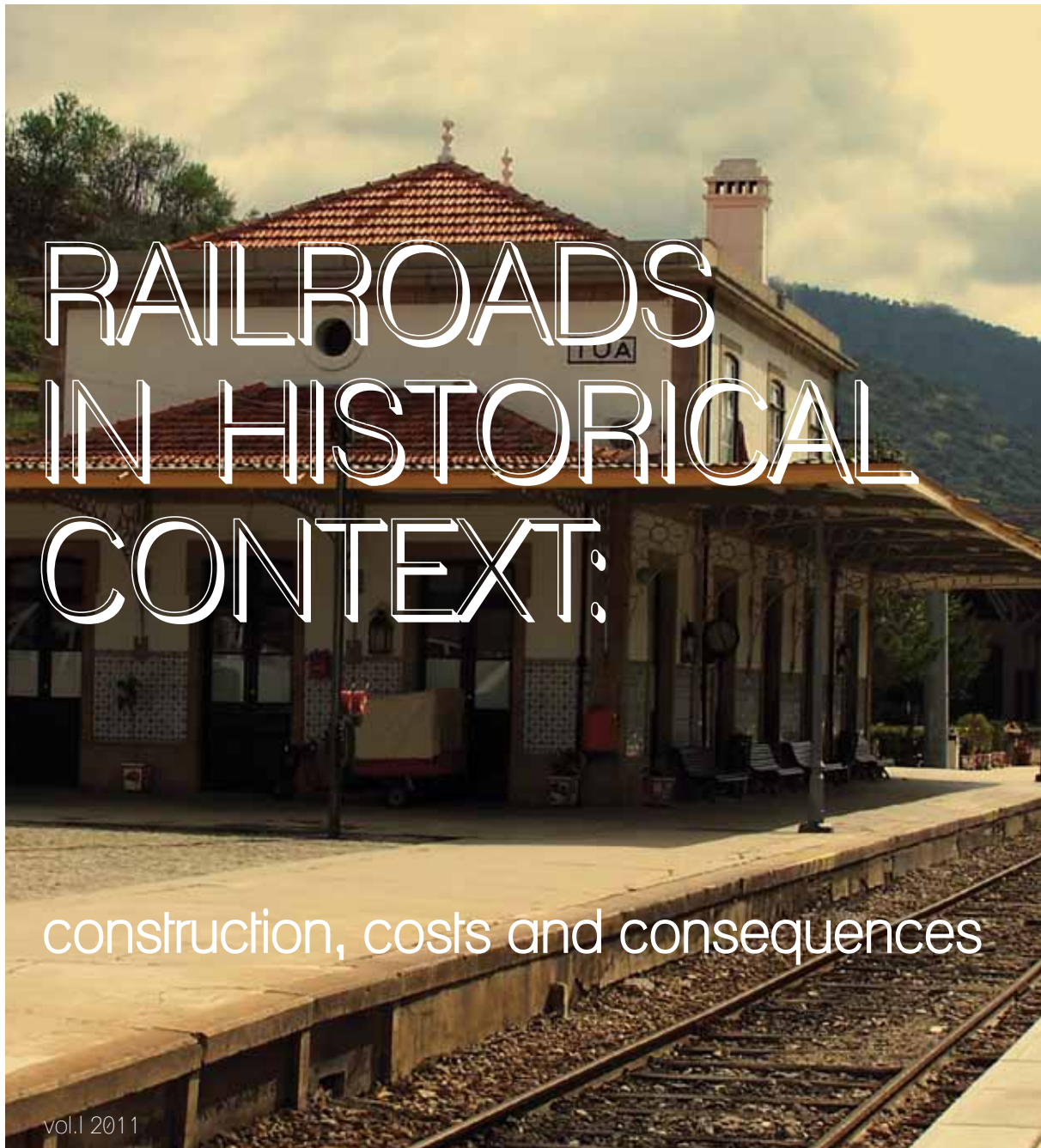




RAILROADS IN HISTORICAL CONTEXT:

construction, costs and consequences

vol. I 2011

ANNE MCCANTS
EDUARDO BEIRA
JOSÉ M. LOPES CORDEIRO
PAULO LOURENÇO
(eds.)

FOZ
TUA
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MIT Portugal

The FOZTUA project

FOZTUA Project is a joint interdisciplinary project sponsored by EDP, in order to study, preserve and disseminate the memory of Tua Valley and Tua railroad. This project intends to challenge the academic community to study the century-long history of the Tua railways and the development of a peripheral region (Tua Valley in Trás os Montes) in a peripheral country (Portugal, 19th century), to publicize the memory and the “stories” of the line, and to discuss its impact in the region.

The project intends to bring together scholars of various aspects of railroad history in order to share their research on other railroad projects, considering their decision-making processes, the management of labor, technical difficulties to overcome, and the economic and social impact of the lines.

This book includes the proceedings of the first FOZTUA International Conference, organized by FOZTUA project and sponsored by EDP.

This first international interdisciplinary meeting about the memory of Tua Valley and Tua railways was held last 7-8-9 October 2011, in the small village of Foz Tua, in the mouth of the Tua River with the Douro River.

The book you hold in your hands is an eclectic one. It represents the work of scholars from a broad array of disciplines: from oral history to structural engineering, from economics to museum design, from digital geographic information systems to the history of public policy, corporate finance, firm management, and engineering education. Some might find such breadth daunting, or perhaps tedious, or fear that the intellectual value of any resulting product must be diminished for being so diffuse. But we hope to persuade you otherwise. For this volume was the outcome of a rather extraordinary academic meeting that brought together over thirty scholars from all these fields and yet others, to devote three days to a sustained, collective, and truly interdisciplinary conversation on the multiple aspects of a single phenomenon.

(from the preface, by Anne McCants, MIT)

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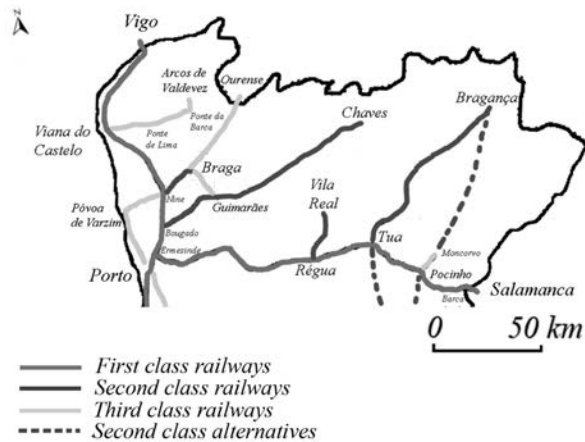


MIT Portugal

ISBN: 978-989-97134-5-1

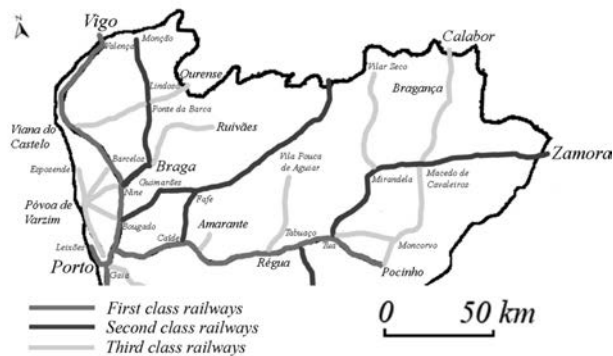
Graphic design and layout, and cover design, by Ana Prudente.
Samantha Evaristo contributed with revision and editing of the texts from non english authors.
Edited and printed by Inovatec (Portugal) Lda. (V. N. Gaia, Portugal).
Cover printing and book binding by Minerva – Artes Gráficas, Lda. (Vila do Conde, Portugal).

Map 5 – PEA's second proposal (1876)*



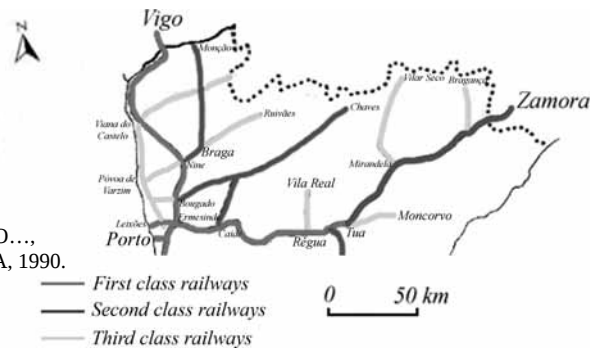
* ASSOCIAÇÃO..., 1878b.

Map 6 – Engineer Mendes Guerreiro's proposal (1877)**



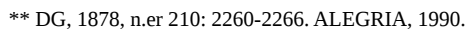
** GUERREIRO, 1878.

Map 7 – PEA's final proposal (1877)***

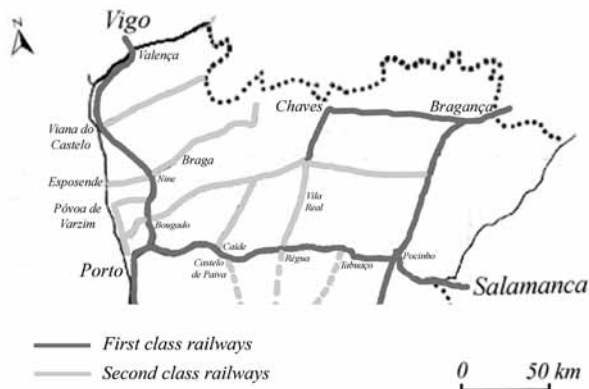


*** ASSOCIAÇÃO..., 1878c. ALEGRIA, 1990.

* PIMENTEL, 1878a. PIMENTEL, 1878b.

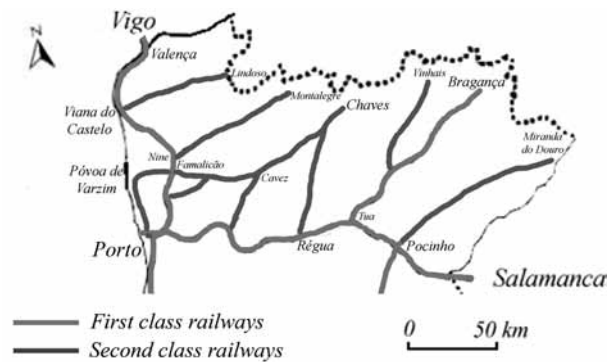


Map 9 – Engineer João Crisóstomo's proposal (1878)**



The network that would be proposed to the parliament in 1879 by the ministers of Public Works (Lourenço de Carvalho) and Finance (António de Serpa) was rather different. Trás-os-Montes would count several lines: following the Douro river to the border; through the Tua valley to Bragança and Vinhais (this line also had powerful supporters in and outside the parliament, as we shall see in due time); connecting Famalicão and Régua to Chaves; a railway between Pocinho and Miranda do Douro; and a track through the Cávado basin. Unfortunately, the parliamentary committees never gave their opinion about this proposal.

Map 10 – Government's proposal (1879)*



* DCD, 07-02-1879: 345-353. ALEGRIA, 1990.

In 1879, the government was still being advised to build more railways in Trás-os-Montes. The company that owned a coastland railway (Porto – Póvoa de Varzim with a branch to Famalicão) wanted to expand it to Chaves and Régua and asked the government for a subvention (a guaranteed income)³⁷. Since this project implied an increase in the public expenses, it had to be presented to the parliament, which happened in 24-03-1879. The advisory board of the ministry of Public Works and the parliamentary committees gave their approval to such a venture³⁸. However, their reports were never presented for discussion. A year later, the project was resurrected in the parliament at the same time a similar one (railways towards Trás-os-Montes beginning in Braga) was also proposed³⁹. Nonetheless, all these efforts would be disdained. A few years later the company that operated the line between Guimarães and the Minho rail would also suggest its expansion to Chaves through the Tâmega valley, but their lack of success was the same as all the others⁴⁰.

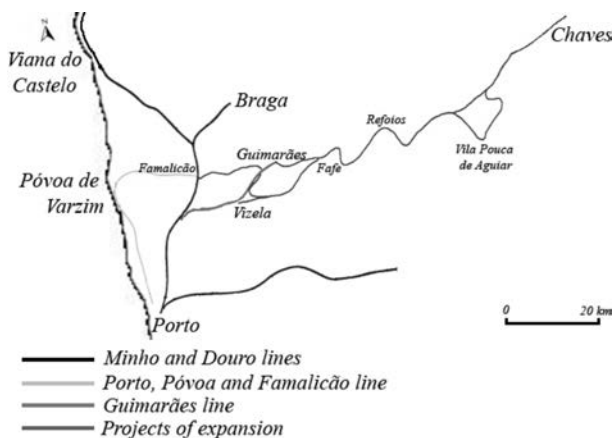
37 OLIVEIRA, 1979: 7.

38 SANTOS, 1884. MPWHA. Junta Consultiva de Obras Públicas e Minas (JCOPM), 1879, box 22, report 8156.

39 DCD, 1880.4.24: 1560 and 28-05-1880: 2360-2361.

40 Ministry of Foreign Affairs Historical Archive (MFAHA). Caminhos-de-ferro. Ligações por Intermédio de Pontes, box 38, pack 8, document 281.

Map 11 – Guimarães Railway Company and Porto, Póvoa and Famalicão Company proposals



A year later, Sousa Brandão added new information to this dossier when he presented new studies for a narrow gauge network north of the Douro. His purpose was to bring trains to Trás-os-Montes and to increase the income of the Douro line, since all of the projected railways would be its branches. And just like the rivers Tua, Sabor, Corgo and Tâmega were tributaries of the Douro river the proposed railroads would also be tributaries of the Douro line and they would follow those rivers' valleys. So, great cities of Trás-os-Montes (like Mirandela, Braganza and Chaves) would also be connected to the national rail system. Furthermore, other railroads could be established, but their construction wasn't a pressing need.

Map 12 – Narrow gauge network north of the Douro*



* BRANDÃO, 1880.

THE SALAMANCADA

In any case, any enterprise of this sort had to wait for the completion of the Douro line to the frontier, the most important objective of the Portuguese national railway strategy. This occurred in the mid-1880s in a process that was far from being straightforward.

In 1878, the Portuguese had placed their hopes and dreams on a new track, christened Beira Alta railway, connecting Pampilhosa to Vilar Formoso connecting to the west to Figueira da Foz and to the east to Salamanca. Since the Douro line was only a national railway, the merchants of Porto feared that all traffic from Salamanca would flee to the harbour of Figueira. Worsening the scenario, the company that owned the Beira Alta railway – the Société Financière de Paris (SFP) – also owned the section between Salamanca and Medina del Campo and furthermore had grasped the concession of both railroads from Salamanca to the Portuguese frontier, but naturally only had real interest in the connection to Vilar Formoso⁴¹.

To avoid this scenario, the Portuguese government began talks with Spain. Due to those negotiations and to new surveys instructed to a team of Iberian engineers (Martinez Gordon, Eusébio Page, Boaventura José Vieira, Avelar Machado and Bandeira Coelho de Melo), it was decided that the Douro line would also be built to the frontier and that it would branch with the Beira Alta railway in Spanish territory, despite the military's preference that the railway went through Almeida, a military stronghold⁴². In the parliament, the government proposed the extension of the railway along the Douro shores to Spain instead of taking it through the heart of Trás-os-Montes, on the condition that an agreement with Spain was achieved. This indecision was due to the fact that Spain and Portugal had different understandings about the point of embranchment of both lines. Spain wanted Ciudad Rodrigo, which was against the interest of Porto, since in this fashion Salamanca was closer to Figueira and further from Porto. Portugal, on the other hand, wanted Boadilla. In May 1880, the Portuguese ambassador was able to convince his counterpart and Spain agreed on Boadilla.

However, there was still a loose end in this issue: would the SFP be willing to build both lines at the same time, even if that company only had real interest in one of them?⁴³ To avoid such a scenario some banks at Porto gathered in a joint venture (01-07-1881) and took the responsibility of building and exploring both railroads. The Portuguese government also agreed to aid this joint venture with a financial subvention, despite the demonstrations in and outside the parliament

41 SOUSA, 1978: 5-7.

42 MFAHA. Entroncamento da linha ferrea do Douro, box 1036, pack 5. MACHADO, 1879.

43 MFAHA. Entroncamento da linha ferrea do Douro, box 1036, pack 5; Caminhos de ferro. Ligação por intermédio de pontes, box 1066, pack 8, documents 174 and following.

against such an uncanny decision⁴⁴. On the other hand, the government also had to hasten the construction of the Douro line so that the entire railway from Porto to Salamanca could be opened for business in one single stroke. Nonetheless, the hilliness of the region delayed the work. Only in 1883 did the railway reach Tua, barely 10 miles away from Pinhão. A short distance further, the railway would cross to the other shore of the Douro⁴⁵. Only in 1887 would the line be completed in Barca de Alva⁴⁶. As far as the lines in Spain were concerned, they would become an enormous financial burden to the Porto banks that forced the government to renew its aid a few years later⁴⁷.

THE TUA LINE

As we saw, in the mid-1880s, Trás-os-Montes only had a few miles of tracks going close to its southern border. It was clearly not enough. In this chapter, we will analyze the process that culminated in the opening of the Tua line.

In the mid-1870s, the businessman Clemente Meneres invested large amounts of money in Trás-os-Montes and started to feel the need for a more effective transport system towards Porto. He put some pressure upon the government in order to build a railway through the heart of Trás-os-Montes. He wrote several texts in the papers and he even went as far as making up demonstrations of people demanding the railways, since he believed that the people of Trás-os-Montes were too phlegmatic. At the same time, he also took advantage of the interest of some powerful men in the parliament and in the government in the purchase of some properties in this region⁴⁸. In fact, in the parliament, a few congressmen from both houses weren't shy to show their support to this enterprise. Between 1878 and 1882, Eduardo José Coelho and the bishop of Braganza (brother of Martens Ferrão, a high-ranked member of the Regenerador Party, who was often called by the king to rule the nation) proposed the construction of the Tua railway⁴⁹.

Meanwhile, there were those who had a preference for other railways across Trás-os-Montes. However, the decision to take the Douro line by the left bank of that river (1882) hastened the need to build other railways that would bring

44 SANTOS, 1884. Documentos relativos ao caminho de ferro de Salamanca publicados no Diário do Governo.

45 MPWHA, JCPOM, box 24 (1882), report 10050.

46 SILVA, 2004: 154. SILVA & RIBEIRO, 2007-2009, vol. 3: 162. MFAHA. Caminhos de ferro. Ligação por intermédio de pontes, box 1066, pack 8, documents 180 and following.

47 SOUSA, 1978.

48 ALVES, 2007: 124-125.

49 DCD, 18-03-1881: 1065. Diário da Câmara dos Dignos Pares do Reino, 03-04-1878: 277-278, 1881.2.9: 139-140 and 1882.4.19: 427-428.

the benefits of steam traction to Trás-os-Montes. So it's no wonder that in 1883, several congressmen asked the government for new surveys for lines connecting Régua, Vila Real, Vila Pouca de Aguiar, Mirandela, Chaves, Braganza and Zamora to the Douro railway⁵⁰.

Nevertheless, it would be the Tua railroad the chosen one, thanks to the interest taken by the count of Foz, who in a short time would become the leader of the Royal Company of the Portuguese Railways, the most powerful company operating in Portugal that held the northern and eastern railways⁵¹. Furthermore, the advisory board of the ministry of Public Works also believed that the Tua line was the best choice at the moment, because it was already surveyed and it would go through the richest regions of the province⁵².

In the parliament, the line was debated since February 1883 in a bill that also proposed the construction other railways (through Beira Baixa and to Viseu). The main issue during the discussion was to know in which bank of the Tua river should the rails be deployed, which motivated a feud between the congressmen of both banks. In any case, that was a concern to be settled by engineers (that would advise the left bank, for being less ridged, a year later⁵³) and not by politicians and in 26-04-1883 the law that allowed the government to help the company who wished to build this narrow gauge railway was published.

Unfortunately, no one was interested in taking such an obligation, due to the conditions of the forced repurchase by the government. Clemente Meneses tried to attract some investors, like Henry Burnay or the Pereire brothers, but he was unsuccessful. He even considered bidding himself, but he realized that such a decision was no longer necessary⁵⁴. The government would alter the conditions of the compulsory repurchase and the count of Foz accepted the work (24-12-1883 and 30-06-1884 contracts and 26-05-1884 law)⁵⁵. The contractor took the endeavour very seriously and a few weeks later he presented its working projects that were highly praised by the ministry of Public Works, even though its engineers were very unconvinced about the economic viability of the railway, due to the demographic shortage and the lack of roads that would make the access to the stations very difficult⁵⁶. As soon as his projects were approved, the count of Foz created the Railways National Company (01-10-1885), which became responsible for the contract.

The work was far from easy, due to the mountainous characteristics of the terrain. This led to a track with many curves and to the postponement of the con-

50 DCD, 17-02-1883: 372-373.

51 GOMES, 2009: 5.

52 MPWHA, JCOPM, box 25 (1883), report 10305.

53 MPWHA, JCOPM, box 27 (1884), report 11627.

54 ALVES, 2007.

55 COLP, 1883: 359-367 and 406 and following; 1884: 190-210 and 307-313.

56 MPWHA, JCOPM, box 27 (1884), report 11627; box 29 (1885), report 12791.

nection to Braganza and to the marble and alabaster mines nearby. In 29-09-1887 the line was conditionally opened. However, there were still many flaws, no agreement about the joint operation of the Tua station (state property) and lack of personnel. In 1888, the line still wasn't fully operational⁵⁷. Its net profit was also disappointing. In fact, the expenses exceeded the revenue, a scenario that went on through most of the 1890s⁵⁸. If it weren't for the State aid, the company would never survive.

Map 13 – The Tua line*



* FERREIRA, 1999.

WRAPPING UP THE ISSUE: THE NETWORK NORTH OF THE MONDEGO RIVER

The Tua and Douro railways only served a slender region of Trás-os-Montes. Soon other proposals were presented to the government in the parliament to

57 SILVA, 2004: 118. MPWHA, JCOPM, box 31 (1886), report 13877 (16-12-1886); box 34 (1888), report 15179. COLP, 1888: 405. FINO, 1883-1903, vol. 2: 256-257; vol. 3: 11-14.

58 FINO, 1883-1903, vol. 2: 245-246; vol. 3. PIMENTEL: 1890.

increase the extension of the region's network. As soon as 1885, two new solutions were advised, both in 09-06-1885. They proposed that Vila Real become part of the set of cities served by railway through the construction of a track to the Douro line⁵⁹. Besides the usual reasons that were invoked to justify these kind of investments (the wealth and degree of commercial activity of the region), the men that asked for this work (all of them elected or born in this area) added the phylloxera plague and precisely the uselessness of the Tua and Douro line to the Vila Real district. These two projects would merge a year later, but the practical results were the same: none whatsoever⁶⁰. The same fate would be met by another idea that allowed the Guimarães Railway Company to expand its line to Chaves and then Régua⁶¹. In 1888 and 1890, the extension of the Tua line to Braganza (and then Spain) was brought to the parliament by the hands of Eduardo José Coelho and Lopes Navarro (both of them congressmen elected by Trás-os-Montes)⁶².

These efforts showed that there was still the need to build more railways in Trás-os-Montes. In 1888, the government tried to end this matter, asking permission from the parliament to complete the network north of the Mondego. In Trás-os-Montes, this project included the connection of Chaves to the Douro line through the Tâmega and Corgo valleys and the extension of the Tua line to Braganza. Any other suggestion was disdained. The government hoped to create the conditions to take real advantage of the imagined richness of the land of Trás-os-Montes and to award the patience and tax money that the people from this part of the kingdom always shared. Moreover, building railroads was still regarded as the means to induce economic development, since it was still used abroad⁶³.

However, this proposal was never discussed in the parliament, even though the Public Works and Finance committees gave it their approval⁶⁴. Outside the parliament, quite a few engineers (Montenegro, Costa Serrão and Rego Lima) also believed that this project was possible, but their opinion wasn't enough to get the work started⁶⁵. Two years later, the project was presented once again to the congressmen, but the outcome was the same: no law published, no rails deployed⁶⁶.

This way, a great part of Trás-os-Montes remained isolated from the rest of the country due to the lack of effective transportation. Even in terms of roads,

59 DCD, 09-06-1885: 2162-2164.

60 DCD, 05-02-1886: 298.

61 DCD, 20-03-1886: 660-661.

62 DCD, 20-03-1886 e 11-07-1890: 1246 e 1157.

63 DCD, 01-06-1888: 1813-1819.

64 SANTOS, 1884.

65 MONTENEGRO, 1889. SERRÃO, 1890. LIMA, 1890.

66 DCD, 10-05-1890: 158-159.

Map 14 – Network north of the Mondego



MPWHA, Mapas e Desenhos, C-32-7-B.

this region was poorly served⁶⁷. In fact, “*the greatest terror one could inspire in the heart of a public servant is to threaten him with a transfer to Braganza. One can only imagine that Braganza is Siberia!*”⁶⁸.

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FINAL REMARKS

Even though the construction of railways began in Portugal in the 1850s, only in the late 1870s did trains travel in Trás-os-Montes. This delay was due to several reasons, the first of which the distance from the shore and from the two major Portuguese cities (Porto and Lisbon). Furthermore, Portugal had limited resources and the priority of the governments (apart from linking Lisbon to Porto) was to connect Lisbon and its harbour to Spain and the rest of Europe⁶⁹.

In the 1850s and 1860s, the international connection was very far from Trás-os-Montes. The governments were definitely leaning towards a railway that would cross the border somewhere between Almeida and Elvas. However, the potential investors and Spain were only willing to accept the latter⁷⁰. On the other hand, it was believed that it would be easier and cheaper to build on the southern and plainer provinces of Portugal.

The Alentejo, for instance, was granted rail tracks in the 1850s. It was however a region closer to Lisbon and there were investors (rich landlords of the

67 ALEGRIA, 1990: 161 and 335. PORTUGAL, 1907.

68 DCD, 23-02-1880: 542.

69 PEREIRA, 2008: 154. RAMOS, 1996.

70 ALEGRIA, 1990: 243-251.

region and with sufficient influence over the government and the parliament) willing to take on such enterprise. In the north, only the wine producing regions of the Douro seemed to justify such an investment. However, the expected difficulties of building there, the unlikeliness of a railway in the Douro to reach the frontier, the minimal satisfaction with the Douro river transport capabilities and the vineyard plagues kept the investors away. In fact, these men seemed more eager to invest in Minho⁷¹.

In any case, only when the northern railway connected Lisbon to Porto would any new enterprise be undertaken. However, the construction of the bridge over the Douro river was a very troublesome matter that delayed the arrival of trains to Porto. Only when there was some certainty that the company in charge of the railways would in fact build the bridge (contract signed in 1866) did the government to build a railway towards Trás-os-Montes (the 1867 law). Despite this, there wasn't enough money to take on such a project and Portugal had more pressing matters to attend, namely the compensations demanded by the foreign companies that operated in Portugal⁷². The construction had to wait until these issues were settled, which happened in the beginning of the 1870s.

For economic and technical reasons, the Douro railway followed the river valley, merely serving a thin strip of land in the south of Trás-os-Montes. The extension of the line towards the frontier was dependent of Spain. Since it was decreed that such an extension would go to Barca de Alva, any railway towards the centre of Trás-os-Montes would only be of mere local interest and destined to serve as tributary of the Douro line. Under this understanding, several lines were suggested, but without a company willing to build them, their coming into reality was unlikely. The lack of money wasn't a reason, since until 1882 several lines were adjudicated and built in Minho, Beira Alta, Estremadura and Alentejo. It was still believed that in Trás-os-Montes, only the wine production of the Douro banks was large enough to justify a railway⁷³. Furthermore, the steepness of the region guaranteed a hard and expensive mission. It is a fact that the government could have built the entire railway. However, the Treasury was already overloaded with the construction of railroads in the Minho, Douro, Southeast and Algarve lines.

The investments made by Clemente Meneses in the region boosted the need to build more railways in Trás-os-Montes. The surveys showed that any line had its advantages and disadvantages, but in the parliament, the congressmen who supported the Tua line were the ones who held the greatest political power. In addition, it was the railway that crossed Trás-os-Montes in its more central region, which could allow other transversal solutions suggested, for instance, by Sousa Brandão and João Crisóstomo. The concern of the count of Foz with

71 PEREIRA, 2011.

72 SAMODÃES, 1873: 37-53.

73 ALEGRIA. 1990: 63.

this line was merely circumstantial. In any case, the government's subvention ensured that his company would have an annual net profit of 5,5% of the cost of construction.

None of these reasons alone can account for the choice of the Tua line. All of them put together justify that in the 1880s Trás-os-Montes would count with another few miles of rails within its borders. The 1892 bankruptcy placed every major project on hold. Until the end of the 19th century, no more rails would be set on this province of Portugal. However in 1900 (February 15), a building plan was approved⁷⁴. The Tâmega, Corgo and Sabor railways as well as the extension of the Tua line to Braganza were included in this project. In 1906, trains stormed into that city. And as for other lines, they would be built and open to the general public in the following decades⁷⁵.

74 COLP, 1900: 53-54.

75 COLP, 1900: 53-54. TORRES, 1936: 24-27 and 52-53.

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THE IMPACT OF RAILROAD ACCESSIBILITY ON THE POPULATION OF PORTUGAL'S INLAND NORTH REGION (1878-1930). THE TUA AND THE BEIRA BAIXA LINES. O IMPACTO DA ACESSIBILIDADE AO CAMINHO DE FERRO NA POPULAÇÃO DA REGIÃO NORTE INTERIOR DE PORTUGAL (1878-1930). AS LINHAS DO TUA E DA BEIRA BAIXA

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Abstract Resumo

Historiography on Portuguese railroads has not paid much attention neither to their regional effects, nor to the relationship between the operation of this form of transportation and population evolution. In fact, available studies usually adopt a national approach and analyze the contribution of railroads to the overall development of the country.

The main argument of this paper is that in the Portuguese case, access to railroads reinforced pre-existing territorial inequalities and promoted different regional dynamics, mainly with regard to population growth, urban development and population mobility.

In reality, in the more developed regions, railroad access helped increase population concentration in the areas served by this infrastructure. The railways also favored the growth of pre-existing urban centers and the emergence of new ones. They also encouraged migration into towns, thus contributing to their growth. In the Inland North, where the Tua line is integrated, traditionally affected by greater transportation difficulties, railroads seem to have operated in the opposite direction, contributing to a decline in population relative to the other regions of Portugal. Moreover, this area continued to be characterized by a predominance of modest-sized cities, unable to match the dynamism of the urban centers in the coastal regions or to attract a migrant population to aid in their development. Instead, since the end of the nineteenth century, this region suffered from an increasing emigration that railroads seem to have facilitated. To explain this evolution we must also take into account the economic crisis that affected the agriculture of this part of the country, but the presence of the railroad seems to have been a significant factor.

In this paper, we will try to put the Tua line in this context, comparing its effects on population with those caused by the Beira Baixa line in another Portuguese mountainous region around the city of Covilhã.

A historiografia sobre os caminhos de ferro portugueses não tem prestado muita atenção aos seus efeitos regionais ou à relação entre esta forma de transporte e a evolução da população. De facto, os estudos disponíveis adoptam geralmente uma perspetiva nacional e analisam apenas a contribuição dos caminhos de ferro para o desenvolvimento global do país.

O principal argumento deste trabalho é que, no caso de Portugal, o acesso aos caminhos de ferro reforçou as desigualdades territoriais anteriores e promoveu diferentes dinâmicas regionais, especialmente relacionadas com o crescimento da

população, o desenvolvimento urbano e a mobilidade das populações. Na realidade, nas regiões mais desenvolvidas, o acesso aos caminhos de ferro contribuiu para o aumento da concentração da população nas áreas servidas pela infraestrutura; os caminhos de ferro favoreceram ainda o crescimento dos centros urbanos pré-existentes e a emergência de novos centros. Encorajou também a migração para as cidades e vilas, contribuindo para o seu crescimento. No interior Norte, onde a linha do Tua estava integrada, região tradicionalmente afectada por maiores dificuldades de transporte, o caminho de ferro parece ter operado na direção oposta, contribuindo para um declínio da população relativamente às outras regiões de Portugal. Além disso, esta área continuou a ser caracterizada pelo predomínio de cidades de dimensões modestas, incapazes de concorrer com o dinamismo dos centros urbanos das regiões costeiras ou de atrair uma população migrante capaz de promover o seu desenvolvimento. Ao invés, desde o final do século XIX, esta região sofreu um aumento da emigração que o caminho de ferro parece ter facilitado. Para explicar esta evolução devemos também ter em consideração a crise económica que afetou então a agricultura desta região, embora a presença da linha de caminho de ferro pareça ter sido um fator significativo.

Neste trabalho tenta-se pôr a linha do Tua neste contexto, comparando os seus efeitos na população com aqueles causados pela linha da Beira Baixa noutra região montanhosa portuguesa em torno da cidade da Covilhã.

The impact of railroad accessibility on the population of Portugal's Inland North Region (1878-1930).

The Tua and the Beira Baixa lines

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Historiography on Portuguese railroads has not paid much attention neither to the regional effects of the construction of this infrastructure, nor to the relationship between the operation of this form of transportation and population evolution. The exceptions are represented by the classic work by Maria Fernanda Alegria, who studied the formation of the national market, and by two recent studies, one on the role of railroads in the relocation of industry during the first half of the twentieth century and the other on their link with the urban network, focusing primarily on Lisbon and Oporto¹. Other studies focus on the country at large and analyze the contribution of railroads to national development. Usually, they adopt a pessimistic view and emphasize the prevalence of private and foreign interests, as opposed to those of the nation. They also underline the financial burden of railroad construction for the state and the corruption associated with it, as well as the incapacity of the Portuguese economy to supply the capital

1 Maria Fernanda Alegria, *A organização dos transportes em Portugal, 1850-1910: as vias e o tráfego*, Lisbon, Centro de Estudos Geográficos, 1990; Maria Eugénia Mata, "As bees attracted to honey. Transport and job mobility in Portugal, 1890-1950", *Journal of Transport History*, vol. 29, 2, 2008; Magda Pinheiro, *Cidade e caminhos-de-ferro*, Lisbon, Centro de Estudos de História Contemporânea, 2008.

and industrial goods necessary for the development of the railroad network, limiting its contribution to the supply of manpower².

In previous studies, we tried to show that in Portugal, in a period similar to the one examined here, accessibility to railroads reinforced pre-existing territorial inequalities and promoted different regional dynamics, with respect to population growth, urban development, internal migration and emigration. We particularly suggested that in the Inland North, railroads seem to have contributed to a decline in population in comparison with the other regions of Portugal and, in contrast to what happened in the rest of the country, they did not stimulate urban growth. This area, whose boundaries we will explain later, was still unable to attract a migrant population to aid in its development and most likely fueled migration to other regions. Furthermore, it was gradually affected by emigration that the railroad would also have facilitated³.

This paper deepens the evolution of the Inland North and examines two areas included in its territory: Tua, served by the line with the same name, and Cova da Beira, served by the Beira Baixa line.

The research is focused on the period between 1878 and 1930, to cover the arrival of the railroad in the Inland North and to exclude the effect of bus services. In some analyses, however, a longer timeframe was considered.

This research team has been particularly interested in exploring the link between space and History and has been applying Geographic Information Systems (GIS) to Portugal's history. This effort began years ago with the construction of a cartographic infrastructure supported by a GIS, which now includes parish maps of mainland Portugal from 1758 up to 2001 and maps from all the existing administrative divisions above this level⁴. At the same time, a consid-

2 António Lopes Vieira, *The role of Britain and France in the finance of Portuguese railways, 1850-1890: a comparative study in speculation, corruption and inefficiency*, Leicester, University of Leicester, 1983; Magda Pinheiro, *Chemins de fer, structure financière de l'Etat et dépendance extérieure au Portugal (1850-1890)*, Paris, Univ. Paris 1, 1986; Álvaro Ferreira da Silva and Lara Tavares, "Transport History in Portugal: a bibliographical overview", in Michele Merger e Marie-Noëlle Polino (eds.), *COST 340, towards a European intermodal transport network lessons from history: a critical bibliography*, Paris, AHICF, 2004; Maria Eugénia Mata and Lara Tavares, "The value of Portuguese railways for consumers on the eve of the First World War", *TST: Transportes, Servicios y Telecomunicaciones*, 7, 2003, pp.80-100; Angela Salgueiro, *A Companhia Real dos Caminhos de Ferro Portugueses, 1859-1860*, Lisbon, Faculdade de Ciências Sociais e Humanas, 2008.

3 Luis Espinha da Silveira, Daniel Alves, Nuno Miguel Lima, Ana Alcântara, and Josep Puig, "Population and railways in Portugal, 1801-1930", *Journal of Interdisciplinary History*, vol. 42, 1, 2011, pp.29-52; idem, "Caminhos de ferro, população e desigualdades territoriais em Portugal, 1801-1930", *Ler História* 61, 2011, pp.7-37.

4 The maps used in this article have been developed by several teams since the early 1990s. Initial results were presented at the Ninth International Conference of the Association for History and Computing in 1994, giving rise afterwards to several printed publications - among them, Luis Espinha da Silveira, Margarida Lopes, and Cristina Joanaz de Melo, "Mapping Portuguese Historical Boundaries with a GIS" in Onno Boonstra, Geurt Collenteur, and Bart van Elderen (eds.), *Structures and contingencies in computerized historical research*, Hilversum, 1995, pp.245-252; Luis Espinha da Silveira, *Território e poder: Nas origens do Estado contemporâneo em*