

Foreign Capital and Business Strategies: a comparative analysis of urban transport in Madrid and Barcelona, 1871-1948

Alberte Martínez López

University of A Coruña

almalo@udc.es

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Foreign Investment in Urban Public Utilities: An International and Comparative
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Introduction

Public services, along with the mining sector, have been one of the preferred areas of foreign investment on an international scale. Within public services, urban transport has constituted an important cornerstone in the penetration strategy of foreign capital, frequently used as a Trojan horse to facilitate the installation of powerful electromechanical engineering groups. Spanish cities were not indifferent to this type of dynamic. In many of them foreign businesses were located that had to put in place different forms of infrastructure-water, energy, transport and telecommunications-which demanded the new socioeconomic reality of the Second Technological Revolution. This process was especially intense in cities like Madrid and Barcelona which constituted a more attractive market because of their size and the expectation of a demand for growth in these areas. In these two cities foreign investors, principally British and Belgo-Germans, controlled public transport throughout half a century. The aim of this paper will be to make a comparative analysis of the strategies used by the different foreign businesses that acted out of Madrid and Barcelona. Through this we will try to ascertain if it is possible to establish a guide or model of behaviour of the diverse foreign investment groups and their possible motivations. This attempt to analyse the composition and the behaviour of various international groups may contribute to understanding the investment strategies of foreign companies in other parts of the world.

In order to do this it is necessary synthesise the principle phases of growth that business management of public transport went through in both cities with special attention being given to the role of foreign capital within this development. Finally, the common

elements and the specifics of the strategies of the foreign business groups will be defined. The primary sources used in this study were the annual reports of the companies, business dossiers and the financial press¹, and were largely sourced from archives in Brussels, London and Paris². What also proved useful were the existing bibliography on the history of urban transport in both cities³ and some studies on foreign transport in Spain⁴.

The business atomization of the first Madrid tramways and the start of the foreign presence, 1871-1885.

The basic tram network in Madrid, which was completed in some thirty years, consisted of three types of lines: radial lines in the centre and surrounds, cross over lines in the suburbs and outskirts connecting them with the neighbourhoods on the periphery and nearby villages. They consisted of broad gauge European lines (1.44mts) and narrow lines (1mt) making connections difficult. As was frequently seen in big cities, the beginnings of the tram network was characterised by an abundance of small companies, with the capital invested being largely local. These early companies used to operate only one line powered by animal traction or using steam in the sections outside of the built up areas.

In 1871 Morris and Company were to bring into operation the first Madrid, and indeed Spanish, tramway line. In 1872 the concession was transferred to The Madrid Street Tramway, founded the same year, initially in the orbit of British and Foreign Tramways and later taken over by Tramways Union⁵. This same group went on to control Barcelona Tramways and Carthagena Herreiras Steam Tramways, both founded in 1872, with interests also present in Seville Tramways, set up in 1886. In the following

¹ *Le Recueil Financier* (RF) for Belgium and the *London Stock Exchange Official Yearbook* (LSEYOY) for Great Britain.

² Archives du Royaume (Brussels), Public Record Office and Guildhall Library (London), Archives du Crédit Lyonnais (Paris).

³ Basically Alemany y Mestre (1986), López Bustos (1986), Martínez (2002) and Salmerón i Bosch (1992). An international approach to the tramways in Mackay (1976).

⁴ Mainly Arroyo (2002), Broder (1981), Doria & Hertner (2004), Hertner & Nelles (2004), Loscertales (2005), Martínez (2005) and Tortella (2000). In a more general approach, Nelles (2003).

⁵ This company was established in 1874 to take over the assets of British and Foreign Tramways, which was set up three years previous. Its capital was made up of 40,000 shares to the value of five pounds each, of which 30,000 were against the previously mentioned assets. The principal investors at this time (they had paid out 31,507 shares) were Philip Rawson (noble), Julius Beer (merchant), Hermann Esucheen, Louis Slinger (banker and baron), Louis Floersheim (merchant), Louis Lawson (noble), Oppenheim (merchant), Stern Brothers (merchants), Carl Lietgen (banker). The company dissolved in 1899. (PRO, Barcelona Tramways 31-1962-8303).

years (1872-1891) they would go on acquiring various concessions, which didn't materialise, forming the named English network, made up of three lines that crossed the city.

A key player in all of this and a person who acted as a link between the English and Belgo-German groups, in both cities, was Mariano Foronda. He was a lieutenant in the cavalry before being appointed chief of personnel of The Madrid Street Tramway, whose lines still employed animal traction. It is thought that his position as chief of personnel was more than likely due to the experience he gained from his employment in the military. What is thought to also have had a bearing on his new position was the fact that he was the brother-in-law of Henry Brown, director of The Madrid Street Tramway. Subsequently, Brown who was in addition managing director of Barcelona Tramways, also appointed Foronda personnel manager in Barcelona⁶. With the transfer of the assets of Barcelona Tramways to the Belgo-German company Tramways de Barcelone, controlled by Sofina, Foronda, decorated as a Marquis, became the face of Sofina in Spain, directing the Barcelonan tramways until 1931.

From 1877 to 1879, four companies were formed, using native capital, under the scope of the Tramways Law of 1877. At the end of the century these companies were assimilated by two powerful Belgian groups. Finally, during the following years, three other companies were set up with Spanish capital and they succeeded in maintaining their autonomy. The limited interest of foreign companies at that time probably had a lot to do with the provisions of the Tramways Law. One of these provisions was that tramways were not included as one of the areas exempt from customs duty for material introduced from abroad.

The Gradual Belgian Control of the Madrid Network, 1886-1899.

Belgium, a country of early industrialisation, developed a model that over a long period of time would be based on heavy industry and the financial sector. The fact that they would be able to make use of rich carboniferous and ferric deposits provided the basis for a powerful metallurgic and mechanical industry. The necessity for greater

⁶ His uncle Carlos de Foronda y Valcárel was the first president of Compañía General de Tranvías de Barcelona, that later passed over to German capital. Another relative Manuel Foronda y Aguilera, was the founder of the Sociedad de los Tranvías del Norte de Madrid (Roig, 1970: 69).

investment and long term repayment depreciation promoted the expansion of a strong banking system, closely linked to metallurgical interests. By making the most of these advantages Belgium provided a dense railway and tram network. However the lack of proportion between the size of their metallurgical sector and their internal market motivated a need, increasingly felt at the end of the nineteenth century, to look for new markets for their metallurgical and mechanical products as well as their capital. As a result of the difficulty Belgium experienced in competing with their powerful neighbours (France, Great Britain and Germany) in obtaining the big railway network contracts and because of the finalisation of a large part of the networks at this stage, they specialised, with great success, in narrow gauge railways and tramways. This move was reinforced by the progressive and early nationalisation of the Belgian rail network. Consequently the Belgians acted as the principal investor in this sector⁷. This movement reached its golden age during the years 1890-1914. The upheaval of the First World War and the wave of municipalisations and nationalisations in the twenties would significantly reduce the amount of investments abroad. Thus, this is the context of the insertion of Belgian capital in the development of Spanish tramways⁸.

As we have seen, and as was frequent in the big cities in the first stages of development of the tramway lines, the networks were characterised by the plurality and heterogeneous nature (operating companies, the width of the tracks and the traction systems used). These characteristics made the plausibility and modernisation of the network more difficult. In order to tackle these limitations, over a few years Belgian capital was directed towards the unification of the majority of the companies that operated in Madrid, with the subsequent electrification of the network. In the Madrid network two Belgian companies were significant, the Société Générale de Tramways de Madrid et d'Espagne (SGTME) and the Société Générale de Tramways Électrique d'Espagne (SGTEE), both situated in Brussels.

The SGTME was founded in 1886. Shares from Tranvías del Norte de Madrid, contributed by Otlet and other associates (Barbanson, Bourson, Dansette and Peemans), effectively formed the initial capital. It appears that what developed was an operation

⁷ According to Tortella (2000: XXIV), place the Belgians as the third largest investor in Spain (after France and Belgium) from 1851 to 1914. Belgium's investments centred on transport (namely tramways and narrow gauge railways) and, at a distance, in mining.

⁸ For more detailed aspects of the Belgian financial sector, see Kurgan (1992) and Wee and Goossens (1991). A view of the first Belgian tramway holdings and Belgian Foreign Investment can be found in Brion and Moreau (1995) and Martínez (2003).

that was quite frequent between businesses in the public service at the time, substitution of shares, artificial overcapitalisation and basic recourse to outside funding by means of bonds. These factors ensured that there wouldn't be a capital outlay of cash. The values of the shares received were sufficiently higher than the contributions and numerous bonds were issued immediately. The founders of the SGTME represented companies with significant investments in the tramway sector, especially in Russia and the Near East, metallurgical or mining and with a clear vocation for vertical integration. Generally the Belgian members of the board of the Madrid tramway businesses appertained to the high finance of Belgium, with close family and business connections with other European countries. During the following years the network was expanded with the absorption in 1896 of the company that managed the *Tranvía de la Guindalera y la Prosperidad* and with the putting in place of two new lines in 1905. The entire network, which used animal traction until the beginning of the twentieth century and was concentrated in the northern part of the city, totalled 11.9 Kms. Economic difficulties and incapacity to undertake the unavoidable electricification led to a leasing agreement with the SGTEE.

The SGTEE was set up in 1899. The founding capital was 10 million Francs, which doubled in a few months. The core of the SGTEE was made up of powerful financial and Belgian electromechanical groups (table 1) (the Empain group⁹, Banque de Bruxelles, Paribas belga) and German (Deutsche Bank/AEG, Hélios/Siemens, UEG). These groups were interpreted by Broder (1981: 1794) as integral to a possible strategy to use the SGTEE as Sofina belga had been used, an instrument of the German-American electrical groups¹⁰. In short, a regional sub-holding with the usual political double vocation (disguising its origins and control without transferring the concession) and financing (control of subsidiaries with minimal own resources and the possibility to have recourse to investors on various levels) (Brion et Moreau, 1995: 105). The SGTEE was made up of the following societies: *Tranvías del Este de Madrid*, *Sociedad del Tranvía de Estaciones y Mercados* and *Compañía General Española de Tranvías*. The

⁹ It is useful to remember that this group, through the *Compagnie Générale de Traction*, founded in 1897 and in partnership with Thomson Houston of France, was established in 1910 by the Parisian transport monopoly (Larroque, 1982: 82)

¹⁰ Concerning the international expansion strategies of the German electromechanical groups and their Belgian and Swiss connections see Hertner (1990) and Segreto (1994).

Madrid network reached 40 Kms, with 13 Kms electrified since 1898 (the old English network)¹¹.

Table 1. Shareholders of the SGTEE, 1899

Shareholders	Number of shares
Société générale de Chemins de fer économiques	65.075
Edouard Empain	51.730
Compagnie belge de Chemins de fer réunis	29.960
Société française de Tramways électriques et de Voies ferrées	10.000
Les Tramways Réunis	10.000
Georges Bonheur	8.490
Georges de la Haut	4.000
François Empain	2.500
Jules Urban	1.500
M. le Chevalier Raphaël de Bauer	1.125
Jules Jacobs	1.125
Gustave Kumps	1.125
Others	13.370
TOTAL	200.000

Source: AGR, FT SGTEE 3/1/1899, 12/2/1900.

Electrification of the network and the unification of Management, 1899-1911.

At the end of the nineteenth century the majority of the companies that operated the Madrid tramways came under the control of the two Belgian groups mentioned. What was now needed to be done was to electrify the network and to unify it both financially and the operation of it. This process was undertaken during the first decade of the twentieth century. Firstly, both groups signed an agreement in 1901 in which the SGTEE would proceed with the electrification and the running of the SGTME network. Secondly, the SGTEE would complete the network by means of the acquisition in 1908 of the Compañía Eléctrica Madrileña de Tracción, in addition to the extension of the lines. Finally in 1910 a new agreement was established between the SGTEE and the SGTME for the joint operation of the network. As a result by this stage the unification of the urban Madrid tramway network was achieved, reaching 74.8 Kms. In short, the

¹¹ Apart from this they owned 92% of the shares of Sociedad del Ferrocarril de Sarriá a Barcelona, 5 Kms.

credit of the relatively fast electrification of the network from 1901 to 1903 must be placed with the Belgians and to a lesser extent the enlargement of the network.

With regard to the origins of the rolling stock, it is necessary to point out that as with the previous businesses under Belgian control the bodywork was sourced and made in Spain. However, the SGTEE sourced the casing and framework and a good part of the engines from Belgian companies, probably affiliated to the parent company.

From unification to the transfer to Spanish capital, 1911-1920.

Once unification and electrification was achieved efforts were concentrated on the reduction of costs, especially electrical costs. The second decade brought with it a period of growth for the business that wasn't delayed by the First World War. Nonetheless in the post-war period the growth in costs due to inflation and industrial disputes placed the business in an awkward position as it was difficult to obtain an increase in rates.

Since 1915 the SGTEE tried unsuccessfully to achieve the unification and prolongation of the concessions. The failure of this attempt, as a result of the municipalist and nationalist air of the post-war period, led to the transfer of the running of the network to the Sociedad Madrileña de Tranvías (SMT), founded in 1920. This increase in nationalism directly affected the foreign license holders in the public services, more so in the Latin countries than in the Germanic countries or those in Eastern Europe. The Belgians tried various tactics to combat this, such as attempting to hide their origins or involving local capital with or without participation in the running of the business (Brion et Moreau, 1995:113)

Under the SMT two financial groups met :one Spanish formed by the Banco Urquijo, Banco de Bilbao, Banco Español de Crédito, Unión Eléctrica Madrileña and the Sociedad Hidroeléctrica Española; and the other Belgian consisting of the Compagnie belge des Chemins de fer Reunis (Empain group), the Société Générale de Chemins de fer Economiques (Banque de Bruxelles) and the SGTME. The foundation of the SMT represents a clear example of the joining of banking capital and the electrical sector which would acquire additional importance from the twenties. The financial sector harnessed an important part of their greater benefits from the First World War and

directed them towards sectors such as utilities (electricity, tramways and railways) and mining, acquiring the numerous companies set up on foreign capital that existed in those sectors and making use of the nationalist environment of the time and the strength of the peseta. Belgian members on the boards remained in decreasing numbers until the municipalisation of 1948. At this time Belgian interests moved to the property sector making the most of the awards given for construction in the old tram depots.

The division of the first tramway companies in Barcelona and the penetration of foreign capital, 1871-1888.

The first transport lines in Barcelona, using railway, were created with the objective of uniting, according to a radial structure, the various villages and cities in the surrounds with the traditional centre. The financial crisis in 1866 facilitated the concentration of these small railway companies in the hands of Norte and MZA. Generally, the big financial group's interest in the tramway market in Barcelona was delayed due to the desire of the city Council to stimulate competition through giving concessions to various companies making the construction of a coherent and profitable network difficult.

During the seventies seven companies were created, the majority with Catalan capital. Our focus however is on those generated using foreign capital. In 1872 the first society was founded, The Barcelona Tramways (table 2). It belonged to the same group, Tramways Union, which had created The Madrid Street Tramway the previous year. They received various concessions from Alex Soujol, and these lines were opened between 1872 and 1877, and dominated the basic axis of the Barcelonan transport network: Plaza de Cataluña and the Pla de Palau. The initial capital invested was £70,000 (pounds) which increased to £150,000 in 1880. The Sociedad Catalana de Tranvías was created in 1876 by the French company Société Générale des Tramways. Their initial capital was 0.9 million francs and in 1877 their Circunvalación line was opened. The Compañía Anónima de los Tranvías de Vapor de Barcelona y el Litoral was founded in 1883 using a capital of 1.5million pesetas from the Belgian company Compagnie Centrale des Chemins de fer et Tramways en Espagne¹². They opened their Barcelona-Badalona line in 1884.

¹² They obtained the concession through MP Albert de Quintana, who went on to take a seat on the Board of Directors.

Table 2. Shareholders of the Barcelona Tramways, 1872

Shareholder	Number of shares
Baron Emile Slinger, banker	2.963
Baron Louis Slinger, banker	2.875
Aleix Soujol	1.000
Others	162

Source: PRO, Barcelona Tramways 31-1755-6544.

The companies of this time were small and generally operated only one line that ran using animal traction or steam (in the outskirts) and usually connected the traditional centre with the various villages and cities on the outskirts of Barcelona. During those first years there was a rapid growth of an inner-city network but the economic results were deceiving because of the charging of bonds and insufficient profits as a result of an elitist demand because of high rates. This resulted in a critical situation in the majority of these businesses at the height of 1888.

Concentration of businesses, internationalisation of capital and electrification, 1888-1905.

In the presence of the growth of inter-city lines of the previous phase improved internal cohesion was now required. This dynamic corresponded with the process of administrative fusion of the villages in the Barcelonan plain that took place between 1897-1904 and gave way to the internal reconstruction of the big city.

The lack of profits in the majority of the small companies was due to, for the most part, their operation of only one line, their financial limitations and the technological incapacity to handle the change of traction to an electrical system. All of these factors led the way for a progression towards concentration of businesses, led by foreign capital. This process of concentration was now backed by the council eager to connect the different gauges which they considered to be imperative for a future municipalisation of the service. Initially it was the Barcelona Tramways who led the concentration, favoured because of their good relations with the council. Between 1888

and 1903 it absorbed four companies¹³ managing to straighten out their management and obtain modest benefits. It was also the first company that endorsed a huge electrification plan of their network and it put that plan into action from 1899. To see both these plans (absorptions and electrification) through to the end, to all intents and purposes it took over the issuing of bonds.

As for German capital, basically represented by the AEG, they took over the Compañía General de Tranvías and Tranvías de Barcelona a San Andrés in 1897. Both businesses, and more so the CGT, were in difficulty and in discussions with the AEG to electrify their lines and take charge of affairs. The presidents of both companies were retained (Foronda and Gassol) but the other responsibilities were passed to Germans. The new management produced excellent results. AEG sought to simultaneously enlarge its network by acquiring other lines and to obtain new concessions.

In 1899 Tramways de Barcelone a San Andres et Extensions was founded with Belgian capital, 3.5 million francs which increased to six in 1902. It was controlled by Société d'Entreprise Générale de Travaux (the Philippson group). In the following years it obtained various concessions and companies¹⁴. This first phase of unification of the transport network was characterised by the conversion of the numerous small companies into three big foreign companies and by the distinction between these big companies. The San Andres et Extensions company controlled the eastern area of Barcelona and surrounds, the Barcelona Tramways the centre and the CGT the western area. The mergers took different forms, from simple absorption to the formal maintenance of the businesses controlled.

At the end of the nineteenth century and coinciding with a period of speculation, The so-called “gold fever”, in Catalonia, several tramway network plans were presented by various businesses and they competed amongst themselves to obtain the resultant contracts. The Ferrocarril Económico del Bajo Llobregat presented one of these plans. The concession was obtained in 1898 when the company had already been dissolved and transferred the contract to the AEG. However the real encounter took

¹³ Sociedad Catalana de Tranvías, Sociedad del Tranvía de Barcelona, Ensanche and Gracia, Compañía Nacional de Tranvías and Compañía Catalana de Tranvías.

¹⁴ Barcelona-Horta line, Compañía de los Tranvías y Ferrocarriles Económicos and Compañía Anónima de los Tranvías de Vapor de Barcelona y el Litoral.

place in 1896 when the Barcelona Tramways and the CGT, now controlled by the AEG, presented their network plans to the council. Both plans were quite similar and had the same objective: to complete the inter-city network from Ensanche and electrify the lines. Both companies received concessions and the electrification of the lines began in 1899 and was completed in 1910.

The unification of the tramway companies and the transfer to Spanish capital, 1905-1925.

In 1905 three important interrelated events took place: the council approved the Linkage Plans presented by the French town planner León Jousseley, the reversion of the lines was delayed until 1945 and Tramways de Barcelone was founded in Brussels.

Jausseley's strategy contained, for the first time, a plan of tramways and trains. Transport now had more importance than in the Cerdá Plan for the internal structure of the city.

During the first decade of the twentieth century the lines were electrified and the network was doubled reaching 125 Kms. The principal objective was to strengthen the internal urban mesh, both in a longitudinal direction (sea-mountain), and for the first time, transversally (parallel to the sea through the Ensanche).

Tramways de Barcelone (TB) was set up with a capital of 11 million francs. Various entities, one German and the rest Belgian endorsed the capital (table 3); although some of the Belgian companies were under German control. The principal actor was Sofina. In the same year as it was founded TB absorbed the Barcelona Tramways whose operation results weren't as positive as had been hoped after the electrification of the network. The conditions of the offer to the Barcelona Tramways were quite generous. In the following years TB would go on to take over the rest of the competitors. In 1905 they signed an agreement with the CGT for the joint operation of the lines of both companies, with a termination date for the agreement of five years. TB obtained 25% of CGT shares with the AEG maintaining the rest. In 1914, with the cessation of the agreement TB purchased the remaining shares. In 1911 they signed another agreement with Tramways de Barcelone a San Andres et Extensions, in which they purchased 75% of its shares¹⁵ and as part of the same agreement management of its lines. As seen with the English network their results hadn't been overly positive due to a growth in

¹⁵ Through this their capital increased to 18 million francs.

dividends following some small amortizations. As with the offer to the Barcelona Tramways the conditions were quite generous. Now practically the entire Barcelona tramway network was under the control of TB. Once the unification of the companies was achieved, and similar to the process seen in the case of Madrid, TB sought, unsuccessfully, for homogenisation and to prolong the duration of their concessions.

Table 3. Shareholders of Tramways de Barcelone, 1905

Shareholder	Number of shares
Sofina, Brussels	40.000
GEU, Berlin	15.000
Cassel & Cie, bankers of Brussels	15.000
Josse Allard, banker of Brussels	15.000
Société Générale de Chemins de Fer Economiques	6.000
Banque de Bruxelles	5.000
Banque Internationale de Bruxelles	5.000
Société Générale Belge d'Entreprises Electriques	4.000
Banque Liégeoise	2.500
J. Matthieu & Fils, bankers of Brussels	1.000
Victor Fris, chairman of Sofina	1.000
Constantin de Burlet	500

Source: *Recueil Financier*, 1913 I: 215.

The source of the materials used in production in the new company was distributed in the following way: with regard to the Barcelona Tramways network the rolling stock and rails came from Britain and as for the other networks those materials came from Belgium, the overhead material was German; the power-stations were fabricated in Germany (AEG) or Switzerland (Brown-Boveri), this last company being under the control of the AEG at this time. From 1920 to 1924 two hundred and four new tramways (of various types) were commissioned, the majority Belgian. Unified and electrified the tramway network had hardly any competition from the underground or from buses and the period from 1905 to 1925 saw the best economic results for TB. The fares had declined because of inflation and tramways were favoured as the most popular means of transport. After the unification of the tramway lines was achieved TB extended its control to new modes of urban transport such as the underground and buses

(diversification)¹⁶. This strategy is similar to that previously adopted by some gas companies in the face of the threat of electricity.

In 1925 a Spanish financial consortium formed by Arnús-Garí, Marsans, Internacional de Industria y Comercio, Hispano Colonial and Vizcaya created Tranvías de Barcelona with a capital of 50million pesetas¹⁷ which they used to purchase all the assets of TB, which was wound up in the same year. The transfer was above all financial and management and administration stayed, for the most part, in the hands of the same people. During the Republic the members of the board linked to the old TB reduced and perhaps all together disappeared. Finally, following a dynamic similar to what was seen in Madrid, from 1940-1957 there was a progressive process of municipalisation of the public transport in Barcelona.

Conclusions

The evolution of the transport businesses in Spain followed a similar strategy in both of the Spanish cities and the evolution that occurred was also similar to that in other metropolises. In this early embryonic stage, the last quarter of the nineteenth century, a chain of small companies co-existed; the majority of them had native capital that gave a heterogeneous character (width of the lines, animal traction, fares) to a tramway network that was still based on the strength of the animals, with some peripheral lines ran on steam. This atomisation of the supply was reinforced, above all, in Barcelona, by the municipal politics to stimulate competition between businesses and avoid a monopoly. Nevertheless, these small businesses lacked the capital necessary in order to undertake the required investments for which they had to fall back on the release of bonds and the necessity to charge high fares which had negative repercussions on their economic and financial profitability. However, already in this first stage it was possible to detect the presence of the foreign investors, principally English. In this case it was the same group that entered almost simultaneously into both cities and that also had interests in other Spanish cities as well (Cartagena and Seville). This coincided with the take-off in British foreign investment in tramways that took place at the beginning of the seventies (Stone, 1999: 372-381). This early British presence is certainly related to

¹⁶ In 1921 they participated in the founding of Compañía del Ferrocarril Gran Metropolitano de Barcelona. In 1925 they acquired the majority of the capital of Compañía General de Autobuses.

¹⁷ They offered a subscription of 10 million pesetas to the old share holders.

their greater experience in this promising sector and with the supremacy of their industry in the supply of rails and rolling stock. The incidences of French companies were fleeting and almost non-existent, corresponding with the limited role of French investment in urban transport in Spain, and was concentrated in the tramways in Valencia by Thomson Houston.

The arrival of powerful Belgian financial groups (at times a front for German electromechanical companies) with a defined strategy carried the unification and electrification of the network, a phenomenon that continued into the first years of the twentieth century. This sequence of plurality of networks, unification and electrification, was quite characteristic of the large cities with the involvement of foreign capital in the concentration phase¹⁸. This juncture coincided with a relative drop in British external investment in tramways which favoured the absorption of their companies in Spain by the booming Belgian corporations. The withdrawal of British capital from tramway investment was probably connected with their failure in the Second Industrial Revolution in new sectors such as electricity against competitors like Germany, whose multinational electromechanical companies (AEG and Siemens) cornered the international markets. This absorption of British urban transport companies by German or Belgo-German corporations, with their main purpose being electrification, also took place in those years in other cities and countries. This was especially true in those big cities that were set apart by their industrial hinterland¹⁹. The displacement of British by Belgo-German companies brought about a change in management, technology and financial patterns and set a course for a more professional management, with improved technical sophistication and endowed with greater financial resources.

The final domination of Belgo-German groups corresponded with the leading role of Belgian capital on an international level in the investment of narrow gauge tramways and trains. Especially in the big cities, where the size of the market was more desirable,

¹⁸ Besides Barcelona and Madrid the cases of Buenos Aires, with Sofina (García Heras, 2004), Mexico and Río de Janeiro, with Pearson (Armstrong & Nelles, 1995; Boone, 1995) can be cited. In some cases (Paris with Crédit Mobilier, later Thomson –Empain), the assistance of the state in rationalisation and control resulted in the starting from the private monopoly (Larroque, 1982).

¹⁹ In 1986 Compañía Sevillana de Electricidad, controlled by AEG, acquired Seville Tramways. In 1906 Sofina led the creation of Tramways et Electricite de Bilbao. In 1907 Anglo-Argentine Tramways, who controlled transport in Buenos Aires, was absorbed by Comapgnie Générale de Tramways de Buenos Aires, which was formed by a European consortium controlled by Sofina (García Heras, 2004: 130).

as was customary host enterprises were generated, as a result of the confluence of interests of financial groups from Germany and Belgium. These groups were accustomed to dividing amongst themselves the corresponding orders according to their respective productive specialisations: metallurgical/mechanical construction and electrical and electromechanical. In general the absorption process was carried out by taking advantage of the bad economic results of the businesses that were absorbed. The increase in value of these businesses was generously achieved, due to the interest in unifying the networks and by trying to minimise the payment of cash. With the unification and electrification of the networks, what followed in both cities was an attempt to homogenise and prolong concessions, which they achieved from the respective municipal authorities but was not endorsed by the Spanish parliament. This suggests that the power of the pressure from this business groups was much greater in a local sphere. In this sense, the foreign business groups, especially the hegemonic Belgo-Germans, in both cities associated with distinguished native political personalities²⁰ in their businesses to facilitate their relationships with the Spanish authorities in such a sensitive sector as that of the public services.

Financing the electrification and extension of the lines was brought about by means of an increase of capital, backed by all the effective financial groups that controlled the tramway businesses, and above all issuing of bonds that were invested in the principle money markets by these same groups or others with which they maintained close relations. It should be pointed out that one part of these bonds was invested in the Spanish market, more so the Barcelonan market, differing from what occurred with the shares, which provided a control of the companies. Frequently the mergers as well as the electrification of the network involved complicated financial operations. The business growth strategies in both cities were produced by a basic method of increase in the size of operations, through the aforementioned absorption of companies and extension of the network. Solely in the case of Barcelona they also established a final trend toward the diversification of the business by participating in competitive operations like the underground and buses. This difference from Madrid derived from the early absorption of Spanish capital before the launch of alternative models of transport.

²⁰ Juan Navarro Reverter in the case of the SGTEE and Francesc Cambó in the case of Tramways de Barcelone, both Ministers of Finance..

The entry and withdrawal strategies of the various foreign investment companies in urban transport were also related with the developments in the electrical sector, with which they found themselves closely connected. In this aspect, there exist certain differences as to what occurred in both cities. In the Madrid market there was initial competition, principally between the Compagnie Madriléne d'Electricité, whose initial capital was from French-German²¹ sources, and the English Electricity Supply Company for Spain, both were founded in 1899 (Aubanell, 1992). In 1901 the French absorbed the English company, during the same period that English capital was withdrawn from transport in both cities, although there doesn't appear to be a direct connection between the two British companies (the tramway company and the electricity company). What had occurred in the electrical market was the same as the tramway market, they moved from fragmentation and initial competition to unification, although in the case of the electrical market they were limited to a duopoly between the Unión Eléctrica Madrileña (the outcome of the merger between the Madriléne and two production business from Spanish capital) and the Sociedad Electra Madrid (Banco de Vizcaya).

In Barcelona the penetration of foreign capital in the electrical sector (Doria & Hertner, 2004; Hertner & Nelles, 2004) simultaneously took place between there and Madrid. In fact, in the key year 1889 a British investment group acquired half of the capital of the Sociedad Española de Electricidad, set up using Catalan capital in 1881. In 1889 Siemens & Halske established a subsidiary in Barcelona. In 1894 AEG acquired the Sociedad Española de Electricidad, whose assets were transferred to the Compañía Barcelonesa de Electricidad, created the same year by AEG²² and its banks (70%)²³ and the Société Lyonnaise des Eaux et de l'Éclairage (25%). Needless to say the Barcelonesa acquired all of its materials from the AEG. In these early years of electricity, in which the domestic and industrial markets were reduced, it was fundamental to get hold of the public lighting concessions and encourage the electrification of the tramways, two sectors of consumption where fluctuations were rare²⁴. Another significant year in the foreign business system in Barcelona was 1911. In this year Barcelona Traction was set up, with largely North American capital (the

²¹ AEG and Crédit Mobilier. In 1894 AEG sold its part.

²² Hugo Herberg was the AEG's man in the electrical companies and Barcelonan tramways.

²³ Deutsche Bank and the Swiss Electrobank.

²⁴ In 1904 the consumption of electricity by the tramways made up almost a quarter of the turnover of Barcelonesa de Electricidad.

Pearson group) and the same year it absorbed Barcelonesa de Electricidad. The company also tried to get hold of 40% of the Barcelona Tramways, following their strategy to gain control in both sectors, like in Mexico and Rio de Janeiro. In 1911 Energía Eléctrica de Cataluña was created by the French company Compagnie Générale d'Électricité e Indelec, a Swiss holding of Siemens & Halske. Two years later Barcelona Traction, who would go on to monopolise the Barcelonan electrical sector and a large part of the Catalan sector, bought it. In the same manner TB held the monopoly in urban transport, in close connection with Barcelona Traction, who had been a shareholder since 1912 and was represented on their board of directors with three out of a total of twenty board members. The presence of North American capital in the Barcelonan tramway sector is distinct from what happened in Madrid. It is also the largest managerial inter-dependence between the electricity business and tramways in Barcelona.

The electrification of the old tramway lines under foreign control happened sooner and more quickly (1898-1903) in Madrid than in Barcelona (1899-1909). In Madrid the change took place essentially from animal traction whereas in Barcelona there were also steam lines which complicated the transfer to electrical power. In general, the entrance of foreign capital and, above all the process of electrification and expansion of the lines was determined by the desire to attain new orders of fixed materials and rolling stock for the companies owned by these financial groups. This strategy (“Unternehmergechaft”) was especially notorious in the case of the Belgian companies, who led the unification and electrification process. These businesses, who frequently represented the interests of the powerful German electromechanical groups (AEG), observed a clear specialisation with regard to the source of their orders. The fixed materials (rails) and rolling stock (bodywork) were usually Belgian while all the electrical materials (engines, overhead wire, power stations) normally came from German suppliers (AEG). Nevertheless, in the Barcelonan lines there was a greater proportion of constructed material (principally bodywork), or mounted, by Catalan businesses related to the take off mechanical construction in Catalan industry. After the First World War, the nationalist environment, the accumulation of native capital and the combination of banking capital and the electric-tramway sector led to a Spanish control of the businesses²⁵, favoured for the relative lack of interest of the foreign capital now

²⁵ In both cities the economic compensation to the Belgian shareholders was quite generous, taking advantage of the economic strength of the peseta.

that the basic network had been already electrified and completed, although the Belgians maintained a discreet yet strong presence. This gradually diminished as the years passed until it disappeared completely with the municipalisations undertaken in post-war Spain. Significantly, the process was also accompanied by a Spanish control of the supply of some fixed materials and rolling stock, those less technologically sophisticated.

The Belgo-German businesses were characterised by their larger size and a greater financial and technological capacity, derived from their dependence on the big banking and electromechanical groups. In contrast, the English companies had less financial resources, their shareholders were more diverse, there were less partnerships and a lesser degree of concentration, reflecting a wide distribution of investment in variable income between the middle layers of the population, above all in stocks that were considered reliable such as tramways and railways. The role of technology and of engineers was more significant in the Belgo-German companies in relation to the process of electrification of the lines that they were involved in. Their organisation structure was also more centralised and complex. In general, the Barcelonan dynamic follows what took place with state capital but with a certain delay. This was greatly appreciated in the entrance of the respective foreign investors into the market, especially the most significant ones, the Belgians, in the unification and electrification of the network, takeover by private Spanish capital and eventually by the Municipality. A comparison of what happened in the evolution of the gas network in both cities, shows that it developed much earlier, more intensely and there was greater participation of native capital in Barcelona than in Madrid²⁶, this was because of the greater cost of coal and less industrial and business dynamism in Madrid (Arroyo, 2002). The length of the tramway and gas network was greater in Barcelona, surely as a result of the superior size of its urban hinterland and industrial fabric. Nevertheless, while the per capita usage levels of transport were similar in both cities, the use of gas in Barcelona was higher for its greater quality and accessibility.

²⁶ In both cases French capital, influential in the European Gas sector. In Barcelona Charles Lebon operated, in Madrid the Péreire's Crédit Mobilier. In both cities the formal withdrawal of foreign capital also took place in the twenties, although the Péreire's stayed in Madrid until 1935.

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