

# Evolution and Permanence in Coimbra's Urban Form

## The Emergence of Urban Planning in Portugal at the Turn of the Twentieth-Century

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### Abstract

Across Europe, the 19th century was a period of radical transformation and the time of the emergence of urban planning as a science. In Portugal, a peripheral country, devastated by civil war and political and economic instability, these transformations emerged with some delay and on a smaller scale. After the creation in 1852 of the Ministry of Public Works, responsible for planning and construction of modern infrastructure and the road and railway network that would connect the main cities and the country with Europe, the first concerns with cities' health and urban beautification arose. Thus in 1864, the first urban legislation introducing the general improvement plan, mandatory for the two main Portuguese cities, Lisbon and Porto emerged, but it was also applicable to other cities. Coimbra, a medium-sized city, but then the only Portuguese university city, one of the cities that tried to draw up a general improvement plan to ensure the city's beautification planning. This paper analyses these efforts and a set of plans and projects, their relations with European models, and intends to understand the innovation of these first plans in the light of the emergence of urban planning as a mandatory public policy in Portugal.

### Keywords

Urban Planning, municipal policies, sanitation, beautification

### How to cite

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## INTRODUCTION

The modern urban planning concept is the result of construction that occurred in the 19th century. European cities were mostly dense agglomerations, with narrow, unpaved and unventilated streets, composed of buildings without the minimum conditions of sanitation, with scarce water provision. These problems were exacerbated by the rural exodus, which further densified the city and worsened its problems. In response, European cities were then subject to major improvements and expansion plans, urban theories and experiments emerged, and in parallel the urban planning process and the legal system were developed. From the boulevards of Paris to the expansion of Barcelona or Vienna's Ringstrasse, the European urban transformation of this period introduced modern European urban planning and shaped today's cities. These transformations had a bigger scale in the most industrialized countries and, in particular, in capital cities but they happened in all European cities and conduced to the definition of the modern urban planning system<sup>1</sup>.

In Portugal, a peripheral country, the early 19th century was a period of great instability at a national level<sup>2</sup>. The first urban planning experiments happened in the second half of the century, after the creation of the Ministry of Public Works, which was responsible for a series of improvements in the country and in cities such as the construction of a road network in the first phase, and later through the construction of the railroad network and the improvement of ports and riverbanks, but also through the construction of public facilities, essential for the application of the new sanitation and comfort models in the cities. However, this national strategy demanded new technicians to be trained, and engineering courses created by following the French example of École Polytechnique of Paris, with two schools created to that end: Escola Politécnica de Lisboa and Academia Politécnica do Porto<sup>3</sup>.

The main purpose of these measurements was to improve connections and stimulate the economy<sup>4</sup>, but it was also through the construction of the road network that the first urban planning instrument emerged, imposing a general improvement plan in the two main cities to ensure the transformation and expansion of the city according to minimum sanitation and beauty requirements. The Decree of 31st of December of 1864, defined the minimum width and maximum slope of the streets, as well as imposing a comprehensive plan to guide the transformation and beautification of the two main cities. It also opened the possibility for all other cities to develop a General Improvement Plan (PGM). Imposing the need for comprehensive urban planning for the two major cities, this was an innovative decree in the European panorama. However, this measurement was not easy to apply and was delayed. Lisbon and Porto<sup>5</sup> had an improvement plan proposed in 1904 and 1881 respectively. Coimbra, a medium-sized city, was one of the cities that desired a PGM, although technical and financial difficulties made it impossible to attain.

## PRAGMATIC REFORMS TO FULFIL NEW DEMANDS

Coimbra, located in the centre of Portugal on the banks of the Mondego River, at the beginning of the nineteenth century faced sanitation problems, increased by recurrent flooding.

During the eighteenth century, some works were made to redefine the course of the river. However, the political instability that followed postponed the conclusion of the works. This strategic location, at the intersection between the river and the royal road connecting Lisbon and Porto, allowed the circulation of goods and people and fostered the development of the city. Besides, since the 16th century, Coimbra's main attraction was its university and the related colleges employing the majority of the city's population<sup>6</sup>.

After 1834 and the end of the civil war, the Liberal Regime was finally imposed in Portugal. The new Regime demanded a set of reforms to the administrative, legal and economic system and one of its first measures was the extinction of the male religious houses and the nationalization of their assets. This measure allowed the enrichment of the nation's treasury and extinguished the main supporters of the conservatives. This had an important effect on the cities, allowing the occupation of the former religious buildings for other functions as well as the urbanization of their land<sup>7</sup>. In Coimbra, 22 religious colleges were extinguished. On the other hand, the change of regime fostered the transformation of the country and cities to accommodate the new state functions. All over the country, some urban improvements started to be made, mostly to improve the public health conditions and circulation. However, these were minor interventions, since at that time, except for Lisbon and Porto, the municipal institutions had no technicians, architects, or engineers to study urban reforms. Coimbra is an example of this lack of technicians; nevertheless, Coimbra's mayors were mainly university professors, often doctors, mathematicians and law professors, who, besides their specific knowledge, had strong external relations and were familiar with the transformations taking place in Europe, which explains some of the innovative policies tried out in Coimbra<sup>8</sup>.

The first plan for reforming the city was presented shortly after the election of the first liberal city council at the beginning of 1835<sup>9</sup>. It was a written and descriptive plan, without drawings, even though it reveals an overall vision of the city and its constraints. It was presented through a series of letters requesting the cession of a set of the extinct colleagues' properties the purpose was to install new facilities, such as the market, the town hall, the slaughterhouse, the jail, the cemetery, the hospice, and the barracks. In addition to these new facilities, it also focused on the improvement of circulation and proposed the widening of Rua de Coruche, which was part of the royal road that crossed the city. To prevent flooding and improve health conditions it proposed the regularisation and raising of the banks of the Mondego River. Although this plan was audacious and revealed a structured thought for the whole city it was not yet a real plan due to the fragility/non-existence of diagnostic studies of the city, the absence of drawings and a strategy for its implementation. The main premise seemed to be the support of the government, through the cession of the old properties of the extinct religious and the financial aid to support the urban reform works.

Thus, the lack of support from the government, that only released two of the assets requested, and denied the financial support for the widening of the street and the raising of the bank, imposed a change in the strategy, leading to the installation of all the required activities in the two buildings released, the old monastery of Santa Cruz and the Colleague of Graça. The period after was mainly focused on the installation of the cemetery outside the city limits in Conchada, the construction works were very delayed because of the lack of money and technicians, but also because of landslides, which required a change in the first project.

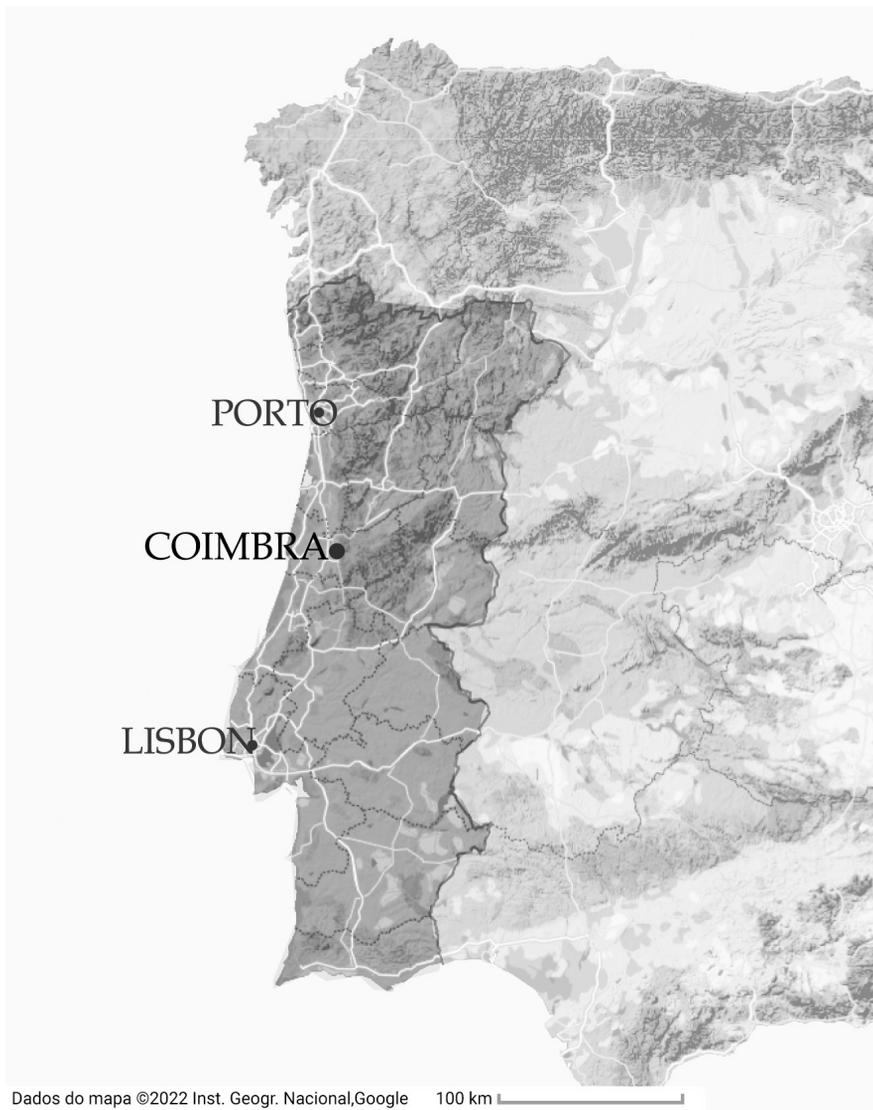


Fig. 1. Coimbra's localization and relation to Porto and Lisbon

At that time, Coimbra's mayor was Luis da Costa Simões<sup>10</sup>, a doctor and Professor of Medicine, a man with knowledge of the reforms underway elsewhere in other European cities, and with a great desire to improve the city's conditions. Costa Simões struggled to improve the city's circulation, and managed to overcome technical difficulties by turning to the state technicians who worked in Coimbra at the District Works Directorate, inviting its director to study the widening of Rua de Coruche. The financial constraints were overcome with the help of the Director of Public Works, Visconde da Luz, who financially supported one-third of the works.

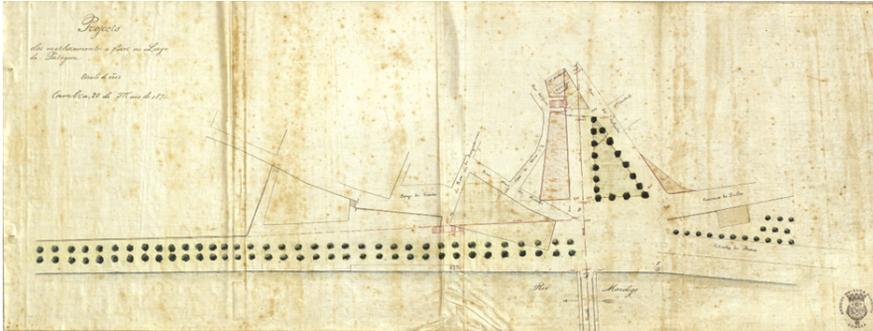


Fig. 2. New D. Carlos Square and the Boulevard by the River, 1874

The works began in 1858, requiring extensive expropriations and in 1866, the new wider street was named Rua do Visconde da Luz to acknowledge the Director of Public Works.

Meanwhile, the construction of the road network, a major structural work for the country was underway, but also facing some difficulties, mainly the roads under the competence of the municipalities. To guarantee the good execution of the network, the decree of 31 December 1864 defined the dimensions and shape of the roads, and also the minimum features for urban streets. It also imposed the General Improvement Plans (PGM) to enhance cities' circulation and sanitation for Lisbon and Porto, and for the rest of the cities that desired it. Coimbra's municipality applauded the idea and nominated a commission to study a PGM, but the lack of technical and financial capacity made any plan unfeasible. The urban transformations carried out in this time followed the common practice seen in other cities<sup>11</sup> and focused on facilities that could improve urban health conditions and circulation (public market, municipal jail, railroad station)<sup>12</sup>.

## THE FIRST IMPROVEMENT PLANS

The lack of technicians and financial resources postponed the PGM however, the municipalities' illustrious elite, the responsibility for the urban transformations, knew what was happening in the other European cities, but was not aware of the processes and advantages of comprehensive planning. This understanding began to emerge after the involvement in interventions developed by the Ministry of Public Works working in Coimbra. Mainly after the raising and regularizing of the river Mondego's banks work and the construction of a new bridge, carried out by the Ministry of Public Works<sup>13</sup> and designed by the engineer Adolfo Ferreira Loureiro<sup>14</sup>.

This intervention fostered the municipality, headed by the doctor and Professor of Medicine, Lourenço de Almeida Azevedo, to plan the reform of the city entrance, regularizing and widening the Portagem Square next to the bridge and creating a public promenade on the margin<sup>15</sup>. Close to the seventeenth-century ideals of the Abbot Laugier<sup>16</sup>, this intervention reformed and beautified Coimbra's entrance.



Fig. 3. Hypothetical reconstruction of the Santa Cruz Plan proposed by Adolfo Loureiro, 1885.

In addition to this plan, this mayor<sup>17</sup> ordered the first topographic survey of the entire city, carried out by engineers Francisco and Cesar Goullard. This was the first rigorous drawing of Coimbra, therefore an essential instrument for urban planning, allowing the mayor to foresee the expansion of the city into the ancient Santa Cruz farm. This strategic property occupied the whole valley allowing an easy and less sloping connection between the downtown (Baixa) and the upper town (Alta). Without municipal technicians, Lourenço de Almeida Azevedo invited the engineer Adolfo Loureiro and doctor Júlio Henriques, a professor and director of the botanic garden, to draw up the plan. The original drawing disappeared, but we have its written description in the minutes of the town hall session<sup>18</sup>. This plan was influenced by Lisbon's Avenues Plan<sup>19</sup>, and designed a boulevard 50 metres wide ending in a large square next to a new public garden, converting part of the old recreation garden of the Santa Cruz monks. From each corner of the large square wide symmetrical avenues were designed, sprawling through the surrounding hills. The new neighbourhood would cater for the construction of new housing but also some new facilities, like the new fish market, the construction of a better slaughterhouse, the creation of a public garden and a kindergarden, and also provide space for the fair of Santa Clara and the annual fair of S. Bartolomeu, and finally to enlarge the city water network with the springs from the Santa Cruz farm. Adolfo Loureiro was also responsible for a strategy to divide and sell the plots, defining a scale of prices and areas to suit the investor's financial capacity and demand.

A few years later the success of this intervention led the municipality to desire new expansion neighbourhoods in Penedo da Saudade and Cumeada, however, the Portuguese legal system, at that time, did not allow the release of municipal lots for private sale, which made it impossible for the municipality to design new expansion areas.



Fig. 4. Hypothetical reconstruction of the General Improvements Plan proposed by Leonardo de Castro Freire, 1900-1901. Visible the downtown reform and the lack of orthogonality

## THE PRIORITY OF NEW INFRASTRUCTURE NETWORKS OVER BEAUTIFICATION AND SANITATION

As well as redesigning the entrance of Coimbra and its expansion, the municipality was also trying to introduce a modern water supply system from the Mondego River. This process had been started by Costa Simões in 1865<sup>20</sup>. The small size of the city made it unattractive to private investors and after several years and attempts to attract shareholders, the solution was found in 1887 when the municipality took the initiative. Once again, they called on the services of the engineer Adolfo Loureiro to design the project and contracted a loan to carry out the works. Thus, more by necessity than by choice Coimbra became the first Portuguese municipality to municipalise its water supply services<sup>21</sup>. After this network's construction, and driven by an outbreak of typhoid fever caused by contaminated water, the modern sewer network started to be constructed by the municipality.

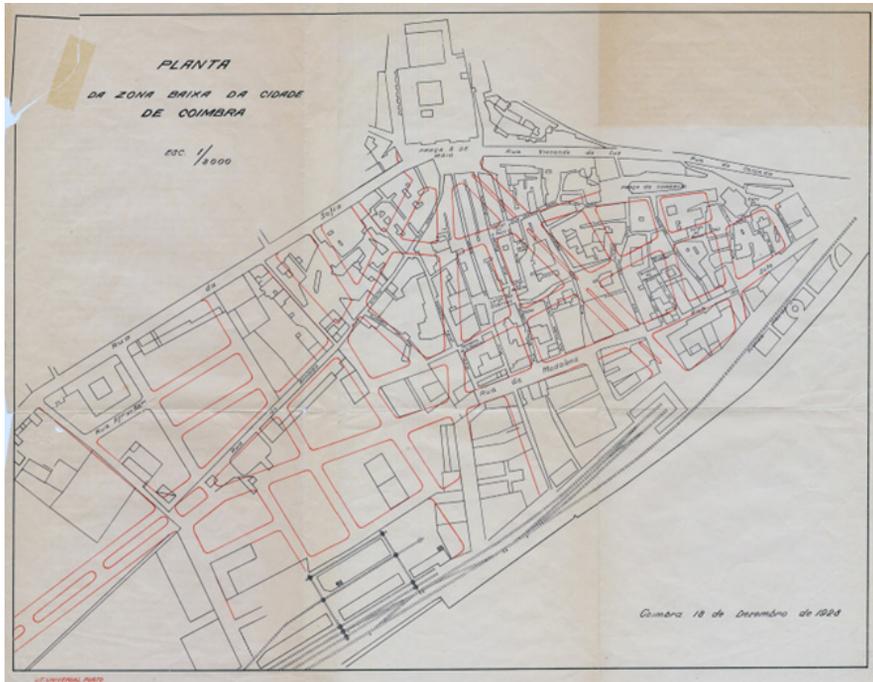


Fig. 5. Plan for Baixa's reform proposing a set of new streets starting in May 8th Square, Abel Dias Urbano, 1924

In parallel to the introduction of these public services, the need for the reform of the urban tissue remained and in February 1888, mayor Luís da Costa Almeida, a professor in the Maths Faculty, asked the government for the nomination of a new commission to develop an PGM for the city. Again, no plan was presented<sup>22</sup>.

At the end of the century, a new mayor, Manuel Dias da Silva, a professor in the faculty of Law, decided to increase taxes so that the municipality could start the sanitation and beautification reform of the downtown area. In November 1899 a new commission was appointed<sup>23</sup>. A month later the Improvement Plan for the Baixa (the downtown area) was presented and in the following year several partial plans to reform the entire city were presented.

The reform of the Baixa was a long-standing desire of the city<sup>24</sup> but the plan was not implemented. Some new streets in expansion areas were built but not much else, mainly because the council and the mayor did not agree with the plan's design. The commission designed an economically viable plan but, in an attempt, to reduce the cost the plan proposed the widen the streets while maintain its layout to minimize the expropriations. Thus, the plan was contested by the City Council, which considered the plan unambitious and so the municipality decided not to implement the plan. It has not been possible to find the drawings, but we know some of the criticisms that were made due to the urban layout (figure 4). One of the main requirements of the Baixa plan was to improve the entrance into the city for those arriving by train, propos-

ing the opening of two avenues to connect the railway station to the street Visconde da Luz and the riverfront to the town hall square. If the latter was not criticised, the former was contested because the proposed street was not straight and did not allow one to see the beginning and the end of the street. Moreover, this reform required a large investment from the municipality, which was not possible given the other ongoing interventions in the city.

In fact, the urban reform of Baixa was an expensive intervention requiring expropriations and demolitions, the municipality was committed to the expansion of the city through the new neighbourhoods and more significantly by the investment in municipal services (water and sewer networks) which absorbed both the capital and the technical capacity of the municipality. On the other hand, the rotation of the presidents of the municipality and the non-existence of a stable technical body made a coherent and continuous strategy impossible<sup>25</sup>. Thus, the investments were applied in the most urgent interventions, such as the municipal services and in the new construction areas which tried to be self-financing through the sale of building plots.

After the construction and exploitation of water and sewers municipal services, and after a failed attempt to get a private company to introduce electricity to the city, the municipality decided to introduce this improvement by using its own means. Thus, in 1904, the municipality headed by Manuel Dias da Silva decided to municipalize the gas factory and carry on the studies to introduce electric energy in the city. Again, this innovative posture would imply enormous efforts, making other improvements unviable. This constraint was increased in 1908, when the following mayor, Marnoco e, Sousa, who was another law professor, enhanced this strategy and decided to also municipalize the public transport network and replace the existing mule-drawn trams for an electric system. A few years later, in 1911 the electric trams and electric lighting were inaugurated, connecting the whole city and fostering the expansion of the city to new areas. In the beginning of the twenty century Coimbra was the only Portuguese city to have all the public services of water, energy and transport municipalized. Thanks to audacious mayors, Coimbra was becoming a modern city with the most modern infrastructures in use in European cities.

However, the downtown area remained unchanged. The Baixa urban reform required expropriations and a great municipal investment, whereas growth was less expensive, simpler to execute and created more customers for the municipal services (water supply; electric power supply and urban transports).

Nevertheless, the will to reform Baixa prevailed, and in 1918 a new topographic survey was carried out. A new plan was designed by the engineer Abel Dias Urbano, chief of the municipal technical services and was approved in 1924. This plan proposed a new layout of regular streets connecting May 8th Square with the main spots: the bridge, the railway station, the railway commodity station and the industrial district located at the north entrance of the city. This would require extensive demolitions and allowed the Baixa neighbourhood to be rebuilt at a higher level, to prevent flooding. The neighbourhood was composed of new residential and healthier blocks, but also new facilities, such as the Court, Commercial Schools, Primary School, and Female High School. Beyond the street layout, Dias Urbano designed an implementation strategy founded on the application of Lisbon's expropriation law and the creation

of an expropriation fund, sponsored by stakeholders in exchange for plots. This was an ambitious plan implying the radical transformation of Baixa into a new modernized and healthy neighbourhood, meeting the population's expectations. Despite wide acceptance and even the compliments received in the periodical press, Coimbra had little industry and it was not easy to mobilize investors. The lack of funds postponed the demolitions and the approved plan started to be applied to new buildings which had to follow the plan's alignments, this resulted in a set of discontinuous and inconsistent alignments that persist in the urban tissue.

## THE AFFIRMATION OF URBAN PLANNING AS A MUNICIPAL PRACTICE

This was a period of accelerated growth fostered by the conclusion of the public transport network connecting the new neighbourhoods to the city centre. The municipality's desire for a general plan to regulate urban growth and urban transformation increased. In 1932 the municipality hired a new survey for the topographical plan of the city using aerial photography<sup>26</sup> and on 30 November 1933 Daniel Pedroso Baptista, a municipal councillor, presented the improvements needed by the city. This set of improvements would be the basis for the urbanisation plan for the city<sup>27</sup>. In November 1834, the municipality hired Luis Benavente<sup>28</sup>, an architect working in the city's delegation of the Ministry of Public Works, to design the new urbanization plan for the city.



Fig. 6. Luis Benavente's Plan. Visible is the new Baixa Layout, the regularization of the 8th of May Square and in the right the boulevard extending the city to the north, 1936

Shortly afterwards on the 21st of December, 1934, Minister Duarte Pacheco, published the Decree-Law n.º 24802 changing the Portuguese urban planning system.<sup>29</sup> Benavente would have to follow the decree. However, he was overworked, and the plan was being developed very slowly. In November 1936, after much pressure from the town hall, the architect delivered his plan. This plan, like Abel Dias Urbano's plan, was very ambitious, proposing the demolition of the unhealthy Baixa Neighbourhood. From the redesigned 8th May Square he proposed a new network of avenues and streets according to a succession of visual emphases and squares, revealing the principles of the period very much marked by the regularity of the streets, the monumental alignments and the use of models such as the boulevard which here proposed to design the new entrance to the city from the north.

Despite the urgency and necessity of the plan, this plan was not approved, instead, the Minister of Public Works, Duarte Pacheco, suggested the municipality to hire the architect and urban planner Etienne De Groer<sup>30</sup>. In the following year, this urbanist presented the Anteproject of Urbanization for the Beautification and Extension of the City of Coimbra, the first instrument for the modern planning of the city, which was approved five years later, in September 1945<sup>31</sup>.

Groer was a proponent of Howard's theories<sup>32</sup> and proposed a polycentric city with satellite villages<sup>33</sup>. It answered most of the concerns of the municipality, but for the downtown, proposed a more realistic plan<sup>34</sup>, claiming the maintenance of most of the ancient district as a memory of the city's past and emphasized the visual and picturesque value of this historic area, proposing only occasional demolition of the blocks' interior to improve ventilation and insolation. Groer only proposed the opening of two structural avenues connecting May 8th Square to the river<sup>35</sup>.

This was the first plan that Groer drew up in Portugal<sup>36</sup>, and to overcome the problems of a non-existence of a National Building Regulation it defined a set of regulations, such as the Zones Regulation, the Regulations for Plots and Quarters and the Building Regulations<sup>37</sup>. Despite the innovation and the influence of this plan to others in Portugal, in Coimbra Groer's plan was contested. Given the topographical characteristics of the city, the garden city and the lower density model were considered too expensive. Therefore, in August 1953, the municipal administration hired Antão de Almeida Garrett to revise this plan<sup>38</sup>. Even though proposing higher increasing density areas, this plan sustained the organisation and extensions proposed by Groer<sup>39</sup>.

## SOME CONCLUSIONS

During the 19th and early 20th centuries, the need to transform cities in Europe and Portugal led to the emergence of urban planning. The process in Portugal was slow and had several hesitations and postponements. This period corresponded to a change into the new liberal regime, and so in addition to modernising the cities, it was necessary to create a new administrative and judicial system. This required the creation of new municipal institutions with new

powers to plan and transform cities but without the means to do so. The desire for modernity, for more salubrious and beautiful spaces, imposed itself, but at the same time the transformation of the regime imposed the urgency of new equipment for the new functions of the welfare state, and technique imposed the requirement for new hygiene and comfort infrastructures essential for modern and salubrious cities. Despite this urgent need for urban transformation, three key elements were lacking: technicians, topographical surveys and financial resources. Faced with these constraints, the municipalities, led by local elites, resorted whenever possible to technicians from outside the municipality and took out loans. In Coimbra, this elite was made up of professors from the University of Coimbra, who knew about the changes taking place in Europe. For this reason, it was some of them who were responsible for the robust transformation of the city. The main improving sanitation and circulation.

In the first phase, this transformation responded to immediate problems and created facilities for the new functions of the state. Made with a short-term vision and a lot of pragmatism, however the need to concentrate the various state functions in the Santa Cruz monastery would have a crucial impact on the development of the city until today. This was followed by a phase of structured planning, planned under a survey of the city plan and with the decisive help of technicians, which had two fundamental impacts on the city: the regularization of the bank and the sanitation of the lower part, and the expansion of the city with the new Santa Cruz neighbourhood, replicating European models of urban expansion. After the expansion, it was urgent to introduce public services such as water, gas, and transport. But this process was slow and required the city council to develop its technical services by hiring technicians to plan, build and manage the water service and years later the other services. These improvements and this attitude of the city council were fundamental for the development of the awareness of the capacity of the municipality in the design of the city and the valorisation of the technical specialists. This phase required large investments and loans and had a very long duration, which made investments in other improvements impossible. Finally, in the 1930s it seemed that the municipality was already aware of the importance of planning and decided to carry out a new survey and study the long-desired general plan. After a first attempt, which turned out to be incomplete, modern urban planning was finally initiated with the contribution of a foreign urban planner, who proposed a new city model inspired by the garden city. Moreover, he proposed not only a comprehensive plan but also the tools to put it into practice, defining the rules for buildings and plots. Following the Coimbra plan, Groer was responsible for other plans in Portugal. The plan of Coimbra allowed Groer to define concepts and principles, which explains the set of associated regulations and allowed this urban planner to define what an urbanization plan should be, a fundamental contribution not only for Coimbra but also for the plans of other national cities.

#### DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

#### NOTES ON CONTRIBUTOR(S)

Margarida Relvão Calmeiro graduated (2005) and PhD in Architecture from the University of Coimbra (UC)

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## ENDNOTES

1. Françoise Choay, *The modern city: planning in the 19th century* (Nova Iorque: George Collins, 1969); Thomas Hall, *Planning Europe's capital cities: aspects of nineteenth-century urban development* (Londres: Routledge, 1997); Anthony Sutcliffe, (ed.) *The Rise of Modern Urban Planning, 1800–1914* (London: Mansell, 1980) and *Towards the Planned City: Germany, Britain, the United States and France, 1780–1914* (Oxford: Basil Blackwell, 1981).
2. First were the Napoleon's invasions, which led to the transference of the Portuguese capital to Rio de Janeiro in Brazil, in 1807 and, in 1822, the independence of Brazil and the establishment of the Liberal regime in Portugal. Followed by a civil war that ended in 1834.
3. Marta Macedo, *Projectar e construir a nação. Engenheiros e Território em Portugal (1837-1893)* (Lisboa: Imprensa de Ciências Sociais, 2012), 51.
4. Following the satin-Simonians thinking the railroad was a strategic asset for development. See Antoine Picon, *Les Saints-Simoniens: Raison, imaginaries et utopies* (Paris: Blin, 2002), 233-234.
5. Lisbon's General Improvement Plan was drawn up by Frederico Ressano Garcia in 1903. Porto's General Improvement Plan was presented in 1881 by Correa Bastos but was only composed of a descriptive document and a budget. Vítor Oliveira, *A Evolução das formas urbanas de Lisboa e do Porto nos séculos XIX e XX* (Porto: U. Porto Editorial, 2013), 53.
6. João Lourenço Roque, "Coimbra de meados do século XIX ao início do século XX: imagens de sociabilidade urbana", *Revista de História das Ideias XII* (1990): 301-337.
7. Catarina Marado. "O "destino" dos antigos espaços conventuais da cidade", *Monumentos 24* (2004): 32-41.
8. Other scholars have pointed out the importance and the contribution of intellectuals from various educational areas who, reflecting on the city and its problems and its problems, were of fundamental importance for the development of urban culture in the 19th century. Among others, we highlight the proposals of Engels, Marx, Ebenezer Howard, John Ruskin, William Morris and Camillo Sitte. Françoise Choay, *The modern city: planning in the 19th century* (New York: George Collins, 1969) and *O urbanismo: utopias e realidades: uma antologia*. (São Paulo: Perspectiva, 1997).
9. Margarida Calmeiro, *Urbanismo antes dos Planos: Coimbra 1834-1934* (Coimbra: Câmara Municipal de Coimbra, 2021), 87-109.
10. Costa Simões was also responsible for the reform of the university hospitals and for the teaching of medicine. In this context, he made three scientific visits to Europe where he got to know several European hospitals. These visits gave him the knowledge to write several important works for the construction of the city, namely about city sewers. Margarida Calmeiro, *Urbanismo Antes dos Planos. Coimbra 1834-1934* (PhD diss., University of Coimbra, 2015), Vol. II, 59-60; António A. Costa Simões, *Relatórios de uma viagem científica* (Coimbra: Imprensa da Universidade de Coimbra, 1866); *Os esgotos nas cidades e nos hospitais (resumida apreciação dos principais sistemas), com aplicação aos hospitaes da Universidade* (Coimbra: Imprensa da Universidade, 1889); "Abastecimento d' Aguas em Coimbra, Dificuldades que retardaram o abastecimento d'aguas em Coimbra. O Instituto 38 (1891): 341-349.
11. In this period most of the improvements were intended to improve urban sanitation or circulation. Richard T. Le Gates and Frederic Stout, *The City Reader* (New York: Routledge, 2016), 360. Mário Fernandes, *Urbanismo e Morfologia Urbana no Norte de Portugal*. Viana do Castelo, Póvoa de Varzim, Guimarães, Vila Real, Chaves e Bragança entre 1852 e 1926 (Porto: FAUP Publicações, 2005). Isabel Pereira, *A evolução da morfologia urbana de Vila Nova de Gaia entre 1864 e 1926* (Msc. diss. Faculdade de Letras do Porto, 2007).
12. The municipal cemetery was blessed in 1860, the municipal market was inaugurated in November 1867, the jail was installed in the old Santa Cruz Monastery in 1856, gas lighting was installed in 1856, the railway network arrived in Coimbra in 1864. Calmeiro, *Urbanismo Antes dos Planos*, 2021, 89-104.
13. This intervention involved a detailed study of the course of the river, its flow and slope, and was an impressive hydraulic study that served as the basis for many other interventions in Portuguese rivers. Adolfo Loureiro, "Memória sobre o Mondego e Barra da Figueira", *Revista das Obras Públicas e Minas V* (1874): 335-356, 391-430, 435, 479 and 515.
14. This engineer was specialist in hydraulic works and harbours, however in a time of few technicians, he

was also responsible for various interventions in Coimbra. Ildeberto Mota Oliveira, “Adolpho Ferreira de Loureiro. Nota Biográfica”, *Recursos Hídricos* 24, no. 2 (May 2003).

15. More details about this intervention in: Margarida Calmeiro. “A Paisagem Urbana oitocentista. Embelezamento e política urbana na renovação da imagem de Coimbra” *CEM/ Cultura, Espaço & Memória*, «Paisagem», no. 4 (2013): 77-87.

16. In his work of 1753 proposed a program of beautification, applied to the entire city but with a special focus on the city's entrances, its streets and its buildings. Marc-Antoine Laugier, *Ensayo sobre la Arquitectura* (ed. de Lilia Maure Rubio, 1st edition, 1753).

17. This doctor had developed a series of studies on cholera and his knowledge of the disease was fundamental in proposing a series of measures to sanitise the city. In 1885 this mayor was appointed to the national public health advisory board. Margarida Calmeiro, *Urbanismo antes dos Planos. Coimbra 1834-1934* (Coimbra: Câmara Municipal de Coimbra, 2021) 130, 114. Alberto Sá de Oliveira, “Lourenço de Almeida Azevedo. Administrador Municipal”, *Arquivo Coimbrão. Boletim da Biblioteca Municipal*, no. 8 (1945): 1-26.

18. Council Session of 23th of July, 1885. AHMC/Vereações. 100: fl. 105v-106.

19. Marta Macedo, “A Conquista do terceiro espaço – uma abordagem ao ensanche oitocentista de Coimbra”, *Monumentos* 25 (2006): 122-129; Raquel. H. da Silva, “Lisboa romântica. Urbanismo e arquitectura, 1777-1874” ( PhD Diss., Universidade Nova de Lisboa, 1997).

20. Costa Simões encouraged the municipality to hire the engineer Louis Charles Mary. Mary presented the first water supply project for Coimbra in 1866. The construction of the network should be executed by a private company but it was not possible to attract any private. Louis-Charles Mary was the author of the project for the water supply of Lisbon; the city of Trois, Barcelona. About Lisbon water supply project, see Paulo Oliveira Ramos, *O projecto de Louis-Charles Mary para distribuição de água na cidade de Lisboa*, 1856. (Lisboa: EPAL, 2011).

21. In Lisbon, between 1866 and 1867, a debate arose about the best way to manage the water supply. According to the studies of the time, the best solution would be municipalisation to ensure price moderation, service quality and coverage. However, at the time, the municipal administration of Lisbon lacked organisation, technical and financial means, and ended up signing the definitive concession with the Companhia das Águas de Lisboa in 1867. Álvaro F. da Silva; Ana C. Matos, “The networked City: Managing Power and Water Utilities on Portugal, 1950s-1920s”, *Business and Economic History on-Line*, 2 (2004): 21-23.

22. This situation may be explained because the engineer appointed was Adolfo Loureiro, who was assigned to oversee the Port of Lisbon works. Despite, this was a period of great transformation in Coimbra with the urbanization of Santa Cruz neighbourhood, the enlargement of the Mondego embankment, the water network and the construction of the road of Beira, one of the most important to national circulation. Moreover, the water network works required the recruitment of an engineer for the municipal services which facilitated the remaining municipal interventions, however, the volume of work and the constant financial constraints made a general reform unfeasible.

23. This commission was multidisciplinary, headed by the engineer from the Direction of Mondego Works, engineer Leonardo de Castro Freire, was also composed by the health commissioner and the municipality's works conductor, Joaquim Monteiro de Figueiredo. Margarida Calmeiro, *Urbanismo antes dos Planos. Coimbra 1834-1934* (Coimbra: Câmara Municipal de Coimbra, 2021), 164.

24. The plan for a new street or a set of streets to improve the connection between the riverfront and the railway station was an ancient desire. Before this plan, two other proposals had been planned, the first in 1887, a few months before the municipality's decision to build the water distribution network, after in 1891 another designed by engineer João Teófilo Goes, proposed the opening of three avenues, one connecting the railway station and Visconde da Luz street, another connecting May 8th Square, where the town hall had been recently built, and the Oleiros Pier, where the railway commodity station was being built, and another one connecting the last avenue to D. Carlos Square. City Hall session of 14th May, 1891, AHMC/Vereações. 103, 1890-1892: 104v.

25. Until 1896 the president was elected for two-year terms, after which it became a three-year term.

26. Developed by José Baptista Lopes, Coimbra was the first Portuguese city to apply this new topographic survey method.

27. These proposals included the opening of a 20-metre wide avenue from 8th of May Square to the new Fernão de Magalhães Avenue, the widening of the latter avenue from Portagem Square to Gasómetro Street, the widening of Avenida Dr. Dias da Silva and Bernardo de Magalhães Street in Cumeada neighbourhood, the regularization of the plot near D. Luis Square in Santa Cruz neighbourhood, the construction of a municipal market in Baixa and the demolition of the existing one to extend Avenida Sá da Bandeira to the Post Office, and other widenings in other parts of the city. To improve circulation, there was a need for a new bridge over the river, a ring road through Vale de Coselhas to Calhabé, the possibility of new expansion areas, and an industrial neighbourhood. Finally, it was needed to define the location of a municipal stadium,

an aerodrome, an artificial beach and, finally, the best location for the market.

28. This architect was working in several projects in the city and a few months later was commissioned by the Minister of Public Works to develop the plan for the reform of the university city together with the architect Raul Lino.

29. This decree introduced a compulsory General Urbanization Plans for every city of 2500 inhabitants or more.

30. The Groer was an urban planner trained at the Imperial Academy of Fine Arts of St. Petersburg, professor at the Urbanism Institute of the University of Paris where he lectured on the theory of the garden city. We was hired in 1939, he presented the first version of the plan in 1940.

31. The plan was developed with the collaboration of David Moreira da Silva, a young architect who had completed his training at the Paris Urbanism Institute with Groer. This architect was later responsible for many other plans in Portugal. Étienne de Groër, *Ante-projecto de Urbanização, de Embelezamento e de Extensão da Cidade de Coimbra* (Coimbra: Câmara Municipal de Coimbra, 1948). The plan was approved by the Higher Council of Public Works with a special mention of appreciation and commendation. Lusitano dos Santos, *Planos de Urbanização para a Cidade de Coimbra* (Coimbra: Museu Machado de Castro, 1983), 77.

32. He was familiar with the theories and texts of Sitte and Howard and like them he advocated the maintenance of low density, small-scale neighbourhoods. He criticised high-rise construction and the densification of the city, which he claimed led to the loss of social relations. Etienne De Groer, "Le Gratte-Ciel est-il Necessaire?", *La Vie Urbaine*, (Jan/Fev. 1935): 60. Étienne De Groer, "Introdução ao urbanismo", *Boletim da Direcção Geral dos Serviços de Urbanização* 1 (1945-46): 28.

33. However, his proposal for Coimbra, was closer to the French concept of garden suburb, mainly because of the city and the satellites villages dimension.

34. He also argued that it would be economically impossible to demolish and construct everything to achieve the street level proposed in the previous plans.

35. The Santa Cruz Avenue would be opened through the demolition of an entire block between Moeda Street and Bordallo Pinheiro Street, allowing the conservation of one side of each street, and connected Santa Cruz Church to the Ameias Pier. The other avenue connected to the new railway station proposed to the Oleiros Pier area. For this area, the plan proposed the construction of a bus station and a new municipal market. The plan included the widening of Madalena Street, Direita Street and the riverfront road.

36. After this, Groer was responsible for more 16 plans. Margarida de Sousa Lobo, *Planos de Urbanização. A Época de Duarte Pacheco*. (Porto: DGOTDU. FAUP Publicações, 1995), 263. This first one had a pedagogical objective and was published and publicised years later, in 1948 by the City Council extending its impact on the plans being studied. Étienne de Groër, *Ante-projecto de Urbanização, de Embelezamento e de Extensão da Cidade de Coimbra* (Coimbra: Câmara Municipal de Coimbra, 1948).

37. We highlight the attention given to constructions in sloping areas and to the protection of views in the most important points of the city. Étienne de Groër, *Ante-projecto de Urbanização, de Embelezamento e de Extensão da Cidade de Coimbra*.

38. The Regulator Plan of Coimbra, as Almeida Garret decided to call this plan was presented on 1954 and sent to the government in July 1956. The aim was to define the principles for the organisation of the various urban activities, the general rules and to lay the foundations for the partial extension plans which were to be defined subsequently. Lusitano dos Santos, *Planos de Urbanização para a Cidade de Coimbra* (Coimbra: Museu Machado de Castro, 1983), 39.

39. Even though the criticisms and the flaws in its application, Groer's inaugural plan had fundamental importance in the subsequent planning of the city. However, it should also be worth noting that, beyond the novelty introduced, it is possible to establish a relationship with previous experiences, but above all, the difficulties in the application of the plan, largely resulting from decades of empirical planning.

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## IMAGE SOURCES

Fig. 1 <https://www.google.com/maps>

Fig. 2 Margarida Calmeiro, Urbanismo antes dos Planos: Coimbra 1834-1934 (Coimbra: Câmara Municipal de Coimbra, 2021). 122

Fig. 3 Margarida Calmeiro

Fig. 4 Margarida Calmeiro

Fig. 5 Abel Dias Urbano. Projeto para os novos arruamentos da cidade baixa (Coimbra: Tipografia de M. Reis Gomes, 1928)

Fig. 6 Margarida Calmeiro, Urbanismo antes dos Planos: Coimbra 1834-1934 (Coimbra: Câmara Municipal de Coimbra, 2021). 189.

