

HISTORY of BRICK ARCH

日本の鉄道の幕開けを告げた駅

Station Which Marked the Beginning of Japan's Railway System

新橋 開業日 1872(明治5)年9月13日(10月15日)

Shimbashi (Date of opening: September 13, 1872 (October 15))



明治初期 鉄道博物館蔵
Early Meiji Period (1868 to 1912) (Collection of the Railway Museum)

開業当時の構内

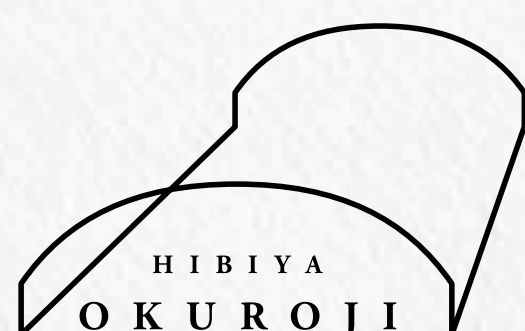
Station Premises at the Time of Opening

プラットホームは1面2線の行き止り式で、約150mの長さがあった。
後方に駅舎が見える。機関車は開業時に輸入されたタンク式の160形機関車。

The platform was about 150 meters long with two tracks and a dead end. The station building can be seen behind the train.
The locomotive is a JGR Class 160 imported at the time of opening.

1872(明治5)年9月12日(太陽暦:10月14日)、新橋~横浜間の鉄道開業式が行われた。起点として新橋の地が選ばれたのは、日本橋・銀座といった繁華街に近い、政府が接収していた旧大名屋敷の広大な土地が確保できる、汐留川による舟運が使えるなどの理由による。しかし、当時まだ根強かった鉄道建設反対論への配慮として、これ以上市街中心部への乗り入れは、はばかられたのである。開業式翌日より旅客営業を開始し、翌年には貨物営業も開始された。その後、徐々に路線が延伸され、1889(同22)年7月には東海道線新橋~神戸間が全通した。それに伴って、新橋駅には旅客用・貨物用施設のほか、車両修繕施設、機関庫、客車庫、官舎など、さまざまな施設が集中し、利用者数も増加して、一大ターミナルとしての役割を担うようになった。やがて、新橋に集中していた各施設を分散化することが計画された。1914(大正3)年12月20日、旅客駅の機能は新たに建設された市街線上の中央停車場・東京駅に移され、新橋は貨物専用駅となって駅名も汐留と改称された。新橋の駅名は市街線に設けられていた烏森が改称して受継ぐことになった。

On September 12, 1872 (solar calendar: October 14), the opening ceremony for the railway between Shimbashi and Yokohama took place. Shimbashi was chosen as the starting point because of its proximity to downtown areas such as Nihonbashi and Ginza, the availability of large tracts of land formerly occupied by feudal lords that had been confiscated by the government, and the availability of boat transportation on the Shiodome River. However, the government was hesitant to extend the line to the center of the city because of the strong opposition to the construction of the railway that still existed at the time. The day after the opening ceremony, the line began passenger service, followed by freight service the following year. The line was gradually extended and the entire Tokaido Line between Shimbashi and Kobe was completed in July 1889. With the full line completed, various facilities were concentrated at Shimbashi Station, including passenger and freight facilities, rolling stock repair facilities, an engine shed, a passenger railway car depot, and government buildings. The number of passengers also increased, and the station came to play the role of a major terminal station. Eventually, plans were made to decentralize the various facilities that had been concentrated in Shimbashi. On December 20, 1914, the functions of the passenger station were transferred to the newly constructed Tokyo Station on the City Line, and Shimbashi became a freight-only station. It was then renamed Shiodome. The station name of Shimbashi was taken over by Karasumori, which had been established on the City Line.



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明治20年代の新橋駅前

In Front of Shimbashi Station in the Late 1880s/Early 1890s



鉄道博物館蔵

Collection of the Railway Museum

新橋停車場の駅舎はアメリカ人建築家・ブリジェンスが設計したもので、木骨石張りの2階建2棟とこれを結ぶ木造平屋からなっていた。にぎわう広場の手前には、新橋と上野の間を結ぶ馬車鉄道の姿が見える。当時、東京中心部へ向う交通手段は馬車鉄道に頼っていた。

The Shimbashi Station building was designed by the American architect Bridgens. It consisted of two two-story wooden and stone buildings and a one-story wooden building connecting them. In front of the busy plaza, the horse-drawn railway connecting Shimbashi and Ueno can be seen. In those days, people relied on horse-drawn carriages for transportation to the center of Tokyo.

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新橋停車場之図

Illustration of Shimbashi Station



1901(明治34)年『新撰東京名所図会 第32巻 芝区之部』鉄道博物館蔵

1901: "Shinsen Tokyo Meisho Zue Vol. 32, Shiba-ku no bu" (Newly Selected Famous Places in Tokyo Vol. 32, Shiba-ku Part) (Collection of the Railway Museum)

20世紀初頭、鉄道開業から約30年後の新橋駅舎内の様子。中央に出札所、その左に案内所、右奥にはプラットフォームに停車した客車が描かれている。様々な階層・年齢・国籍の人々が集まるさまが描き込まれ、駅が広く大衆に開かれた存在であったことがわかる。

This is a view of the Shimbashi Station building about 30 years after the opening of the railway at the beginning of the 20th century. The ticket office is depicted in the center, the information desk to its left, and carriages parked on the platform to the right. People of various classes, ages, and nationalities are gathered here, indicating that the station was widely open to the public.



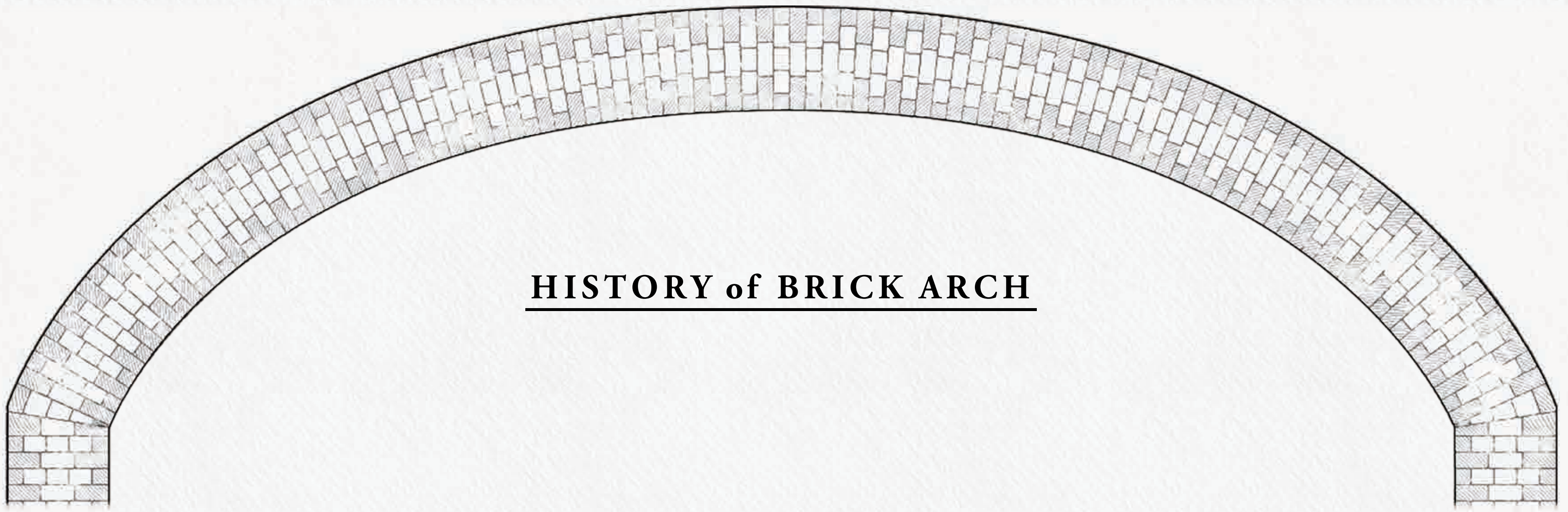
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市区改正計画と市街線

City Renewal Plan and City Line

明治初期の東京では、道路や上下水道など都市計画を支えるインフラ（都市基盤）は、近世都市・江戸から引き継がれたものに手直しを加えながら使用し、都市活動を支えてきた。しかし明治10年代に入るとそれも限界に達し、近代国家の首都としての新しい構想に立った都市計画が必要とされるようになってきた。つまり近世都市・江戸を、近代中央集権国家の首都・東京に改造するため、日本における初の本格的な都市計画である、市区改正計画が策定されることになった。この東京改造案は、1884（明治17）年11月に東京府知事・芳川顕正によって作成された「市区改正意見書」に端を発し、内務省に設けられた市区改正審査会、市区改正委員会で各分野の専門家が参加してさまざまな議論をかわし、具体化されていった。この計画中に、官設鉄道のターミナル・新橋駅と日本鉄道のターミナル・上野駅の間を結ぶ鉄道の建設と、鍛冶橋内への中央駐車場の設置が盛り込まれ、そしてこの路線は、市内中心部での街区の分断と、道路交通との平面交差による支障を避けるため、高架線で建設されることになり、1889（同22）年5月に市区改正委員会案としてまとめられた。これを受けて、内務省は鉄道庁長官に対し市区改正計画にもとづいて、中央停車場以南を官設鉄道とし、上野までを日本鉄道としてただちに工事にかかるよう訓令を発した。官鉄では技師・仙石貢と広川広四郎が調査にあたり、一方の日本鉄道は、ドイツ人技師ヘルマン・ルムシュッテル（Hermann Rumschöttel）に依頼して調査を行った。ルムシュッテルは来日前にベルリンの市街高架線の建設に従事しており、その経験にもとづいてレンガアーチの高架橋建設を構想していた。日本鉄道は1893（同26）年8月に上野～秋葉原間の貨物線を高架線に改築し、同時にこれを延長して秋葉原から中央停車場をへて新橋に達する高架線の敷設免許を提出した。これに対して、官鉄が進めていた新橋～中央停車場間の高架線の計画はやや遅れてまとめられ、1896（同29）年2月に開かれた帝国議会で改良費として予算が承認され、中央停車場を含めて改良工事の一環として建設が進められることになった。

In Tokyo in the early Meiji period (1868 to 1912), the infrastructure inherited from the early-modern city of Edo which supported urban plans such as roads and water and sewer services was being used while being reworked to sustain urban activities. However, in the late 1870s and early 1880s, that infrastructure had reached its limit. It became necessary to have an urban plan based on a new concept of Tokyo as a capital of a modern nation. That led to the formulation of the City Renewal Plan. This was the first full-scale urban plan in Japan to transform the early-modern city of Edo into the capital of Tokyo in a modern centralized state. This proposal to renew Tokyo began with the City Renewal Opinion prepared by the Governor of Tokyo Akimasa Yoshikawa in November 1884. Experts from various fields participated in the City Planning Council and the City Planning Commission established by the Ministry of Home Affairs. They discussed various ideas which then began to take shape. This plan was compiled as a proposal of the City Planning Commission in May 1889. It incorporated the construction of a railway connecting the Government Railway's Shimbashi Station terminal and the Nippon Railway's Ueno Station terminal and the establishment of the Central Station in Kajibashi. It was decided this line would be constructed as an elevated line to avoid the division of blocks in the center of the city and obstacles caused by level crossings with road traffic. In response to this, the Ministry of Home Affairs issued a directive to the Director of the Railway Bureau based on the City Renewal Plan. This directive stated that work should begin immediately with the area south of Central Station to be designated as the Government Railway while the area up to Ueno to be designated as Nippon Railway. The Government Railway commissioned the engineers Mitsugu Sengoku and Hiroshiro Hirokawa to conduct an investigation. Meanwhile, Nippon Railway asked the German engineer Hermann Rumschöttel to conduct its investigation. Rumschöttel was engaged in the construction of a city elevated line in Berlin before coming to Japan. He conceived of a brick arch viaduct based on that experience. Nippon Railway rebuilt the freight line between Ueno and Akihabara into an elevated line in August 1893. At the same time, it submitted a license asking to construct an elevated line extending this line to reach from Akihabara to Shimbashi via Central Station. In contrast to that, the plan for an elevated line between Shimbashi and Central Station promoted by the Government Railway was compiled a little later. The Imperial Diet held in February 1896 approved the budget as improvement expenses. Construction proceeded as part of the improvement work including Central Station.



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上野停車場ヨリ秋葉原及中央停車場ヲ経テ 新橋停車場ニ連絡スル高架鉄道線路略図

Sketch of an Elevated Railway Line Connecting from Ueno Station to Shimbashi Station via Akihabara Station and Central Station



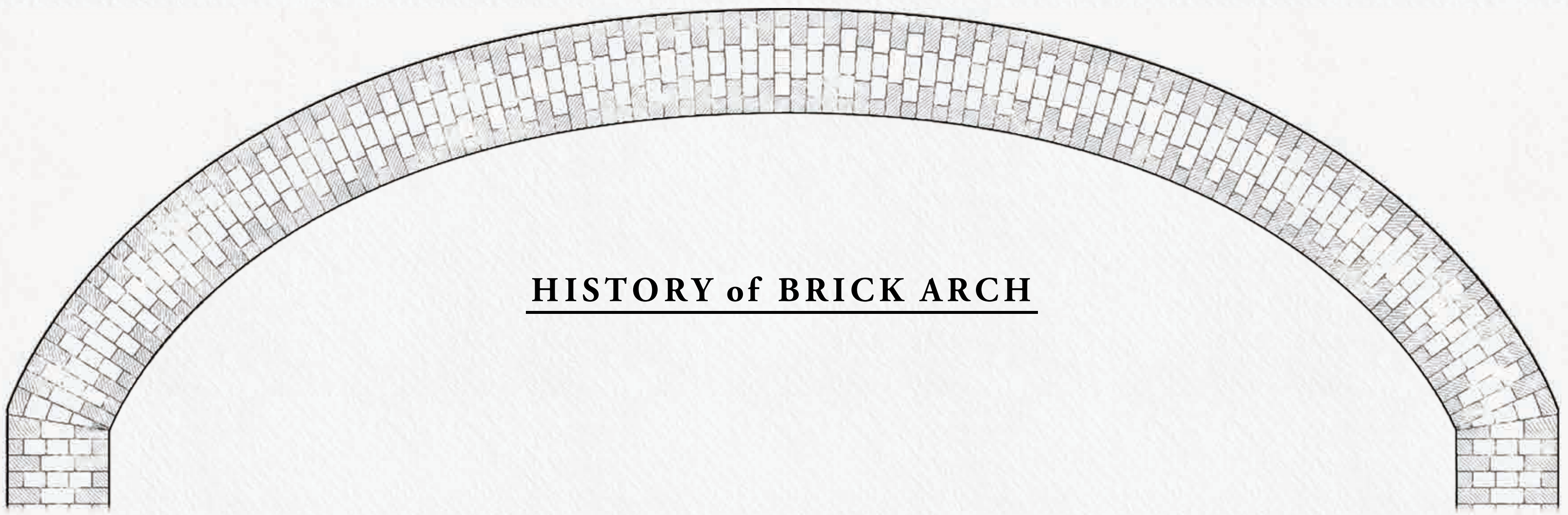
1893(明治26)年「上野停車場中央停車場間高架鉄道布設ノ件」(『鉄道院文書 日本鉄道(一)』) 鉄道博物館蔵

1893: "Construction of an Elevated Railway between Ueno Station and Central Station" (Railway Agency Documents - Nippon Railway (1)) (Collection of the Railway Museum)

同年8月5日付で日本鉄道が提出した、上野から中央停車場を経由して新橋にいたる高架鉄道の平面図。新橋停車場で西に分かれた路線は外濠沿いに北上して中央停車場にいたり、さらに北上して秋葉原で日本鉄道の貨物線に接続している。中央停車場はほぼ現在の東京駅の位置に通過式で想定されている。この線路略図はルムシュッテルの提案によるもので、これが以後の検討にあたっての基本的な考え方となった。

This is a ground plan of an elevated railway from Ueno to Shimbashi via Central Station. It was submitted by Nippon Railway on August 5, 1893. The line which splits to the west at Shimbashi Station goes north along the outer moat before reaching Central Station. Further north, it connects to the Nippon Railway's freight line at Akihabara. It was assumed Central Station would be a passing station located almost directly at the current location of Tokyo Station. This sketch of the line was proposed by Rumschöttel. It became the basic idea during subsequent examination.

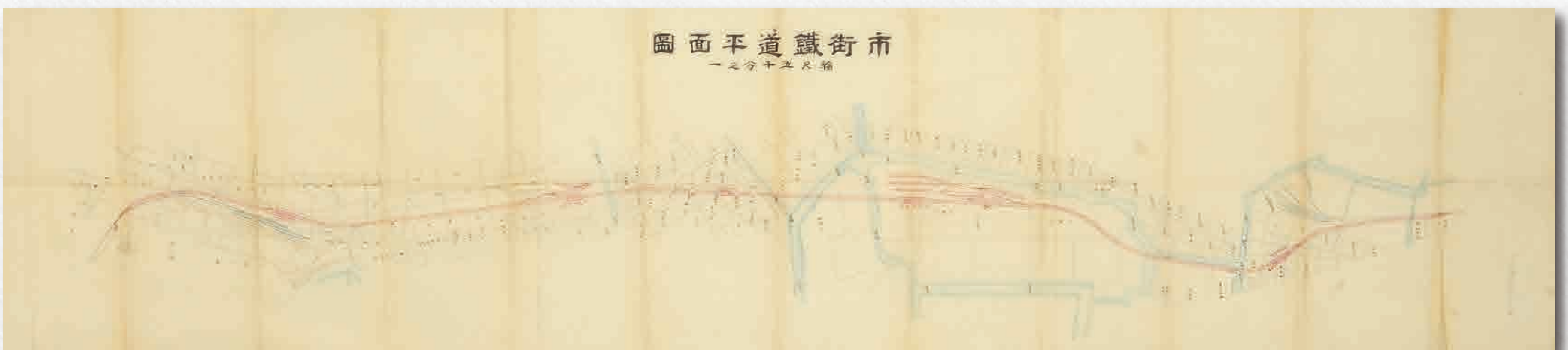




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市街鉄道平面図

City Railway Ground Plan



1893(明治26)年「上野停車場中央停車場間高架鉄道布設ノ件」(『鉄道院文書 日本鉄道(一)』) 鉄道博物館蔵

1893: "Construction of an Elevated Railway between Ueno Station and Central Station" (Railway Agency Documents - Nippon Railway (1)) (Collection of the Railway Museum)

日本鉄道の申請に対して、鉄道庁が9月22日付で作成した新永間市街線の平面図。右側の新橋停車場南方の新銭座町で東海道線と分れ、烏森の幸橋停車場をへて、現在の東京駅やや北寄りの位置（永楽町）に中央停車場が配されている。さらに北上して外濠北側の白壁町停車場、神田川北岸の秋葉原停車場をへて日本鉄道の東側に新しい上野停車場を設けて同鉄道と接続する計画となっている。この段階ですでに中央停車場は通過式の線路配線とされていた。

This is a ground plan of the Shineikan City Line prepared by the Railway Bureau on September 22, 1893 in response to an application from Nippon Railway. It splits with the Tokaido Line at Shinsenzacho south of Shimbashi Station on the right. Central Station is placed in a position slightly to the north of the current Tokyo Station (Eirakucho). Further north, the plan was to connect to this railway by establishing a new Ueno Station on the east side of Nippon Railway's Ueno Station via Shirakabecho Station on the north side of the outer moat and Akihabara Station on the north bank of the Kanda River. Central Station was already designed as a passing line layout at this stage.





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市街線建設にたずさわった人々

People Involved in the Construction of the City Line

新永間（芝区新銭座町と麹町区永楽町の間をさす）市街線の建設にあたっては、初期には市区改正委員会で検討が行われたため、鉄道関係者だけでなく政治家や経済人も関与し、マスタープランの作成にあっていた。そして実際の建設にあたっては、官鉄の土木系の鉄道技師が数多く参画した。当時の鉄道技師は、外国からの導入期をへてそれを取得し、アレンジを加えて独自の技術体系を確立しつつあった。しかし高架線の建設については未経験のため、ベルリンの市街高架線を完成させていたドイツに技術指導を仰ぐことになった。日本鉄道の技術顧問だったヘルマン・ルムシュツェルが基本案を提案し、市街線建設の技術顧問として来日したフランツ・バルツァー（Franz Baltzer）が、それをもとにして高架線の設計・建設を指導した。こうして市街線はドイツ系の技術によって建設されていった。一方日本側では、新永間建築事務所の2代目所長となった岡田竹五郎が、18年間にわたって所長を務め、市街線と中央駐車場の建設現場を統括し、その下で多くの鉄道技師や職人たちが作業にあたった。そして中央駐車場の建設に際しては、鉄道部内の建築家ではなく、明治建築界の第一人者・辰野金吾が設計者として登場することになる。

The City Planning Commission examined the construction of the Shineikan (refers to the section between Shinsenzacho in Shiba-ku and Eirakucho in Kojimachi-ku) City Line in the early days. Therefore, the master plan was prepared with the involvement of politicians and businesspersons in addition to railway officials. Furthermore, many civil engineering railway engineers from the Government Railway participated in the actual construction of the line. Railway engineers at that time had acquired their skills during the period in which railways were introduced to Japan from overseas. They were then establishing their own technological structure by adapting those skills. However, the engineers had no experience in the construction of elevated lines. Accordingly, they decided to seek technical guidance from Germany where a city elevated line had been completed in Berlin. Hermann Rumschöttel, who was a technical advisor to Nippon Railway, proposed the basic plan. Franz Baltzer, who had come to Japan as a technical advisor for city line construction, then provided guidance on the design and construction of the elevated line based on that. In this way, the City Line was constructed with German technology. Meanwhile, on the Japanese side, Takegoro Okada became the second Director of the Shineikan Architectural Office. He served in that position for 18 years. He supervised the construction site of the City Line and Central Station. Many railway engineers and craftsmen worked under him there. Instead of architects in the Railway Department, it was Kingo Tatsuno, a leading figure in the architectural world in the Meiji period (1868 to 1912), who made an appearance as a designer in the construction of the Central Station.

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ヘルマン・ルムシュツテル

Hermann Rumschöttel



(1844~1918) 鉄道博物館蔵

(1844 to 1918) Collection of the Railway Museum

ドイツ人鉄道技師。ドイツ鉄道建設会社でベルリン市街高架線の工事を担当し、1883年プロシア国有鉄道に転じて機械製作局長、資材局長をへて、1887年に九州鉄道顧問として来日し、同社の路線建設を指導した。1892年には日本鉄道顧問となり、東京市街鉄道の調査を依頼される。ベルリン市街高架線建設の経験にもとづき、レンガ造りの高架橋、通過式の中央駅からなる高架鉄道の建設を提案した。1894年に帰国したが、日本の鉄道建設の技術指導に多大な貢献をした。

Rumschöttel was a German railway engineer. He was in charge of the construction of the elevated line in the city of Berlin at the German Railway Construction Company. In 1883, he moved to the Prussian National Railways, where he served as a director of the Machinery and Fabrication Department and the Materials Department. In 1887, he came to Japan as an advisor to Kyushu Railway Company and guided the company's line construction. In 1892, he became an advisor to the Nippon Railway and was asked to survey the Tokyo Urban Railway. Based on his experience in constructing the Berlin city elevated line, he proposed the construction of an elevated railway consisting of brick viaducts and a passing central station. He returned to Germany in 1894 and made great contributions to the technical guidance of railway construction in Japan.



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フランツ・バルツァー

Franz Baltzer



(1857~1927) 鉄道博物館蔵

(1857 to 1927) Collection of the Railway Museum

ドイツ人鉄道技師。プロシア国有鉄道に入り、ベルリン市街高架線やケルン駅改良工事に携わる。1898（明治31）年日本政府に招聘されて来日し、鉄道作業局技術顧問として新永間市街線の設計・施工にあたった。1903（明治36）年任期満了により帰国。研究熱心で真摯な性格は、鉄道技術者の尊敬を集め、帰国後も岡田らとの交流は続いた。

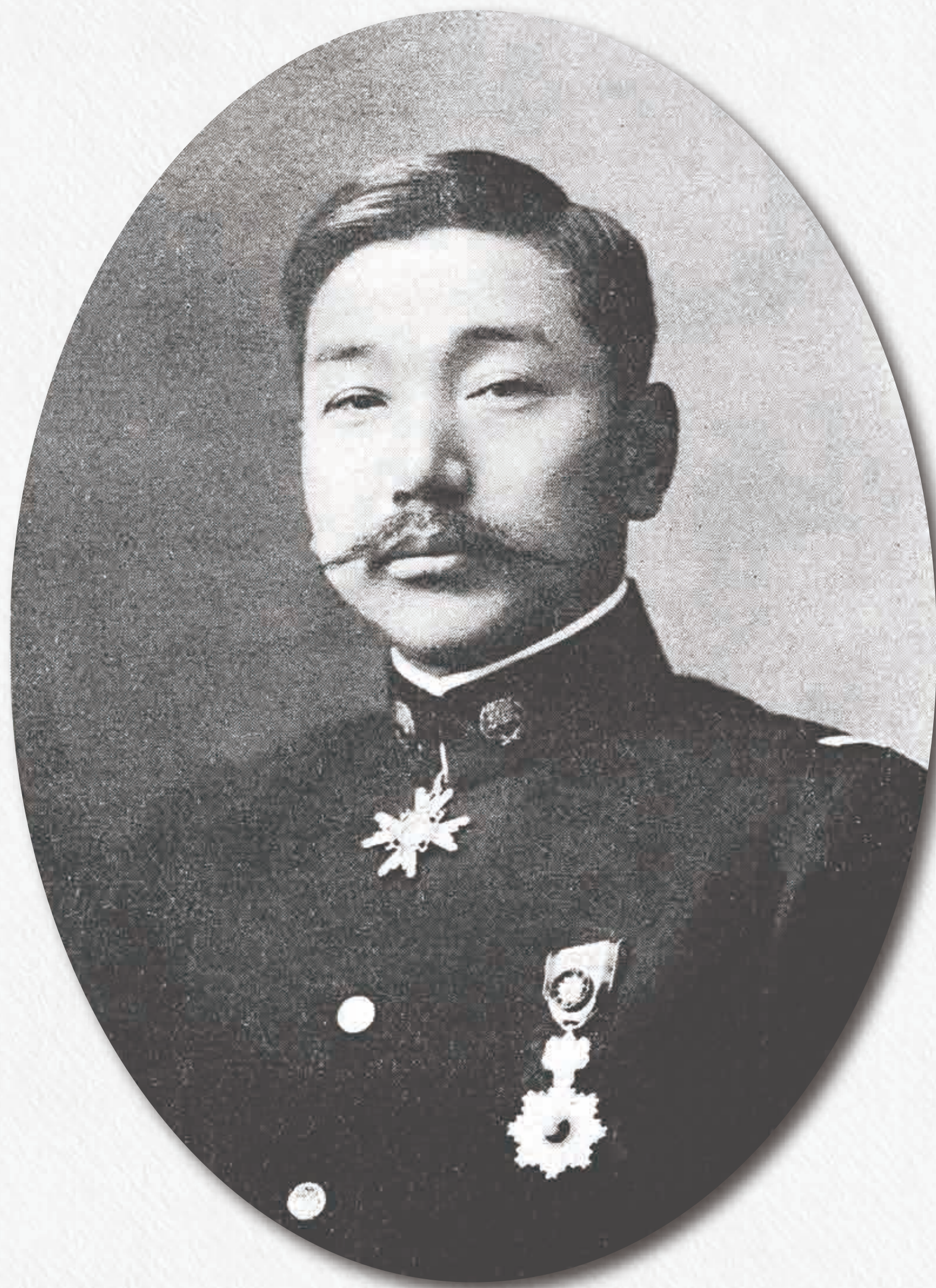
Baltzer was a German railway engineer. He joined the Prussian National Railways and was involved in the construction of the Berlin City Elevated Line and the Cologne Station Improvement Project. He came to Japan in 1898 at the invitation of the Japanese government and worked as a technical advisor to the Bureau of Railway Works on the design and construction of the Shineikan City Line. He returned to Germany in 1903 after his term expired. The railway engineers respected him for his diligent research and earnest character, and he continued to communicate with Okada and his colleagues after his return to Germany.



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おか だ たけ ご ろう
岡田 竹五郎

Takegoro Okada

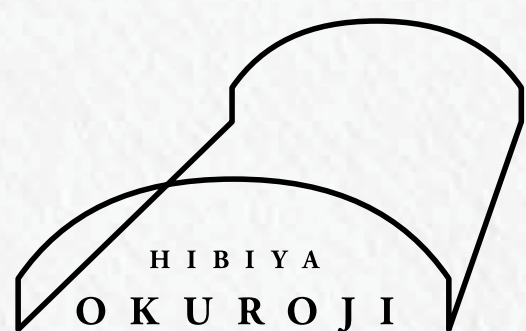


(1867~1945) 鉄道博物館蔵

(1867 to 1945) Collection of the Railway Museum

江戸生まれ。帝国大学工科大学土木工学科を卒業。大学では辰野金吾のパートナーとなる葛西萬治と同級だった。東京府、埼玉県技師をへて1897（明治30）年に逓信省に入り、前年設置された新永間建築事務所長に就任。以来18年の長きにわたり市街高架鉄道、東京駅の建設責任者として中心的役割を果たす。1915（大正4）年に東部鉄道管理局長となり、以後官房研究所長、鉄道院技監を務める。

Okada was born in Edo. He graduated from the Department of Civil Engineering at the Technology College of Imperial University. He was a classmate of Manji Kasai, who later became Kingo Tatsuno's partner. After working as an engineer in Tokyo and Saitama Prefectures, he joined the Ministry of Telecommunications in 1897 and became the Director of the Shineikan Architectural Office, which was established in 1896. After his appointment, he played a central role for 18 years as the person in charge of the construction of the city elevated railway and Tokyo Station. He became Director General of the Eastern Railway in 1915, and later served as Director General of the Secretariat Research Institute and Technical Inspector of the Railway Agency.



HISTORY of BRICK ARCH

新永間建築事務所のスタッフ

Staff of the Shineikan Architectural Office



1914(大正3)年『記念写真帖 大正三年十二月』 鉄道博物館蔵

1914: "Commemorative Photo Book of December 1914" (Collection of the Railway Museum)

完成したばかりの東京駅での記念撮影。前列左から6人目が岡田竹五郎
所長。のちに工事の詳細な報告を『土木学会誌』『帝国鉄道協会会報』
に発表した金井彦三郎、森早苗や、後年建築家として独立した久野節、
渡邊仁、小笠原鋳、京都帝国大学の教授となった瀧山與らの姿が見える。
彼ら技術者の手により市街高架線、東京駅は建設された。

This is a commemorative photograph at the newly-completed Tokyo Station. Director Takegoro Okada is the sixth person from the left in the front row. You can see in the photo Hikosaburo Kanai and Sanae Mori, who later published detailed reports of the construction work in the Japan Society of Civil Engineers Magazine and the Bulletin of the Imperial Railway Association. The photo also shows Misao Kuno, Jin Watanabe and Masumi Ogasawa, who later went independent as architects, and Hitoshi Takiyama, who became a professor at Kyoto Imperial University. The city elevated line and Tokyo Station were constructed by these engineers.



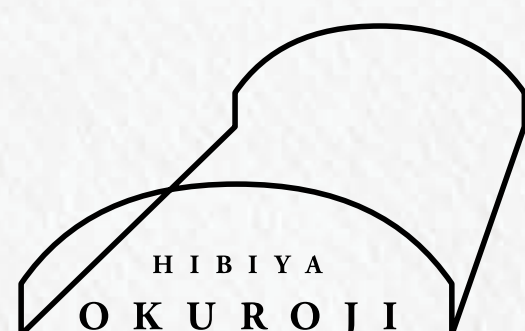
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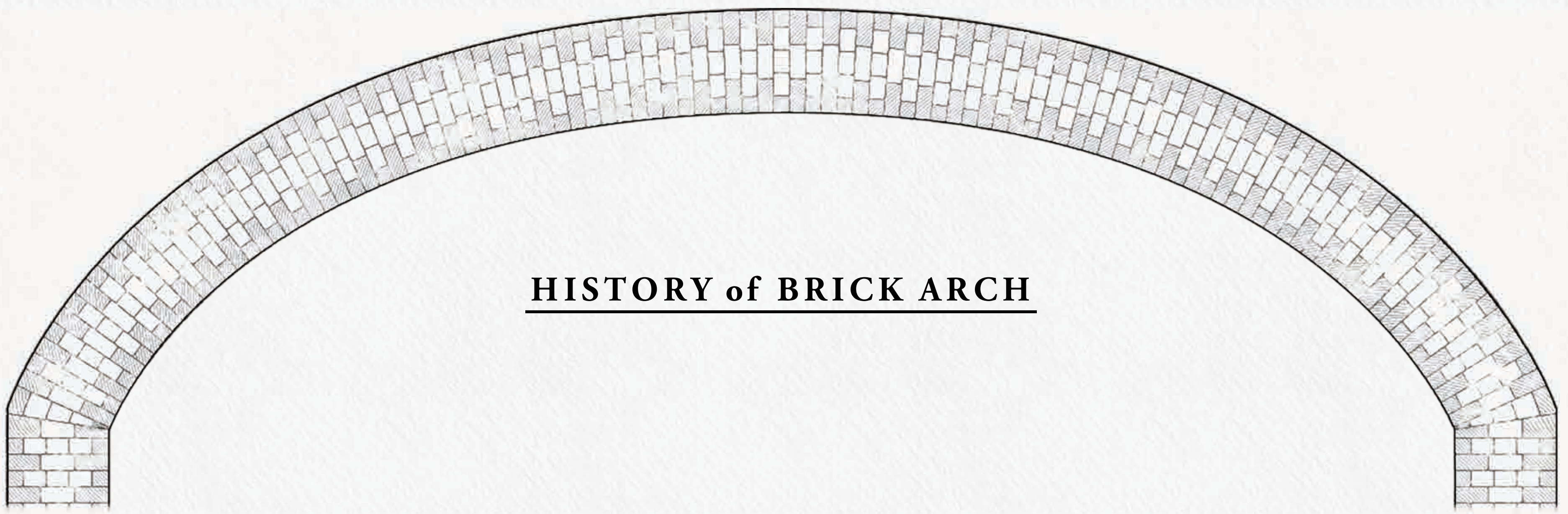
新永間市街線の建設

Shineikan City Line Construction

1896（明治29）年4月、市街線建設のための現業機関として新永間建築事務所が設置され、これを機に新永間市街線は計画から建設の段階へと進んでいった。建設にあたっては日本人技師には都市部での高架線の建設の経験・実績がないため、1882（同15）年にベルリン中心部に市街高架線を完成させていたドイツに指導を仰ぐことになり、1898（同31）年2月、ドイツ人技師フランツ・バルツァーが来日した。ルートを選定にあたっては、新橋駅南方の新銭座町で東海道線と分れ、新駅を設置する烏森地区に入り、外濠に並行して有楽町地区にいたり、東京府庁舎の東側をカーブして中央停車場予定地である鍛冶橋と呉服橋の間の永楽町地区に達するルートと、新橋駅からそのまま北上し、銀座通りを斜めに突っ切り数寄屋橋の東に出て有楽町にいたるルートの2案が検討された。バルツァーは距離が短く建設費・保守費・運転費が少なくできる後者を推したが、遠回りでも外濠築堤の官有地を経由し、用地買収費を最小限に抑えることのできる前者が採用され、1897（同30）年7月に大体のルートが確定した。一方で高架線の構造は、ルムシュッテルの想定したレンガアーチ式と鋼鉄製が検討されたが、国内で材料・製品を賄えること、騒音の発生が少なくすむことなどから、レンガアーチ式が採用されることになった。また、交差する道路に架ける架道橋（ガード）は鋼鉄製としたが、下部に防音のためのバックルプレートを取り付けるなど、騒音を防ぐ工夫をしている。さらに線路数は市内循環・近郊線用（山手線+京浜線）2線、中長距離旅客列車線（東海道本線）2線の計4線（複々線）として設計された。新永間市街線は5工区に分割して施工されることになり、1899（同32）年末から高架区間の用地買収にかかり、1900（同33）年9月に第3工区から着手した。一時は国の財政難や日露戦争のため工事が中断・遅延したが、1907（同40）年にレンガアーチ高架橋と架道橋の桁架設が完了した。1909（同42）年12月に浜松町〜烏森間が、翌年6月に有楽町まで、同年9月には呉服橋仮停車場まで開業し、列車線を除く高架線の全線が開業した。着工以来足かけ14年の歳月をかけて、東京の中心部に約3.9kmの高架橋が作り上げられていった。

The Shineikan Architectural Office was established in April 1896 for the construction of the City Line. The establishment of the office was the beginning of the construction phase of the Shineikan City Line Project. The Japanese engineers had no experience in building elevated lines in urban areas. Therefore, they asked for instructions from Germany, which had completed a city elevated line in central Berlin in 1882. Franz Baltzer, a German engineer, came to Japan in February 1898. In selecting the route, two different routes were considered. The first route is as follows. The line would separate from the Tokaido Line at Shinsenzacho, south of Shimbashi Station, and enter the Karasumori district where the new station would be located. The line parallel to the outer moat would reach the Yurakucho district and curve around the east side of the Tokyo Prefectural Government Building to reach the Eirakucho district. The Eirakucho district between Kajibashi and Gofukubashi was the planned site of the Central Station. The second route would go directly north from Shimbashi Station, cut diagonally across Ginza-dori, pass east of Sukiwabashi, and then reach Yurakucho. Balzer recommended the latter route because of its shorter distance and lower construction, maintenance, and operating costs. However, the former route was adopted because it was thought to minimize the cost of land acquisition since it would pass through the government-owned land of the outer moat embankment, even though it was a long way around. The general route was finalized in July 1897. Meanwhile, the brick arch type proposed by Rumschöttel and the steel type were considered for the structure of the elevated line. The brick arch type was adopted because the materials and products could be supplied domestically and it made less noise. The bridges over the intersecting roads were made of steel, but buckle plates were installed at the bottom to prevent noise. The number of tracks was designed to include four lines: two on the Yamanote and Keihin Lines for local circulation and suburban lines, and two on the Tokaido Main Line for medium- and long-distance passenger train lines. The Shineikan City Line was to be constructed in five sections. Site acquisition for the elevated section began at the end of 1899, and construction began on the third section in September 1900. Construction was temporarily suspended and delayed due to the financial difficulties of the government and the Russo-Japanese War, but the construction of the brick arch viaduct and the girders of the viaduct were completed in 1907. The line between Hamamatsucho and Karasumori opened in December 1909. The section to Yurakucho opened in June 1909, and the section to the Gofukubashi temporary station opened in September 1909, thus completing the entire elevated line except for the train line. From the start of construction, approximately 3.9 km of elevated bridges were built in the center of Tokyo over a 14-year period.

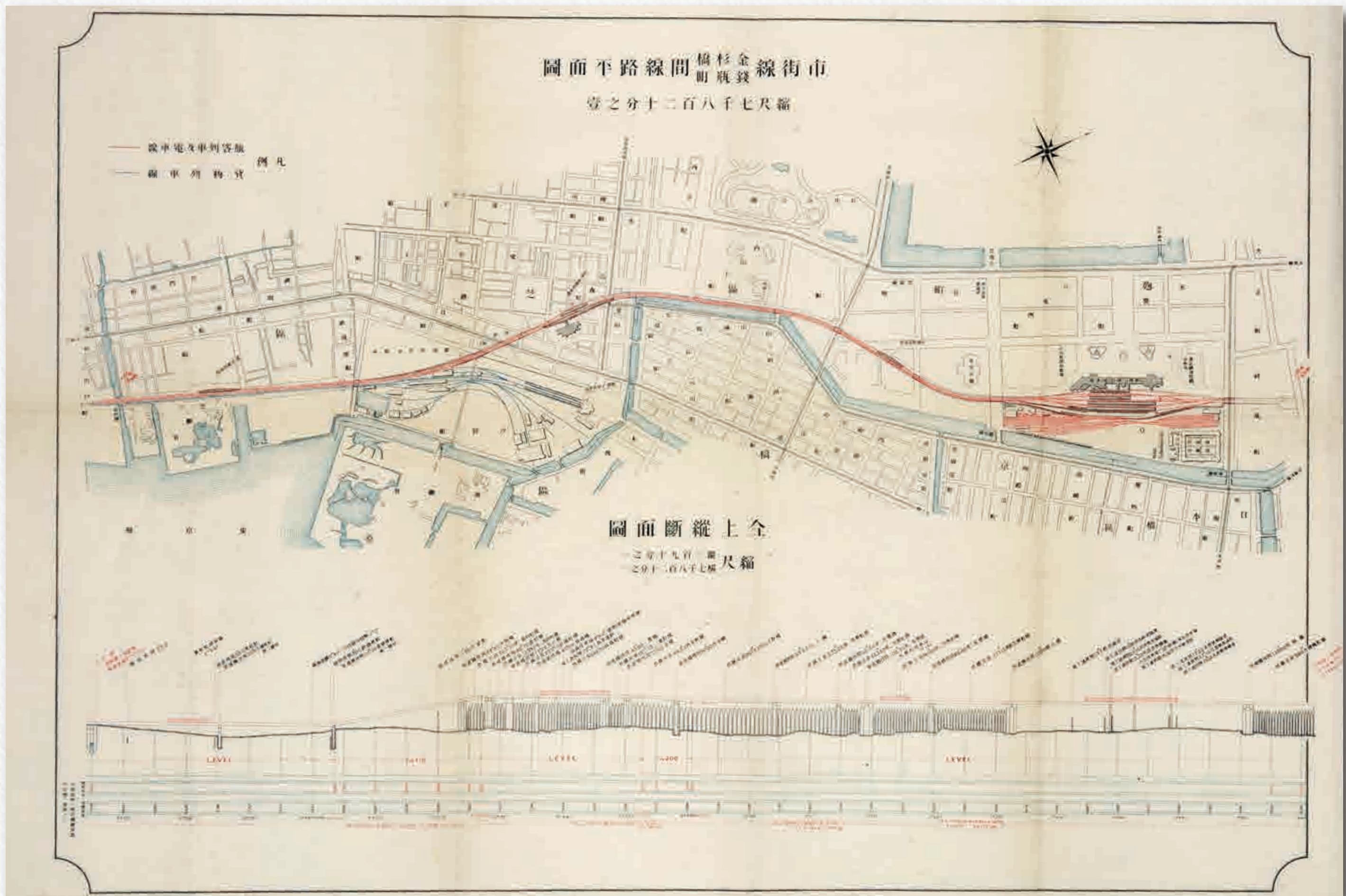




HISTORY of BRICK ARCH

市街線金杉橋銭瓶町間線路平面図・縦断面図

Plan and Longitudinal Cross-section of the Railway Tracks between Kanasugibashi and Zenigame-cho on the City Line



1914(大正3)年『記念写真帖 大正三年十二月』鉄道博物館蔵

1914: "Commemorative Photo Book, December 1914" (Collection of the Railway Museum)

実際に施工された市街高架線の平面図と縦断面図。バルツァーによる路線計画が踏襲されている。中央停車場の丸の内駅舎は辰野金吾による駅舎が記入され、八重洲側の貨物設備は客車操車場などに変更されている。

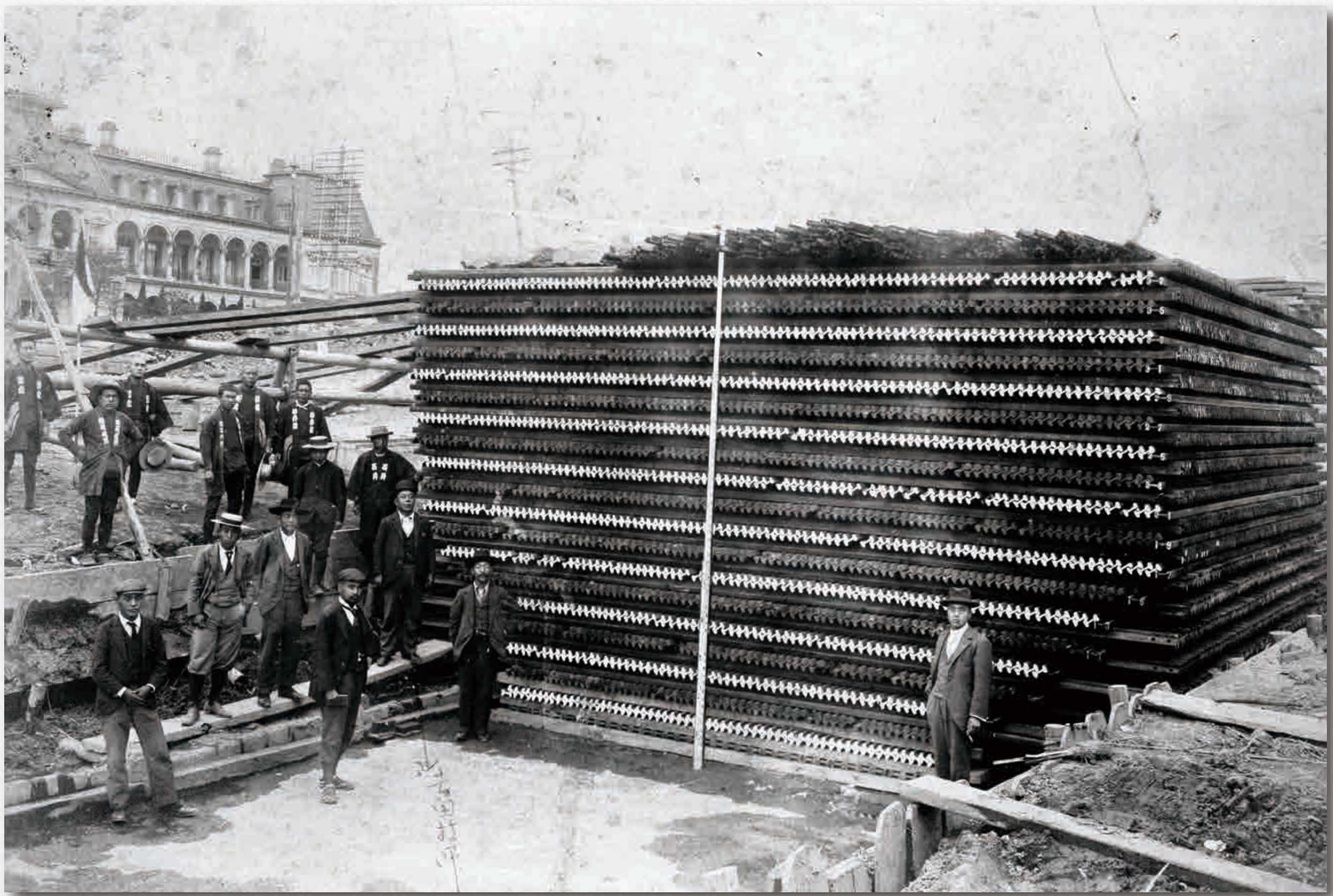
This is the plan and cross-section of the actual elevated train line in the city. The route plan by Balzer was followed. The Marunouchi Station building of the Central Station designed by Kingo Tatsuno was filled in, and the freight facilities on the Yaesu side were changed to a passenger car yard.



HISTORY of BRICK ARCH

内山下町橋高架橋基礎打ち込み後の荷重試験

Uchiyamashita-cho Bridge Viaduct Load Test after Foundation Pouring

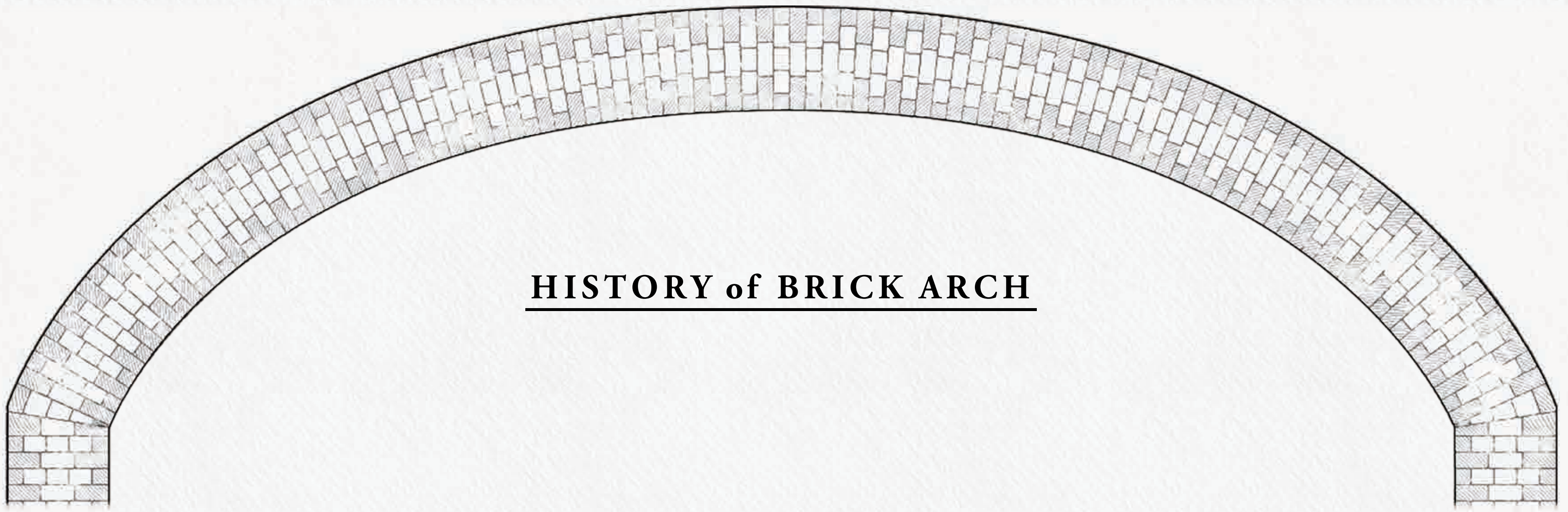


1900(明治33)年頃『東京市街高架鉄道建築概要』鉄道博物館蔵

Around 1900: "Outline of Tokyo Elevated Railway Building" (Collection of the Railway Museum)

内山下町（帝国ホテル付近）の工区で、松丸太の基礎杭を打ち込みその上にコンクリートを施工したのち、750t分のレールをのせて異常がないか確認試験を行った際の様子。試験の結果異常はなく工事が進められた。後方には迎賓館が見える。

Pine log foundation piles were driven into the construction area near the Imperial Hotel in Uchiyamashita-cho. After concrete was constructed on top of the piles, a 750-ton rail was placed on it and a test was conducted to confirm that there were no problems. The test results showed no abnormalities, and construction proceeded. The Geihinkan (State Guest House) can be seen in the background.



HISTORY of BRICK ARCH

内山下町高架橋でのレンガ積み工事

Brickwork at Uchiyamashita-cho Viaduct



1906(明治39)年11月 JR東日本蔵
November 1906 (Collection of JR East)

外濠の水を抜いて施工中。

This shows construction in progress after draining the outer moat.





HISTORY of BRICK ARCH

レンガ造りの高架橋

Brick Viaduct

新永間市街線は、設計にあたってレンガアーチ式とするか、鋼鉄製とするかが検討された。レンガアーチ式は建設費・保守費が安かったが、地震に対する強度に不安があり、バルツァーも当初は、より耐震力にすぐれる鉄桁による高架橋を推奨していた。しかし当時鋼材は輸入に頼っていたため費用が膨大になること、列車通過時の騒音が大きいことなどの欠点があった。最終的にはレンガアーチ式を採用することになり、設計に際してはアーチ数径間ごとの一定間隔に、グループ橋脚と呼ばれる太い橋脚を入れて、連鎖的に高架橋が破壊されることを防ごうとした。こうした工夫もあり、市街線は今も現役の高架線として使用されている。また高架橋のスパンデル（アーチとアーチの間の三角小間の部分）には、メダリオンとして円形の装飾が施されている。その原型はモデルとなったベルリン市街線の高架橋にも見られ、新永間とほぼ同時期に施工された、中央本線の万世橋付近のレンガ高架橋にも同じ装飾が見られる。また、地盤が軟弱な区画では“すかし模様”という装飾が施されているが、これは中空の小アーチで構成され、軟弱な地盤に対する荷重を軽減させる効果があったと言われている。当時木造建築が多かった東京の街並みに、レンガアーチはすんなりと溶け込み、レンガという部材の持つ柔らかさと温かみが、景観に潤いを与えることになった。水辺に優雅な姿を映すレンガアーチの連続する市街線は、東京名所のひとつにも数えられるようになっていった。

When designing the Shineikan City Line, there was some debate over whether to use brick arches or steel. The brick arch type was cheaper to build and maintain, but there were concerns about its strength against earthquakes. Baltzer initially recommended the use of steel girders for the viaduct, which were more resistant to earthquakes. However, steel girders were expensive at the time because they were imported, and steel bridges were noisy when trains passed over them. The brick arch type was finally adopted. In designing the bridge, thick piers called group piers were placed at regular intervals between the arches to prevent the viaduct from being destroyed in a chain reaction. Thanks to these innovations, the City Line is still in use as an active elevated line. The spandrels of the viaduct, which are the triangular spaces between the arches, are decorated with circular medallions. The prototype can also be seen on the Berlin City Line viaduct, which served as a model. The same decoration can also be seen on the brick viaduct near Manseibashi Bridge on the Chuo Main Line, which was constructed at about the same time as the Shineikan City Line. In addition, a "see-through pattern" decoration was applied in areas where the ground was soft. This pattern consists of small hollow arches, and is said to have had the effect of reducing the weight on the soft ground. The brick arches blended easily into the Tokyo streetscape, where many wooden buildings were built. The softness and warmth of brick had a positive impact on the landscape. The City Line made of brick arches, which gracefully reflect the waterfront, has become one of Tokyo's most famous landmarks.

HISTORY of BRICK ARCH

内山下町高架橋でのレンガ積み工事

Brickwork at Uchiyamashita-cho Viaduct

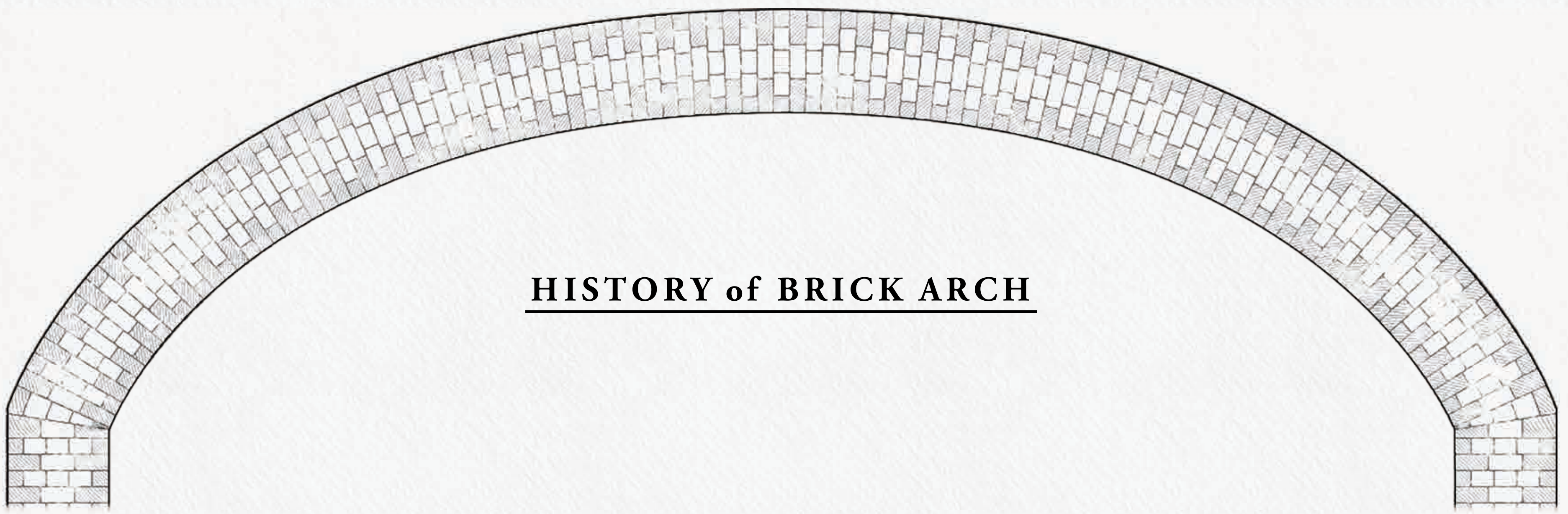


1906(明治39)年12月『東京市街高架鉄道建築概要』鉄道博物館蔵

December 1906: "Tokyo City Elevated Railway Building Outline" (Collection of The Railway Museum)

内山下町(帝国ホテル付近)の工区の工事状況。有楽町方から新橋方を望む。左手の外濠は埋め立てられ、石材やレンガなどの資材置場となっている。高架橋は橋脚までが完成した状態。画面奥の内幸町橋付近ではアーチの築造が終了している。

Construction work at Uchiyamashitacho near the Imperial Hotel. The direction of Shimbashi can be seen from Yurakucho. The outer moat on the left has been reclaimed and used as a yard for stone and brick materials. The viaduct has been completed up to the piers. The construction of the arch has been completed near Uchisaiwaicho Bridge in the back of the photo.



HISTORY of BRICK ARCH

ほぼでき上がった内幸町架道橋の 橋台と内山下町高架橋

Almost Vompleted Abutments of the Uchisaiwaicho Viaduct and Uchiyamashita-cho Viaduct

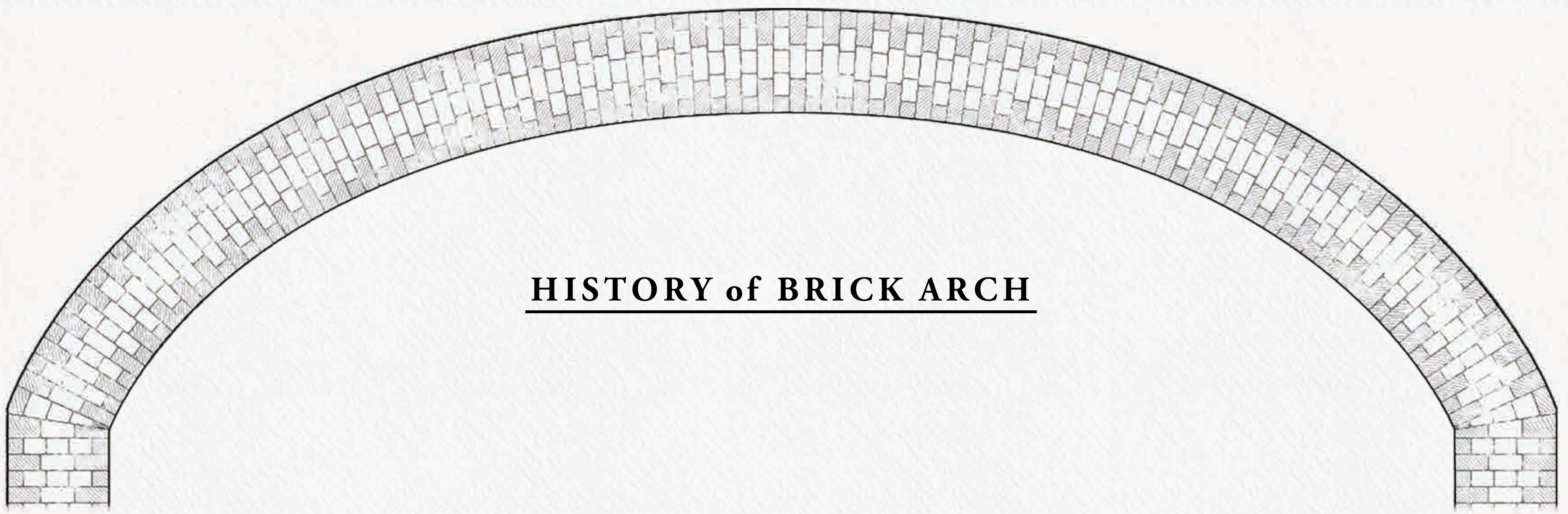


1906(明治39)年11月 JR東日本蔵
November 1906 (Collection of JR East)

この後架道橋を架設する。

The viaduct was built after this picture was taken.

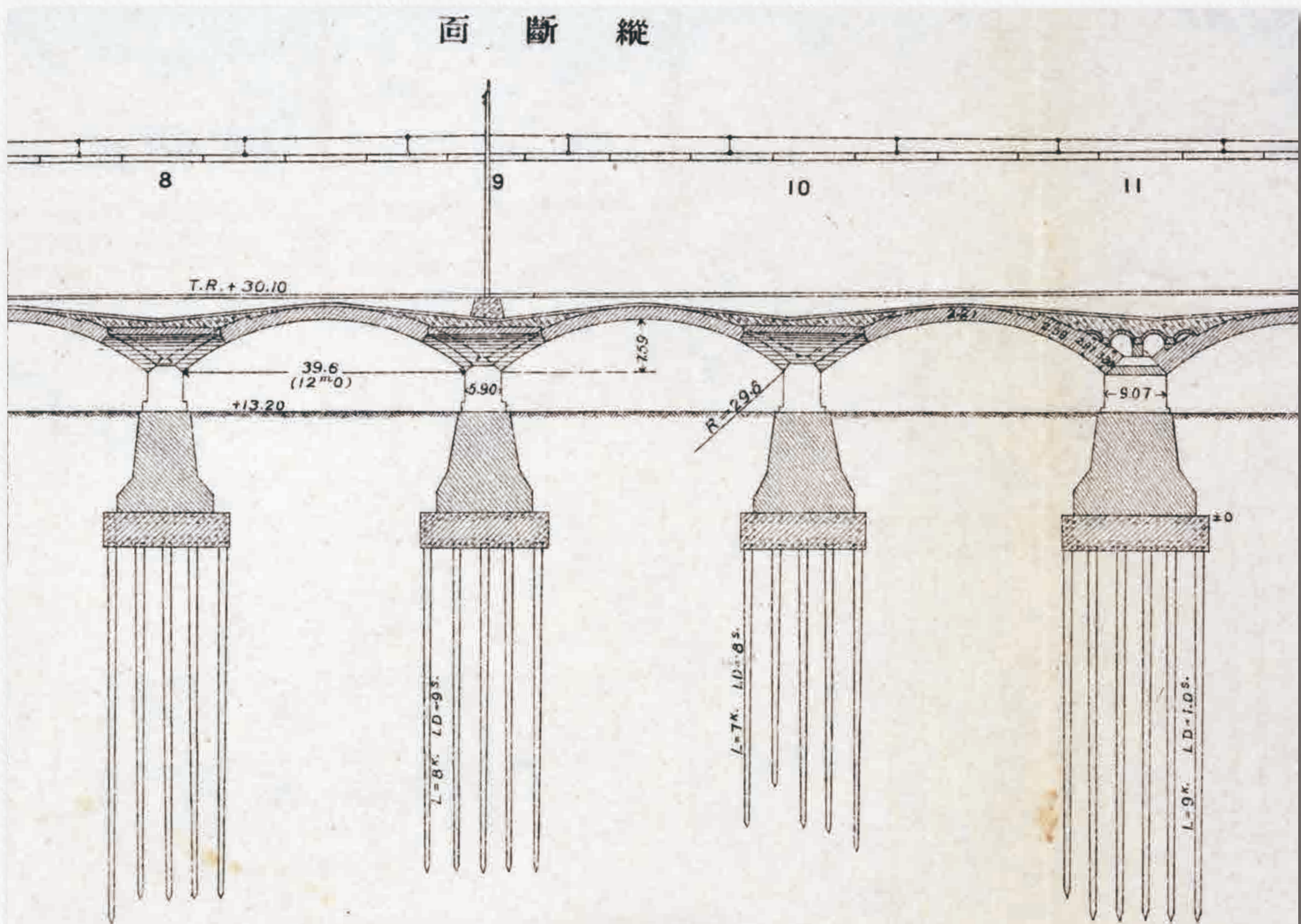




HISTORY of BRICK ARCH

内山下町橋高架橋断面図

Cross-sectional View of the Uchiyamashita-cho Bridge Viaduct

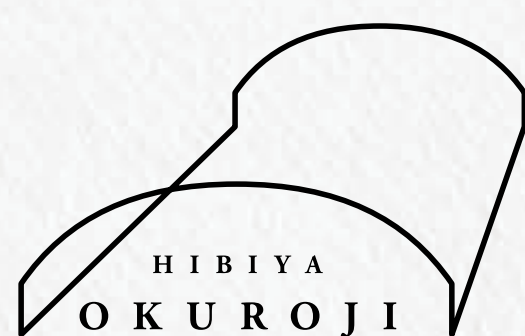


1914(大正3)年『東京市街高架鉄道建築概要』鉄道博物館蔵

1914: "Overview of the Tokyo City Elevated Railway Architecture" (Collection of the Railway Museum)

スパンドレルに3径間の小アーチを設けた一般のアーチと、4径間の小アーチを設けたグループ橋脚（右端）が描き分けられ、地盤が軟弱な帝国ホテル付近（内山下町）では19mもの長さの松丸太の基礎杭が打ち込まれている。

It is possible to identify in the overview the regular arch established with three small arches on the spandrel and a group pier (right end) established with four small arches. Foundation piles of pine logs with a length of up to 19 m have been driven into the soft ground near the Imperial Hotel (Uchiyamashita-cho).



HISTORY of BRICK ARCH

完成した市街高架線

Completed City Elevated Line



1914(大正3)年『東京市街高架鉄道建築概要』鉄道博物館蔵

1914: "Outline of the Tokyo Elevated Railway Construction" (Collection of the Railway Museum)

新橋側の内幸町から内山下町付近の外濠沿いの高架線を望む。レンガアーチが外濠に美しい姿を映し出す。対岸には市電が走り、高架橋の西側には帝国ホテルが見える。東京を代表する景観のひとつとして絵はがきの題材にも取り上げられた。

The elevated railway line along the outer moat near Uchiyamashita-cho can be seen from Uchisaiwaicho on the Shimbashi side. The beautiful brick arches are reflected in the outer moat. A streetcar runs on the opposite bank, and the Imperial Hotel can be seen on the west side of the elevated bridge. It has been used as a subject of picture postcards as one of the representative views of Tokyo.

HISTORY of BRICK ARCH

ベルリン市街線とシュプレー川

Berlin City Line and the Spree River

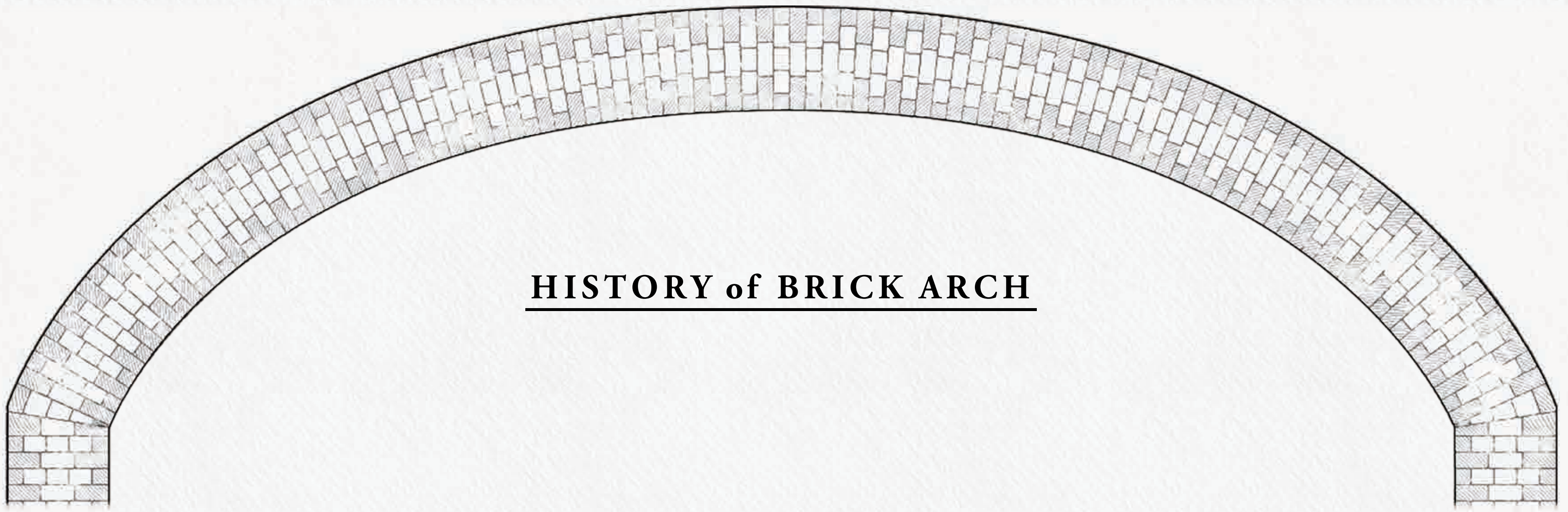


2014(平成26)年8月31日 ヤノヴィッツブリュケ (Jannowitzbrücke) 付近 鉄道博物館蔵

August 31, 2014: Near Jannowitzbrücke (Collection of the Railway Museum)

シュプレー川に沿ったレンガアーチの高架橋を走る旅客列車。かつての有楽町～新橋間の外濠沿いの高架橋を思わせる光景で、ベルリン市街線が新永間市街線のルーツであることをうかがわせる。

There is a passenger train running on a brick-arch viaduct along the Spree River. This is a scene reminiscent of the former elevated bridge along the outer moat between Yurakucho and Shimbashi. It indicates that the Shineikan City Line is rooted in the Berlin City Line.



HISTORY of BRICK ARCH

開業した烏森停車場

Karasumori Station Once Opened



1909(明治42)年12月 JR東日本蔵

December 1909 (Collection of JR East)

開業時の烏森口。まだ東口の駅舎が完成していなかったため、西口に仮駅舎が設けられた。「山手線電車開始」の看板が見える。

This is Karasumori Exit at the time of opening. As the station building at the east exit had not yet been completed, a temporary station building was built at the west exit. The sign "Start of the Yamanote Line Train" can be seen.



HIBIYA
OKUROJI

HISTORY of BRICK ARCH

駅舎が完成した烏森停車場

Karasumori Station After Completion of the Station Building



1914(大正3)年『東京市街高架鉄道建築概要』鉄道博物館蔵

1914: "Outline of Elevated Railway Buildings in Tokyo" (Collection of The Railway Museum)

1914(大正3)年に東口にレンガ造りの駅舎が完成。規模・外観とも万世橋駅によく似た駅舎だった。

A brick station building was completed at the east exit in 1914. The scale and appearance of the station building were similar to those of Manseibashi Station.

HISTORY of BRICK ARCH

開業した有楽町停車場

Yurakucho Station Once Opened



1910(明治43)年12月 鉄道博物館蔵

December 1910 (Collection of the Railway Museum)

西側から見た有楽町駅。第三有楽町橋高架橋の上に電車線のプラットフォームがあり、右側の第二有楽町架道橋下に乗降口が設けられた。

Yurakucho Station is seen from the west. The platform was located on the No. 3 Yurakucho Bridge viaduct, and the boarding gate was located under the No. 2 Yurakucho overpass on the right side.

HISTORY of BRICK ARCH

山手線が電車運転を開始した市街線

City Line Where the Yamanote Line Started Train Operation



明治末頃 鉄道博物館蔵

Around the end of the Meiji period (1868 to 1912) (Collection of the Railway Museum)

有楽町側数寄屋橋付近から外濠沿いの高架線を望む。高架線中央部の第2線と第3線を使用している。走行する電車は甲武鉄道引継ぎの四輪電車と付随車。

This is a view of the elevated line along the outer moat from the vicinity of Sukiyabashi on the Yurakucho side. It uses the second and third lines of the central part of the elevated line. The train you can see is a four-wheeled train and accompanying car inherited from Kōbu Railway.