



Bulletin of the Kenton County Historical Society

Website: www.kentoncountyhistoricalsociety.org Email: info@kentoncountyhistoricalsociety.org
P.O. Box 641, Covington, Kentucky 41012-0641 (859) 491-4003

March / April

2015



**Wilhelm Hildenbrand (1843-1908):
Chief Engineer for the Reconstruction
of the Roebling Suspension Bridge**

**Tannery, Saddle, Harness, Associated Enterprises:
Covington and Vicinity**

Wilhelm Hildenbrand (1843-1908): Chief Engineer for the Reconstruction of the Roebling Suspension Bridge

Don Heinrich Tolzmann

Introduction

In 1895, Wilhelm Hildenbrand was appointed Chief Engineer for the reconstruction of the Roebling Suspension Bridge on the Ohio River and served in that capacity until the project was completed in 1899. Although this work has been well described and documented by Joseph Gastright, the life story of Hildenbrand has not received the coverage it deserves.¹ A good place to start exploring his life is with his obituary that appeared in the *New York Times* a day after his death on 21 February 1908.²

As a rule obituaries are short and Hildenbrand's certainly is no exception, but aside from that, it also contains several inaccuracies. Perhaps as a corrective, Joseph Mayer published a lengthier obituary in the *Proceedings of the American Society of Civil Engineers*. Although informative, its coverage of Hildenbrand's life and work is incomplete. It also appeared several years after Hildenbrand's death and in a journal that did not have the readership of the *New York Times*.³ A scattered number of references can also be found in works dealing with Roebling, but they are relatively brief.⁴ Given the dearth of information about Hildenbrand, I have compiled the following biographical sketch to provide an up-to-date survey of his life and work.

Wilhelm Hildenbrand

Wilhelm Hildenbrand, the son of Stanislaus and Frederike Hildenbrand, was born in Karlsruhe on 1 June 1843, in what is today the southwest German state of Baden-Württemberg.⁵ He received a classical education at the Lyceum there and then went on to the Karlsruhe Polytechnic Institute, where he studied with specialists in mechanical engineering and bridge building (professors Redtenbacher and Sternberg). After taking the state exams (Staats-Examen), which were required of government employees, he became an engineer for highway construction and an inspector at the rolling mills in Westphalia and Rhenish-Prussia in 1866. In the following year (1867), he decided to immigrate to the U.S.

At first he found employment as a draftsman in an architectural firm and then as an Assistant Engineer for the New York Central Railroad. John A. Roebling took note of him in his address and memo book as follows: "W. Hildenbrand, 26 years, Germ Eng & well recommended. 213 Bowery & 2 floor, N.Y. might do as draughtsman."⁶ Hildenbrand turned 26 on 1 June 1869, so we can assume Roebling met him shortly before his tragic accident on 28 June, which led to his death on 22 July.

Roebling was probably impressed with Hildebrand's educational background, which resembled his own experience of having studied engineering and then working on road construction in Prussia. Additionally, Roebling notes that he was a German/English bilingual, which might have also been a plus factor. Hildenbrand, however, did not begin work on the Brooklyn Bridge project until 1870.

As Assistant Engineer for the New York Central Railroad, which was constructing Grand Central Station, Hildenbrand was engaged with work designing the station's train shed. It was a massive structure (650 feet long, 200 feet wide, and 100 feet high) constructed of glass and steel, and was covered by a huge arched roof. It was a remarkable engineering achievement and remained in use until 1903, when it was demolished as part of the renovation of Grand Central Station.⁷

When Grand Central's train shed was completed in 1870, Hildenbrand began work as Principal Assistant Engineer for Washington Roebling, who had succeeded his father as Chief Engineer for the Brooklyn Bridge. According to Mayer: "During Mr. Roebling's protracted illness, which confined him to bed or room for nearly ten years, Mr. Hildenbrand made all the scientific investigations and mathematical calculations for the structure. He also made the architectural design for the approaches and had charge of the steel superstructure, which was designed, inspected, and erected under his direction."⁸

After the Brooklyn Bridge was completed, Hildenbrand opened up his own office in New York City as a Consulting Engineer and became the Chief Engineer for several bridge and railroad projects, which were listed in his obituary. One of these projects was his appointment as Chief Engineer for the reconstruction of the Covington and Cincinnati Bridge in 1895. Mayer writes of this:

This was his most important and difficult independent work. The bridge is the third largest suspension bridge in the world, and was built originally by Mr. John A. Roebling in 1867, but had become inadequate for the increased traffic. Mr. Hildenbrand replaced the floor and stiffening trusses with a wider floor and new stiffening trusses without interrupting traffic, and supplemented the old cables and anchorages with new ones. The task of distributing the load between the new and old cables was difficult, and required accurate calculation and delicate adjustment. It was evidently accomplished successfully; the new bridge is not only an adequate but a beautiful structure, and an ornament to the two cities. It was finished in 1899, to the satisfaction of his clients.⁹



Above: Wilhelm Hildenbrand (rt.) discussing work on the Brooklyn Bridge with Charles Roebling (1849-1918), the brother of Washington Roebling (1837-1926). *Courtesy: Princeton University Library*

On the cover: Postcard of the Suspension Bridge on the Ohio River. *Courtesy: From the author's collection*

During his time in Covington Hildenbrand lived at 318 Garrard Street, which was not far from the home of the Amos Shinkle, President of the Covington and Cincinnati Bridge Company, at 215 Garrard St. It was also right across the street from Ball's Row, a boarding house at the corner of 4th and Garrard Street, where Washington Roebling stayed while he worked on the bridge. While in Covington, Hildenbrand met and later married Florence M. Hubbard, daughter of a prominent judge in Covington. At the time of the wedding (21 June 1900), Hildebrand was 57 and his wife was 28.¹⁰

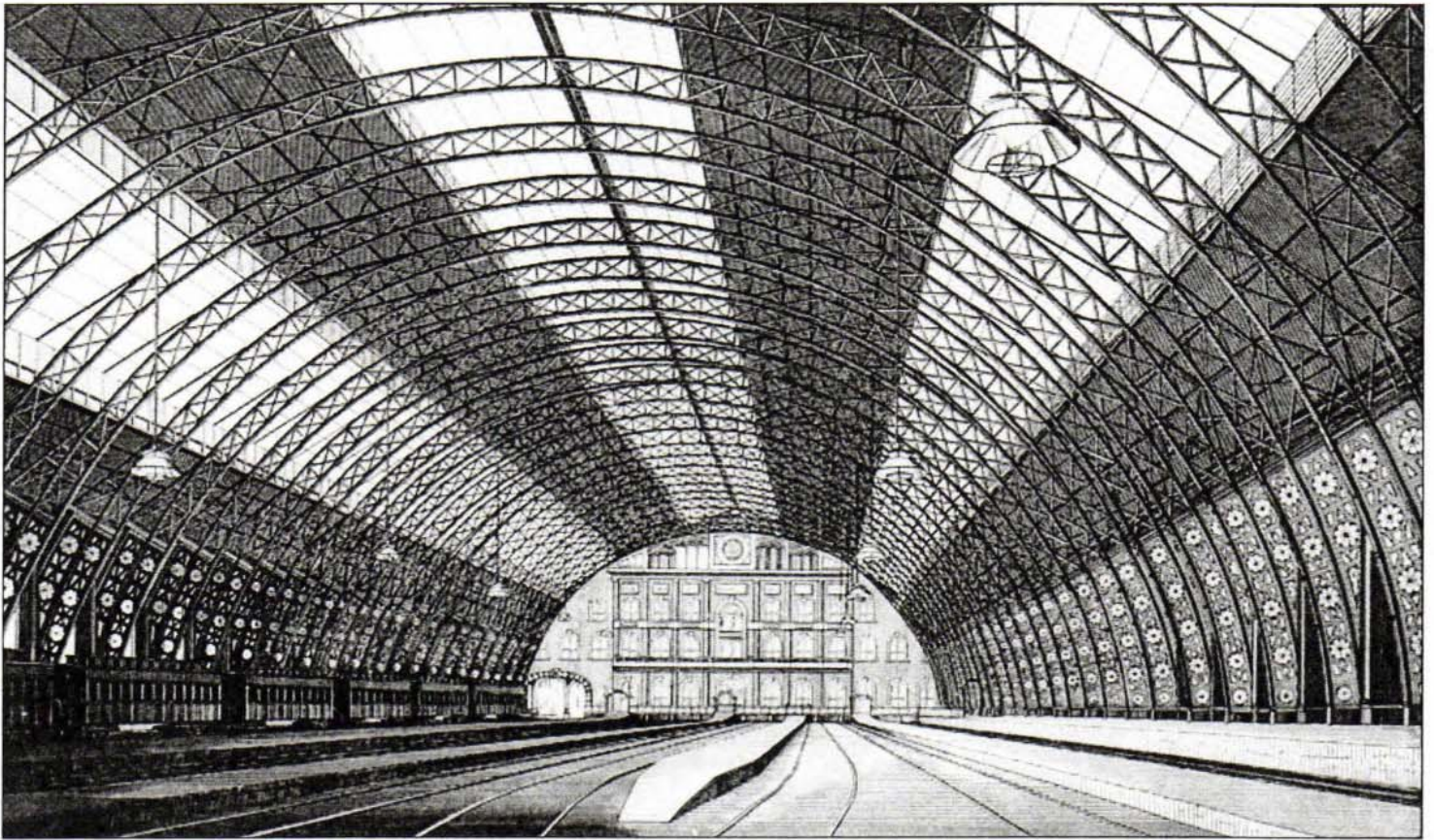
After completing work on the Ohio bridge, Hildenbrand was supposed to complete a report on the project, as Roebling had done when he completed work on it. But another project came up, taking him to Malpima, Mexico, leaving the report undone. In Mexico he completed work on the construction of a suspension bridge built by the John A. Roebling's Sons Company. And after this project, he continued working for the company as Chief Engineer for the construction of cables for another suspension bridge in New York, the Williamsburg Bridge, which was completed in 1903.

In the meantime, he was selected in 1901 to serve as Chief Engineer for a proposed reconstruction of the Brooklyn Bridge, but nothing came of the plan. The idea apparently came

about due to critical comments that had been made about the bridge's safety. The debate caused Hildenbrand to publish an article, which also appeared separately as a booklet, decisively refuting those who questioned its safety, thus bringing to a close any discussion of the bridge being reconstructed.¹¹

In 1902, Hildenbrand was elected as a member of the American Society of Civil Engineers, which reflected the high regard members of his profession had for him. In 1904, he became Consulting Engineer for the Westinghouse Electric Company of Pittsburgh and "designed the overhead structures for the electrification of the passenger traffic of the New York, New Haven and Hartford Railway, near New York city."¹² Until his death in 1908, he remained in the employ of Westinghouse, designing similar structures elsewhere for the company.

In 1904, Hildenbrand came to Cincinnati for a visit, apparently having been brought back to the area by the Covington and Cincinnati Bridge Company for the purpose of completing a report on the reconstruction of the bridge. Unfortunately, the report was never completed, perhaps because Hildenbrand was much too busy with projects he had in the works elsewhere.¹³ There is no question that he was in great demand and could hardly keep up with the many projects that were offered to him.



The Train Shed at Grand Central Station designed by Hildenbrand *Courtesy: Wikipedia*

In addition to his various projects, Hildenbrand often spoke at engineering and scientific meetings and also wrote a number of articles. He published two books reflecting his expertise in bridge building and the use of wire rope: *Cable-Making for Suspension Bridges*. (New York: Van Nostrand, 1877, 121 pp.) and *The Underground Haulage of Coal by Wire Rope*. (Trenton, NJ: W.S. Sharpe Printing Co., 1884, 120 pp.).

His obituary in the *New York Times* notes that he was careful and conscientious in his work and “firm and lasting in his friendships.” Mayer voices similar comments: “As an engineer and architect, Mr. Hildenbrand always showed good taste, and gave close and painstaking attention to all details. His extreme conscientiousness, which made him hesitate to delegate minor parts of his work to subordinates, was the only obstacle to his attaining a still more brilliant success than he achieved.”¹⁴ Here we might not a slight critique with regard to his administrative style, but it also underscores the meticulous nature of his *modus operandi*.

Commenting further on Hildenbrand, Mayer notes: “He had a very interesting and original personality, and was a true friend to many who were fortunate enough to make his acquaintance. He was liberal to a fault in his assistance to many who needed it. He was an enthusiastic admirer of Wagner, played his operas on the flute, and never missed attending their performance when opportunity offered.”¹⁵

Conclusion

One of the plaques on the Brooklyn Bridge bears Hildenbrand’s name together with the names of other engineers who worked on it, so passers-by may take note of this. It apparently is the only plaque with his name on it. In Covington his place of residence on Garrard Street is no longer there, but the best monument to him in the area is the Roebling Suspension Bridge, which he reconstructed in the 1890s, making it safe, reliable, and usable for generations to come.¹⁶

Endnotes

1. See: Joseph E. Gastright, “Wilhelm Hildenbrand and the 1895 Reconstruction of the Roebling Suspension Bridge,” *Northern Kentucky Heritage*. 8:1 (2000): 1-14. Also, see: Ralph Wolff, “John A. Roebling Suspension Bridge,” in: Paul A. Tenkotte and James C. Claypoole, eds., *The Encyclopedia of Northern Kentucky*. (Lexington: University of Kentucky Press, 2009), pp. 490-93.
2. See: *New York Times*. (22 February 1908).
3. Joseph Mayer, “Wilhelm Hildenbrand, M.A.S.C.E. Died February 21st, 1908, Memoir,” *Proceedings of the American Society of Civil Engineers*. 40 (1914): 249-51.
4. For references to biographical sources on Roebling, see my biography of Roebling: *John A. Roebling and His Suspension Bridge on the Ohio River*. (Milford, Ohio: Little Miami Publishing Co., 2007).
5. Regarding Hildenbrand’s parents, see: Werner Hentz, “145 Years Roebling Suspension Bridge in Cincinnati: The Wonderful Bridge Building Designer John Roebling.” Internet source at: <http://www.lifework-in-bridge-building.com/seite14.html>.

6. John A. Roebling, *Directory – Cov. & Cin. Bridge Co. – 1864*. Roebling Collection, Folsom Library, Rensselaer Polytechnic Institute, Series 1, C. Bridge Projects, Box 7, f. 133. The author currently has an article in preparation on this item: “Roebling’s Address and Memo Book: The Directory of the Covington & Cincinnati Bridge Co.”

7. Regarding Grand Central Station, see: Kurt C. Schlichting, *Grand Central Terminal: Railroads, Engineering, and Architecture in New York City*. (Baltimore: Johns Hopkins University, 2001).

8. Mayer, pp. 249-50.

9. Mayer, p. 250. With regard to the reconstruction work Hildenbrand stated: “It was my belief, based on a thorough examination of all parts of the old bridge, that the structure was in a state of excellent preservation and just as serviceable as when new, and, if the traffic conditions had not been changed, that no repairs, or only immaterial ones, would have been necessary.” See: Gastright, p. 5.

10. Thanks to Bill Stolz, Kentucky History Librarian, Kenton County Public Library, for finding information on Hildenbrand’s wife and their wedding date. There were no children from the marriage. Regarding Hildenbrand’s place of residence, see my article: “Roebling Heritage Tour: A Guide to Sites Related to John A. Roebling (1806-69) and His Bridge on the Ohio River,” *Bulletin of the Kenton County Historical Society*. (November/December 2013): 5-8, 11.

11. In 1902, Hildenbrand published a booklet responding to a critical review of the Brooklyn Bridge, which had appeared in an engineering journal, and raised concerns about its safety. See his: *The Safety of the Brooklyn Bridge: A Review of the Report of Messrs. Duryea and Mayer on the Condition of the Brooklyn Bridge*. (New York: n.p. 1902). Shortly after its publication, the *American Machinist* published an article entitled “The Safety of The Brooklyn Bridge,” commenting: “We are in receipt of a pamphlet bearing the above title, which is a reprint of an article by Wilhelm Hildenbrand, C. E., which was published originally in *Engineering News*. Mr. Hildenbrand was Col. Roebling’s assistant in the construction of the bridge and as such made the detail calculations for it. The pamphlet is a review of and answer to the report of Messrs. Duryea and Mayer on the condition of the bridge.... This report was a disquieting one and the answer to it is intended to show that its arguments and conclusions are unfounded. The report did not condemn the supervision of the structure in any important respect, as it stated that “no important deterioration exists,” but it did condemn the original design by claiming that certain secondary stresses were not provided for in it and in consequence of this the assertion was made that the bridge has never been safe.... Mr. Hildenbrand takes direct issue with these statements and condemns the recommendations made in the report by saying that “to carry out these two alterations would in my opinion be the most fatal error that could be made.” The argument is backed up by calculations and the conclusion is that “The Brooklyn Bridge is Safe!”.... Mr. Hildenbrand doubtless knows more about the bridge than any other living man and his conclusions will doubtless be accepted by the public, as they should be. It is proper to add that our statements above regarding the conclusions drawn by Messrs. Duryea and Mayer are based upon Mr. Hildenbrand’s pamphlet.” See: *American Machinist*. 25 (February 20, 1902): 279.

12. Mayer, p. 251.

13. Gastright writes that: “an incomplete report copy of his report surfaced in 1972.” See: Gastright, p. 13. I have tried to locate a copy of this report, but thus far have not been able to find one. Please contact the author, if you have information as to its whereabouts.

14. Mayer, p. 251. It is interesting to note that Roebling also greatly enjoyed music and took pleasure in playing the flute and the piano. See: Tolzmann, *John A. Roebling and His Suspension Bridge on the Ohio River*, p. 33-34.

15. Mayer, p. 251.

16. Although the lion’s share of credit for the Ohio and the Brooklyn Bridge justifiably goes to John A. Roebling, both Washington Roebling and Wilhelm Hildenbrand also deserve to be mentioned for the important role they played in working on both bridges, as without them neither bridge would be what they are today. Regarding Washington Roebling, see my article: “Washington Roebling (1837-1926): Man and Myth,” *Bulletin of the Kenton County Historical Society* (November/December 2014): 6-10.

Past Board Member San Juan Romero Passes

From 1999 to 2005, San Juan Romero was a dedicated board member of the Kenton Society. He was excited about our regional magazine *Northern Kentucky Heritage* and began the concern the Society now has about publication storage. Back issues are now residing in their third location since inception in 1992! At the time, it was easily handled in the de-humidified basements of the board members, but as time and products



moved on, storage space has become a prominent concern – one that San Juan saw early on. San Juan passed away January 24th, age 83, at his home in Fort Wright.

He was a veteran of the U.S. Air Force where he began his career as an air traffic controller, becoming Chief Controller at the Greater-Cincinnati (CVG) Airport, retiring in 1990. He often related that his roots were in the Southwest United States, where his family pioneered several centuries ago. He traced his family to early Spanish settlers in “El Norte” (American southwest) and his family still maintains ownership of some of their original Spanish land grant.

A multi-talented man involved in various endeavors and volunteer positions, he loved sports; life-long member of the American Legion, Veterans of Foreign Wars and chairman of the GI Forum. He served as a Spanish interpreter for local and state courts for 20 years and served on the Northern Kentucky Medical Board, the Northern Kentucky Education Board and Fort Wright Ethics Committee. He leaves his wife Kathleen “Kathy” of 33 years, who is herself active in local history and community affairs, as well as his children and step-children, and their families.