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THE BRIDGE OF ROEBLING AND CRANE

JOSEPH BOCKRATH*

Bridges,¹ over 1000 in New York City alone, most nondescript and utilitarian, but some are rather stunning in their engineering, history, lore and ability to spur artistic creativity. A bridge can, over time, become a valued part of the cultural and historical landscape we begin to take for granted.²

The Brooklyn Bridge, however, is virtually unique as both a manifestation of tremendous creative power on the part of its builders, and as a symbol capable of unleashing the creative powers of others.³ It has, at one time or another, been offered as a symbolic connection between labor and capital at the end of the 19th century; between poverty and progress, between John Roebling, who designed the Brooklyn Bridge, and his son, Washington Roebling, who completed it; and as a bridge to the Confederacy. The epic story of the construction and history of the Brooklyn Bridge has become the subject of a large bibliography.⁴

The notion of a bridge connecting Brooklyn to Manhattan dates from as early as 1800 with serious proposals in 1829 and 1835. It was not until 1861, however, with the charter from the State of New York authorizing a private company to construct and operate a bridge across the East River, that the project began to take shape with the hiring of John Roebling as chief engineer and designer. Roebling, who lost to James Eads, as the engineer of the bridge across the Mississippi at St. Louis, was chosen after inspections of his works at Pittsburgh, Niagra

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1 The word bridge is both a noun and verb. It can name a card game or a part of the nose, a dental appliance or a place on a ship. It has at least two meanings in music, or may refer to a structural part of an eyeglass frame, a technique in billiards, and it can be used in an electrical context. The word pontiff or pope means bridge-maker.


3 On the evocative power of the Brooklyn Bridge compared to its rather less graceful neighbor, the Queensboro Bridge, see John H. Wiedman, WHY WE NEED OUR BROOKLYN BRIDGE (New York: Newcomen Society of the United States, 1983).

Gorge and Cincinnati. What really happened was "that the company selected a man, not a bridge. Roebling had been given a carte blanche." 5

Engineers generally build bridges to carry traffic or trains. But John Roebling, whose vision became incarnate in the Brooklyn Bridge, was a poet in stone and steel. The Brooklyn Bridge, which he did not live to see, was his "myth to God." 6

Born in Germany in 1806, John Roebling was raised a Lutheran but his most profound spiritual influence was Hegel. 7 Roebling studied with Hegel at the University of Berlin toward the end of Hegel's life. Hegel's "The Spirit of Christianity" presented a mystic's vision of persons actively and creatively at work, a radical dream of self-realization which prompted Roebling's immigration to the United States. He would adopt an almost superhuman work ethic but season it with a spiritual sense of work bordering on mysticism. His work brought great accomplishment but little peace. Roebling's metaphysical writings "with their rhapsodic reiteration of harmony, can be taken as a highly abstruse form of his discontent." 8 His essay, "The Harmonies of Creation," is replete with spiritualist and Hegelian language and vocabulary. Roebling's Brooklyn Bridge reflected a search for harmony and an offering to God.

Roebling's original drawings 9 and specifications reveal a "monomaniacal commitment to the bridge" 10 and his artistry. 11 It is an artistry recognized by other artists in a variety of mediums who have found inspiration in both the creation and physicality of the Brooklyn Bridge 12

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6 The expression "myth to God" is from the poem The Bridge by Hart Crane. See note 13, infra. The stanza reads:
O Sleepless as the river under thee,
Vaulting the sea, the prairie's dreaming sod,
Unto us lowliest sometime sweep, descend
And of the curveship lend a myth to God.
7 George Wilhelm Friedrich Hegel, 1770-1831.
8 Tratchenberg, supra note 4 at 62.
9 In The Bridge Over the River Kwai, a British soldier says "Well I've asked the engineer several times to show me his working plans ... Well, believe it or not, sir, there isn't a plan. He hasn't made one! And he doesn't intend to!"
10 This quote from Lucille Frackman Becker, Pierre Boulle (New York: Twayne, 1996), was used by Becker to describe Captain Nicholson, the engineer of the bridge in Boulle's The Bridge Over the River Kwai.
11 The significance of the particular engineer or designer in the creation of a monumental bridge, with some interesting examples, is discussed in Hayden, supra note at 8.
12 Not all artists, however, were favorably impressed by the bridge. In The American Scene, in 1907, Henry James said of the Brooklyn Bridge: "One has the sense that the monster grows and grows." See also Tratchenberg, supra note 4 at 131-132.
but none with greater passion and dedication than the poet Hart Crane. His poem, "The Bridge", first published in 1930, remains in print today.  

* * *

The last thirty-five years of the 19th century were heady times for New York and for Brooklyn. New York was changing from a horizontal to a vertical city with the first skyscraper, the Tribune Building, in 1875. Before 1870, most of New York lay south of 23rd Street but Grand Central Terminal opened further north in 1871 and by 1882 Broadway was electrically lit from 14th to 26th Street. Brooklyn, when combined with Williamsburg and Bushwick by the Consolidation Act of 1854, became, by 1875, the third largest city in the United States with a population exceeding 30,000. It was one of the country's major seaports.

The economy, except for the panic of 1873, was vibrant, for all the good and ill that men like Jay Gould and Cornelius Vanderbilt bring in their wake. Horace Greeley, who had been editor of the Brooklyn Eagle from 1846 to 1848, was a prominent man of the times and Walt Whitman, whose Leaves of Grass was first published in 1855 and was inspired by his life in New York and Brooklyn from 1838 to 1853, was one of the poets of the day. Cartoonist Thomas Nast of Harper's Weekly, whose work hastened the end of Tammany Hall, and Phineas T. Barnum contributed to the excitement of the times. Economist, philosopher, and sometime candidate for Mayor of New York, Henry George, was a prominent intellectual. Stephen Foster provided the

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14 Whitman's Leaves of Grass was first published in 1855 and was inspired by his life in New York and Brooklyn from 1838 to 1853.

15 1839-1897; his seminal work, Progress and Poverty, was published in 1879. George had a large and enthusiastic following in Brooklyn and his life was entwined with major players in the Brooklyn Bridge such as Abram Hewitt. George's well-known lectures in Brooklyn were partially a result of the initiative of lawyer Thomas Shearman who had
music. Public morality was the province of Henry Ward Beecher until his ignominious fall in the Tilton-Beecher scandal of 1875.\textsuperscript{16} New York politics, of course, was dominated from 1860 until 1871 by William Marcy Tweed.\textsuperscript{17}

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Real estate speculation on Long Island was aided by frequent ferry service from New York to Brooklyn, but an extremely harsh winter in 1866-1867 revived John Roebling's pre-war call for the construction of the Brooklyn Bridge. Brooklyn already had a Bridge Street waiting and

represented Henry Ward Beecher at the Tilton-Beecher scandal trial. On his death a large funeral cortege carried his body across the Brooklyn Bridge and he was buried at Greenwood Cemetery on W. 25th St. in Brooklyn.

The life, work, and influence of Henry George have been documented in several biographies including Rhonda Hellman, \textit{Henry George Reconsidered} (New York: Carlton Press, 1987), several earlier works, and efforts by both his son and daughter.


\textsuperscript{17}1823-1878. Scandals in 1857 led to the creation of a Board of Supervisors for New York to which Tweed, a former Congressman and alderman, was elected. By 1869 the Tweed Ring and Tammany Hall controlled New York and by the time of Tweed's arrest and conviction in 1871, Callow estimates the amount stolen to be $300,000,000. Tweed's $1,000,000 bail was posted by Jay Gould and after being found guilty on 104 of 120 counts and sentenced to 12 years, Tweed was jailed. Allowed frequent "outings," Tweed escaped to Cuba and then Spain, but was captured and returned to New York where he died in jail. Tweed grew up in a house at One Cherry Street, also the site of George Washington's home when New York was the nation's capital. The site is now under abutments which lead to the Brooklyn Bridge. Tweed's corruption was involved in the planning and financing of the Brooklyn Bridge but his biographers make little mention of it since the amounts involved, a $65,000 bribe to a city councilman, were so small a part of his activities.

the bridge promised enhanced property values, markets, customers, and better mail service.\textsuperscript{16} The construction of the Brooklyn Bridge began in 1870 and took thirteen years to complete. It spanned not only the East River but two eras in the history of New York and the nation. As Plowden has noted, it spanned eras of stone and steel.\textsuperscript{19}

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In 1876 John Roebling completed his work on the specifications for the nearly seven million pounds of galvanized (zinc coated) wire "of superior quality steel" from which the bridge would be constructed. There were to be 278 individual wires bound into a strand with 19 strands wrapped together in a sheath of soft iron wire, thus producing a cable. The four cables would contain in excess of 14,000 miles of steel wire. As McCullough describes it: "Each of the nineteen strands in a finished cable would be a continuous wire some 185 miles in length, drawn from one anchorage to the other, up and over towers, back and forth, back and forth, above the river."\textsuperscript{20} The first wire was strung across the bridge on August 14, 1876.

While it was not settled whether Bessemer or crucible steel would be used in the Brooklyn Bridge's cables, it had been generally assumed that John Roebling's Sons, a steel firm in Trenton, New Jersey, would produce it. A sealed-bid process was established by the Trustees of the New York and Brooklyn Bridge and Board Vice President Abram Hewitt, himself an ironmonger, as well as a politician, disqualified himself from bidding, and persuaded the Board that no one involved with the bridge should be allowed to bid. At Hewitt's behest, the board: "Resolved, That bids from any firm or company in which any officer or engineer of the Bridge has an interest will not be received or considered; nor will the successful bidder be allowed to sublet any part of the contract to any such person or company."\textsuperscript{21}

In the abstract, such a policy seems eminently sensible, but while Boss Tweed was gone from the scene, the rot of corruption was not. The disqualification, clearly aimed at the Roebling firm, resulted in Washington Roebling's sale of his stock in John Roebling's Sons, which

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\textsuperscript{16} The construction of a pneumatic tube across the Brooklyn Bridge to send mail between the New York and Brooklyn post offices was approved in New York Mail and Newspaper Transportation Co. v. Shea, 51 N.Y.S. 563, App. Div. 1898.

\textsuperscript{17} Plowden, supra note 5. The Brooklyn Bridge was the last major bridge to utilize stone towers.

\textsuperscript{18} McCullough, supra note 4.

\textsuperscript{19} Quoted in McCullough, supra note 4, at 374.
allowed the firm to then bid on the wire made with Bessemer steel. The board's executive committee unanimously recommended its award.

Shortly thereafter the board decided that the wire should instead be made of crucible cast steel but the bidding was not reopened. Instead, the original bids were used. Roebling's had been the lowest for Bessemer but not for crucible cast, and the contract was awarded to a Brooklynite, J. Lloyd Haigh. 22 The Haigh contract called for the posting of a $50,000 surety bond and a guarantee that the steel supplied would be of the same quality as that of the samples. The contract did not, however, mention that Vice-Chairman Hewitt held the mortgage on Haigh's manufacturing facility or that Hewitt had agreed not to foreclose in exchange for 10 percent of what Haigh earned on the bridge contract.

The spinning of the cables using Haigh's wire began in July of 1877 but eleven months into the operation an assistant to Washington Roebling discovered that wire which had not passed inspection was making its way onto the delivery wagons. Further inquiry discovered that the pile of rejected wire was getting smaller rather than larger over time. When eighty rings of suspect wire were tested after they arrived at the bridge site, only five were found up to specification. 23 It also became apparent that Haigh had not made the samples of crucible steel wire upon which the Board relied and further that some of what Haigh did supply to the bridge was Bessemer steel, billed at the higher crucible cast steel price. 24

22 While the process was suspicious from the start, reasonable minds could well have differed over the merits of Bessemer versus crucible cast steel. The Bessemer process was still new, and was soon supplanted by open-hearth, and in the 1870's and 1880's bridge disasters of various types and causes were frequent and highly publicized. McCullough, notes that, "something like forty bridges a year fell in the 1870's—or about one out of every four built. In the 1880's some two hundred more fell." McCullough, supra note 4, at 390.

23 The hope of failure, rather than the lure of easy profit, motivated the forced labor soldiers in The Bridge Over the River Kwai to seek out inferior materials. They would make a careful selection and bring back the most twisted and brittle ones they could find; or else devote considerable effort to felling a giant tree, which would subsequently tumble into the river and be lost. Or again, they would choose trunks which were eaten away inside by insects and collapsed under the slightest weight.


24 Some years later, Henry George pointed to the bridge's construction and Haigh scandal as the polar extremes of the times' good and bad.

We have brought machinery to a pitch of perfection that fifty years ago could not have been imagined; but in the presence of political corruption, we seem helpless as idiots. . . . But the skill of the engineer could not prevent condemned wire from being smuggled into the cable.

Quoted in McCullough, supra note 4, at 446-447.
Perhaps more disturbing than the simple fact of the Haigh-Hewitt wire fraud scheme was the fact that a substantial amount of the sub-standard wire, perhaps as much as 221 tons, had already been woven into the cables and could not be removed. Washington Roebling placed the blame squarely on the bridge trustees, but it was his foresight that saved the bridge. The original specifications called for wire with a safety margin of six, and Roebling calculated that even with the inferior wire left in place, the margin would be five. That, plus the order to add 150 wires to each cable, insured the cable's integrity. So strong were the cables, said the chief engineer, that the anchorages would uproot before the cables would break. The contract with Haigh for the wire with which the cables were to be wrapped was terminated and awarded to John Roebling's Sons.

By October of 1878, the new head of Tammany Hall, New York City Controller John Kelly, "Anxious to disown any previous connection with Tweed . . . and reportedly exercised over how much the bridge was costing" let it be known that he would spend no more money on the bridge project. The Bridge Board responded by seeking a writ of mandamus to order the Controller to spend money in excess of the 8 million dollars stipulated in the 1875 Act establishing the Board and authorizing the construction of the bridge. The New York Court of Appeals concluded that despite language that "the whole amount to be paid by both cities shall not exceed eight millions of dollars," the Act did not prohibit the trustees from calling on the cities to pay more, or the cities from paying it, to ensure completion of the bridge. The court noted that the controller would not be justified in refusing payment even if the work had departed from the original plan, or if the trustees were extravagant in their expenditures, or even if the bridge when completed would be useless and unsafe.

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The wire cables from which the Brooklyn Bridge is suspended gave rise to not only the bridge's physical reality and solid yet ephemeral

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25 McCullough, supra note 4, at 441.
26 People ex rel Murphy v. Kelly, 76 N.Y. 475 (1879).
27 The steel cables from which suspension bridges are hung owe their existence to the work of inventors Sir Henry Bessemer (1813-1898) and Sir William Siemens (1823-1883) whose processes allowed for the mass production of high quality steel. Bessemer patented his process in 1856; Siemens in 1861.
beauty, but also to its greatest scandal, most significant litigation, and to numerous and wonderful metaphorical and imaginal inspirations by Hart Crane in "The Bridge," and by painters such as Joseph Stella.

The cables of the Brooklyn Bridge are significant players in Hart Crane’s “Bridge,” from cables that “breathe the North Atlantic ...” in the proem to the “bound cable strands, the arching path upward,” of the final section, “Atlantis.” Indeed, the cable references at the poem’s beginning and end mirror the structure of the Brooklyn Bridge itself, as its cables are anchored at the Manhattan and Brooklyn towers. One could hardly view the Brooklyn Bridge without noting the resemblance of the cables and suspenders to a stringed instrument, or with perhaps a bit more imagination, to a musical staff. “The Bridge” contains nearly two hundred musical references—songs, chanting, arpeggio—and these references, innumerable and interwoven, are themselves like the bridge’s cables. The cables in the proem are transformed into music, the bridge into a religious symbol, as in Crane’s wonderful lines:

O harp and altar, of the fury fused,
(How could mere toil align thy choiring strings!)
Terrific threshold of the prophet’s pledge,
Prayer of pariah, and the lover’s cry,—

At the far end of Crane’s “Bridge” is Atlantis, Plato’s mythical perfect society, and the words of Plato in the epigraph remind us that music is the bridge to harmony:

Music is then the knowledge of
that which relates to love in
harmony and system.

The interplay of the cables of the physical bridge, the passage into light and music, and the mesh that bridges us to each other and from which God emerges, are the heart of Atlantis:

Through the bound cable strands, the arching path
Upward, veering with light, the flight of strings,—
Taut miles of shuttling moonlight syncopate
The whispered rush, telepathy of wires.
Up the index of night, granite and steel—

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28 The Brooklyn Bridge has also figured in mundane litigation such as a slip and fall on a banana peel, Cooley v. Trustees of the New York and Brooklyn Bridge, 64 NY Supp. 1 (1899); a fall on the bridge, Reid v. Mayor, 22 NY Supp. 623 (1893); and falling objects from the bridge; Walsh v. Mayor, 107 N.Y. 220 (1887).
29 See Leibowitz, supra note 13, at 141.
30 See Giles, supra note 13, at 100.
Transparent meshes—fleckless the gleaming staves—
Sibylline voices flicker, waveringly stream
As though a god were issue of the strings . . .

. . .
And on, obliquely up bright carrier bars
New octaves trestle the twin monoliths
Beyond whose frosted capes the moon bequeaths
Two worlds of sleep (O arching strands of song!)—
Onward and up the crystal-flooded aisle
White tempest nets file upward, upward ring
With silver tenaces the humming spars,
The loft of vision, palladium helm of stars.

. . .
So to thine Everpresence, beyond time
Like spears ensanguined of one tolling star
That bleeds infinity—the orphic strings,
Sidereal phalanxes, leap and converge:
— One Song, one Bridge of Fire!

One can easily imagine Hart Crane looking out his apartment
window at 110 Columbus in Brooklyn, seeing Roebling's masterpiece,
hearing as he writes, the harp played. The apartment in which he wrote
was, after all, the very one from which Washington Roebling directed
the work which brought his father's vision into physical reality and into
legend. 31

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No visual representation of the Brooklyn Bridge is more powerful or
better known than that by Joseph Stella. 32 When Stella, son of a lawyer,
arrived in 1896, New York was the city of Walt Whitman and Edgar
Allan Poe, its favorite poets. 33 Stella was living and teaching school in
Williamsburg, Brooklyn in 1916 and the next year would produce his

31 In the late 1920's Crane expressed an interest in writing a biography of Washington
Roebling who he called "a true Spenglerian hero." Weber, supra note 13, at 298. Oswald
Spengler (1880-1936), the German historian and philosopher, is best known for the
Decline of the West, seized upon by Hitler to justify Nazi rule.
32 The subject of the bridge as an artistic subject is explored by John Sweetman, THE
33 In his essay "Brooklyn Bridge, A Page of My Life," Stella compared "Poe's granitic
fiery transparency revealing the horrors of the maelstrom" to "the verse of Walt Whitman
. . . soaring above as a white aeroplane of help."

The Walt Whitman-aircraft connection is utilized by Hart Crane in the Cape
Halteras section of The Bridge, which is also preceded by a Whitman epigram. Whitman
and Poe were also favorites of Hart Crane and both are featured in his Bridge.
stunning painting, *Brooklyn Bridge*, the dominate feature of which is the web of cables and wires. As one critic put it, "The cables are ghostly threads, as they approach the electric lights, only to be lost in darkness as they go up into space." Enamored with the bridge aesthetically and symbolically, Stella writes an essay, "Brooklyn Bridge, A Page of My Life," which confirms the "mystical fervor" we see in the painting. In Stella's words:

> Seen for the first time, as a weird metallic apparition under a metallic sky, out of proportion with the winged lightness of its arch, traced for the conjunction of worlds, supported by the massive dark towers dominating the surrounding tumult of the surging skyscrapers with their gothic majesty sealed in the purity of their arches, the cables, like divine messages from above, transmitted to the vibrating coils, cutting and dividing into innumerable musical spaces the nude immensity of the sky, it impressed me as the shrine containing all the efforts of the new civilization of America...

Whether, or to what extent, Hart Crane was inspired by the Stella painting in his composition of "The Bridge" is not certain, but as Bram Weber puts it,

> Crane and Stella found a suitable symbol to embody the essence of America in the Brooklyn bridge, both called upon Poe and Whitman to sustain them in the course of wrestling with the problem of expression and both were imbued with religious emotion and awe before the bridge.

Crane knew of Stella's work as it was Crane who arranged for the publication of Stella's "Brooklyn Bridge" essay in the Spring 1929 edition of *Tradition*. Crane probably saw Stella's painting or a reproduction of it before he began work on "The Bridge" in 1923 but how much it may have influenced his poem we do not know. Crane's admiration for the painting, and its remarkable cable imagery is certain; Crane sought

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35 Jaffe, *supra* note 34, at 57.

36 Quoted in Jaffe, *supra* note 34, at 57.

Stella’s approval for its use as a front piece for a planned private edition of the poem. 38

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Tolls 39 are everywhere: toll calls, toll booths, toll collectors, toll roads, and of course on bridges. A toll—tax, fare, excise, surcharge—there are infinite ways, direct and indirect, we extract money for service, making the simple bridge fare seem innocuous. Tolls do play a part in the law and lore of bridges, from at least the time of Charlemagne. 40

In the case of the Brooklyn Bridge, anticipated receipts from tolls and fares were expected by the bridges’ supporters to pay for the bridge in three years. On opening night, the fare was one cent. 41 Of course, the true fare at the grand opening was substantially higher, as was the toll paid by those who built the bridge. 42

Setting the amount of bridge tolls has generated substantial litigation. 43 Bridges built over interstate waters after 1906 44 have, under various federal statutes, been subject to a “reasonable and just” standard test. 45 Whether a toll meets the standard depends upon the purpose for the charge. A bridge toll may be a means of amortizing construction

38 The Stella-Crane connection is documented in some detail in Jaffe, supra note 34, at 244-246.
39 Probably from the Greek telos, tax.
40 German tradition holds that the spirit of Charlemagne crosses the Rhine at Bingen over a bridge of gold, sometimes a moonbeam, to bless the vineyards and corn fields in times of plenty.
41 After opening night on the Brooklyn Bridge in 1883, one could cross with a wagon for a dime, a two-horse wagon for 20 cents, a sheep or hog for 2 cents, and a bike or a man and his horse for 3 cents. By 1891, the bridge was free for pedestrians and the bicycle toll was reduced in 1893 and abolished in 1894. William Tierney, Toll Bridge Regulation: A Method of Mass Transit Financing and Air Quality Control, 16 Urban L. J. 193 (1979).
42 An interesting economic analysis of bridge costs and tolls is Jora R. Minasion, Indivisibility, Decreasing Cost, and Excess Capacity: The Bridge, 22 J. Law & Econ. 385 (1979).
43 Most bridges are either public enterprises or regulated private ones. The nature and significance of the difference, and of the change from one to another is explored in New York Mail and Newspaper Transportation Co. v. Shea, 51 N.Y.S. 563, App. Div. 1898; the plaintiff was William Randolf Hearst, Sr.
44 The Bridge Act of 1906, 34 Stat. 84 (1906) and its predecessors are analyzed in Paxton Blair, Federal Bridge Legislation and the Constitution, 36 Yale L.J. 808 (1927).
45 The latest version found in 33 U.S.C. § 508 (1987) now says “just and reasonable” which one presumes means the same thing, whatever that may be.
costs, or provide a return on invested capital. It may be determined in an amount to pay for maintenance and operation of the bridge, or as in the case of multi-purpose entities such as the Port Authority of New York, to fund other projects, such as airports and seaport development. Tolls may also be used to encourage or discourage particular behaviors; low tolls to induce use, high ones to discourage the use of private vehicles, or to protect the environment.

The reasonable and just standard may take account of the value to users in crossing the bridge, although the value may vary from user to user. Consequently, tolls may vary according to the user, a policy that survived judicial scrutiny in New York. In Carey Transportation, Inc. v. Triborough Bridge and Tunnel Authority the Authority charged lower tolls to "general purpose" buses than to special purpose buses such as Carey’s which traveled between fixed stations and to and from airports. The court rejected Carey’s argument that the fares were subject to the "fair" return on investment rates charged the public in utility regulation which assumes that tolls must be uniform and represent allocation of the costs of construction, maintenance, and repair of facilities. While a private-owned utility might have to charge uniform rates, not so a public-owned utility such as the Triborough Bridge and Tunnel Authority. Thus, the question became whether the Authority, in including economic differentiation among its tolls acted to arbitrary discriminate rather than establish tolls based on valid economic goods or a consideration of the public good.

Revenue from such ventures can, of course, also flow the other way, decreasing or eliminating the need for traffic clogging bridge toll booths.

See In re Tolls on St. Johns River Bridge, 144 So. 99, (Fla. 1933).

Prior to the construction of a bridge, a ferry or other conveyance was in place at the same location and indeed, the loss of ferry service and its attendant visceral charm, weather permitting, is a cost paid by all when a bridge is built, regardless of whether one uses it.

An additional toll, or cost, in the construction of a bridge is that imposed upon property owners whose property is expropriated to facilitate bridge construction. Once the political decision to commence construction is made the hapless landowner or occupant whose property is needed is, or at least was in the case of the Brooklyn Bridge, doomed. In Matter of the petition of the New York Bridge Co., 67 Barb 295, 4 Hun. 635 (1875) it was held that under the statute incorporating the New York Bridge Co. [Laws of 1867, chap. 399] it was not necessary that the company even serve notice of the taking on the actual occupants of the land in question. Later, after the Brooklyn Bridge was completed statutes authorizing extension and reconstruction of the westerly end of the Bridge were held not to require the city to make any effort to acquire the lands by voluntary purchase. App. of City of New York, 104 A.D. 445, 93 NYS 655 (1905). The imposition of these costs.
Once the bridge is in place, it seems only natural that its builders and operators resist competition. In *Sprague v. Birdsall* the plaintiff crossed Cayuga Lake on the ice with his own sleigh and in doing so avoided a toll bridge. The toll-taker demanded the 25 cent toll which the plaintiff paid, and then sued to recover. The Cayuga Bridge Act of Incorporation provided that no one could cross the lake within 3 miles of the bridge without paying the toll, except by his own boat. The court found that the legislative intent was to cover only those whose crossing compelled them to resort to the aid of others, and not to one who crosses on his own. The plaintiff's moral victory was, however, rendered pyrrhic by the maxim *volenti non fit injuria*; he should have not paid the toll and instead suffered a prosecution. And herein lies the rub; a toll is paid one way or the other, no matter where or however you cross. Just as significant is the fact that a toll is paid in another currency even if you choose not to cross at all. That toll, of course, is that you remain where you are or don't go where you want to, or you take an alternate route, with its own toll to be paid.

While some bridges exact no direct toll for crossing, few bridges, other than those we cross from life to death, are one way. Tolls on bridges, however, are often collected only in one direction, with an idea to speed traffic flow (an idea so obvious it's a wonder it took so long to be

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50 2 Cow. 419, N.Y. Sup. Ct. (1823).
implemented). The one way bridge toll raises an interesting question: in which direction should the toll be levied? There are, one might suppose, practical and mundane reasons for whatever choice is made, or perhaps it makes no practical difference at all. If not, the choice sends an intriguing message: are you willing to pay to go one direction but not the other? If a one way toll system was established on the Brooklyn Bridge and new toll booths could be built at either terminus, which would be chosen? Is it Brooklyn or Manhattan which is worth paying a toll to enter? Or to flee? The political debate over such a question is of a kind to provoke strong feelings. It should be noted that the opening day parade on the Brooklyn Bridge, led by President Arthur, was to Brooklyn, not to Manhattan.

* * *

Death has a recurring presence in the history, lore and law of bridges, physical and metaphorical. The notion that the construction of a bridge requires a death or sacrifice to ensure successful completion has a long and storied literary pedigree and some curiously eerie historical coincidences. As Paul Giles notes, "We have seen how in ancient legend the deities would demand the sacrifice of a human life in recompense for the huberistic business of erecting a bridge over god-given water." 

John Roebling, designer and creator of the Brooklyn Bridge, made a personal contribution to the bridge-death lore. In 1869, a mere three days after the final authorization for the bridge's construction was obtained, Roebling was in Brooklyn looking at the site for the Brooklyn tower when a ferry, the very vehicle whose deficiencies had led Roebling to propose the bridge years before, had its revenge when Roebling's foot was crushed against a piling. His attempts to prescribe his own medical treatment, including the amputation of his toes without anesthetic, led to an agonizing death from tetanus three weeks later, before the bridge

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51 It should be noted that the time spent waiting in line for the toll to be collected from those in front of you, also exacts a toll.

52 Should the traffic back up on the bridge or on the approach ramps, for example. This may well be significant where the tolls booths were already there when the decision to convert to one way tolls was made. On the Golden Gate Bridge in San Francisco, for example, the toll booths had stood for years on the south or San Francisco end of the bridge. Thus, the decision to exact the tolls from those entering the city results in the back up on the bridge itself rather than on the much shorter northbound on-ramps.

53 Giles, supra note 13.
construction had begun. While perhaps not a volitional sacrifice to ensure the bridge's success in a literal sense, the irony cannot be missed.

There is an ancient and extensive folklore from India to the Balkans and beyond, of a woman, often the wife of the builder, walled-up in the foundation of a bridge to facilitate the building and to protect those who will cross. Even the children's game "London Bridge, All Fall Down" may have its roots in the belief that human victims were interred in the foundations of the Stoneleigh Bridge in London about 1558. In still later versions of the London Bridge game, we find suggestions of the practice of walling up a human sacrifice in bridge foundation.

The "devil's bridge" stories from England, Germany, and Switzerland are part of this legend. To insure completion of a bridge on time, the builder agrees with the Devil to sacrifice the first to cross. The Devil's rage when the first crossing is by a rooster, chamois, or dog are variations on the theme. This ancient tale is put into verse by Henry Wadsworth Longfellow in "The Devil's Bridge."

And the Devil promised to let it stand,
Under compact and condition
That the first living thing which crossed
Should be surrendered into his hand,
And be beyond redemption lost.
At length, the bridge being all completed,
The Abbot, standing at its head,  
Threw across it a loaf of bread,  
Which a hungry dog sprang after,  
And the rocks reechoed with the peals of laughter  
To see the Devil thus defeated!

Nor did death take a holiday during the construction of the Brooklyn Bridge. Work in the caissons took three lives from the bends and by opening day, May 24, 1883, at least 27 workers had died, from falls, snapped wire, falling stones and derricks. Once the Brooklyn Bridge opened, death was close behind. One week after the opening celebration, on Decoration Day, 1883 the promenades were open to pedestrians and nearly 87,000 people took advantage of fine weather to walk the bridge. But a woman's fall in a crowded stairwell on the New York side, and a crush of people from both directions, resulted in twelve people being trampled to death. Lawsuits against the trustees of the Brooklyn Bridge alleging a failure to properly police the structure were unsuccessful. The fact that the police were improperly appointed was said not to matter since neither that fact nor their number (22), caused an unfortunate but unforeseeable incident. The Bridge Company did, however, thereafter double the police presence on the promenade.

In both fact and fiction bridges have been frequent venues from which to embark into death. The Brooklyn Bridge had been open for only two years when Robert Odlum, an athlete and swimming teacher, leaped from the bridge as a publicity stunt and fell 135 feet to his death. The following year Steve Brodie was pulled from the water below the bridge and claimed to have jumped from it. There were no witnesses but Brodie nonetheless used the stunt to secure his role in a Broadway play where he starred in “On the Bowry” in which his leap from the Brooklyn Bridge was a favorite scene.

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60 Most common among divers and pilots of unpressurized aircraft. The condition arises from the formation of gas bubbles in the blood if one moves too rapidly from higher to lower atmospheric pressure.

61 The details of the deaths are set forth in rather grisly detail in The Great East River Bridge 1883-1983, note 4 supra.

62 May 31, now Memorial Day.

63 Hannon v. Agnew, 1 City Ct. R. Supp. 64, aff. 1 City Ct. R. Supp. 68 (1883).

64 The opening lines of Thornton Wilder's The Bridge of San Luis Rey (New York: Grosset & Dunlap, 1927), read: “On Friday noon, July the twentieth, 1714, the finest bridge in all Peru broke and precipitated five travellers into the gulf below.”

65 The first documented non-fatal jump from the Brooklyn Bridge was by Larry Donovan. The Great East River Bridge 1883-1983, supra note 4.
Hart Crane’s Brooklyn Bridge was also the “stage on which death is enacted . . .” or, more symbolically, “a platform for spiritual release.” Crane’s The Bridge opens with a poem entitled “The Brooklyn Bridge” and the fourth stanza reads:

Out of some subway scuttle, cell or loft
A Bedlamite speeds to the parapets,
Tilting there momentarily, shrill shirt ballooning,
A jest falls from the speechless caravan.

This arresting image of a suicidal madman ascending from a dark, dank subway, climbing the Brooklyn Bridge with its astounding views, the freedom and tactile and visual appeal of the ballooning shirt, are rendered rather less attractive by what we know will follow and the lack of concern or contact from the vehicle caravan below. Poets as diverse as T. S. Eliot and Thomas Hood preceded Hart Crane in the use of a bridge as either a path to death or as a structure from which to jump or fall. In The Waste Land, Eliot wrote:

Unreal City,
Under the brown fog of a winter dawn,
A crowd followed over the London Bridge, so many,
I had not thought death had undone so many.
And in The Bridge of Sighs Thomas Hood spoke of
One more unfortunate,
Weary of breath,
Rashly importunate,
Gone to her death!

While crossing the ruined George Washington Bridge astride a cable, Priest, the protagonist in the D. Keith Mano post apocalyptic novel, The Bridge, is astounded to find a youth on the same cable heading toward Manhattan which Priest so desperately seeks to flee. For reasons as enigmatic as the novel itself, the youth lets himself fall.

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66 See Leibowitz, supra note 13.
67 See Paul, supra note 13.
68 See Giles, supra note 13, at 151.
69 1888-1965.
70 1799-1845.
72 Thomas Hood, THE POETICAL WORKS OF THOMAS HOOD (Boston: Little, Brown, 1856).
Hood was speaking of a London bridge, not the Ponte dei Sospiri in Venice. That famous structure consists of two enclosed levels for passage in and out of the New Prison, Prigioni Niovi.
Lazily he toppled left, over the cable's edge, legs still astraddle . . . In a fetal position, tumbling, the boy plunged down. At once, he was annihilated by distance, a note dissolving through colorless backgrounds. And, in obedience, he fell without sound. Priest snapped his head back. He howled, affording a human voice to death.

Perhaps the most memorable tale recounting death from a fall from a bridge is the Ambrose Bierce short story, "An Occurrence at Owl Creek Bridge." This mimetic tale recounts the execution by hanging from a bridge of captured spy Peyton Farquhar who believes that he has miraculously escaped death. As he falls, the noose around his neck, Farquhar's senses, both of vision and hearing, become abnormally acute, and his sense of time slows, as the time between falling and suffocating seems "ages." Indeed, his plunge into the water and subsequent rush to freedom and safety seem to take hours. Of course, the rope did not break and Farquhar did not survive. Instead, it is a terrifying variant on Zeno's paradox. In fact, Farquhar's death is a refutation of Zeno.76

74 Ambrose Bierce, THE COLLECTED WORKS OF AMBROSE BIERCE (New York: Neale Pub., 1909). Long forgotten, Ambrose Bierce (1842-1914?), a writer for various Hearst newspapers, resurfaced when An Occurrence at Owl Creek Bridge (La Riviere du Hibou) was made into a film by Robert Enrico. It won the Short Film Grand Prix at the Canne Film Festival in 1962, and an adaption won an Oscar for short films in 1963. It also reached television thanks to Rod Serling's The Twilight Zone. See M.E. Grenandea, AMBROSE BIERCE (New York: Twayne Publishers, 1971). Bierce, the only writer of any stature to fight in and survive the Civil War, is the subject Roy Morris, Jr.'s interesting recent biography, AMBROSE BIERCE: Alone in Bad Company (New York: Crown Pub., 1995).

75 Death, of course also results from the fall of the bridge itself, as in Thornton Wilder's The Bridge of San Luis Rey. The notion of the bridge between the living and the dead is beautifully set forth by Wilder: "There is a land of the living and a land of the dead and the bridge is love, the only survival, the only meaning." The bridge between the living and the dead may also arise as a consequence of a bad choice as to which bridge to cross or defend. As ut by Cornelius Ryan on the introductory page of A Bridge too Far: "Pointing at the Arnhem bridge on the map he asked, "How long will it take the armour to reach us? Field Marshal Montgomery replied briskly, "Two days." Still looking at the map, Browning answered, "We can hold it for four." Then he added, "But, sir, I think we might be going a bridge too far." Crnelius Ryan, A BRIDGE TOO FAR (New York: Simon & Schuster, 1995)(1974).

Shakespeare utilized the bridge as a metaphor in Much Ado About Nothing. In Act 1, Scene 1, Don Pedro, Prince of Aragon says, "What need the bridge much broader than the flood? The fairest grant is the necessity. Look, what will serve is fit."

The notion of compression of time is, of course, central to the Rip Van Winkle story by Washington Irving, and Hart Crane blended Van Winkle and 1920s New York in *The Bridge*.

And Rip was slowly made aware
that he, Van Winkle, was not here
nor there. He woke and swore
he'd seen Broadway
a Catskill daisy chain in May.

Much of Hart Crane's *The Bridge* utilizes substitute bridges or modes of crossing or moving from one place to another, and many of them involve death scenes or imagery. Indeed, Crane's "welcoming attitude . . . for death" is reflected in the lines: "O, upward from the dead / Thou bringest tally, and a pact, a new bound / Of living brotherhood!" Death, in fact, is a common word in Crane's poetry. Be the bridge analog an airplane, a ship, or a river, the "Barrier that none escapes" is a recurrent consequence of crossing or not crossing, a bridge.

The bridge is a utilitarian device, so much so, that only extraordinary structures such as the Brooklyn Bridge capture literary and artistic attention. For many of us, the bridge is an accessible metaphor enabling our minds and imaginations to cross to past and future and return, or to close the gap between lovers, and to symbolize a hope for connection between any two things which would benefit from connectedness. The concluding lines to Hart Crane's *The Bridge* reveal the startling power of the bridge metaphor as a vehicle by which people can have hope for a passable connection with each other, with their dreams, and with the infinite.

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77 "20 years had been to him but as one night." Washington Irving, *The Sketch Book* (1819). Washington Irving was also the author of the *Life and Voyages of Columbus* (New York: New York University Society Pub., 1885). Columbus is the narrator of the first post proem section of *The Bridge*, "Ave Maria," and is himself the bridge between the old world and the new.

78 Crane's choice of a quotation for the title page of *The Bridge* is interesting in this regard. From the Book of Job, in response to God's question "Where comest thou?" Lord Satan responds, "From going to and fro in the earth, and from walking up and down it."


80 See Liebowitz, *supra* note 13.

81 Crane was a suicide; he jumped off a ship and drowned, and the nautical references in *The Bridge* are everywhere, most often with the ship as a bridge bringing people and lands together. In an ironic twist, or perhaps prescience, in 1923 Crane wrote a poem, otherwise undistinguished, entitled "The Bottom of the Sea is Cruel." See Weber, *supra* note 13.
So to thine Everpresence, beyond time,
Like spears ensanguined of one tolling star
That bleeds infinity—the orphic strings,
Sidereal phalanxes, leap and converge:
—One Song, one Bridge of Fire! It is Cathay,
Now pity steeps the grass and rainbows ring
The serpent with the eagle in the leaves . . .?
Whispers antiphonal in azure swing.