THE SÃO PAULO RAILWAY COMPANY: THREATENED RAILWAY HERITAGE IN BRAZIL

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Abstract:

In the 19th century British influence in the life of Brazilians reached a peak, imported goods were in huge demand while simultaneously the British took a strong interest in Brazilian products, notably coffee, sugar and cotton. Though Brazil had gone through intense social and economic changes throughout the 19th century its internal infrastructure lagged far behind what was required for these newly booming businesses. With significant incentives being offered by the Brazilian Government British investment in Brazilian railway ventures was inevitable. One such venture resulted in the founding of The Sao Paulo Railway Company whose spectacular railway opened up the Sao Paulo region into an economic powerhouse and has left a legacy that has survived to the present day. This paper explores the history of the Sao Paulo Railway Company and the threat now posed to the remarkable industrial heritage it left behind.

Keywords: Railway heritage, Industrial Heritage, Sao Paulo, Brazilian Heritage, heritage under threat
British Railway Ventures in Brazil

Throughout the 19th century, British presence in Brazilian life was felt with increased intensity, with the introduction of new habits and customs as well as the increased consumption of goods supplied by the import houses, including butter, lard, soap, candles, salted meats, biscuits, fabric and furniture. In turn, British interest in products produced in the country, such as sugar, cotton, and coffee led to the creation of a service system in order to facilitate their export to Europe.

During this period, thanks to the diversification of investments, Brazil underwent profound social and economic changes. The interruption of the slave trade in 1850, led rural property owners to accumulate extra capital, which was to be invested in the agricultural export market, following new capitalistic practice. The country, however, still had important deficiencies in its product transportation system as a result of the lack of river transport to carry its agricultural produce due to isolation and a lack of a communication systems capable of connecting different regions and linking several capitals to the interior of the country and the Court.

To overcome this deficiency and to attend the economic demands of the agrarian elite, the imperial government established strategies to integrate and consolidate Brazilian territory by improving the service and transportation sectors. It is within this picture that the implantation of railways and the increment in infrastructure can be understood. Great Britain led the companies, who implemented the greatest part of these activities. For Martins (2008:6)

...a dense subterranean web of economic relations, presided by Great Britain is spreading across the country, especially in the 19th century – not by chance known globally as ‘The English Century’, when the international division of work occurred, bestowing upon that country the role of world banker, insurer and carrier.

In reality, at this time, British investments were very expressive and reflect directly upon urban growth. Cities were expanding, together with the first industries, which already used hydraulic motors to produce several artefacts. Besides the factories, the British invested in banks, insurance companies, mining companies, urban transportation, gas companies and railways. This infrastructure, while shortening distance and transporting products destined for the external market more quickly, were built simultaneously to the spreading of agriculture to areas increasingly distant from the coast.

The definitive impulse for the construction of railways in the country appears with Imperial Decree number 641, on June 26, 1852, which, while establishing a series of benefits, such as tax exemption, guaranteeing interest at five percent, the right to disappropriate private land, appropriation of public lands and exploration of lands located within the privileged zone, attracted domestic investment, and especially foreign capital, predominantly of British origin.

Since the first Brazilian railway began operating in 1854 the British were involved with the sector through financing, supplying technology and labour and by incorporating companies, especially when transportation between the production zone and the product loading area appears profitable. With government support, several railway
companies were formed both in the southern and northern provinces. Thus, we find the most important lines near sugar, mining, coal and coffee producing areas. During the last years of the Empire, the number of railways controlled by British groups reached its zenith, twenty-five against only eleven in Brazilian hands in 1880. One of the most important was The São Paulo Railway Company.

**Green Gold**

Introduced into the State of Belém do Pará in 1727 by the Portuguese official Francisco de Mello Palheta, coffee soon reached Rio de Janeiro. Grown initially in the surrounding hills, it subsequently spread in 1850 to the whole valley of the Paraíba River. Criss-crossed by trails and paths dating back to the gold mining era, the region became dotted with large holdings producing coffee for overseas markets, stimulated by growing demand, especially from the United States. Proximity to the port of Rio de Janeiro greatly facilitated transhipment of the product.

Owing to the fact that it is an itinerant crop which in a short time exhausts the soil, the coffee crop gradually moved from the Paraíba Valley towards the west of the State of São Paulo to the locations of the present day cities of Campinas, Rio Claro, São Carlos and Araraquara e Ribeirão Preto, among others. Due to the quality of the famous dark red soil, and its location on plains less exposed to frost, the plants rapidly adapted to the new environment with production reaching ever-greater heights.

As the plantations spread throughout the interior transport started to become a serious problem due to the widening distance between the producing areas and the port of Rio de Janeiro. In order to reach the coast of the State of São Paulo it was necessary to cross the Serra do Mar. Transport using mule-trains was not economically viable given the difficulty of the terrain and the high cost of freight. The construction of a railway line linking the production area with the port seemed like a more suitable option, and one upon which was to depend the success or failure of coffee production.

However, the construction of a railway linking the high plain with the coastline was no easy task. A sheer drop of eight hundred meters in the midst of dense undergrowth presented unprecedented technical difficulties at the time. The whole venture was based on high financial stakes involving an astronomical investment and thus attracting little interest.

The Imperial Government consequently decided to create an incentive program for potential investors in railway construction. The scheme was created in 1852 and it assured that all capital investment in railway construction would not only be guaranteed, but also receive interest, thereby eliminating even the slightest element of risk for the entrepreneur. Several lines consequently sprung up throughout the country.

On the 26th of April 1856 by royal decree, the rail link joining Jundiaí in São Paulo’s heartland with Santos was officially opened. The concession for developing the link went to the entrepreneur Irineu Evangelista de Souza, recently honoured with the title Baron of Mauá.

**The São Paulo Railway Company**

On April 26, 1856, when he was granted the concession for thirty three years to explore a railway line between Santos and Jundiaí, Irineu Evangelista de Souza owned field
surveys that proved the viability of building this line, even considering that a good part of the tracks would be located on the mountain range of the Serra do Mar.

Maua’s interest in exploring this line was a result of his belief that, with it, he could enjoy a good part of the coffee production that was beginning to advance towards the centre of the province of São Paulo, and would control transportation in an area that was showing increased importance. When he inaugurated the company in London, the businessman managed to interest investors and raised the capital needed to carry out the construction.

The technical feasibility study and, later, the preliminary project was developed by the engineer Robert Milligan, an old colleague, and was transferred to James Brunless, one of the most renowned British railway engineers of the Victorian era. He, in turn, sent his collaborator Daniel Makinson Fox to Brazil, who, in spite of his youth, possessed vast experience in building railway lines in mountainous areas, having worked in Wales and the Spanish Pyrenees.

Fox studied the conditions in the area, prepares the proposal, which is later discussed and approved in London, and supervises the construction of the railway, named The São Paulo Railway Company. Work began in 1860 under the supervision of the Robert Sharp & Sons Company.

The work was divided into three different parts: the plains of Santos; the mountains; and continuing to the village of Jundiaí. The first section, though it was made up of a large swamp, did not offer great technical problems, only a few bridges that needed to be built over the Casqueiro, Capivari, Cubatão, Piaçaguera and Mogi rivers. The final section was also relatively simple, with the exception of a tunnel, approximately five hundred and ninety metres long, next to Botojuru mountain.

As foreseen, the greatest difficulties were concentrated on the mountain stretch, where it would be necessary to overcome a difference in level of almost eight hundred metres in only eight kilometres under adverse conditions as the region possesses an extremely high level of rainfall. To avoid the frequent landslides several cuttings were made and embankments, retaining walls, bridges and viaducts were built.

The most impressive was the Grota Funda viaduct (Figure 1) which, with a two hundred and fourteen metres curve and at almost forty-nine metres high, was considered the greatest work of engineering carried out in the country. Writer Julio Ribeiro, in his naturalist novel A Carne, described the viaduct in an epic tone:

*At the end of the fourth inclined plane, the first counting from the top, the Grota Funda viaduct can be seen, a victory of daring over enormity, of iron over emptiness, of the brain cell over brute nature. The Grota Funda viaduct is simply a marvel. It is seven hundred and fifteen English feet long, more or less two hundred and fifteen metres. With ten spans of sixty-six feet and one of forty-five between two stone cut bolsters; seated upon a wrought iron colonnade and upon an abutment on the top. The highest colonnade, including the base, is one hundred and eighty-five feet, fifty-six to fifty-seven metres. The inclination is the usual inclination, ten percent or slightly less. This amazing work began on July 2, 1863; In March 1865, the first iron pieces were set; on November 2 of the same year the first train passed, on November 2, All Souls Day, the English are not superstitious.* (Ribeiro, 2002: 169)
To overcome the steep mountain slope a funicular system, known as a tail end, was employed, where cables with two ends were hauled in stages by a fixed machine (Figure 2) located on the top of four platforms. A special wagon known as a loco-brake was attached to the ends of the cable, and to it were coupled cars and wagons, which formed convoys, and went up and down the mountain as counter-weights. Crossings were carried out midway up the route on a small stretch with a double rail where the carriages were loosened and hooked up again at the top of the mountain in Paranapiacaba and at the foot of the mountain in Piaçaguera.

During this operation the passengers waited at their respective stations until the moment when the trains were, once again, attached in order to continue their trip. The time needed to climb or descend each of the platforms was, on average, about ten minutes, or in total, fifty minutes, including stops, manoeuvres and changing the loco-brake workers on the small ramps or platforms that separated the planes.

Figure 1. Grota Funda viaduct. C. 1865. Photograph: Militão Augusto de Azevedo. Museu Paulista collection.
At one hundred and thirty-nine kilometres long the line began operation in 1897, achieving great commercial success from the start. Although he had taken on all the construction costs, Mauá was removed from the venture by his British partners through a series of manoeuvres. This way they were able to single-handedly run the company. Monopolizing the access to the port the Ingleza, as they were known, controlled the entire railway network in São Paulo.

The increase in coffee production in the last decade of the 19th century, however, exhausted the transport capacity of the São Paulo Railway. Pressure exercised by the coffee growers and some newspapers obliged the railway to carry out improvements on the entire line, especially on the mountain stretch, the most problematic of the whole route. Thus, the new line had a series of improvements, among which several tunnels and viaducts, as well as five inclined platforms operating with an endless rope system, which was more efficient and safer than the earlier version (Fig. 4).
Figure 3. Aerial view: São Paulo Railway new and old line. C. 1939. Instituto Geográfico e Cartográfico Collection.

Figure 4. Fixed machine of the new funicular system. C. 1900. Photograph: Perman. RFFSA Collection
The stations were also refurbished or rebuilt according to designs developed in Great Britain. The most important endeavour is the third version of the station in São Paulo, the sophisticated *Luz Station* (Figure 5).

![Figure 5. Luz Station in 1902. Photograph: Guilherme Gaensly. RFFSA Collection.](image)

Along the line, new warehouses, workshops and houses for the rail workers were built. At the top of the mountain, an urban nucleus for the employees in charge of maintenance of the funicular system was installed. First called the Vila Martin Smith, and later Paranapiacaba, this was a complete service town hierarchically divided with an octagonal design and prefabricated wooden houses.

In 1938, with the inauguration of the Mayrink-Santos line, the Estrada de Ferro Sorocabana ends the monopoly of the English railway’s access to the port. Eight years later, with the end of the concession granted in 1856, the São Paulo Railway was taken over by the Federal Government.

During its ninety-year existence the São Paulo Railway defined the panorama of the railway network in São Paulo, strengthening the connection from the hinterland to the port of Santos. Its success, in expanding the viability of economic activity throughout the state, allowed an urban system to be established that guaranteed the survival of São Paulo once the coffee cycle ended.

It was the most profitable private railway in the country, and possibly in all Latin America, generating exceptional profits to its shareholders thanks to its exclusive control of access to the coast of Santos which it maintained for eighty-two years. It was also exceptional in the canon of other Brazilian railways which usually met with technical and operational difficulties as well as dubious administrations which, among other factors, made them commercially untenable. (Soukef Jr 2010:194)
At the beginning of the 20th century the first Republican governments, in an effort to build a railway network, took over several railways throughout the country, which, after being organized, were sold, to private groups or to the respective state administrations.

After the Second World War, a new intervention in the administration of several railway companies. Domestic and foreign companies in bad financial situations were rescued, reorganized and incorporated to the recently formed Inspetoria Federal de Estradas (The Federal Highway Inspection) an organisation belonging to the Ministério da Viação e Obras Públicas (Ministry of Transport and Public Works) who were in charge of railways and highway administration.

This Inspetoria would later become the DNER – Departamento Nacional de Estradas de Rodagem (National Highway Department) and the DNEF- Departamento Nacional de Estradas de Ferro (National Railway Department) forming the embryo of the Rede Ferroviária Federal S.A. (Federal Railway Network) a company established in 1957, in connection with the Transport Ministry. In the decade of 1990 the complete Brazilian railway system was again privatised.

The railway heritage

Rail transportation began its decline in Sao Paulo (and the rest of the country) in the 1940s due to several factors, including that of having been built primarily to serve as a vehicle for the flow of coffee and by the fact that the companies were unable to adapt to the diversification of the economic framework of the post-war period. The federal government’s incentives for road transport also contributed significantly to the decline of the sector.

Having participated in the socio-economic life of so many cities for several decades, however, the railways have left an important cultural legacy through their structures, witnesses of a building art which used new techniques that introduced hitherto unknown aesthetic standards. This legacy in many cases is in serious danger of disappearing due to the lack of a public policy effectively guaranteeing its preservation.

This is the case with the São Paulo Railway Company legacy, an authentic representative of the industrial heritage prior to the industrialization of the Brazilian economy and which still retains much of its original architecture as well as some of its equipment.

The preservation of this important railway whose value was recognized by preservation agencies of the State and the Union depends on the completion of a rigorous study of its spaces, its material evidence and the use and operation of its equipment over time. Only this systematization will ensure the full maintenance worthy of this heritage. With the delay in promoting a comprehensive inventory of the buildings and establishing a coherent conservation policy however, the risk is being run of losing not only the buildings themselves but also the equipment, permanent track and its rolling stock.

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