

The Construction of Railroads in Argentina in the Late 19th Century:

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Abstract

In the late 19th century Argentina went through a phase of great economic growth, the Belle Époque, represented by a strong foreign presence of products, labor and capital. This capital was mainly British and was allocated to building railroads. This paper tells the story of the main elements in the formation and financing of railroads in Argentina within the context of the territorial expansion and the role played by them in this period of large outflows of British capital. The subject is divided into three segments. In the first one, the focus will be on the 1860s, when the railroads began to be built in Argentina and the British capital was already predominant. The second one deals with the process of territorial expansion, showing the relation between the Desert Campaign and the railroads. The third one approaches the consolidation phase of the Argentine railroad companies which began in the 1880s.

Key words: Argentina; foreign investments; railroads; territorial expansion; border

Resumo

No final do século XIX a Argentina experimentou uma fase de expressivo crescimento econômico, a Belle Époque, representada por uma forte presença de produtos, trabalho e de capital externo. Este capital foi principalmente britânico e destinado a construção de estradas de ferro. Este trabalho examina a formação e o financiamento das estradas de ferro na Argentina no contexto da expansão territorial e do papel assumido pelas mesmas no período de grande expansão do capital britânico. O tema do artigo é desenvolvido em três partes. Na primeira é examinado o início da construção das estradas de ferro na Argentina nos anos 1860, período em que já existe a preponderância do capital britânico. A segunda trata do processo de expansão territorial, destacando a relação entre a Campanha do Deserto e as estradas de ferro. A terceira aborda a fase de consolidação das companhias de estradas de ferro argentinas iniciada nos anos oitenta.

Palavras-chaves: Argentina; investimento externo; estradas de ferro; expansão territorial, fronteira

JEL CLASSIFICATION: N16; L92; F21

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Introduction

In the late 19th century Argentina went through a period of major economic growth, the so-called *Belle Epoque*, characterized by a strong foreign component in products, labor and especially capital. The latter was mainly British and was directed to the construction of railroads. The need for these railroads came from the impressive territorial expansion that occurred in the country at the time and whose outcome determined the dimension of the Argentine territory of today. This huge border expansion included the incorporation of large areas of fertile land, which enabled the country to produce goods in high demand in the international market. Hence, this “export-led” economic expansion was the product of two interconnected factors: the Desert Campaign and the construction of railroads. This paper intends to examine the formation and financing of railroads in Argentina within the context of the territorial expansion and the role played by them in this period of large inflows of British capital.

The subject will be divided into three main segments. In the first segment the focus will be on the 1860s, when the railroads began to be built in Argentina the British capital was already predominant. The second segment will deal with the process of territorial expansion, showing the relation between the Desert Campaign and the railroads. The third one will approach the new expansion and consolidation phase of the Argentine railroad companies which began in the 1880s and were part of a larger period in Argentine economic growth, made possible by the massive British capital inflow in the country.

This paper shows that the great territorial expansion due to the Desert Campaign impacted and was impacted by the construction of railroads, via the incorporation of vast areas of fertile land which, by their production, not only made

possible the final territorial consolidation of the country but also revolutionized its economic development.

1. The Beginning and the Meaning of the Construction of Railroads in Argentina: the Influence of the British Companies

The construction of railroads was fundamental in Argentina, being a main factor in the Desert Campaign and in the inflow of English capital which molded the country's economic growth process. The Argentine politicians and leaders were very aware of, and actively pursued, the goals of economic expansion.

In the early 19th century most leaders in Latin America were eager to increase the quality of their countries' social conditions but few went as far as Argentina where her Constitution of 1853 had a law that mandated the construction of railroads in the country. The choice of railroads as the main means of development for the country came from the understanding that the territorial safety and consolidation were the two essential elements to reach development. The territorial consolidation was key, particularly in areas where the borders were poorly defined or where vast areas were inhabited by indigenous Indians. Also, the issue of safety did not apply only to foreign aggression: domestic instability, as well as regional rivalries and antagonisms were equally powerful forces confronting the central government, making the establishment of safety essential for the national authority over the provinces.

There is a lengthy literature emphasizing the innovative nature of the railroads. They are usually shown as elements that generate new patterns of economic activity and consolidate

existing products, as they allow the discovery of new regions and new alternatives for the exportable surplus. On the other hand, some scholars have argued that the construction of railroads in Latin America seldom promoted national consolidation since the configuration of the railways, instead of promoting endogenous diversification, their construction is almost exclusively determined by the requirements of export production and foreign trade.

The railroads were always viewed as a fundamental part in the Argentine national construction project, where the appropriation of the Pampas was a strategic achievement. This is why it is not difficult to find very explicitly the link between the development of infrastructure and the consolidation of the state in the writings of the great Argentinean statesmen.

At its beginnings the construction of the railroads was slow due to several circumstances. One of these was the large distances between the points where the thinly spread population lived. Another was the difficulty to raise domestic capital due to the traditional lack of public confidence in steam transportation, which was then seen with suspicion and fear and often with open hostility.

The pioneering railroads linked Buenos Aires, the capital, to the port of Rosário, which was considered a natural route toward the rich provinces of Córdoba, Mendoza, San Juan, Tucumán, Salta, and others.

Despite the enormous influence the British companies would have on the country, the first railroad came from a private initiative by Argentine citizens from Buenos Aires, under the leadership of William Bragge¹, an English citi-

¹ William Bragge is considered a "railroad pioneer". In his youth, he began to study railroads as a representative of Bellhouse and Company of Manchester and he was sent to Buenos Aires in 1855 to construct the first Argentinean railroad. Hennessy (1992).

zen born in Birmingham. In 1854, the province of Buenos Aires was authorized to create a joint-stock company of Argentine investors in order to construct the *Camino de hierro del Oeste* or *Ferrocarril Oeste* company. In its original plan it would have 24,000 ells of extension², and the government had the right to buy one-third of the stocks. The inaugural ride took place on August 29th, 1857 as its first 10 km of length were complete. It must be stressed that this first railroad suffered from several inconveniences, the most serious being the brackish water available, which ruined the locomotives. According to Lewis (1985), the establishment of this first section of the *Ferrocarril Oeste* Company in 1857 is inseparable from Argentine economic history³.

In 1860 *Ferrocarril Oeste* was already 39 km long and had five stations, constituting a small but complete and working railway system. However, its financial status was critical, experiencing deficits of 24,000 gold pesos in 1856 and 1860, that led to its becoming a state company in January of 1863.

On April 29th, 1890, 33 years later, *Ferrocarril Oeste* was incorporated in to a British company, the Buenos Aires Western Railway. The deal was made with H.G. Anderson who bought *Ferrocarril Oeste* through a labor union that in fact represented the Western Railway company for 8,134,920 pounds, equivalent to 41,000,000 peso/gold, or peso, the nation's currency. (Ortiz, 1983).

Despite this local experience, the large railroads were established in Argentina only when the British companies arrived, what leads

² What stands for 20,784 meters.

³ Stone (1992, p.1) states, however, that the adoption of railroads was late, even considering the efforts of the Argentine government, because in 1857 they already existed in the British Guyanas, in Peru, Chile and Brazil. Besides, Cuccorese (1969) states that, considering the fact that the inauguration of the American railroads took place in 1830, when Argentina inaugurated its first company 30 years later, the United States had already built over 30,000 miles.

to the statement that it is impossible to talk about railways without mentioning British capital because their paths are intertwined from the start.

It is important to highlight that when the railways era began in Argentina, Great Britain was at the peak of its prosperity in relation to coal and railroads, which were the main source of its second Industrial Revolution in the 19th century. Also, Great Britain had entered the *Climacteric*, a term used by Lewis (1978) to refer to this period when British capital, instead of being invested domestically, flowed out to the rest of the world⁴. Hence the two countries complemented one another and Argentina chose England to seek for technical and financial help to construct its railways that eventually became the largest and most important in South America.

The first British-owned railway in Argentina was the Buenos Aires Northern, a company which was constituted in London in 1860 to take over a concession to build a short broad gauge line from Buenos Aires to San Fernando, a distance of 16 miles. The first section was opened in 1862 and was finally extended a further two miles from San Fernando to the riverside re-

sort of Tigre in 1865. The Buenos Aires Northern was the second to be constructed in Argentina and the subsequent growth and development of the British-owned railways is illustrated in Table 1, up to 1948, when they were nationalized (Stone, 1993). Looking at table 1, we identify the great share of mileage under the control of the British companies at that time.

In the early development period six British railway companies worked in Argentina. They were created through deals between the national government and the provincial government. Among them, two – Central Argentine Railway and Buenos Aires Great Southern Railway – came to top the ranking among the Argentine railways and became large transportation systems. The others – Buenos Aires Northern, Buenos Aires and Ensenada Railway, Buenos Aires Campana and East Argentine Railways – were all small ones.

The organization, administration, and “modus operandi” of the British railways in Argentina were based largely on the system adopted in Great Britain and adapted to meet local conditions and requirements. The Board and

Table 1 Relation between the Total Railways and British-Owned Railways- 1862 - 1948

Year	Mileage in Operation		
	British-owned railways	Total of all railways	% under British control
1862	5	29	17
1865	98	155	63
1870	339	455	74
1890	4766	5861	81
1910	12955	17395	74
1930	16349	23688	69
1940	15198	25285	60*
1948	15198	26710	57

(Stone, 1993, p.3)

⁴ This climacteric was the subject of an academic controversy in economic history. J. Bradford De Long (1996) summed up its outcome as “Attempts to find a ‘climacteric’ or a ‘productivity slowdown’ in the pre-World War I British economy have failed to find anything save a possible one-decade period of Edwardian stagnation in real wages.” (De Long, 1996). For this topic see Saul (1985).

official headquarters of each company were located in London with administrative offices and a legal representative in Buenos Aires or other city in Argentina. The latter acted as an intermediary between the Board

of directors and the Argentine government on the one hand and the General Manager on the other. Each company also had a local board in Argentina comprising the General Manager, Legal Re-

presentative, and several resident directors. The local boards met at frequent intervals and were empowered to deal with questions of policy requiring immediate attention, leaving the day to day railway affairs to be handled by the respective administrations organized generally on a departmental basis. (Stone, 1993).

It is important to remark that the role of government in Argentina was very strong concerning the orientation of investment. The federal and provincial governments not only recommended that the private businesses search for loans in the international capital markets in order to finance railroads and ports, but also guaranteed their profits. Thus, from the start the Argentinean government treated generously the British investor who took risks in the railroad project. In the initial contract the government not only gave a guarantee of 7% of the subscribed capital and the per mile construction, but also agreed to grant the possession of one league (approximately three miles, or 4, 8 kms) of land on each side of the total constructed line to the railroad company, with certain limitations near important cities such as Rosario and Córdoba. Later on the contractors accepted from the companies one half of this land as a means of a partial payment in the prices of their contracts. Although the guarantee of minimum profits on the capital given by the government was a strong factor to attract foreign investment in railroads, many of these companies opted out of this guarantee, since frequently their profits surpassed the established limits and then they were free to define their fares.

For their size and importance, the Central Argentine Railway and the Buenos Aires Great Southern Railway, the second and the first railway companies, respectively, had a different character, history and purpose. The construction of the Central Argentine Railway began in 1854 through a petition formulated by Guillermo

Wheelwright⁵ to explore an important railway between Rosario and Córdoba. The construction began in 1863 and it was inaugurated on May 18th, 1870. In the words of the then Secretary of Interior, Dr. Dalmacio Velez Sarsfield:

*Os diré solamente que los ferrocarriles han puesto también en evidencia una verdad también comprobada en los principios de economía social. Que ellos sirvan en igual grado a intereses que parecen inconciliables, los del productor y el consumidor, siempre el principio de la armonía en todas las profesiones, en todas las industrias, siempre la solidaridad en todos los intereses de la vida de los pueblos, la industria de uno crea la industria de otro; la riqueza particular es una riqueza en expectativas para todos.”*⁶ (Inauguración- 18 de Mayo de 1870. Argentina, Biblioteca do Banco Central “Ernesto Tornquist. Los Ferrocarriles Británicos en la Republica Argentina, sn, 1948, p.15).

It is important to relate the construction of railways to the formation of the Argentine banking system since often the British personnel involved in both were the same people. The table below was obtained in the Archivo Nacional among important historical documents; it lists the first founders of the Bank of Buenos Aires.

Table 2 indicates that the bank was formed by leading local figures who would become important political individuals in the country. It includes politicians such as Julián Aguero, ministers of such state as Bernardino Rivadavia and Vicente López, and also influential people of British origin such as Tomás Manuel de Anchorena (Stewart y Ca) and Guillermo Cartwright.

Likewise if one examines the formation of the Banco de la Provincia, founded in 1883,

⁵ Although American by birth, William Wheelwright was a member of the “British Group”, promoters of railways in Argentina.

⁶ Translation of the original: I only say to you that the railways have also put in evidence a truth that exists in the principles of social economy. That they serve to the same degree seem ingly irreconcilable interests, the producer and consumer, with the principle of harmony in all the professions, in all industries, where solidarity in all the interests of peoples’ lives, whwn the of one creates the industry of the other industry . Pprivate wealth is a wealth of expectations for all.

Table 2 List of the Founding Shareholders of the Bank of Buenos Aires-1822

BANCO DE BUENOS AIRES
NOMINA DE ACCIONISTAS - SELECCION (1)

Números			1er.	3er.	49
			Quinto	Quinto	Quinto
20	1	Julián Agüero	200	200	200
25	1	Bernardino Rivadavia	200	200	200
26 a 30	5	Joaquín Achaval (a Félix Castro)	1.000	1.000	1.000
35 a 39	5	Braulio Costa	1.000	1.000	1.000
40	1	Vicente López	200	200	200
60 a 64	5	Stewart Mc. Call y Ca.	1.000	1.000	1.000
65 a 74	10	Félix Castro (a Guillermo P. Robertson)	2.000	2.000	2.000
75 a 79	5	Juan José de Anchorena (a Stewart y Ca)	1.000	1.000	1.000
80 a 84	5	Nicolás de Anchorena (a Stewart y Ca.)	1.000	1.000	1.000
97 a 106	10	Juan Pedro Aguirre	2.000	2.000	2.000
113 y 114	2	Rosas, Terrero y Ca. (a Stewart y Cai)	400	400	400
115	1	José María Roxas	200	200	200
122 a 131	10	Diego Brittain	2.000	2.000	2.000
132 a 136	5	Roberto Montgomery	1.000	1.000	1.000
137 a 141	5	Guillermo Cartwright	1.000	1.000	1.000
142 a 146	5	Juan Miller	1.000	1.000	1.000
117 a 151	5	Miguel Riglos	1.000	1.000	1.000
152 a 156	5	Guillermo P. Robertson	1.000	1.000	1.000
157 a 151	5	Tomás Fair	1.000	1.000	1.000
182 a 187	6	Sebastián Lezica (a Stewart y Ca)	1.200	1.200	1.200
228 y 229	2	Nicolás de Anchorena (a Stewart y Ca)	400	400	400
230 y 231	2	Tomás Manuel de Anchorena Ca Stewart Ca.)	400	400	400
237 a 239	3	José María Roxas	600	600	600
241 a 245	5	Tomás Armstrong	1.000	1.000	1.000
255	1	Luis Dorrego	200	200	200
26.5	1	Mariano Fragueiro	200	200	200
266 a 270	5	Brown Buchanan y Ca	1.000	1.000	1.000
279 a 282	4	Dr. José Valentín Gómez		2.400	800
285 a 289	5	Diego Brittain		3.000	1.000
298 a 302	5	Tomás Newton		3.000	1.000

Fonte: Cuccorese (1971)

Nota: ARCHIVO Y MUSEO HIS TORICOS. BANCO DE LA PROVINCIA DE BUENOS AIRES. Libro Mayor. N.1 Folios 11, 12, 13 y 14.

table 3, and it shows that in the original group of founding customers of there was a considerable

number of British citizens, which were very likely connected to the railroad business.

Table 3 Bank of the Province 1883

Then, the Central Argentine Railway was a pioneer railroad that did not intend to respond to an existing demand for railway service: it, instead, intended to create such a demand. From its beginning it was a project of great proportions, and its success depended on its effectiveness in establishing a complete system. It

was in fact both a railway company and a land company, and a large volume of capital was necessary to build a railroad and develop the land that belonged to the company. The idea was to invest in both aspects, as one would stimulate the other, but actually the company executives obtained less than the necessary capital to build, and they did not allot any resource to the settlement part. The Central Argentine Railway, according

NACIONALIDAD Y VALORES DE LOS DEPOSITANTES EN LA OFICINA DE CUENTAS CORRIENTES

Argentinos	1430	4302823 66
Italianos	343	753520 16
Franceses	235	383185 03
Espanoles	209	1123802 13
Ingleses	85	1389338 54
Alemanes	52	85068 40
Orientales	23	61112 46
Portuguezes	7	26256 93
Chilenos	5	7521 51
Belgas	3	2144 97
Brasileros	3	11280 57
Norte Americanos	2	4131 85
Holandeses	2	268 05
Bolivianos	1	25363 42
Paraguayos	1	201 83
Donmarguez	1	2056 02
Surzo	1	4505 28
Austriaco	1	1 17
	2402	8183051 98

Buenos Aires, Diciembre 31 de 1883.

D. QUESADA.

Fuente: MEMORIA DEL BANCO DE LA PROVINCIA DE BUENOS AIRES. AÑO 1883.

to Ferns (1979), tried to stimulate the Argentines to invest and participate in the project of the company with no success.

Table 4 shows the composition of the capital paid-up in Central Argentine Railway in 1863. The importance of the British capital is clear, subscribing \$f 72,275,000. As to the domestic capital, the Argentinean government was the second most important shareholder, followed by the Argentine public subscription and finally by the Buenos Aires province. In 1871 there were more stockholders living in Argentina than in Great Britain, although none of them, except the Argentine government, owned more than 10 shares.

Table 4 – Initial capital of Central Argentine Railway -1863

Capital necessary for construction	\$f 5,000,000
Argentinean Capital:	
Subscribed by the national government	\$f 1,700,000
Subscribed by the province of Buenos Aires	\$f 25,000
Subscribed by the Argentine public	\$f 1,000,000
Total of Argentine capital	\$f 2,725,000
Maximum British capital	\$f 2,275,000

Source: Ortiz (1983, p. 153).

The early history of the other company, the Great Southern Railway of Buenos Aires, is very different from the history of the Central Argentine Railway. It was constructed along a relatively populated territory, whose inhabitants were eager for the service. Its history began through the initiative of Edward Lumb, considered to be the wealthiest British businessman in Buenos Aires by the mid-century. He always had strong relations with the political leaders of the province of Buenos Aires and in August 1861 he requested permission to build a railroad from Buenos Aires to Chascomús (71 miles in distance) to the Buenos Aires Legislative.

7 \$f means pesos fuertes, currency used in Argentina at that time.

The main feature in the organization of the Great Southern Railway of Buenos Aires was that it was composed of British capitalists individually. Thus, the labor unions and the speculative financial groups did not participate in its constitution, and its shares were placed in the London stock market although they were seldom traded.

The concession was granted in July of the next year, but Lumb was unable to raise enough capital in Argentina, so he went to London where he received financial aid from Baring Brothers. From these contacts an arrangement was settled whereby Lumb's concession was transferred to a new London-based com-

pany in 1862 under the name "Great Southern Railway of Buenos Aires" with an initial capital of 750,000 pounds in 20-pound shares each. Lumb's concession⁸ had a guarantee of 7% on a capital of £10,000 per mile for 40 years, but the government had the right to determine the prices during the period in which the guarantee was in effect and to assume control of the company by returning the capital a 20% premium. Upon the inauguration of the Great Southern Railway of Buenos Aires on March 7th, 1864, the Argentine president, General Mitre made an enthusiastic speech, proclaiming his faith in the railroads and in English capital.

The Great Southern Railway of Buenos Aires displayed its English character⁹. The

⁸ According to Stones (1993, p.7) the local Board of directors of the new company had Lumb, the English consul in Buenos Aires, Mr. Frank Parish, and the great landowner, John Fair.

⁹ The English influence on the railroads did not concern only to the ownership of capital, since, although the design of the railroads was French-inspired, the architecture of the covers in the rural stations was a vivid remembrance of the British presence as was the English spoken by the employees, engineers and drivers. Since the British owned three small companies, their control of the transportation system was almost total. According to Lewis (1985) the same was true in the urban system

initial list of shareholders shows prominent English noblemen and English residents, a few Scotsmen and Argentines and no other person of European descent. It was a company rule that the existing shareholders should be given the preference in acquiring future share issues. The amount of shares increased year after year going from more than 200 in 1864 to 1,000 in 1875, 2,000 in 1880, 14,000 in 1900 and about 36,000 in 1914.

The relations between the Great Southern Railway of Buenos Aires and the government of the city were not always peaceful. Its executives preferred to extend the lines toward areas of more intense traffic while the government and the representatives of the rural sector wanted the extended line to lead the expanding economic frontier so that people could reach the unpopulated land and begin to produce.

The results of the exploration of the Great Southern Railway of Buenos Aires were quite satisfactory from the first day it was opened to the public, and in December 1865 the proceeds reached approximately 1,000 sterling per week. It took a while for farmers to understand the advantages of the railway and to abandon the operation of their carts. It was only in 1869 that for the first time, wool transported to Buenos Aires by the Great Southern Railway of Buenos Aires surpassed the amount carried by the previous means. (Los Ferrocarriles Británicos en la República Argentina, (sn), 1948).

Whenever railroads are mentioned in Argentina, England is remembered as the country that most invested in Argentina because of the financial difficulties of the Argentine State to make important investments.

2. Territorial Expansion: the Desert Campaign and the Railroads

The growth in exports and the opening of foreign markets were only made feasible by a great territorial expansion which allowed the incorporation of huge areas of fertile land in the Pampas. This expansion took place during the so-called Desert Campaign. This was possible due to the construction of railroads that crossed along the Argentine territory. The two movements were closely linked: the Desert Campaign and the consolidation of the railroads. This will be discussed here.

The territorial expansion that made the present Argentinean territory reality is without a doubt one of the most interesting parts of Argentina's economic history. In the 19th century, around the 70's and 80's, the South of the Buenos Aires province was occupied by Indians, and their expelling and further appropriation of their land for production purposes were reached through a number of military operations that appear in the literature by the denomination Desert Campaign.

Landes (1998, p.347) states that the lack of unoccupied land was one of the worst legacies of the colonial regime when vast Argentinean areas were given gratuitously to the church and to powerful men. The remaining land was grabbed during disturbances after independence and when new territory was acquired, the same pattern of distributions followed. Then, "the campaign of 1879 against the Indians (what the Argentines bizarrely called *La Conquista del Desierto*¹⁰ was preceded and financed by sales of land, around 8.5 million hectares to 381 people". According to him, the buyers needed all the

in Buenos Aires where, from 1876 to 1940, the streetcars systems were controlled by the British. The British influence was extended to the other infrastructure systems: the docks, the gas, water, sewer systems and the first South American subway, all financed by the British.

10 According to Bandieri (2000, p.129) since the Desert Campaign in 1879, the word "desert" must be understood as "barbarism" or "civilization void".

land they could purchase because as one headed southward the climate became arid and the soil, infertile. Patagonia could support perhaps one flock of sheep per area that was equivalent to one-tenth that of Buenos Aires. Although there had already been a border shift in Buenos Aires in the 18th century and in the 19th century with Rosas in 1883, the major shifts came with the Desert Campaign: Alsina's in 1876 and mainly Roca's in 1880.

The first known Campaign was Alsina's, the minister of War under president Avellaneda. Its goal was to secure the Negro river border in order to obtain vast land areas for the Pampa inhabitants and to use them in production. Minister Alsina proposed a plan which included advancing the Southern border, occupying strategic sites. This incursion would be made by successive lines that would have telegraph communication with Buenos Aires. The forts would connect with one another aiming at blocking the Indians' entrance. Alsina's plan included the construction of an economic railway between Bahía Blanca and Salinas Grandes, as well as the enlargement by 771 km of the telegraph lines that existed in the province of Buenos Aires as a means to connect the capital with other regions.

Although the Campaign had its origin in the strategic issue of land appropriation, in this period there was in fact a resurgence of the Indian menace due to problems with frontier countries, the structural crisis of the Argentine State and the internal disturbances of the Indian society. The Indians also competed with the population for water that was needed for the cattle, this being a reason for frequent invasions in villages and major threats to the populations making it hard to guarantee safety and a growing agricultural-cattle breeding profitability in the *plana pampa*.

All these reasons combined to lead the

Indians to promote bolder invasions at a time when Argentina was less prepared or less capable to use its resources to defend her domestic border. Obviously it was not the Indians' boldness what provoked a change of behavior by the State. What took the authorities to a different position was the realization that for the first time the insecurity of the Indian border began to produce a deep impact on the rhythm of the country's development. It is important to make clear that the phrase "Indian border" does not define a precise limit or a precise division between colonized and non-colonized areas.

This was the context when Alsina's border consolidation phase occurred in 1876. This Campaign marks a new system of hostility against the Indians and it was fundamental that the troops could reach ever farther regions. So, better infrastructure and communication were needed along the border. In the same period, Julio Roca, as the commander of the West Border, was already in favor of a more offensive policy. In July 1878 he commanded a true military devastation, with the imprisonment of Indian tribal chiefs, thousands of Indians killed and thousands made prisoners.

Besides, the fact that General Roca was the commander in the frontiers of Córdoba, San Luís and Mendoza gave him the opportunity to become fully informed about the problem of the desert fight and really came to know in detail the habits, the situation and the tactics of the main tribes. Alsina's endeavors to conquer the desert allowed him to incorporate 56,000 square km of virgin land and also the creation of new territories by the end of his Campaign.

On December 29th, 1877, with Alsina's death, president Avellaneda nominated Roca as his successor. He then could elaborate a strategy for the final *deserto* Campaign and this time it

would be in the Negro river border. Roca's Campaign was no doubt the most important, because it incorporated a huge volume of land for economic activities. Roca's designation as minister of War in June of 1878 enabled him to apply his three lines of work that can be summarized as follows: 1) maintain the task of soothing the tribes to the South and Southeast of Buenos Aires province and the ones to the South of San Luís, Córdoba and Mendoza; 2) put in effect simultaneous tasks of exploration of new territories; 3) logistical preparation to reach the Negro river.

The military expeditions were extremely favorable and set the conditions for reaching the Negro river in 1879 without major problems. The outcome was the occupation and the development of over 550,000 km of national territory. It is important to stress that the federal government, already foreseeing such an outcome, proclaimed the organization of borders in the nation's territories, thereby creating the administrations of Pampa, Neuquen, Río Negro, Chubut, Santa Cruz and Tierra del Fuego in October of 1884. In the 1900's the nation occupied Patagonia definitively, closing the final part of the Campaign of new territories.

Roca's success came to depend on two signs of modernization which also influenced the period: telegraph and railroads, the latter being the best feature in Argentina's modernization. By carrying provisions, men and horses swiftly to outposts, the railroads allowed Roca to enjoy further mobility, a factor that had always been emphasized by him and that was considered a main element in the Indians' earlier victories. The consolidation and the effective expansion of the borders became a feasible proposition, maybe for the first time since the early century.

During the 80's the capitalization of

the Great Southern Railway of Buenos Aires rose from around one million to around three million sterling, an indication of the reach of buildyngand the volume of the financial resources involved. According to Lewis (1985), in the same period the federal and the provincial authorities had gathered huge amounts, almost all for public projects, especially the construction of railroads and telegraph wires that almost reached the border. Part of this capital was invested in the south and the west of the province of Buenos Aires. The destination of huge amounts to these projects – both in terms of the funds directly invested by foreign capitalists in railroad shares and in subscriptions of national and provincial shares – was a sign of trust in Argentina.

The reality of the economic progress led the shareholders of the Great Southern Railway of Buenos Aires to annul the guarantee clause and at the same time to allocate large amounts to Argentinean development believing that there was little need of a governmental guarantee of 7% per year on the capital. When the traffic on a line expanded quickly, it produced enough revenue to pay much higher dividends.

This way, the railroads allowed Roca to successfully implement his strategy to eradicate the Indian menace, a strategy that depended on the maintenance of a substantial military force with an extensive time on active duty and a final coordinated attack by the front against Indian land to safeguard, capture and clean the southern Pampa territory. Due to the Desert Campaign in 1880 the volume of land incorporated in economic activity increased by approximately 30 million hectares, almost half of what was then available.

So, in the 80's, the Great Southern Railway of Buenos Aires was running through the heart of those regions that four years earlier

were being devastated by the Indians. It became the number 1 company in the country in terms of its freight volume and the amount of capital invested, owning the longest constructed line in 1880: 563 km.

3. The Consolidation of the Railroads in the Belle Epoque Period.

As of 1880, a new phase of expansion of the Argentine rail companies began, and this new period of expansion started cautiously in that year with the extension of lines that were part of existing railways. The great territorial expansion granted by the Desert Campaign influenced and was influenced by the construction of railroads, in terms of incorporation of vast areas of fertile land which, through their production, were profitable both to the Argentines and the British capital invested in railroads.

This new period of construction of railroads happened within a bigger picture, the *Belle Epoque*, a golden time in terms of the Argentine economic growth, made possible by the massive amount of English capital that entered the country.¹¹ This new investment phase distinguished from the previous one because it did not depend on the development of foreign trade anymore, though in the medium term it had affected it. Again it was up to the Argentine State to propitiate the right environment for the arrival of the new investments. It is essential to say that a large portion of the foreign investment, both public and private, was meant to form infrastructure, mainly transportation services. The funds were used first for the direct purchase of foreign production goods, such as railroad equipment. Then, what was left was transferred to Argentina to finance railroad construction. According to Alemann (1990), in 1880 there were

already 2,500 km of lines and 10 railroad companies. According to Ferns (1965), from the total British capital investments in Argentina, which amounted to 23.06 million pounds, 56.2% corresponded to loans to the government and 28.6% to railroads and in 1890 the British investments reached approximately 20 million pounds. This explains why the funds originated in this period were devoted to railroad extensions promoting the State activity, in similar proportion to the direct foreign investments.

Table 5 presents the new international bond issues in London, compared to Argentine bonds. It confirms the peak of the English investments in Argentina in the period, reaching the highest point in 1888 with Argentine raising an amazing 23,4% off all bonds issued in London that year.

Table 5 New capital issues by London for investments abroad and in Argentina -1885-1891

	(1) For investments abroad	2) For Argentina
1885	48.4	1.8
1886	47.7	11.2
1887	60.9	11.3
1888	95.5	23.4
1889	99.2	12.8
1890	91.1	4.9
1891	46.6	-

Source: Ford (1975, p.124).

Although the construction of railroads was mainly conceived in essentially political terms, as a means of security in border areas that were more at risk or as an imposition of central authority over refractory provinces, many constructions were viewed as economically regenerative, showing not only coercive intentions but also a commitment to regional welfare. The

¹¹ For this period of economic growth in Argentina see Cortés Conde (1997), Di Tella, Zymelman (1967), Díaz Alejandro (1970); and Lenz (2004).

Central Argentine Railway could hold together the scattered provinces of the Confederation, discouraging turmoil, and could also promote the development of the northwest region, stimulating local production and encouraging trade relations with neighboring countries. The railroads practically revived an area that was previously prosperous but that had lagged behind since the independence because of inadequate means of communication (Lewis, 1985). Table 6 shows the status of the railroads in 1884 in relation to capital, wagons and constructed km. It shows the importance of the Great Southern Railway of Buenos Aires and the Central Argentine Railway for the volume of the capital invested, the number of locomotives, wagons, passengers, maintaining this same trend through the 80's.

Table 6 – Railroads in Argentina -1884

Lines	Km	Capitals	Locomotives	Wagons (freight)	Coach (passengers)
West	779	15 442 855	90	2 749	101
South	1 024	26 571 733	65	1 932	173
Central	396	11 088 000	34	551	24
Buenos Aires	303	9 238 320	13	591	19
Ensenada	57	4 048 144	12	382	20

Source: Cuccorese, (1969, p.40)

The Argentine railway that had around 1,200 miles in 1875 more than doubled around 1885, again by the late 80's and by the late century. In 1920 it reached 21,000 miles and in 1935, 25,000 miles. According to Rapoport (1988), the concession of land adjacent to the railways, the introduction of tax-free material and finally, the Mitre Law of 1907, that exempted the companies from paying all kinds of federal, local or provincial taxes in exchange for a single taxation of 3% over the net profits, constituted a powerful stimulus for railroad investment. According to Ferns (1979, p.414), by the end of 1887

Argentina had 3,848 miles of rails, from when this growth started to decline.

In 1895 the first railroad system was already well-advanced, but around 1914 the gathering of the integrated areas was dominant and all the main regions were connected to the nation's capital and were making arrangements for some junctions of strategic intra-regional routes, besides Buenos Aires, over main ports, such as Rosário's and Bahía Blanca's. The railroad system also determined a substantial decrease in transportation costs. According to Cortez Conde (1997), it is estimated that between 1855 and 1884 the cost of railroad freight decreased 71.9% in relation to cart transportation and between 1884 and 1910, it was 23.33%.

Despite the rhetoric of the promotional literature, only a few companies did not apply really low tariffs, and the railroads needed favors nor dramatic savings in transportation costs. The railroad companies, eager to guarantee access to the European capital market, charged the most the market could tolerate, as a way to assure returns and to avoid reliance on the State's assistance.¹²

¹² According to Ferns (1979, p.409), the dispute among the companies might have had some beneficial consequence if the companies had made an effort to obtain the right to render services, but too often they restrained from investing in essential things, as wagons, to invest in extensions of rails for a government that was eager to be popular in regions where they owned land.

The competition in transportation was a lasting phase in the history of the railroads in Argentina during the third-quarter of the 19th century. The establishment of the railroads' operational cost was probably the most significant factor to support competition in transportation in Argentina. Prices that were fixed at high levels, while the volume of traffic was limited, bringing about a dependence on State aid. Nevertheless, as the marginal costs of operation of railroads were relatively low, the tariffs could be dramatically reduced when the freight volume increased. There were significant economies of scale in the railway business.

By the end of the century, when the pampas were producing an expensing volume of grain and cattle, the Argentine railroads had little to fear in competitive terms because besides implying a fast and sharp reduction in transportation costs, only the rails and not the mules or any other transportation could have formed a true national market (Lewis, 1985). There were also significant network externalities in the railway business.

The liquidations that followed the Baring crisis¹³ made most of the existing lines to be passed over to British companies that exchanged the interest's warranties for payment in govern-

13 The Baring crisis or the "Bubble of 1890" was a crisis that brought profound consequences to the Argentinean economy, as well as to the financial world, as it is indicated below in this footnote. It started in November of that year when London did not allow the advancement of the debt payment neither the continuity of the quarterly transference of funds to Argentina. The Baring bank had a great amount of bonds of the Argentinean government, with a face value of around 25 million dollars. There was a crisis y confidence in the capacity of payment of the Argentine government that was solved later through foreign deals, as below indicated. Because the main bonds were of railroads companies, one of the main consequences of the crisis for the companies was that several of the new concessions were canceled. According to Eichengreen (1996), the Bank of England had to borrow three million pounds worth of gold from the Bank of France and a commitment of one and a half more million from Russia to keep the British central bank within the rules of the gold exchange standard. Also, with the help of other London banks, it allowed the financing of a fund to help the Baring Brothers to be saved without compromising the gold exchange rules. Of course, there are several interpretations of the Barings Brothers crisis: on the one hand barings are viewed as providers of "bad loans" and, on the other, as victims of the Argentine government, as the latter incurred in the first of several defaults in its history. For this see Reinhart & Rogoff (2004). The investors were soothed and the crisis was ended.

ment bonds. According to Ferns (1979, p. 409), around 65-70% of the total British capital invested in Argentina during the four prosperous years (1886-1889) were used to finance the railroads directly through companies or indirectly through loans to the government.

The 1880's were a period of great expansion and profit for all established railroad companies, large or small. The fact that the productive and physical increase lagged in time by a significant period the increase in investments partly helps in explaining the sudden stop in capital inflows that precipitated the Baring crisis of 1890. As a consequence, Argentine railway affairs during the late 1880s exhibit a dual image: increasing difficulties in new lines and, at the same time, untroubled operating lines; until the latter were overtaken by the crash. (Lewis, 1983).

As a result, Argentina soon became a railroad inferno, when in 1900¹⁴ no less than 21 private railroad companies and three State ones fought to serve a public of more or less 4 million people. Table 7 presents a detailed and complete description of the railroad system in Argentina collected by the 1914 census and presented by Vázquez-Presedo (1971):

Hence, the Argentine railroad system could be considered at that time as one of the most outstanding examples of railroad development in the world: the 10th in the world and the 1st in Latin America.

Discussion.

Among the countless characteristics

14 The British-owned railroad companies would eventually have to face the radical political nationalism that would rule Argentina after the 1930's when they came to be seen as a prominent symbol of foreign domination, a process that would culminate in the nationalization implemented by president Juan D. Perón in 1948, which included, besides the railways, the financial, telecommunications and the electric power sectors.

Table 7 – Railroad statistics - 1875/ 1914

Years	Extension Kms.	Recogni- zed capital Thousands \$ gold	Passengers trans- ported in thousands	Freight trans- ported thousands of tons	Total revenue thousands \$gold	Total ex- penditure thousands \$ gold
1876	1 665	49 534	2 338	733	4 586	2 746
1878	2 262	59 491	2 474	733	5 332	3 155
1880	2 313	62 964	2 751	772	6 560	3 072
1882	2 266	65 672	3 646	1 307	8 496	4 527
1884	3 728	93 794	4 819	2 421	14 030	7 144
1886	5 964	148 610	4 658	2 948	16 158	9 214
1888	7 644	197 518	10 106	4 410	22 427	12 505
1890	9 254	346 493	10 069	5 420	26 049	17 585
1892	12 920	389 152	11 788	6 037	19 538	11 707
1894	14 029	461 865	13 928	8 143	22 904	13 081
1896	14 489	496 426	17 248	10 914	31 251	16 080
1898	15 314	522 433	16 478	9 429	33 241	19 103
1900	16 767	551 515	18 296	12 659	39 958	22 634
1910	27 713	1 099 700	59 849	32 561	111 448	65 967

Source Vázquez-Presedo - V. Estadísticas históricas argentinas (Comparadas): First part 1875-1914. Buenos Aires: Machi, 1971. Nota Tercer Censo Nacional - Año 1914 - Tomo X.1 Estadísticas correspondientes al año 1912.

experienced by the Argentine economy in the late 19th century, one of the most interesting was the role played by the British railroads, in the context of the importance of the Desert Campaign for the construction and consolidation of the domestic market.

The Desert Campaign was the means to appropriate fertile land needed for agricultural-cattle breeding production and it was implemented by a sequence of military operations, supported by the central government, aiming at eliminating the Indians that occupied the land. Both Campaigns, Alsina's in 1874 and General Roca's in 1878, had the explicit goal to rescue the desert occupied by Indians and colonize it as a means to assure its ownership. By the end of Alsina's Campaign 56,000 km of territory were incorporated and by General Roca's, over 550,000 km.

The Desert Campaign was always interconnected with the construction of railroads,. The importance of the railroads as a fundamental element for the integration and the access to new land and for the construction of the Argentine nation, mainly through the incorporation of the Pampa region, was always present in the speeches of politicians and statesmen of that time. Alberdi (1999) even compared them, as cultural agents, to the Middle Ages' monasteries.

The arrival of the large railroad companies only occurred with the arrival of British capital, making the two simultaneous and inseparable. The Argentine railroad network became the largest and most important in Latin America. Two English capital companies – Great Southern Railway of Buenos Aires and the Central Argentine Railway – were at the top of the ranking.

While the Central Argentine Railway was a large company, creating its own demand, with intense State participation and low Argentine national private capital participation, the Great Southern Railway of Buenos Aires was constructed in an already densely populated area and had as its main shareholders a great number of English citizens.

The large territorial expansion propitiated by the Desert Campaign came to influence and be influenced by the construction of railroads, in terms of incorporation of vast areas of fertile land that, when producing, demonstrated to be profitable both for the Argentines and for the British capital invested in railroads.

As of 1880, a new phase of expansion of Argentinean railroad companies was inaugurated, within a bigger context, the *Belle Epoque*, a golden period in terms of Argentine economic growth, greatly made feasible by the massive arrival of English capital in the country.

As a consequence, Argentina soon became a “railroad inferno”: in 1900 at least 21 private railroad companies and three public companies fought to serve around four million people. The railroad system grew every year and by the late 1910 it totaled about 30,000 km and another 8,000 were under construction. Considering the small population number, the Argentine railroad system could be considered one of the top developed systems in the world at the time. Thus, the construction of railroads, although required by the foreign trade demands, performed a remarkable role the national consolidation, facilitating access to new areas, and cooperating in geographical terms by taking the place of rivers and canals the country didn’t have and also in economic terms, allowing the regional exchange. The importance of the railroads as indispensable elements for the integration and access to the new regions and for the building of the Argentine nation especially through the incorporation of the Pampa area was always mentioned by the politicians and statesmen of the time.

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