Dan Kaiser is retired from teaching Russian and European history at Grinnell College. After a career centered on places far away, he is using retirement to learn more about places close at hand. In 2013-14 he produced a blog devoted to the neighborhood around Walter Burley Griffin's Ricker House in Grinnell, and more recently has authored a series of "Grinnell Stories". He is a fan of the Prairie school architects, but is interested in all architecture.

Albert Kahn's Architecture Comes to Grinnell

Dan Kaiser

For more than a century Grinnell, Iowa has enjoyed the architecture of Louis Sullivan (1856-1924), who contributed the Poweshiek County National Bank (1914) to the city's landscape. Walter Burley Griffin (1876-1937), a colleague of Frank Lloyd Wright's, has also enjoyed a warm reception in Grinnell where he first designed the E. W. Clark Memorial Fountain (1910; demolished 1954) and then the Benjamin J. and Mabel T. Ricker House (1912). Albert Kahn (1869-1942), contemporary to Sullivan and Griffin, has never figured in the conversation about Grinnell's architecture. Indeed, to group Kahn with Sullivan and Griffin might be construed an insult to Progressive architecture since Kahn seemed to slight his colleagues by declaring often that architecture was "90 percent business, 10 percent art." But, as important as Sullivan and the Prairie School architects were, no architect had more influence over the built environment of the prairie region than Albert Kahn.

Mainly an architect of industrial rather than domestic or commercial clients, Kahn developed and utilized a system of reinforced concrete that proved especially attractive to the emerging automobile industry. As automobile manufacture adopted the Taylorist principles of scientific task-and-time management pursued by Henry Ford ("Fordism") and as the nascent assembly line began to prevail in automobile production, Kahn's factory buildings—broad, open, horizontal spaces suitable for the assembly-line approach—sprang up all over the Midwest, and eventually even on the Russian steppe. Typified best by the giant River Rouge Ford plant (1917 with later additions) in Dearborn, Michigan, these immense buildings helped make the automobile affordable, thereby encouraging suburban sprawl and all its

commercial and social consequences.

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Until recently, there was no evidence that Kahn had ever added anything to Grinnell's built environment, where Iowa architectural firms like Proudfoot, Rawson and Bird, Josselyn and Taylor, and Foster and Liebe long dominated. Kahn, by contrast, was known early in the twentieth century principally for his buildings in Michigan; "Detroit's Architect," as he was sometimes called (despite numerous buildings he created for the University of Michigan in Ann Arbor), could have had little reason to visit Grinnell, Iowa. However, last winter, as I scrolled through back issues of *Construction News* and *American Contractor*, I discovered the following notice:

> Factory (add. to contain kiln & wood-working shop): Grinnell, Ia. Architect Albert Kahn, Trussed Concrete bldg., Detroit. Owner Spaulding Mfg Co., care F. E. Spaulding, mfr. carriages and automobiles, Grinnell. Day work. Excavating. Owner will buy all material. Brick, Kahn's system reinforced concrete, tar & gravel roof, metal skylight, struct. & archt. iron, cement floors, electric wiring, lavatories, water closets, drinking fountains.
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> *American Contractor,* 6 August 1910, p. 74.

I knew about the Spaulding factory. Largely through the work of a Grinnell College student, Ned Shank '77, the Spaulding factory had gained a spot on the National Register of Historic Places in 1978. More recently, as plans coalesced for Hubbell Realty of Des Moines to renovate and re-purpose the remaining buildings, several newspaper articles retailed the history of the former carriage and automobile factory and the buildings in which the business had flourished early in the twentieth century. None of these articles mentioned Kahn.

It was only natural, therefore, to doubt the report in American Contractor: had the plan fallen through? Had Spaulding changed his mind? I decided to seek out the records so I could confirm whether or not Kahn had really designed a building for Spaulding. In 2003 Albert Kahn Associates, Inc. donated to the University of Michigan Bentley Historical Library a vast collection of papers and drawings for more than one hundred Albert Kahn designs, including buildings erected at about the same time as the proposed Spaulding factory. I consulted the online inventory, but found there no evidence of a Grinnell building. I contacted the collection curator, asking if perhaps papers relating to the Grinnell project had been overlooked or were so insubstantial as not to merit specific mention. Her reply seconded my finding: there was no Grinnell design in the Kahn papers at the Bentley Library; she suggested that I contact Donald Bauman, archivist at Albert Kahn Associates in Detroit, descendant of the firm Albert Kahn had founded in 1895.

In a prompt reply to my inquiry, Bauman confirmed that Albert Kahn had designed a building for the Spauldings in Grinnell, and that Kahn Associates still

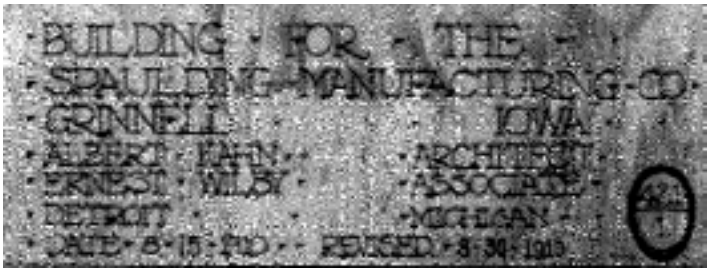

Figure 1: Identification of Spaulding Building and Architect, Page 1. Courtesy Drake Community Library.

had the original drawings (but no construction photos) for job #00421 (August 1910).

The drawings referenced what Ned Shank had described in the nomination for the Historical Register as Building #5, adjacent to Pearl Street and the railroad tracks, the westernmost building in the factory complex. Long abandoned and in 1978 its north wall in danger of collapse, building #5 was a three-story brick structure that had been erected just as the company embarked upon the production of automobiles.

Grinnell newspapers reported somewhat breathlessly on the likelihood that the successful buggy company might enter the modern world of automobile production. Already in June, 1909 the *Grinnell Herald*

reported that, "If the firm embarks on the automobile business, extensive alteration of the plant will of course be necessary," and went on to say that "An architect is expected to reach the city within a few days." No more was said about the unnamed architect, but within a few months the *Herald* announced that a decision had been made to center automobile production not in a brand new building, but rather in "the brick structure immediately across the street east from the Spaulding offices." The company decided to remodel the already-existing two-story facility on Fourth Avenue (no longer standing) to accommodate automobile production. As confirmed in an October, 1909 article in the newspaper, workers removed the roof and added a third story, then joined it to an extension of the west end, the entire structure to be "devoted entirely to the manufacture of the Spaulding automobile."

Spaulding intended, as a January, 1910 Herald article reported, that "the first floor of the completed building will be used as an assembly room, where the machines will be put together; the second floor will be a storage room for completed automobiles and for parts, and the third will be the paint shop." In other words, Spaulding simply transferred to automobiles the old model of buggy construction: a room in which all the vehicles were fully assembled in place at the same time. For such a plan, the old factory structure—interrupted by frequent wooden columns that subdivided the space into rectangles—was just fine. It was presumably the reason the Spauldings decided to make use of their old building, rather than build an entirely new structure that employed new technologies and encouraged innovative production practices.

Figure 2: Inside the Spaulding Automobile Factory (ca. 1910). Courtesy Drake Community Library

Shortly before the Spaulding renovation, Albert Kahn had devised an entirely different conception of an automobile factory that depended upon new construction materials. His first industrial commissions came from Henry B. Joy, Director and President of the Packard Motor Car Company, who invited Kahn to design the first of nine factories Kahn created for Packard between 1903 and 1905. These commissions were an undoubted boon to Kahn and his company, but, as Sol King—later President of Alfred Kahn Associates, Inc.—observed in 1970, "these buildings were still of the conventional wood-mill construction…The working floor was obstructed by columns and 20 feet was the largest span not requiring partial steel construction." But the tenth building Kahn designed for Packard (1905) marked the debut of a revolutionary concept of factory design: utilizing reinforced concrete instead of wood, Kahn eliminated most interfering columns without the expense and greater time implied by steel construction. At the same time, installing steel sash allowed Kahn to open much larger windows, which thereby threw much more natural light onto the factory floor. This was the factory model (originally dubbed "all under one roof" but later developed to be "all on one floor") to which Henry Ford later applied his idea of automobile

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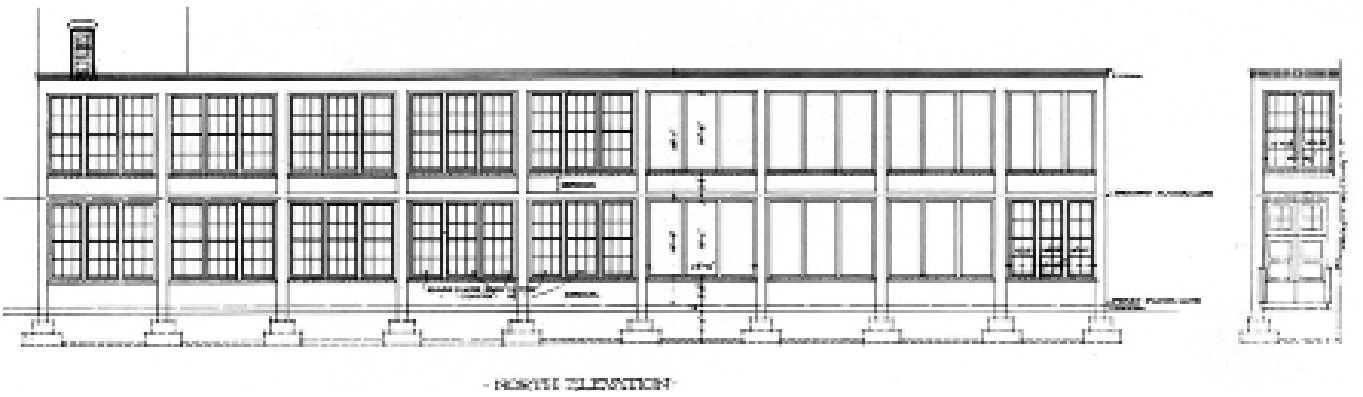

Figure 3: Plan for Packard Motor Car Company Building 10 (1905); North Elevation. Courtesy Drake Community Library

assembly, along the way commissioning Kahn to design more than a thousand buildings for his company alone.

Packard Building 10 constituted an important step in a process that Kahn continued to develop, gradually opening up the entire factory floor of immense buildings, the better to accommodate the assembly-line production that came to dominate the industry. Buildings like Packard 10 and Ford's Highland Park Factory (1909)—which stretched the horizontal outline well be yond the old norms—clearly pointed the industry in a new direction.

Spaulding's 1910 decision to build a new factory, therefore, positioned the company perfectly to take advantage of the revolution then just beginning to unfold.

Figure 4: Ford Motor Company Highland Park Factory (1909).

And for a time it appeared that the Grinnell manufacturer had seized that advantage. Despite having opted in

1909 to enlarge its old factory tsuit automobile production, in 1910 Spaulding seemed to effect an about-face, hiring Albert Kahn to design yet another factory that would employ all the advantages of reinforced concrete and steel sash windows. How the Spauldings came to know about and choose Kahn remains a mystery. Although Kahn was closely connected to the University of Michigan where over the years several Spauldings played prominent roles, I could find no evidence of close kin or business connections between the Ann Arbor and Grinnell Spauldings. Similarly, the 1911 Dau's Blue Book for Detroit and Suburban Towns listed two Spauldings as members of the Detroit Golf Club (for which Kahn designed a new clubhouse in 1918); no doubt these Spauldings were well-acquainted with Detroit's business elite, the home of many Kahn clients. Nevertheless, I found no obvious connections to Grinnell.

Whatever the means, by 1910 Fred Spaulding, his brother Ernest, and their father Henry had arranged for Albert Kahn to build them a factory whose appearance did not differ substantially from the buildings Kahn had done for Packard and Ford in those years. The Grinnell Herald excitedly announced in August, 1910 that excavation for the new building had begun at the Spaulding factory. Misinformed about the materials, the Herald anticipated a structure made of "paving blocks," but the paper correctly reported the dimensions of the three-storied structure: 206 x 74 feet. Nothing was said about the architect, the newspaper being more attracted to the excavator who had begun work on-site.

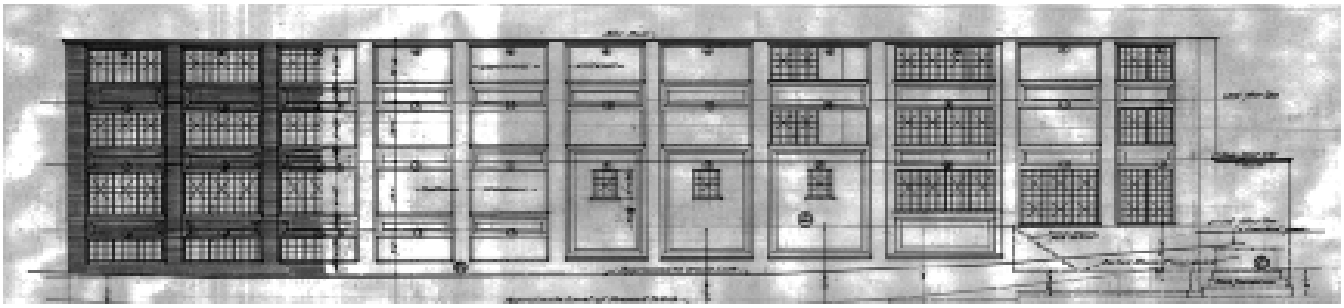

Figure 5: West Elevation, Plan for Spaulding Factory Building #5 (1910). Courtesy Drake Community Library

Examination of the plans for Grinnell makes clear, however, that the new Spaulding building was modeled on Packard 10 and its immediate descendants.

A long brick, three-story structure that depended upon reinforced concrete, Spaulding #5 took its place among the most up-to-date factories in America. The building's location adjacent to the railroad tracks facilitated delivery of coal for the power plant positioned on the south end of the structure; its position also proved convenient for delivery of lumber to be processed in the mill. In addition, ribbons of huge windows surrounded the structure on all three floors. Kahn's plans imagined a factory designed to allow implementation of the very latest developments in automobile production.

The Spauldings, however, chose not to follow through on this opportunity. Rather than move production toward the emerging trend, the Spauldings instead imposed on this new design the old production model. As a 1912 article in Iowa Factories pointed out, the Vehicle Plant, as the Spauldings called their new building, functioned rather like the old subdivided factories the Spauldings had inherited for their buggy business: in addition to the new power plant at the south end, building #5 housed a shipping room as well as a woodworking shop and a smith shop, these last two producing parts for both the buggy and automobile divisions whose assembly took place in other buildings. As became clear within a few years, this system seriously constrained output and made it difficult to lower price at exactly the moment when Ford was flooding the market with mass-produced, less expensive automobiles.

Figure 6: Spaulding Factory Building #5 from SW (Courtesy Drake Community Library)

Why didn't the Spauldings capitalize upon Kahn's new design? We are unlikely ever to find an explanation from the owners' own hands, but some clues survive. As built, the new structure deviated from Kahn's most recent innovations, inserted perhaps at the last minute, as indicated by the fact that the initial plans were revised August 30 (see Figure 1). Some changes were minor. For example, Kahn's drawings provided for brick spandrels adjacent to the windows, but these ornaments were scratched from the building. Similarly, the metal parapet that Kahn proposed to cap the walls was replaced with less expensive brick. Both changes, insignificant for utility, point to meddling with the design for what were no doubt marginal savings.

A more important alteration with significant impact upon construction cost was the use of wooden posts instead of reinforced concrete columns. Although

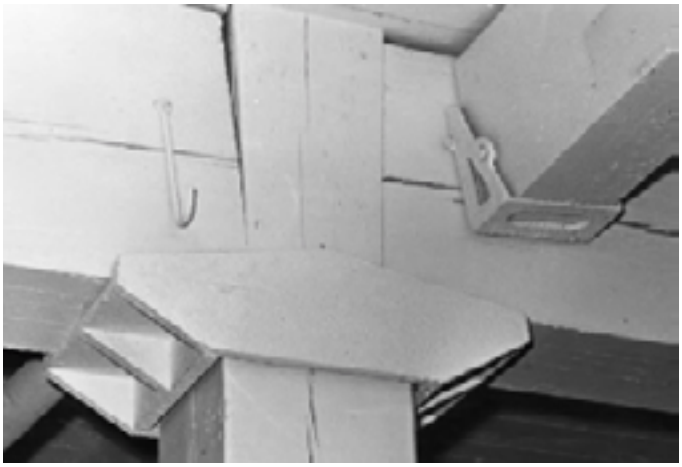

Figure 7: Detail of wooden column from Spaulding #5. Courtesy Ned Shank (1977)

Kahn attached iron hangers from joists to help improve the columns' strength and surrounded the base and cap of each post with metal, the wooden posts directly countered the whole point of building with reinforced concrete. The "Kahn System" employed by Trussed Concrete Steel, an announced partner in the Spaulding project, used "spiral hooping" for concrete columns, but this option disappeared from the final Spaulding plans. Similarly, instead of cement floors, also part of the original announcement, the Spaulding building featured wooden floors. These alterations may explain why Kahn Associates preserved no construction photographs from the project and why the firm's 1925 catalog of completed buildings (Industrial and Commercial Buildings) includes no photograph of the Spaulding factory, even though it appears in the index of Kahn designs. The Spaulding factory, rather than furthering Kahn's developing design ideas, consciously pulled away from that notion, clinging to older, proven practices, and the building, therefore, did little to help Kahn interest potential clients.

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It is ironic that only now, more than a century after the Spauldings reached out to Albert Kahn for a new building, is Grinnell aware of the part played in the town's built environment by one of the world's most influential architects. Back in 1910 when plans for an addition to the factory were first announced, no one—apparently not even the Spauldings themselves—bothered to identify the architect whom they had hired. Subsequently, as the fortunes of the Spaulding automobile plummeted, ending in the firm's 1916 withdrawal from the automobile business, there was no reason to invoke the architect's name, so his building lingered in ignominy, the identity of its architect forgotten.

Albert Kahn, on the other hand, grew immensely famous (and rich). If in 1910 he still had much to prove, he soon overcame that challenge as his firm designed increasing numbers of factories all across the country. Twentieth-century industrial behemoths like Ford, Chrysler, and General Motors (all Kahn clients) helped pioneer manufacturing processes that invaded other industries, bringing Kahn Associates in their wake. Soon, in addition to automobile factories, Kahn was designing newspaper production facilities, factories for cash registers, cement, and cigars. Foundries, machine shops and textile factories also had their genesis in Kahn's design rooms. Especially momentous was the 1928 invitation of the Soviet government for Kahn to design in Russia some 500 factories whose estimated total cost at the time was five billion dollars.

Little of this factory architecture delighted the eye in the same way as Louis Sullivan's ornamentation or Walter Burley Griffin's embrace of nature. If at its peak Kahn's architecture—depending upon concrete, glass and steel—anticipated modernism and an entirely new architectural vocabulary, many of the firm's domestic and commercial buildings simply repeated the tired formulas of the nineteenth century, mimicking Georgian, classical, and other design standards. In industry, however, Albert Kahn made his mark, generating monstrous glass and steel structures large enough and efficient enough to serve the burgeoning automobile industry. Despite the Spauldings' decision to ignore the production processes made available by their architect's use of reinforced concrete, Spaulding Building #5 gave Grinnell a glimpse of a new world where not only the automobile but assembly-line mass production dominated the economy and helped reconfigure social space in the American heartland.