the detailing and construction of the bridge. However, the silence about Emily Roebing's work that persisted throughout the bridge's construction may be seen as an attempt to create a greater sense of public acceptance for a project that was considered too daring, too expensive, and too long in the making. Once the bridge became a looming reality, however, as Mary Ryan has suggested, the frightening domination of technology over the landscape might have been tempered by the inclusion of a feminine element. Public security was also a factor in the propagation of the myths surrounding Washington Roebing's direction of construction from his home through a telescope, particularly when he claims to have been nearly blind at the time.

It may be concluded that the moment Emily Roebing was revealed as a force behind the building of the Brooklyn Bridge, she was reconfigured into various idealized notions of femininity. Her presence as a woman in the development of suspension-bridge technology was threatening to the public. Her appearances, however, as a wife in the service of her husband, selfless and tireless, or as a goddess arriving effortlessly to apply herself to mathematics and to carry forth the torch for the symbolic progress of technology, were palatable manifestations for a public seeking distance between women and the technology of the built environment. This formula for separation, although particularly apparent in the case of Emily Roebing, a pioneer in the field of engineering in the nineteenth century, is still firmly in place today. In light of the present struggle for women to enter the fields of architecture and engineering, much might be made of her silence. Without it, the Brooklyn Bridge may never have been built. Yet out of this silence a fiction was created for public consumption, and the hardships and prejudices Emily Roebing endured while building the bridge were lost to the important history of all women involved in the built environment.

## NOTES

<sup>1</sup> For one of the most thorough accounts to date of Emily Roebing's life see Marilyn Weigold, *Silent Builder: Emily Warren Roebing and the Brooklyn Bridge* (New York: National University Publications, 1984) 54. The recent theoretical work on public space to which I refer is largely to be found in

- the following articles: Nancy Fraser, "Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy," *Social Text* 25126 1990: 56-80; and Rosalyn Deutsche, "Art and Public Space: Questions of Democracy," *Social Text* 33 December 1992: 34-53.
- <sup>2</sup> For more on the lives of John Roebling and his son Washington Roebling, see David McCullough, "The Bridge," *The Great East River Bridge 1883-1983*, (New York: The Brooklyn Museum 1983). Also, McCullough, *The Great Bridge* (New York: Simon and Schuster, 1972).
  - <sup>3</sup> *New York World* 23 May 1883. Caisson disease can be caused by movement from a pressurized environment to normal atmospheric pressure without a period of decompression. Symptoms of the disease range from joint ache to paralysis.
  - <sup>4</sup> McCullough, "The Bridge," 130.
  - <sup>5</sup> Letter from Emily Roebling to John A. Roebling, Jr., 3120198. From Marilyn Weigold, *Silent Builder*, 57. Underline in the original.
  - <sup>6</sup> In 1916, Washington Roebling refers to the blindness which presumably accompanied his illness. "For 15 years I had eye trouble, could neither read nor write nor sign my name." Weigold, *Silent Builder*, 33.
  - <sup>7</sup> *New York World* 25 May 1883, in an interview with Emily Roebling.
  - <sup>8</sup> McCullough, "The Bridge," 134. Although the Roeblings spent much time at their home at 110 Columbia Heights in Brooklyn Heights just one-half mile from the site, they also took up residence elsewhere. In 1872 the couple visited Wiesbaden, a spa resort in Germany. Upon their return in 1873, Washington Roebling spent at least three years at his family home in Trenton, New Jersey. He also maintained a residence with his brother-in-law, General Warren, on Manhattan's West Side until 1877.
  - <sup>9</sup> *New York Evening Post* 24 May 1883.
  - <sup>10</sup> *New York World* 23 May 1883, also *New York Times* 23 May 1889.
  - <sup>11</sup> *New York World*, 23 May 1883. What comprised Emily Roebling's education in civil engineering and what her duties were on the bridge have never been recorded. Two notable contributions to an understanding of Emily Roebling's role can be found in her scrapbook include: a letter to Mrs. W. A. Roebling dated 28 October 1879 from the Edge Moor Iron Company assuring her of agreed prices and obligations (Rensselaer Polytechnic Institute, Roebling Archive Series I, Box 2, Folder 9, E.W.R. *Scrapbook* 2, 88); and, on the occasion of the Bridge Trustees' first walk across the structure, the reporter states: "Mr. Murphy [President of the Bridge Trustees] said that Mrs. Roebling was a capital engineer herself." (*The Sun* 13 December 1881).
  - <sup>12</sup> Ibid.
  - <sup>13</sup> *Brooklyn Daily Eagle* 25 May 1883.
  - <sup>14</sup> See Mary Ryan, *Women in Public: Between Banners and Ballots, 1825-1880*, (Baltimore: Johns Hopkins University Press, 1990).
  - <sup>15</sup> *Brooklyn Daily Eagle*, 25 May 1883.
  - <sup>16</sup> From Weigold, *Silent Builder*, 40. Reprinted in *True American* 2 March 1903 from a speech given in 1881.
  - <sup>17</sup> Mary Ryan, *Women in Public*, 52. Although Ryan does not specifically mention Emily Roebling, she refers to the "chrysalis" in terms of the relationship of women to public culture before 1880.
  - <sup>18</sup> See Deborah Nevins' discussion of this painting in her article entitled "1869-1883-1983," *The Great East River Bridge 1883-1983*, (New York: The Brooklyn Museum, 1983) 11.
  - <sup>19</sup> Ryan, *Women in Public*, 54.
  - <sup>20</sup> McCullough, "The Bridge," 137. One such scandal was "The Great Wire Fraud," in which nearly \$300,000 was lost on poor quality cable wires that continue to support the bridge to this day.
  - <sup>21</sup> *Daily Graphic* 24 May 1883. This image has been cast in bronze and placed on the Manhattan tower as part of the centennial commemorative celebrations.
  - <sup>22</sup> Found in McCullough, "The Bridge," 452.
  - <sup>23</sup> Letter to the editor, *New York Times* 23 May 1933.
  - <sup>24</sup> *New York Times* 24 May 1953.
  - <sup>25</sup> Weigold, *Silent Builder*.
  - <sup>26</sup> Weigold, *Silent Builder*, 34.
  - <sup>27</sup> As Nancy Fraser argues, women "creatively used the heretofore quintessentially 'private' idioms of domesticity and motherhood precisely as springboards for public activity." Fraser, "Rethinking the Public Sphere," 61.
  - <sup>28</sup> Weigold, *Silent Builder*, 124.
  - <sup>29</sup> *The New York Tribune* 27 March 1857.
  - <sup>30</sup> Nevins, "1869-1883-1983," 76.