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A "Radical Departure"? How the Home Insurance Building Won the "First Skyscraper" Debate

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Abstract Today, most architectural and engineering historians no longer consider the Home Insurance Building to be the first skyscraper. Despite this, the popular belief remains that William Le Baron Jenny invented the first skyscraper when he designed the Home Insurance Building in 1884. This paper recounts the history of how Jenney won the public debate starting in 1896, despite his building being only a small evolutionary step forward. In that year, a series of letters in *The Engineering Record* allowed Jenney and his colleagues to engage in a public relations campaign to recast the debate about the first skyscraper to place the Home Insurance Building as the pivotal structure in skyscraper history.

Keywords William Le Baron Jenney, Home Insurance Building, First Skyscraper, Steel-framing

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1. Introduction

By 1907, when William Le Baron Jenney died, most people in America considered him the inventor of the skyscraper, based on his design of the Home Insurance Building (HIB), completed in Chicago in 1885. Today, most architectural and engineering historians no longer believe that Jenney should be credited with this achievement (Larson and Geraniotis, 1987; Leslie, 2013; Fenske, 2020).[1)] However, the idea of the Home Insurance Building as the first skyscraper remains embedded in the popular historiography about tall buildings (Wikipedia, 2024).

When the HIB was completed in 1885, Jenney and the wider community viewed it as an evolutionary advance in framing design, but it was not considered a radical break from the buildings that preceded it. However, in 1896, Jenney and his colleagues, including Daniel H. Burnham, made their case for the HIB in a public forum in the *Correspondence* section of *The Engineering Record*, a widely read engineering journal of the day.

In June of that year, the journal published a letter from a shipbuilding company executive, F. T. Gates, asking which engineer should be credited for "working out the idea of lofty steel construction of buildings?" (Gates, 1896). When Jenney saw this, he and his colleagues wrote letters to the editor arguing for the Home Insurance Building.

Because most letter writers "voted" for Jenney, Gates chose Jenney as the inventor of the steel-framed skyscraper. From that point forward, the public considered Gates's choice the final word, and the HIB was designated the first skyscraper, despite its relatively minor role in the evolution of tall building technology. In short, Jenney won the debate in the public mind because he won a popularity contest, rather than based on an objective evaluation of the building's contribution within the long history of the tall building's evolution.

The rest of the paper proceeds as follows. The next section reviews early iron framing construction. Following that, Section 3 discusses the Home Insurance Building within this context. Then, in Section 4, the paper recounts the letter-writing campaign to see how Jenney and his colleagues successfully refocused the discussion on his building. The following section shows how the letter-writing campaign results propagated to the broader society by the turn of the 20th century. The last section offers concluding remarks.

2. A Brief History of Iron Framing

When discussing the history of the first skyscraper, the pivotal technology was arguably the development of the moment-resisting steel frame. That is, the skyscraper's defining characteristic is that the building's structural frame is a skeleton of riveted steel beams and columns, with additional wind bracing members, to create one continuous steel lattice that can resist both horizontal and

*I'm grateful to Gerald Larson and Tom Leslie for their assistance and patience in answering my questions. Any errors belong to the author.

1)Ali and Moon (2022), however, argue that the HIB can be considered the first skyscraper.

vertical loads.[2] As discussed below, Jenney's building was an evolutionary step in that direction but was a hybrid between old and new building methods, and was not a moment-resisting frame.

The earliest use of cast iron columns in a building was in 1772 inside St. Anne's Church in Liverpool. Iron's strength in compression and its (assumed) ability to be fireproof made it an increasingly popular choice for internal framing. By the mid-1860s, cast iron columns and wrought iron beams and girders for the internal skeleton were commonplace for large commercial structures in Western Europe and the United States (Condit, 1964).

The next advance in iron framing was the development of early curtain walls, where an iron frame was used to carry the façade in place of traditional load-bearing masonry walls. In 1850, New York builder James Bogardus developed a method for creating cast iron façades with columns bolted to beams, allowing for relatively large window openings. The street-facing cast iron wall would be attached to load-bearing masonry walls. In mid-19th century America, cast iron façades were a popular choice for commercial buildings.

Another parallel innovation was the so-called Crystal Palace. In 1851, the landscaper and architect Joseph Paxton developed a building whose entire frame was composed of iron and covered by glass. Since the building was for the London International Exhibition it was a large green-house-type structure, reminiscent of a bird cage. A similar structure was built in New York City for the Exhibition of the Industry of All Nations in 1853 (Larson, 2020).

Following these early experiments in iron framing was

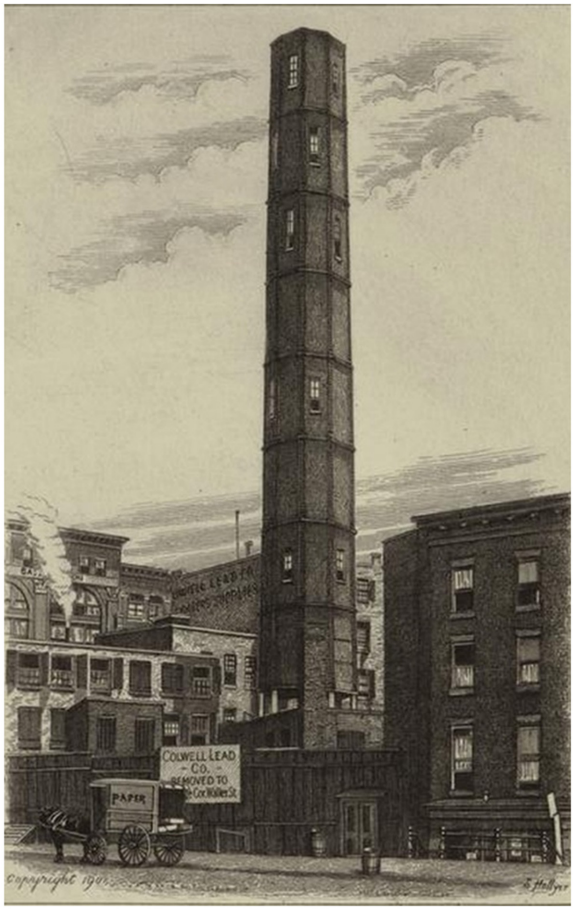


Figure 2. McCullough Shot Tower (1855), New York City: Source: Larson (2020).



Figure 1. Crystal Palace (1853), New York. Source: Wikipedia: *https://en.wikipedia.org/wiki/New_York_Crystal_Palace#/media/File:New_York_Crystal_Palace.jpg*

[2]This definition is made for simplicity. Other elements, such as foundations, elevators, and MEP, were important as well. See Condit (1988).

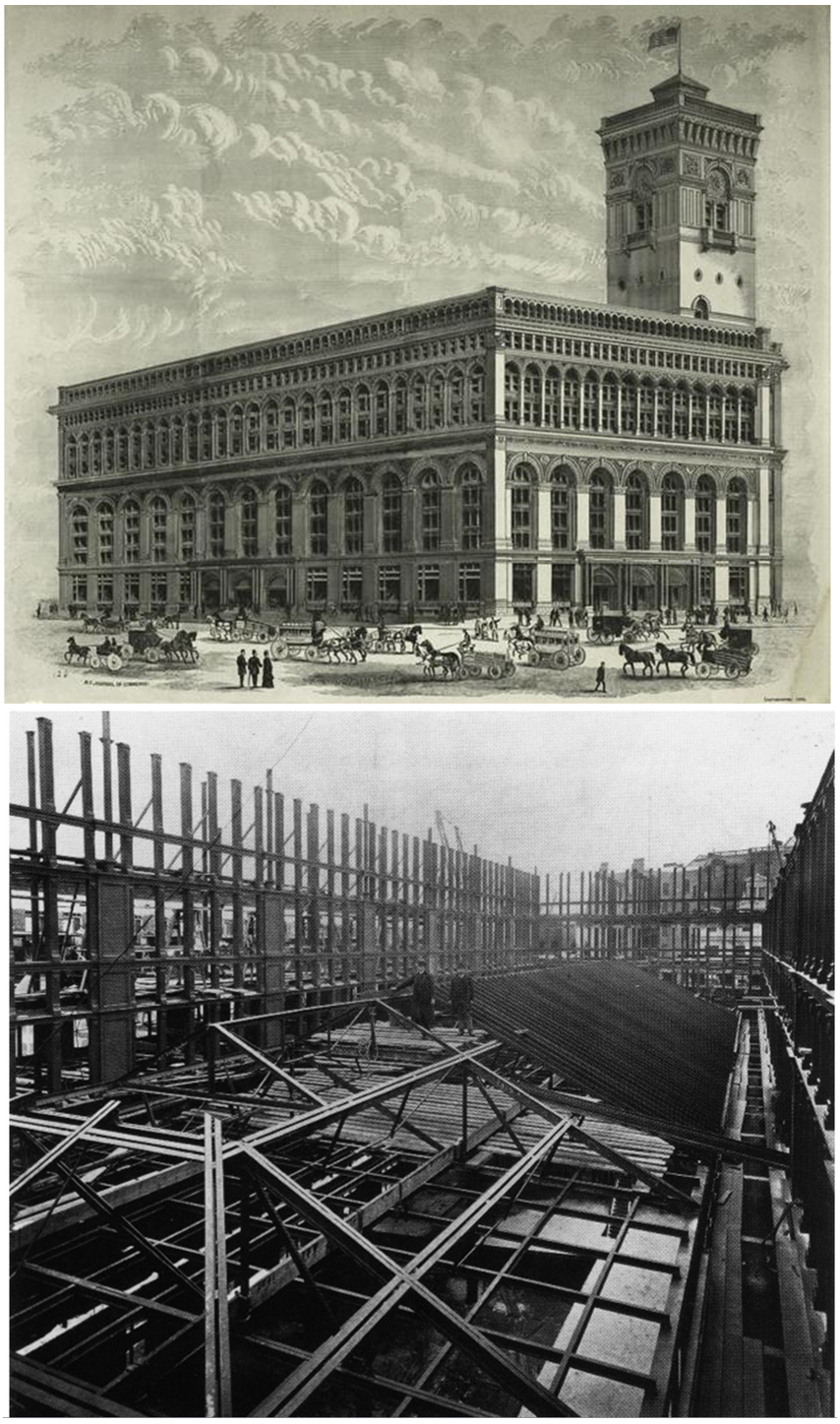


Figure 3. Top: Produce Exchange Building (1884). Bottom: Framing of the Interior Light Court of the Produce Exchange Building (ca. 1882). New York. Source: Top: *https://en.wikipedia.org/wiki/New_York_Produce_Exchange*, Bottom: *Landau and Condit (1999)*.

the St. Ouen docks warehouse near Paris, completed in 1866. It was, evidently, the first multi-story structure carried on an internal and external iron frame. Another structure, completed in 1872 was the Menier Chocolate Works at Noisiel, France, which used trussed framing similar to an iron truss bridge (Condit, 1964).

In New York, in 1854, Bogardus designed the Harper Brothers publishing factory. The inside was framed with iron columns and beams, while the street-facing facades were cast iron, with party walls made of brick. In the following year, Bogardus designed the McCullough Shot Tower, where molten lead was poured through a sieve at



Figure 4. Home Insurance Building (1885), Chicago. Source: Library of Congress. *https://www.loc.gov/item/2010634573/*

the top, and, as the lead fell, it would form into bullets. A water-filled tub on the ground floor would capture and cool them.

Bogardus designed the building to have an external iron frame enclosed by brick panels to make it lighter because it was built over a filled-in pond. The shot tower was likely the first fully curtain-walled structure in New York. Bogardus designed a second structure in a similar style a year later (Larson, 2020).

The next advance in skyscraper history occurred in New York in 1870, when the Equitable Life Assurance Society built a seven-story headquarters in Lower Manhattan, designed by Gillman & Kendall, with George B. Post as a consulting engineer. It was the first tall office building to include an elevator, along with internal iron framing and load-bearing masonry walls (Landau and Condit, 1999).

Its success prompted other companies to build grand office headquarters, such as the Western Union Telegraph Building, designed by George Post, at ten stories (1875), and the Tribune Building (1875) designed by Richard Morris Hunt, which was the city's tallest office building at 260 feet. These two also had internal iron framing with masonry walls.

Another innovation was introduced by George Post in his 1884 Produce Exchange Building in Manhattan. It was a standard cage with internal cast iron columns and wrought iron beams and girders. However, the inner court walls were framed with iron and had panels of brick affixed to them, which appears to be the first example of a curtain wall in a tall office building in the United States (Landau and Condit, 1999).

Notable examples of cage office buildings in Chicago were with Grannis Block (1881, 7 stories) and the Montauk Block (1882, 10 stories). Before 1883, Jenney had several commissions for commercial buildings. In 1872, he designed the Portland Block (7 stories), which was of cage design. He also appears to have made a small technological improvement with the first Leiter Store building (1879), where he reduced the thickness of the exterior masonry piers by placing iron columns adjacent to them on the inside of the building (Leslie, 2013). As we will discuss below, Jenney's next step was to embed the columns into the piers in the HIB.

In summary, by the early 1880s, before the HIB was commissioned, there was already a decades-long history of experiments with iron framing and early first steps in curtained-walled construction. The cage-style hybrid building with external masonry and internal iron framing was the most popular, but earlier precedents, such as Post's Produce Exchange, Bogardus's shot towers, and the Crystal Palaces, demonstrate that the basic principles of curtain-walled skeletal framing were already known (Condit, 1988).

3. The Home Insurance Building

In late 1883, Jenney was hired by the Home Insurance Company of New York to design a Chicago headquarters. A key request was that Jenney's building have as large windows as possible so that each office had ample sunlight. Jenney's biggest concern at the time was with the foundations. The geology in the Loop contains alternating bands of hard and soft clays. The problem was that a building with uneven weight across the lot could settle differentially, possibly causing the building to crack or have reduced functionality (Peck, 1948; Jenney, 1885). Jenney designed the foundation to have independent piers. That is, the pyramidal footings that rested on the top clay layer would be built in different sizes based on the weight that they carried. The external façade piers, for example, would be the heaviest and would, therefore, have the largest footings. The internal columns would be lighter and thus have smaller footings.

Jenney designed the structure with continuous masonry piers running up the entire structure to carry the gravity loads. However, the request for larger windows meant that Jenney had to devise a way to reduce the thickness of these piers. To do this, starting on the second story, he embedded square hollow iron columns into the piers. The columns were then filled with cement.

In the two street-facing facades, he also expanded the iron lintel pans (which were filled with concrete) so they ran from pier to pier. Between the piers, the lintels rested on cast-iron mullions which separated the window bays. Both the wrought iron girders and the cast iron lintels



Figure 5. A Pier Column and Lintel in the Home Insurance Building Exposed during Demolition in 1931. Source: Tallmadge (1931,1939). Note the Tallmadge Report used this image and others to suggest the iron carried the building independently.

were attached to the cast iron columns in the piers. To the naked eye, if one removes the brick façade and exposes the ironwork, the frame appears to be a moment-resisting frame (see Figure 5). However, Jenney had only loosely connected the horizontal iron members to the iron columns, and the column shared the load with the masonry piers and walls. In short, the HIB was an advanced form of hybrid structure that added additional iron supports to the two street-facing facades (Larson and Geraniotis, 1987; Sanderson, et al., 1932).[3)]

In 1885, Jenney gave a presentation about the building at the Annual Meeting of the American Institute of Architects (AIA). His speech was republished in several journals, most notably *The Sanitary Engineer* (Jenney, 1885). Jenney’s talk entitled, “The Construction of a Heavy, Fire-Proof Building on a Compressible Soil,” strongly suggests that he viewed his building as a heavy masonry building where uneven settlement was likely to be a problem. In the first half of Jenney’s speech, he described his method of the independent foundation piers. Then, in the second part of his talk, he mentions the iron framing, where he discusses how he built the iron columns into the piers.

[3)]See Larson and Gertaniotis (1987) for a detailed review of Jenney’s structural design choices in the HIB and the likely reasons behind them.

In short, there was little in his talk to suggest that he viewed his building as anything more than an evolutionary advance in framing methods and there was nothing in his talk that suggested he viewed himself as having invented the skyscraper. The ordering of his speech also indicated that he was most proud of the design of the foundations, as they effectively minimized the uneven settlement (Jenney, 1885). If he felt that his iron framing methods were very important and entirely novel, surely, he would have led with this fact.

Also, it’s important to note that Jenney was the first architect to use steel beams in a tall office building. However, they were not part of the original blueprints. When the Carnegie steel mills requested that he use steel beams instead of wrought iron ones, Jenney substituted them on the upper floors (Wermiel, 2009). The majority of the metalwork was iron, and all the metal in the external walls was iron. None of the metal was riveted; rather the members were bolted together (Larson and Gertaniotis, 1987). Interestingly, in Jenney’s talk, he never mentioned the fact that he used steel beams. Only after 1893, when riveted steel beams were used to erect skyscrapers, did Jenney refer to his building as a “steel skeleton” (Jenney, 1907).

3.1. Reactions to the HIB in the Architectural and Engineering Community

In the immediate years after the HIB was completed, the architectural and engineering community agreed that the building had some novelties and represented an evolutionary, rather than radical, step forward in iron framing. There was no belief at the time that he invented a radically new building form.

For example, in the June 1885 issue of *The Inland Architect*, the architect and fireproofing expert Peter B. Wight, who was commissioned to do the fireproofing for the HIB, wrote about the recent office buildings being erected in Chicago, including the HIB. His article points out that they were all variations on cage construction and used similar fireproofing methods, so he did not see the HIB as being exceptional in this regard. However, he did note that the façade framing was an important step in that iron girders and lintel pans connected to the iron columns and “thereby becomes an iron structure complete in itself” (Wight, 1885). However, as stated above, the iron members shared the load with the masonry, so Wight, evidently, recognized that the moment-resisting skeleton was the next logical evolutionary step; but his remark suggests that he saw that as a theoretical or prospective one.

Another discussion occurred at the 1894 meeting of the AIA, where Jenney was part of a panel discussion that included George Post and was moderated by Daniel Burham. In the debate, Post remarked that he believed that he was the first to use a curtain wall in the Produce Exchange Building courtyard. Post, however, was

relatively conservative and did not think at the time that iron should be embedded in masonry because it prevented access to the iron if it should rust or need repair. Burnham then commented that the Home Insurance Building was the first building to embed iron directly into the masonry. Burnham's comments suggest that he saw the building as a hybrid masonry-iron structure. When Jenney began his remarks, he made no further mention of the HIB, again suggesting that he did not feel the need to highlight any more about his building (Post, 1895; Burnham 1895; Jenney, 1895).

4. The 1896 Debate in *The Engineering Record*

Starting in 1896, however, the discussion about the Home Insurance Building began to take on a very different tone. At this point, Jenney and his colleagues began to assert that the HIB was the first steel-framed skyscraper. They were concerned that other architects were seeking to highlight their buildings in other cities, such as New York and Minneapolis, and the Chicago architects aimed to redirect the spotlight to Chicago, a vital incubator for skyscraper technology and architecture.

In June of 1896, F. T. Gates wrote to *The Engineering Record* (ER) to inquire who discovered the idea of steel construction for tall buildings (Gates, 1896). The editor offered that its journal highlighted some early examples of tall office buildings, such as the Home Insurance Building and the Rookery (1888) in Chicago and the Drexel Building (1889) in Philadelphia, but he did not pick one building as the first (Engineering Record, 1896)

But the letter prompted several people to offer their opinions. In the July 11th issue, Jenney wrote a letter stating that "The skeleton construction was a radical departure from anything that heretofore appeared and was exclusively my invention" (Jenney, 1896, July 11).

This statement represents the first time Jenney publicly claimed that he invented the skyscraper. It also represents a sharp turn in his wording. Furthermore, these words do not accurately depict the nature of the Home Insurance Building, as described above. First, the building was not a radical departure from earlier buildings. It was predominantly a load-bearing structure with iron to reduce the thickness of the masonry and the ironwork was (relatively speaking) loosely bolted together, which prevented it from being a true moment-resisting frame. The wind bracing was predominantly done by the masonry walls, and without the masonry, the structure could not have supported all the loads. Furthermore, the structure was an evolutionary advance over Jenney's prior step forward with the Leiter Store building of 1879. The claim that skeleton construction was exclusively his invention disregards the long history of iron framing improvements that preceded the HIB. In short, Jenney used this opportunity to stake his claim in contributing to the skyscraper's technological development.

Jenny also included with his letter a third-person anonymous statement that Jenney said he found in his office records (Anonymous, 1896). The statement recounts that in 1884, the Home Insurance Company executives were worried about Jenney's novel design, but that A. C. Ducat, an engineer, friend of Jenney, and the Chicago agent for the Home Insurance Company, vouched for the integrity of the design. This letter is designed to suggest that Jenney, in 1883-84, knew that his building was radical. But, again, it represents a strong pivot from his words back in 1885, when he did not try to argue that his building was a sharp break with past structures.

Seven more letters, five in support of Jenney, were also included in the issue. Most of the writers were intimately involved with the construction of the building and had a personal relationship with Jenney. For example, one letter was from George M. Lyon, the former business partner of A. C. Ducat, while another was from Hugh Young, the president of the Young & Farrell Diamond Stone Sawing Company, which provided masonry for the HIB (Lyon, 1896; Young, 1896).

One of the two letters not expressing support for Jenney was from Dankmar Adler of Adler & Sullivan in Chicago. Adler felt that one could not assign an inventor and stated that "Take it altogether, the skeleton construction, or its present successor, the steel-cage construction, was a growth rather than an invention… the credit for which should therefore be given my profession as a whole rather than to anyone in its ranks" (Adler, 1896). Another letter was from George Post, who felt his Produce Exchange Building should be considered the first example of curtain-walled iron framing (Post, 1896).

In the July 25 issue, two more letters appeared. One was from the Chicago engineer C. L. Strobel, who agreed with Adler and wrote, "The correct conclusion …of building work actually done would therefore seem to be that the modern steel-frame construction is a development towards which a number of individuals have made valuable contributions" (Strobel, 1896). Strobel's letter was followed by one from Daniel Burham, who wrote: "This principle of carrying the entire structure on a carefully balanced and braced metal frame, protected from fire, is precisely what Mr. William L. B. Jenney worked out. No one anticipated him in it, and he deserved the entire credit belonging to the engineering feat which he was the first to accomplish" (Burnham, 1896).

In the same spirit as Jenney, Burham sought to place the HIB as the pivotal structure in skyscraper history. As discussed above, Jenny's building was not a "braced metal frame," as it had no wind bracing and was not fully self-supporting.

Similarly, the statement that "No one anticipated him" disregards the long history of iron framing, and the comment that "he deserved the entire credit" exaggerates Jenney's role within this history. Burnham had worked in Jenney's office as a draftsman in 1868 and they were

long-time colleagues and friends. His letter can be considered more of a recommendation letter than an unbiased account. In this regard, it's important to view Burnham's words with some skepticism.

The August 8th issue included a letter from Leroy Buffington, a Minnesota architect who in 1888 received a patent for iron-framed construction. Buffington claimed, "I have used construction like the Home Insurance Company's Building of Chicago since 1876" (Buffington, 1896). Like Jenny, Buffington was trying to argue his case and was prone to overstate his role in skyscraper history. There is no evidence that his buildings in Minnesota, in fact, used external iron framing or curtain walls (Larson, 2024).

Finally, in February 1897, Gates was convinced by the Chicago architects that supported Jenney and concluded that the HIB was novel enough that his company, the Bessemer Steamship Company, would name their next new vessel "the 'W. L. B. Jenney,' after the eminent engineer and architect of Chicago, to whom we think the iron and steel trade is most indebted for this great advance in the construction of buildings" (Gates, 1897).

5. The Historiography in the 20th Century

After 1896, the popular press and the wider public believed that Jenney had invented the skyscraper. The letters from Jenney, Burnham, and the others who advocated for Jenney, were convincing because the Chicago architects and their colleagues were highly respected and trusted. The public accepted their statements even though they were, at best, exaggerations. Since the HIB's iron frame was encased in masonry, no one could dispute their words, and the public documents that existed, such as Jenney's article in *The Sanitary Engineer,* showed iron girders attached to the iron columns in the piers (Jenney, 1885). To the untrained eye, Jenney's structure seemed like an early version of the type of moment-resisting frame that emerged in the early 1890s.

By 1896, very tall buildings of 15 stories or more were being erected around the country, such as the 21-story Masonic Temple Building (1893) in Chicago and the 20-story Manhattan Life Insurance Building (1895) in New York, and people were curious to know who "invented" these incredibly tall towers. As the debate was heating up, Jenney felt he deserved the credit rather than those he viewed as his rivals. In short, the Chicago community won the argument because they engaged in a concerted effort to make Jenney the "father of the skyscraper." The wider public was convinced because of their expertise and honorable reputations.

An example of how the press repeated Jenney and Burnham's words can be seen in an 1898 article entitled, "Chicago's Skyscrapers" in *The International: An Illustrated Monthly Magazine of Travel and Literature* published in Chicago, which stated that "More effective than anything else in settling the dispute was a letter from Mr. D. H. Burham" and reproduce Burnham's ER letter. Then, the article recounts the unsigned statement that Jenney provided to the ER which seemingly offered additional proof of Jenney's accomplishments (Nicholas, 1889).

When Jenney died in 1907, he continued to receive the honor in his obituaries. The Pittsburgh Press wrote, "William Le Baron Jenney, inventor of the skyscraper…died in Los Angeles, Cal., yesterday…" (Pittsburgh Press, 1907). A few days later, a *Chicago Sunday Tribune* reported that Jenney "discovered skeleton construction…" (Fullerton, 1907).

5.1 The Marshal Field Estate Report (1931)

In 1931, the Trustees of the Estate of Marshall Field created a committee of engineers to evaluate the Home Insurance Building and file a report on whether it was the first skyscraper or not (Tallmadge, 1931/1939). The Estate was demolishing the HIB to erect a 46-story office tower in its place. Thomas E. Tallmadge, a former protégé of Daniel Burham, headed the committee. Given that the Estate was going to remove what the public considered the first skyscraper, it was necessary for the developer to at least make a statement of its importance as a form of tribute. As a result, they were not neutral parties in the debate.

The report included images of the lintels attached to the iron columns, again suggesting that it was an early moment-resisting frame, even though the iron members were not self-supporting.[4] In the end, the report concluded, "We are also of the opinion that owning to its priority and its immediate success and renown the Home Insurance Building was in fact the primal influence in the acceptance of skeleton construction; and hence is the true father of the skyscraper" (Tallmage, 1931/1939, p. 17).

Reviewing these words also shows that they did not use the phrase "first skyscraper," but instead, they used "priority," "primal influence," and "true father of the skyscraper." Even so, they do not document how they saw the structure as a true first in light of the history discussed above. And they do not document the "primal influence." Recent research has shown that the Chicago buildings that immediately followed the HIB, the Rookery (1888) and the Tacoma Building (1889), were more likely influenced by the Produce Exchange Building (Bruegmann, 1997).

Given the public's—especially in Chicago—desire to keep the HIB as the "first skyscraper," the report served to reaffirm its collective belief. At the time, other dissenting statements confirmed that the Home Insurance Building was neither a moment-resisting frame nor a radical departure from earlier buildings, but the public and press were not interested (Pond, 1934; Sanderson, 1932). Additionally, to the press and public, the debate

[4] The report also contained some errors and misstatements. For a discussion of these, see Larson and Geraniotis (1987).

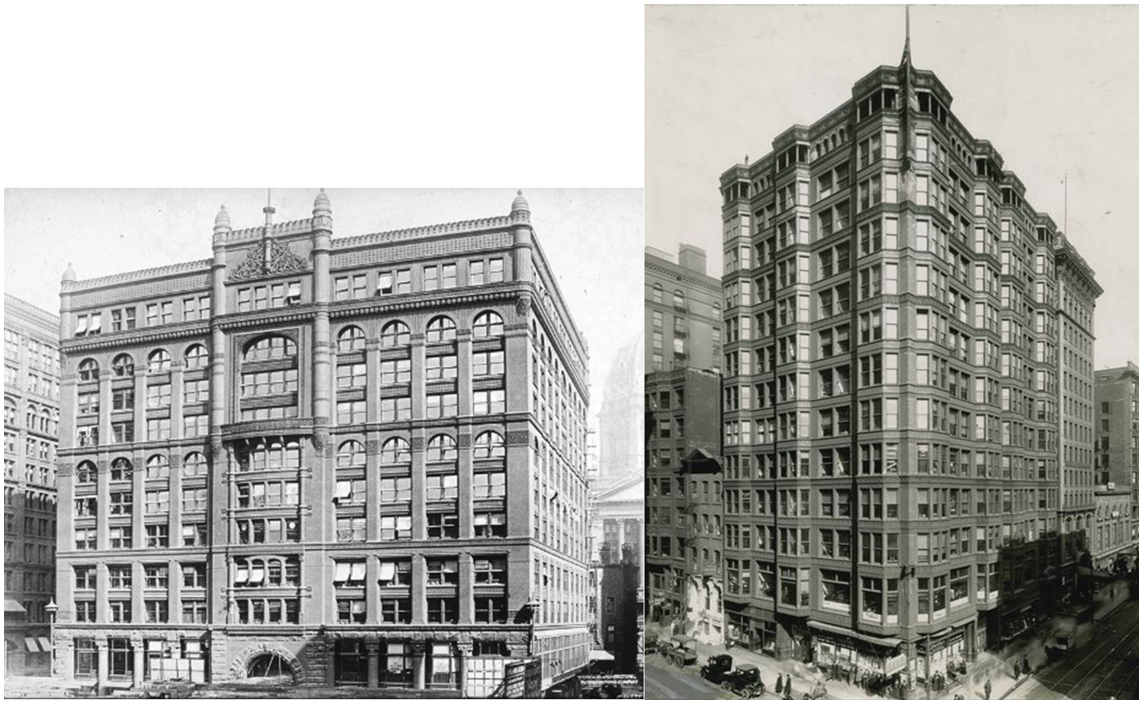


Figure 6. Left: Rookery (1888). Right: Tacoma Building (1889), Chicago. Source: Right: *https://en.wikipedia.org/wiki/Rookery_Building.* Left: *NYPL, https://digitalcollections.nypl.org/items/510d47d9-ae8f-a3d9-e040-e00a18064a99*

about iron framing was seen as obscure and arcane. The phrases "primal influence" and "father of the skyscraper" were sufficient in the public's eye.

6. Conclusion

In 1885, when the Home Insurance Building was completed in Chicago, neither its architect, William Le Baron Jenney, nor the architectural community viewed it as a revolutionary structure. Rather, Jenney and the other architects and engineers saw the building as an evolutionary step forward as an improved version of the hybrid masonry-iron buildings that had been increasingly common since the mid-19th century.

However, a decade after the completion of the HIB, Jenney and his Chicago colleagues began to reformulate how they described the building. In 1896, in a letter-writing debate in *The Engineering Record*, they started using phrases like "radical," "deserves the entire credit," and "the pioneer in the steel-frame construction" (Jenney, 1896; Burnham, 1896; Johnston, 1896, respectively). In the process, the Chicago architectural community successfully recast the Home Insurance Building as "the first skyscraper" and Jenney as the "inventor of the skyscraper."

In concluding, it's important to place Jenney's building within the larger context of skyscraper history. First is the issue of whether the building was a true skyscraper. On this front, the answer is no. It was not a moment-resisting frame (Landau and Condit, 1999; Leslie, 2013). This type of building emerged in New York and Chicago after 1890. Second is the issue of whether Jenney's building led to the moment-resisting frame, and again, the answer appears to be no, with earlier precedents in New York seeming to be more pivotal (Bruegmann, 1997).

Third is the issue of how novel Jenney's building was. Again, the building's relative novelty lay in altering the standard hybrid masonry-iron form by embedding iron into the masonry. The iron helped share the building loads, but the loads would not have been successfully carried without the masonry piers, and the façade was not a curtain wall; it too was loadbearing—partially in the street-facing facades and entirely for the party walls (Larson and Geraniotis, 1987; Pond, 1934; Sanderson, 1932).

Taken together, a review of the building's history shows that were it not for the concerted and coordinated public relations campaign by Jenney and his colleagues in *The Engineering Record* in 1896, the building would have likely become just a historical curiosity among architectural historians, rather than being hailed as the first skyscraper.

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