

The Debate of Modernization. A Project for Electrification of Bucharest's Trams in 1899.

Simion Câlția

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The process of modernization generated by industrial civilization started in Romania as well as abroad, in cities. They were not only the engine of change, but also the place for experimenting the new, testing it and eventually accepting or rejecting it. One of the most dynamic aspects of urban life in 19th and 20th centuries was the city transport system.

Urban transport is not the invention of industrial revolution. But, before 1800, just a few cities around the world were big enough to sustain a form – be it an incipient form – of passenger transport. In the 19th century, As a consequence of the urban growth, a larger number of cities need some form of transportation that can be used daily by its residents. For the biggest cities, public transport is a fundamental necessity, without which its growth and development are affected. The relentless growth of people travelling daily inside the cities keeps the transport systems under continuous pressure and forces them to expand, modernize and sometimes to reinvent themselves. Such a major reinvention takes place between 1880 and World War I, when the horse tram networks – the preferred way of transport in cities – are replaced by electric trams.

Between 1880 and 1890, especially in the United States, the technological challenges presented by electric trams are solved, after that the electric tram experiences a very rapid spreading. Most old tramways – be it horsecar, cable car or steam tram – are electrified and the new tramways, built after 1890, are almost exclusively electrical. European cities follow the same trend, but at a somewhat slower pace. The electrification of European trams was based on technological and expertise import from United States. Two American companies owned technological monopoly for the electric tram (General Electric and Westinghouse). They have contributed to the electrification of European trams, by directly exporting the necessary equipment or creating subsidiaries or partnerships with European companies, the Americans providing patents and technological expertise (such as partnerships with German companies AEG and Siemens). In the two decades preceding the First World War many projects of electric trams are discussed in European cities and a large number of them are implemented.

At the end of the 19th century, the electric tram was one of the most complex technological systems existing at that time. For that time, it represented not just a novelty, but a major challenge for municipalities that wanted to adopt it. Electricity – both on a scientific level, but as an economic application – was a very new field. Specialists – engineers, technicians and even ordinary workers – able to use it were

very few, and the first two categories were difficult to train. Using electrical power as driving force, especially adapting it to moving vehicles, represented a special area difficult even for those familiar with the use of electricity.

Horse trams could be built and operated using almost entirely local materials and labour, and getting rails was not an issue anymore, at the end of the 19th century. Instead, constructing an electric tram required people and resources that for most countries were to be imported from abroad.

In almost all European countries, trams themselves are imported (usually from German partners of U.S. firms). In the same situation are the electrical equipment necessary for tram operation (high voltage cables, transformers, etc.), all being for that period technologically sophisticated products. Also from abroad are the specialists who design lines and those who – at least initially – lead tram operation. At the end of the 19th century enough cities, including from Romania, are partially lit by electricity. But other technological solutions prevail. Air gas¹, rapeseed oil, kerosene or heavy mineral oils are the most common. Consequently, most power plants are small or very small, some being built to provide electricity to illuminate only one building (theatre, hospital, and so on). Such power plants cannot support a much higher consumption required by the electric tram, therefore municipalities (or tram operating companies) must build far bigger power plants.

A final point that makes electric tram an attempt much more difficult than the horse tram is the financial aspect. The costs of installing a single line are very high; when it comes to an entire network and a power plant, in addition, they add up to an amount much higher than that of the horse tram. There are large amounts that exceed the annual revenue of a municipality, and therefore municipalities have to find other forms of financing. Due to high initial capital, amortization is spread over long periods of time, always exceeding a decade, sometimes more. In this situation, municipalities have two solutions. If they want to operate their own tram, they must borrow long-term (2-3 decades or longer). This is not an easy solution in the 19th century, because the rapid modernization rate already puts a lot of pressure on municipalities' budgets, and loans are often used for utility equipment that cannot be made only at the expense of the municipality (e.g. paving streets).

A second solution – the most widely used at the time – is the concession of electric tram to a private company. The company gets hold of the money (usually by issuing shares), builds and operates tram line, and the profit gained by operating the tram will pay shares' dividends and, where applicable, company debts. These companies have a guaranteed service period, usually a number of decades, so they can recover the initial investment. The municipality is exempt from the need to raise the initial capital, the daily concerns of operating it, and as well of any risks if the business is not profitable². But to achieve the concession, negotiations are in most

¹ A fuel gas obtained from coal distillation.

² The risks are not theoretical. In 1930, in Western Europe and Anglo-Saxon America, cities of over 100,000 inhabitants without trams are a rarity, but in the 80s of the 20th century probably less than 1% of these cities have tram! All others had to let the trams go because it becomes unprofitable (in some cases even with substantial municipal funds).

cases very difficult because in such cases the interests of parties and politicians in charge of municipal councils and municipalities rarely harmonize.

Despite these substantial difficulties, the late 19th century and early 20th century witness a real “boom” of the electric tram. The reasons are many, but a few stand out. First, the electric tram is more profitable. Horse tram, cheap to install, has substantial operating costs. First it requires a large number of horses (a horse cannot pull the wagon from morning until evening, if there are slopes or if the traffic requires larger cars, there have to be two horses, and so on). Horses are very frail; the diseases are transmitted very quickly in urban areas, especially in companies tram stables which house hundreds of animals generally³. Accidents are frequent, and their increased number is proportional to traffic density, the horses in large cities are more likely to be incapacitated⁴. In conclusion, the life of a horse is counted in years⁵, requiring continuous costs on behalf of tram companies for buying new horses. By contrast, the life of an electric street car is measured in decades, some operating for more than half a century. The high speed of electric tram allows it to carry more passengers in the same time; an electric car can replace several horse carriages, which tilts the balance even further in favour of electric traction. Unlike horses, electric tram uses (and therefore costs) only when it is in operation.

Secondly, the electric tram is more attractive. Besides the inherent fascination of novelty, it is faster, allowing people to save time, is illuminated at night and warm in winter. Finally, it does not pollute; horse dung left in the cities is, in the 19th century, a burning issue of municipalities, especially in major cities where many animals are used. Public transport is one of the main users of pack animals, and therefore one of the major urban pollutants (American cities were using, in 1880 a hundred thousand horses and mules just to pull the wagons of horse trams, and in Paris the two companies of public transport have themselves almost 30,000 horses⁶).

All this contributes to the very rapid expansion of electric tram that in two decades (1890-1910) becomes the preferred method of transport within cities.

In 1897 Bucharest already has a well-developed tram network⁷: 46 km, divided into 11 horse tram lines and one electric line⁸ (inaugurated on December 9, 1894⁹). To this are added an omnibus company¹⁰ with 20 vehicles¹¹. It is in this

³ Ghislaine Bouchet, *La traction hippomobile dans les transport publics parisiens (1855-1914)*, “Revue Historique” 108 (1984), 449, p. 125-134 (130).

⁴ *Ibidem*, p. 128-129.

⁵ Paul Bairoch, *De Jéricho à Mexico. Villes et économie dans l'histoire*, Paris, 1985, p. 364.

⁶ David E. Nye, *Electrifying America. Social Meanings of a New Tehnology, 1880-1940*, Cambridge, Massachusetts-London, 1997, p. 86; G. Bouchet, *op. cit.*, p. 127.

⁷ Tram lines were operated by two private companies under concession. In 1899, when discussing the tram electrification project, the two companies were in advanced merger process, so councillors in all their discussions talk about a single company.

⁸ On the routes of newly inaugurated east-west avenues (Pake, Carol, Elisabeta and then Splaiul Dâmboviței to Grozăvești).

⁹ Ștefan Bălan, Nicolae Șt. Mihăilescu, *Istoria științei și tehnicii în România. Date cronologice*, Bucharest, 1985, p. 217.

context that, in December 1899, the Bucharest Municipal Council discusses the draft of concession regarding the electrification of tramways in the capital.

The content of the project is accessible only indirectly and partially, through the discussions of Municipal Council. The mayor, Barbu Ștefănescu Delavrancea aims to develop a new concession contract with those who exploit Bucharest tram lines with new obligations on both sides. Before starting the analysis of the council's discussions, we will review the main points of the concession.

The municipality was extending the tram concession with 33 years over the 17 who were left in the current concession¹². The duration of the new concession was therefore 50 years, a period long enough to allow the amortization of the considerable investment necessary for the electrification of the tram.

The tramway Company undertakes that within seven years after the signing of the new concession to electrify all tram lines¹³. The Company paid the municipality once (probably at the signing of the concession) the amount of two millions lei. It was introduced a new way of calculating the tickets resulting, for most travellers, in a travel price reduced from 20-30 to 10 bani¹⁴. The tram Company was required to introduce new technological solutions to preserve the good appearance of the city (in the downtown streets the Diatto system¹⁵ – a system of supplying power through electrical contacts located in pavement¹⁶) and to reduce noise (an overhead wire system¹⁷ for the remaining streets). As before, the Company is bound to pave the streets: between the rail if it was single line, and the whole street if it was double track¹⁸, but double lines were for new concessions more numerous¹⁹.

¹⁰ Omnibuses are basically horse “buses” of the era, a kind of coach, usually capable of carrying 12 to 25 passengers. They are invented in France in the 20s of the 19th century. François Laisney, *Les omnibus à Paris: aux origines de la mobilité pour tous, 1828-1885*, in *Villes françaises dans la première moitié du XIXe siècle. Embellissement, équipement, transformations*, Paris, 2006, p. 139-154.

¹¹ Statistics from *Marele Dicționar Geografic al României*, I, part IV, [Bucharest], 1898, p. 756.

¹² National Archives, Bucharest Department, Bucharest Municipality Fond, Secretarial Service [hereafter, ANDMB, PMB Fond, Secretariat], file 1/1899, f 229v.

¹³ *Ibidem*, f 225r.

¹⁴ A significant reduction, if we think that many people would have their wages between 50 and 100 lei per month! *Ibidem*, f 214v.

¹⁵ After the name of the producing company, an Italian company founded in the first half of the 19th century by Guglielmo Diatto. It's specialized in manufacture of vehicles, carriages initially, then in the second half of the 19th century railway material and trams, and after 1900 cars as well. It achieves maximum development at the end of World War I, it is one of the leading industrial groups in Italy. <http://www.diatto.com/IT/pagine/azienda.html>, accessed on 16 December 2012.

¹⁶ *Ibidem*, f 215r.

¹⁷ During discussions this system is called “Trolley”, “Trolley” or, in a later discussion, “Trolley”! (latest version is correct). The system is currently used by trolleys, but with a single collector, circuit being closed by rails. *Ibidem*, f 215r, 225v; file 1/1900, f 198v.

¹⁸ *Ibidem*, file 1/1899, f 200r, 215r.

¹⁹ *Ibidem*, f 223v, 229v.

The new draft deals with some problems in dispute between the municipality and tramways Company, especially the problem of two lei on car fee, for which the two ended in court²⁰.

The debate was very animated, often vehement, although only one month before the council unanimously authorized Delavrancea to enter into negotiations with the Tramways Society. It emerges quite clearly two sides: one opposing the project, a very loud minority, another led by Delavrancea himself that argues for tram electrification project. We will not follow the debates chronological, but we will try to systematize the views held by the two sides, opting for a presentation on topics of the ideas under discussion.

One of the most debated points is the electric traction. It may seem surprising that it be disputed at a time when it was rapidly adopted throughout Europe, and the electric trams were already used in other cities in Romania or were about to be introduced²¹. There are two explanations: on the one hand, it is the essential element of the new concession. If opponents manage to convince the majority of councillors of the inopportunity of tram electrification in Bucharest, the proposed concession fell. On the other hand, all technologies, especially those that spread very quickly, stir anxieties, fears and oppositions. Electric tram is no exception, both in the United States and in Europe there is a trend, a marginally one, trying to counter the new means of transport, presenting it as loud and annoying, but mostly unsafe, dangerous, even criminal.

The opponents try to argue that electric traction is not suitable to Bucharest or Romania. The majority of their arguments can be grouped into two categories: 1. for an agricultural country like Romania, electric traction is inappropriate, horse tram is more appropriate economically; 2. Bucharest's urban structure is improper for electric tram which could become very dangerous!

In the first group, speakers attempt to create an opposition between horse tram – useful to the country, - and electric tram –a benefit for foreigners only. Horse tram gives work to the indigenous people: horses, hay, oats, straw, horseshoes, and so on are produced domestically, as are the pharmaceutical and veterinary services for the many horses used in tram traction. It is relevant one of the city councillors' phrase "An amount of people from the country feed themselves from horse trams"²². We are facing a pre-industrial logic, distributive, where the efficiency and economic productivity is irrelevant, what matters is the ability of the authority to allow people to earn a living. Electric tram income will "go abroad"²³.

²⁰ *Ibidem*, f. 215fr

²¹ Electrical trams were operating in Brăila (1898), Galați (1900), Jassy (1901), but we do not know if all of those tram lines from these cities were electrified or if horse trams still existed, Ștefan Bălan, Nicolae Șt. Mihăilescu, *Istoria științei și tehnicii în România. Date Cronologice*, Bucharest, 1985, p 217. Jassy's leasing was already discussed and known by some councillors from Bucharest, for they make references to it in their debates; ANDMB, PMB Fond, Secretariat, file 1/1899, f. 228v, 230v.

²² *Ibidem*, f 220v.

²³ *Ibidem*, f 221r.

It is an argument that does not stand counterarguments made by the supporters of the concession²⁴. First, it is refuted the cliché “Romania, agricultural country.” As stated by Delavrancea himself: “it is an absolute necessity for our country not to remain essentially agricultural, in the future [...] that is we industrialize or we perish”²⁵. In Romania “the large industry has started and this will do good for agriculture too”. On the other hand, the consumption of horse tram is insignificant for the country²⁶, and part of it is, according to advisers imported. “But horses used for tram traction are brought from abroad, even feed are sometimes brought from abroad”²⁷. This should not surprise us. The horses for trams are subject to requirements more stringent than those in agriculture (as all horses used for industrial purposes²⁸), therefore the horses from farms are not suitable²⁹. Not all the money from electric trams will go abroad, “oil is Romanian too”³⁰ said one of the councillors (oil or mazut was already used as fuel in place of coal in some steam engines, internal combustion engines are also increasingly being used for powering electric generators).

The second argument is more often present in the discussion. Bucharest and electric trams are presented as mutually incompatible: the capital has many streets “narrow and winding” and introducing electric tram will cause accidents. “Misfortunes will happen”³¹ prophesies one city councillor. Electric traffic cannot coexist without danger to the human and animal one (pedestrians, carriages, carts, etc.); horses will be frightened, pedestrians injured³². These arguments are easily countered, especially by Delavrancea, claiming the experience gained by operating electric trams both in Europe and in Bucharest. There are presented in detail, numerous cases of European cities where electric tram is traveling on winding, narrow streets, sometimes only 6-7 meters wide, “streets where you shake hands with someone across the road.”³³ Cities in Italy, France, Germany and Belgium are claimed as support for Bucharest, whose streets were “widen and aright”³⁴.

²⁴ One of the supporters of horse tram will change its mind as a result of counterarguments. See *Ibidem*, f 220v-2212r, 228r-v.

²⁵ *Ibidem*, f 222r, 226v.

²⁶ *Ibidem*, f 222r.

²⁷ *Ibidem*, f 229.

²⁸ For more details, see Clay McShane, Joel A. Tarr, *The Horse in the City: Living Machines in the Nineteenth Century*, Johns Hopkins University Press, 2007; Joel A. Tarr, *A Note on the Horse as year Urban Power Source*, “Journal of Urban History” 25 (March 1999), p. 434-448; Ann Norton Greene, *Horses at Work. Harnessing Power in Industrial America*, Cambridge, Massachusetts, 2008.

²⁹ The army faced a similar problem in the second half of the 19th century, domestic horses were not suitable for cavalry or artillery; in time, the Romanian government was forced to invest in horse breeders.

³⁰ ANDMB, PMB Fond, Secretariat, file 1/1899, f 229r.

³¹ *Ibidem*, f. 221r, 231r, 232v.

³² *Ibidem*, f. 231r, 232v.

³³ *Ibidem*, f. 223r, 226r, 232v.

³⁴ *Ibidem*, f. 223r.

Various other arguments are invoked, in a marginal manner, against electric tram. It is noisy and disturbs public tranquillity, causing jerks and "buildings, which in our city are not built as solid as abroad, will be threatened."³⁵ In a city cobbled, hit by tens of thousands of hooves daily and as many wheels saddled with iron hoops³⁶, noise is ubiquitous³⁷. The pro-electrification councillors rush to point out that the electric tram, certainly noisy, is not the main source of noise pollution in the capital, and on the other hand, the horse tram which is to be replaced has many drawbacks, more troublesome³⁸. The opponents are trying to combat the obvious advantages of electrification: "The only use of changing traction is that the tram will go faster, but this is not an advantage for the citizens" Obviously, the speaker does not explain how citizens will benefit to lose more time, every day, to travel the same distance³⁹!

A final argument against electric traction is obviously not standing, proving that those who were against electric traction sought to invent anything to make the concession fall. They argue that the municipality should not rush to adopt electric traction for new inventions may arise, which prove more useful: "We live in a time of scientific surprises. [...] Today electricity is fashionable, tomorrow something else will be more beneficial. [...] In the near future, the public can find more advantageous to use the automobiles or even balloons"⁴⁰. It is true that eventually tram transport has been eliminated by the automobiles from many cities, especially in the Western world. But even in the United States, the country where the phenomenon is manifested first and where the car reaches a dynamic unmatched anywhere else, only in the 1930s tramway starts having problems due to competition from cars and buses! In European countries the tram transport remained essential in cities until after World War II. Without being able to know what was coming, councillors supporting the project find, even in 1899, arguments to refute opponents. On behalf of a realistic and sensible policy, they say they have to build with what it exists today, not to sacrifice the present for a hypothetical future, waiting for future inventions, for "we would still use candles"⁴¹. With a startling premonition, a councillor noted that the generalization of automobiles will not harm the public or municipality, but Tramway

³⁵ *Ibidem*, f. 221r.

³⁶ Only growlers and "carriages of Herasca" (public transport carts for rent) are around 2,000, we need to add to this, a number impossible to estimate of private carriages and carts, belonging to townspeople and shops, craft workshops, factories, carriages and wagons of various communal, regional or national institutions (including military units in Bucharest), and not least the hundreds of horses of the trams, *Marele Dicționar Geografic al României*, I, Fasc. IV, [Bucharest], 1898, p. 756.

³⁷ We often tend to see the past in an idyllic light. Cities in other periods, even if they had different range of sounds, were not quieter than today's, mostly noise level was higher. For the period under discussion see for example Peter Payer, *The Age of Noise. Early Reactions in Vienna, 1870-1914*, "Journal of Urban History" 33 (July 2007), p. 773-793.

³⁸ ANDMB, PMB Fond, Secretariat, file 1/1899, f. 222v, 232v.

³⁹ *Ibidem*, f. 231v.

⁴⁰ *Ibidem*, f. 221r.

⁴¹ *Ibidem*, f. 222v, 232v.

Company⁴², which will face a new competitor, so the municipality has no reason to wait⁴³.

The most debated part of the concession proved to be the financial one. The two sides fought so hard to convince each other; some of them that concession in question brings undeniable advantages to the municipality, others that it is a theft of the municipality, with the Company having disproportionate profit and that there are much better options (most involving, directly or indirectly giving up this concession).

The Company's obligation to pave the streets where trams ran has sparked different interpretations. The current lease (assuming the obligations of the old concession) stipulated that on the streets where trams run on a single line, the Company should just pave between the rails while where there are double lines it will pave the entire street⁴⁴. Electric streetcar opponents have tried to minimize this provision, arguing that it exists in the old concession and therefore this project brings no advantage to the city. Or, as they are replied in the hearing, the introduction of electric traction and obligations of the Company under the new concession will lead to the introduction of double lines on all "streets whose width allows it"⁴⁵. In 1899 very few of the existing tram lines were double⁴⁶; the result of applying the new concession will shift a large number of streets from the municipality into the custody of the Company. The municipality will be relieved of a large number of street paving in the centre and can use the means obtained from this measure to pave the outskirts of the city which were lacking⁴⁷. The same arguments duel takes place concerning the snow⁴⁸.

Repeated discussions are stirred by the 2 lei per car fee, for which there is a lawsuit pending between the Company and municipality⁴⁹. The new draft stipulates that the fee is payable on the train, not the wagon. For the horse trams, trains do not have more cars due to low traction power, they would be uneconomic. Electric tram has a much higher power, can carry far more passengers⁵⁰; before the invention of articulated trams, the only way to have a space large enough for transport was to add

⁴² *Ibidem*, f. 229r.

⁴³ Following this reasoning to the end, confronted with possible future inventions, the municipality should sign the concession contract as soon as possible, for the prospect of lower earnings will constrain any private company to offer a much less favourable contract to municipality.

⁴⁴ *Ibidem*, f. 200r, 215r.

⁴⁵ *Ibidem*, 215r.

⁴⁶ *Ibidem*, 223v. Analysing the plan of Bucharest in 1911, it is clear that the horse tram lines were simple lines, there are only short portions doubled to allow trams to cross.

⁴⁷ *Ibidem*, f. 215r, 223v, 229v.

⁴⁸ *Ibidem*, 229v.

⁴⁹ *Ibidem*, f 215r. From the discussion it is not clear why the Company refuses to pay this fee. Probably only one of the old tram companies committed to paying 2 lei a car. The company resulting from the merger refuses to extend the fee to all lines, arguing that it is obliged to pay 2 lei only for the wagons belonging to the company that paid the fee before the merger, and not to other companies' wagons. That would explain why Delavrancea claims in a meeting that he obtained the extension of the fee "on all lines."

⁵⁰ Which first appeared in Boston, 1912-13.

a trailer to the engine wagon. The Company obviously thinks in terms of engine wagon, something that councillors do not understand, and accuse the Company that by this subterfuge would actually pay much less: "The Company will put together 3-4 cars, while today the municipality charges two lei each wagon"⁵¹. In time, these fears proved unfounded: at least until the late thirties, trams had at most a trailer, both from technical and economic reasons. Delavrancea defends this concession made to the Company, insisting that due to the imposition of all lines, this fee revenue will be higher⁵². Both sides miss the main aspect of the problem: due to the transition to electric traction which allows larger and faster trams, a smaller number of cars will be enough to carry the passengers of horse trams, so the total revenue from the wagons fee will decrease substantially⁵³. But the councillors have no technical knowledge to see this.

An issue was raised by a fee on garbage. According to the concession in force, the Company had to pay for each kilometre of line, a fee called "garbage" that grew over time (250 lei per km in the first 5 years, 500 lei for the next 10, then 750 lei per km⁵⁴). It was a compensation for sanitation services of the municipality which must clean the dirt produced by the horses of the tram, the price increase because it was assumed that with the time, the traffic will increase, requiring more frequent wagons, horses, therefore more dirt. The project provides a new fee of 300 lei per km, which does not increase over time. This is an opportunity for councillors who oppose concessions to attack the mayor, claiming that it waives benefits already earned by the municipality, for the Company⁵⁵. In fact, electric tram does not produce dung! Normally, with the electrification, this fee should disappear. Maintaining it is actually a hidden tax⁵⁶, which is charged from the tram Company⁵⁷ by the municipality, and a clear win for municipality, obtained by Delavrancea.

The main benefit, at least in the mayor's eyes, is the amount of two million which the Company is obliged to pay to the municipality for getting the concession. This achievement is highly satisfactory for Delavrancea⁵⁸. At the end of the 19th century, Bucharest sees a rapid demographic growth: if the 1859 census numbers 121,734 inhabitants, the 1899 one registers almost double (276,178⁵⁹), and in 1912 it reaches 341,321⁶⁰ inhabitants. Practically, every decade adds tens of thousands of

⁵¹ *Ibidem*, f. 221v.

⁵² *Ibidem*, f. 215r.

⁵³ Probably 3 to 5 times lower. They will compensate on the long run, with the increase in the number of passengers due to electrification.

⁵⁴ *Ibidem*, f. 221v.

⁵⁵ *Ibidem*, f. 221v, 228v.

⁵⁶ Fees are value for services, as long as there are no services, we cannot speak of a fee but a tax!

⁵⁷ Note that the councillors in favour of the concession ask for keeping this fee, although one of them says bluntly that this fee "makes no sense considering the electric tram does not produce the same garbage like horse tram", *Ibidem*, f. 225r, 229v.

⁵⁸ *Ibidem*, f. 215v.

⁵⁹ Leonida Colescu, *Recensământul general al populației României, Rezultate definitive precedate de o introducere cu explicațiuni și date comparative*, Bucharest, 1905, p. XX.

⁶⁰ *Dictionarul statistic al României întocmit pe baza rezultatelor definitive ale recensământului general al populației din 19 decembrie 1912*, Bucharest, 1914, p. 497.

new residents in need of urban facilities: paved roads, running water, sewage, transportation, schools, hospitals, etc. All these put enormous pressure on the municipality's budget, which has to make many loans to cover at least the most urgent needs. In this context, two million lei is a significant amount, which the municipality may use to pay different urban projects so much needed.

The opponents of the concession cannot deny the utility of this money. Therefore they try to demonstrate on the one hand that through other concessions, the Company recovers the money, on the other that the amount is small compared to the profits that the Tramways Company will have⁶¹. Delavrancea criticize this ungrateful attitude that ignores the lengthy negotiations that increased the amount offered by the Company from 800 000 to 2 000 000 lei, if he "would not mention millions then the council would not have thought about it"⁶².

It is Delavrancea again who presents the two other economic issues that advocates this concession. 1899 is a year of economic crisis, therefore, a public work of the scale of electric tram is a boon for Romania: "Of course it's not a small thing to bestow upon our market an amount of 15-16 million lei, the cost of network extension and transformation of tram equipment by replacing animal traction with electric traction. This great work will exercise through the expense needed a beneficial effect upon"⁶³. A second aspect is even more surprising. Delavrancea states that the municipality's revenues will increase from "the land tax"⁶⁴. This phenomenon, known in the United States at the time, seems to have received little attention in Europe: is the increasing of land value in areas where tram lines were built, leading to increased related taxes obviously. With both arguments, Barbu Ștefănescu Delavrancea unexpectedly reveals a deep understanding of economic mechanisms in a time when politicians were required only knowledge of the laws and morals of society.

From our perspective, the most important concession that the mayor pulls from the Company is a cost reduction for a journey⁶⁵. Delavrancea imagine a new system, more convenient for the public. In the period, pricing was determined by distance. The line was divided into two or more segments and the traveller paid a different price, depending on how many segments traversed. The mayor divides Bucharest into two concentric zones, one comprising centre and other city outskirts, the fee for a journey that moves from one area to another was to be ten bani instead

⁶¹ ANDMB, PMB Fond, Secretariat, file 1/1899, f. 221v, 230v, 231v, 232r.

⁶² *Ibidem*, f. 227r.

⁶³ *Ibidem*, f. 214v.

⁶⁴ *Ibidem*, f. 215v.

⁶⁵ The information the mayor and other councillors present are not always consistent. Thus, in the extraordinary meeting on 11 December 1899, Delavrancea argues that a journey from the periphery to the centre will cost 10 bani instead of 30, but in the extraordinary meeting on 16 December 1899, says that those who have to do four journeys centre-periphery in a day, "pay 80 bani today and will pay only 40", which would lead to a price of centre-periphery horse tram journey for 20 bani, not 30. We are inclined to believe that the second option is correct as the mayor stated on several occasions that the rate will be reduced by 50%, or if the first version was to be correct, it would be a significantly higher reduction. *Ibidem*, f 215v, 223r. Councillors who oppose the project do other calculations, some obviously wrong! *Ibidem*, f 221r-v.

of charging the old cost of thirty! Is a substantial reduction, which affects especially those who come daily to work by tram: "If I count for a traveller from the outskirts that comes only once in the centre, the difference with the current status is of 40 of bani per day, which is a highly sensible saving yearly"⁶⁶.

In 1899, the vast majority of over a quarter million inhabitants of Bucharest does not own a carriage and cannot afford to go every day with the growler. But the scale of the city makes walking more time consuming, and the alternative permitted by technological conditions of the time is by tram. Lowering the cost of the journey has two major effects. The first one (which Delavrancea is not mentioning) is making the tram accessible to new categories for which the old price was too important to allow the everyday use of tram. The second (detailed by the mayor) is a sensitive savings to those members of the middle class who were forced to use the tram every day. Delavrancea mentions certain categories of the population of Bucharest that "because of their occupations, are taking the tram four times a day, so are teachers, high school students, clerks, and so on"⁶⁷.

Obviously, this achievement on the part of the mayor is attacked by those who want the concession to fall, and perhaps more than anywhere else, things get ridiculous. They try to recalculate differences to show that the reduction is not as great as Delavrancea promises, managing to "prove" that it is only 25% (and reinventing basic arithmetic operations to reach this result!)⁶⁸. But even a reduction in travel costs by 25% suddenly is extremely high in all ages. So the opponents try other arguments. They say repeatedly that the reduction is not for the benefit of passengers, but the Company⁶⁹, but do not bother to show how the inhabitants of Bucharest are being disadvantaged because they pay less for the same routes. They also said that the Company will reduce tariff anyway because it is in its interests to attract more travellers⁷⁰, without taking into account that the significant price reduction journey requires a commensurate reduction in costs, which can only be achieved by introducing the electrical traction they so thoroughly combat. One of the counsellors even claims that this reduction should fall into the pocket of the municipality, not the public⁷¹, which is to propose the establishment of a hidden tax, charged through the Tramways Company. Delavrancea's reply is categorical: "cannot get such a deal on the backs of the poor". The advantages of the new tariff will be seen in the standard of living of most of the inhabitants of Bucharest, "the economy resulting from tariff reduction will be felt in their daily bread". This is not about an interest account, but a soul, physiological account"⁷². Contrary to the statements of some of the councillors, the Company was not willing to reduce the

⁶⁶ *Ibidem*, f. 214v.

⁶⁷ *Ibidem*, f. 223r.

⁶⁸ *Ibidem*, f. 221r-v.

⁶⁹ A councillor even has the courage to declare in public meeting (whose transcripts are published in the "Monitorul comunal") that "he never heard anyone complaining about the prices of trams' journeys", *Ibidem*, f. 230, 231r-v, 232v.

⁷⁰ *Ibidem*, f. 230v.

⁷¹ *Ibidem*, f. 221r.

⁷² *Ibidem*, f. 227r, 226v.

price of travel, offering the municipality 500 000 lei per year, provided that they retain the old price⁷³.

The length of the concession is also subject of disagreement. The councillors hostile to the project offer unrealistically low limits⁷⁴ or simply criticize the total period of 50 years as being too high⁷⁵. Most city councillors do not seem to understand that substantial investments required for tramways electrification claim long recovery times of the initial capital⁷⁶. Even councillors who are favourable to the concession demand the reduction of the period⁷⁷.

But the main accusation that opposing councillors have brought to the concession project was that it gives advantages too big for the Tramways Company and too small for the municipality. Most councillors attacking the draft appeal to this argument, and it sometimes echo even for the councillors who are for the concession. It should be said at the outset that it is impossible to determine the "right" balance between the Company and the municipality. Firstly it depends on Company profitability, which in turn depended on the conditions of the concession; as they have not been applied, there is no response. Failure to define the meaning of a "right" split of the profit between grantees and municipality⁷⁸ makes such a response an illusion, even if we could find out how profitable it was society.

Often the charges made are vague, indefinite, and therefore difficult to refute: "tramways companies earn more and will earn even more"⁷⁹, said with an accusatory tone a councillor (as if that is not the main function of any company regardless its profile: to produce value). "The Company should come up with more favourable proposals" asked another⁸⁰.

The opponents make their own calculations, and even accepting their often incorrect figures, they confuse the income of the Company (of which the dividends, debts etc. are paid) with its obligations to the municipality, implying that the latter would be entitled to all earnings of the Company⁸¹! They all fail to understand that the city needs an economic partner to make public transportation work: municipality has no millions to invest in tramways, nor the capacity to manage such economic activity⁸². Some councillors, more aware how economy works, note that the

⁷³ *Ibidem*, f. 227r.

⁷⁴ *Ibidem*, f. 218r.

⁷⁵ *Ibidem*, f. 228v, 231r.

⁷⁶ With few exceptions, *Ibidem*, f. 230r.

⁷⁷ *Ibidem*, f. 225r.

⁷⁸ In the United States, too drastic conditions put for tram companies meant they did not have the resources to cope with technological and economic changes and many went bankrupt in the 1930s. Martha J. Bianco, *Technological Innovation and the Rise and Fall of Urban Mass Transit*, "Journal of Urban History" 25 (March 1999), p. 362-373.

⁷⁹ ANDMB, PMB Fond, Secretariat, file 1/1899, f. 218r.

⁸⁰ *Ibidem*, f. 222r.

⁸¹ *Ibidem*, f. 230, 231r.

⁸² Neither in the interwar period, when the municipality is richer and becomes a shareholder in STB (Bucharest Tramways Company), it does not intend to get involved in managing the tram, only to follow, as a member of the board of directors, its management activities.

Company is making efforts and taking risks which need to be rewarded: it is "natural for the Company to gain, for otherwise it would not venture its capital"⁸³.

The current value of the Company is valued at large amounts (over 10 million lei⁸⁴), at which the municipality would give up by extending the concession instead of waiting 17 years after which they will take possession of the assets of the Company. These councillors refuse to see that over 17 years the Company will not be worth as much, even if we accept as a starting point the high values posed by them. Delavrancea draws their attention that horse traction will not be acceptable over 17 years, and so installations designed for this technology will not be worth anything⁸⁵. What no councillor considers is that always a company for the last years of the concession will not invest, because they will not have enough time to recover their money. Thus at the expiry of the concession the municipality will receive a tram in an advanced state of frazzle and obsolescence and that it will not be worth much without even taking into account technological changes.

The opponents of the proposed concession offer a counter-solution: the municipality should wait another 17 years for the current license expiration and it will receive for free all the Company's assets, and then it will be able to operate itself, keeping all the profits. One of them even evaluates the Company profit at 3 million lei, stating that if the municipality will not agree operating itself, it can find a company that will "rent" the tram "every year for a million or even half million"⁸⁶. All sorts of other proposals are raised; all looking to impose more disadvantageous conditions for the Company (concession extended by only 10 years⁸⁷, the Company to pay "500,000 or even 200,000 lei per year"⁸⁸ and so on). Probably, the hope of these councillors is that the introduction of such conditions, (some really drastic, such as halving the concession period), will make the Company to consider this an unprofitable lease and to reject it.

The opponents of the project are trying to create a negative image of the Company, presenting it as a profiteer who enjoys undue advantages on the back of the municipality. In addition to the arguments already mentioned, they attack Delavrancea for being a member in the Company's board, along with another councillor. The situations are different: Delavrancea says bluntly that he has resigned from the board, while the other counsellor, in accordance with practices of the time⁸⁹, did not participate in meetings which discuss the tram concession⁹⁰. A solution

⁸³ *Ibidem*, f. 218r.

⁸⁴ [the tram] "which without horses, chariots and vouchers, making ten million and a half today and will make more in 17 years", *Ibidem*, f. 231r.

⁸⁵ *Ibidem*, f. 217v, 223r.

⁸⁶ *Ibidem*, f. 222r, see also 217v, 221v.

⁸⁷ That is 27 years instead of 50, virtually the length of concession is halved! *Ibidem*, f. 218r.

⁸⁸ *Ibidem*, f. 228v.

⁸⁹ In the period, when debating a problem from which a councillor was part, the unwritten rules of political behaviour required that they do not participate, *Ibidem*, file 2/1904-1905, f. 100r-v; *Ibidem*, file 1/1906, f. 77v-78r, 126r-125v; *Ibidem*, file 1/1907, f. 125v, etc. I found a councillor who withdraws from a meeting because he was a lawyer for one of the parties! *Ibidem*, file 1/1907, f. 183.

⁹⁰ *Ibidem*, file 1/1899, f. 232r.

proposed by some of the councillors is to limit the benefits of the Company: the profits over 8%⁹¹ will be shared with the municipality⁹². One of the councillors tries to link the concession of electric tram with the one for railways in the 70s, which led to well-known Stroussberg scandal⁹³.

They are brought into the discussion aesthetic arguments, but they are mostly from the supporters of the project. It will disappear "the revolting show of the horses bowed under the burden of the wagons when they pull it up the hill", also the wire mesh covering and spoiling east-west avenues is replaced with a power supply system through the pavement, without overhead visible wires⁹⁴. The capital's mayors are very attentive to this latter point, trying to limit the spread of electric wires above city streets⁹⁵. The opponents criticize the decision to install a power plant in the "centre"⁹⁶.

Councillors who oppose the project attempts to temporize, to postpone the adoption of the concession⁹⁷. One of them claims that "not even twenty meetings" would be sufficient to discuss this concession⁹⁸; considering that there were many other issues to be discussed (some, like budgets, required by law) and generally the municipal council would meet 40-50 times a year, is clearly trying to postpone discussing "to the Greek calends"⁹⁹. The proximity of winter holidays is also reason to request postponement of talks¹⁰⁰.

The supporters of the lease, in turn, try to prevent delays. A variety of reasons are invoked: the councillors' desire to do something important in their mandate, the inhabitants' need to see the problem of the public transport solved ("The capital, it's first in requiring a solution"), but also the promises of the councillors to cheapen the life of Bucharest's inhabitants¹⁰¹.

Some advisors ask for an "intimate meeting" (a secret meeting, whose debates are not registered, nor published, and no strangers could attend¹⁰²). In practice, these were used in two cases. The first (legitimate) when discussing trials or other conflict situations in which the municipality was part, and the publication of

⁹¹ For that period, a 4-5% was the interest to get loans from banks; a firm in need to attract investors or to borrow money had to be more profitable than that. So the 8% limit is by no means high. Higher profit rates are not unknown at the time, but especially for Romania, the lack of any research on the subject can hinder our intention to pinpoint the limit proposed by the councillors.

⁹² *Ibidem*, f. 225r, 230r.

⁹³ *Ibidem*, f. 230v.

⁹⁴ The net was used to the supply power for the single electric tram line. Ugly and noisy, it was replaced by a single overhead wire at a later time. The system adopted in the draft concession was Diatto, described above. *Ibidem*, f. 215r.

⁹⁵ "Shall be deemed perfected only [to] those systems where the wires will not be seen at all", *Ibidem*, f. 215r.

⁹⁶ *Ibidem*, f. 221v.

⁹⁷ *Ibidem*, f. 222r.

⁹⁸ *Ibidem*, f. 215v.

⁹⁹ *Ibidem*, f. 217r.

¹⁰⁰ *Ibidem*, f. 223v.

¹⁰¹ *Ibidem*, f. 217r, 218r, 230r.

¹⁰² *Ibidem*, f. 217r, 232v.

information discussed in the meeting could offer advantages to opponents of the municipality, and therefore prejudice the municipality. The second case was intended to conceal from public eye certain transactions (financial or otherwise) that from political reasons, the elected one preferred to keep away from the press and the electorate. All the meetings regarding the lease were public; in fact Delavrancea was an adversary of secret meetings.

The project, though approved in principle by the council¹⁰³ was not implemented for reasons we do not know. A few months after voting the project, in March 1900, the mayor, Barbu Ștefănescu Delavrancea said to the councillors that "he did not give up the tram issue, but only postponed it"¹⁰⁴. In February 1901 P. P. Carp's Conservative government falls and is replaced by a liberal one, led by D. A. Sturdza. According to the practice of the time, the conservative mayor and councillors leave the municipality, which ends Delavrancea's project¹⁰⁵. The fact is that electrification of trams in Bucharest was a process with many obstacles, often due to political reasons, and was not made until decades two and three of the 20th century.

Major public works often arouse controversy, discussion, scandals, destroy careers, sometimes crumbling governments. Throughout Europe in the period between mid-19th century and World War I the context seems highly favourable to these scandals. It is a time when there are more and more large-scale engineering projects, often funded or at least guaranteed with public money. But politicians do not yet have the expertise needed to manage these complex operations involving many partners with institutional structures, different behaviours and interests, sometimes diverging. In the 20th century, as experience accumulates, politicians learn how to evaluate information provided by professionals and how to judge infrastructure projects so that they do not lead to disagreements, quarrels and scandals (which are now characteristic to the third world countries).

The councillors of Bucharest are typical for this period. Issues involving technical knowledge are foreign to them, some even saying that it is not the job of the council to discuss these aspects. Some of them seem a little more familiar with economics, although not all understand the basic principles that operate a private firm or a limited company. The opponents discuss only from a simplistic point of view, how much does the municipality get and how much, the Company. They do not seem to understand (or do not care) that if the municipality demands are too high, the citizens (and not the Company) will eventually have to pay for them. Nor do they realize that the imposition of drastic conditions would make the Company unable to

¹⁰³ It was not put to a vote the entire project, but the main points (tram electrification, tariff reduction and the amount of 2 million promised by the Company). Out of the 22 present councillors, 16 voted for, 5 against and one abstained. *Ibidem*, f. 227v.

¹⁰⁴ *Ibidem*, file 1/1900, f. 104r.

¹⁰⁵ The tram Company has negotiated with the liberal mayor C. F. Robescu, who on 24th March 1904 tried to present a new concession contract to the city council, however this did not materialized, and it wasn't even discussed by the council. *Ibidem*, file 1/1904, f. 63v-65v.

work. Barbu Ștefănescu Delavrancea proved by far the deepest thought and a high familiarity with economic principles, out of all the councillors.

Surprisingly, the passengers – the main beneficiaries of tramways – are less present in the discussion. The lease opponents ignore them almost completely. But even the supporters (with the partial exception of Delavrancea) cannot see that the public's needs are the rationale of the tram and the best defence of the project. Discussions sometimes give the impression that the municipality is an independent entity, completely separate from its own citizens and voters, and that her needs are different from the latter!

On the other hand, it should be noted that at a time when the Paris public transport companies are still using over 20 000 horses, the mayor of Bucharest tries to find solutions for the complete mechanization of passenger transport in the capital. Setting aside the many fictitious arguments, brought in the discussion just to motivate an opposition covering other interests, we find the existence at the municipality of a group of councillors who look to the future, to modernity. Their membership of the Conservative Party should be a call to revaluation of the relationship between conservatives, modernity and progress, too often considered to be a privilege reserved for liberals.