The role of trees in public spaces in Spanish cities. Past and future.

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Abstract

The article makes a brief historical review of urban trees, from the Enlightenment to the present. It focuses on the analysis of a case study, the city of Valladolid (Spain), where different periods can be established. The first one (mid-18th century - mid-20th century), has two distinct stages, the Enlightenment and Hygienism, and in them the planting of trees is more or less widespread. In the second one, which covers the second half of 20th century, it can be documented the disappearance of many of these historical trees. In the current one, the renaturation of cities is considered as part of the solution to environmental problems.

Parole chiave: Alberi, spazi pubblici, rinaturazione, strade alberate, cambiamento climatico.
Keywords: Trees, public space, renaturation, urban trees, climate change

Introduction

It can be said that the widespread planting of trees in public spaces in Spanish cities occurs in the Enlightenment period, mainly in the second half of the 18th century. In those decades numerous plantations (called *plantíos* in its time) of different tree species along roads, walks, promenades, etc. were planted in order to make them more beautiful and comfortable to the passage of travelers. But the practice of planting trees in the public space will also extend throughout the nineteenth century and the first half of the twentieth, coinciding with the hygienist postulates that give trees an important role in the healthiness of cities, as well as with the idea of embellishment related to its high aesthetic potential.

Nevertheless, the urban transformations that occurred in cities in the second half of the 20th century, largely driven by the introduction of the car as the main mode of mobility, will make disappear many trees of streets and squares. The presence of trees is incompatible with the need of more space for cars, for their circulation and parking, which leads the municipalities to opt for their felling.

Today, however, the environmental problems suffered in the planet lead, among other options, to seek nature based solutions (NbS). In this sense, trees must be claimed today as an essential element in the organization and qualification of public space, due to their capacities and qualities, known and well documented scientifically. Returning to reintroduce it in urban layouts would undoubtedly involve structural changes, especially in modes of mobility and treatment of free space, but it would bring benefits to citizens (environmental, social, biological or economic). The improvement of the qualities of the public space, civic space per excellence, space of relationship, of encounter, of socialization - essence of the city - requires the recovery of the culture of the trees (in particular) and the incorporation of treatment practices of the free space (and also the private one) more in harmony with the nature.

These different stages, related to the presence of trees in the streets, are recognizable in all Spanish cities, although this article focuses particularly on the case of the city of Valladolid, a medium Spanish city (with a population of 300,000 inhabitants), which serves to exemplify the past, the present and the potential future of the nature in public spaces.

The appreciation of trees in the Enlightenment period

Under the auspices of Carlos III, the so-called *Sociedades económicas de amigos del país* (Economic societies of country friends) were created in almost a hundred Spanish towns. These were philanthropic associations, promoted by leading figures of society and governed by the ideals of the Enlightenment. Their actions, aimed at social and economic improvement, were an important boost for the modernization of a Spain that left the Old Regime. One of the main urban actions of these societies was the promotion of the trees plantation in the access roads to the populations, with several purposes: productive, aesthetic, functional (providing shade for travelers) and recreational.

The characteristic literature of this period contains numerous allusions to the trees as elements that bring beauty and amenity to the landscape, and comfort to people. This is evidenced by, for example, Antonio Ponz (1794), author of "*Viage de España*", a set of letters published by the author between 1772 and 1794 in which he gives account of what he sees on his journeys through the Spanish territory. In the First Letter (page 2) he says: "Who doubts that the lack of trees gives an awful aspect to the fields, and in the imagination of the passengers prints arid ideas, and banishes the pleasure, which makes brief, and peaceful any path, however long, and how rough it may be?"

During the Enlightment period, an important policy related to access roads to the city was carried out in Valladolid. The improvement of the existing roads, for which rectilinear layouts and flat roadways were planned, was promoted; but also the creation of new ones. In any case, they all started from the access gates to the city, where the fiscal fence still survived, and were delimited by aligning trees on both sides of the roadways. In the map of Diego Pérez Martínez of 1788 (Fig. 1) the alignments of trees that characterise the main access roads to the city are carefully drawn. The plantations of the Tudela's gate (nº 1 in the map) and the Merced Descalda's gate (nº 2) were made in 1776, the Santa Clara's gate in 1784 (nº 3), and the Carmen's gate in 1788 (nº 4).

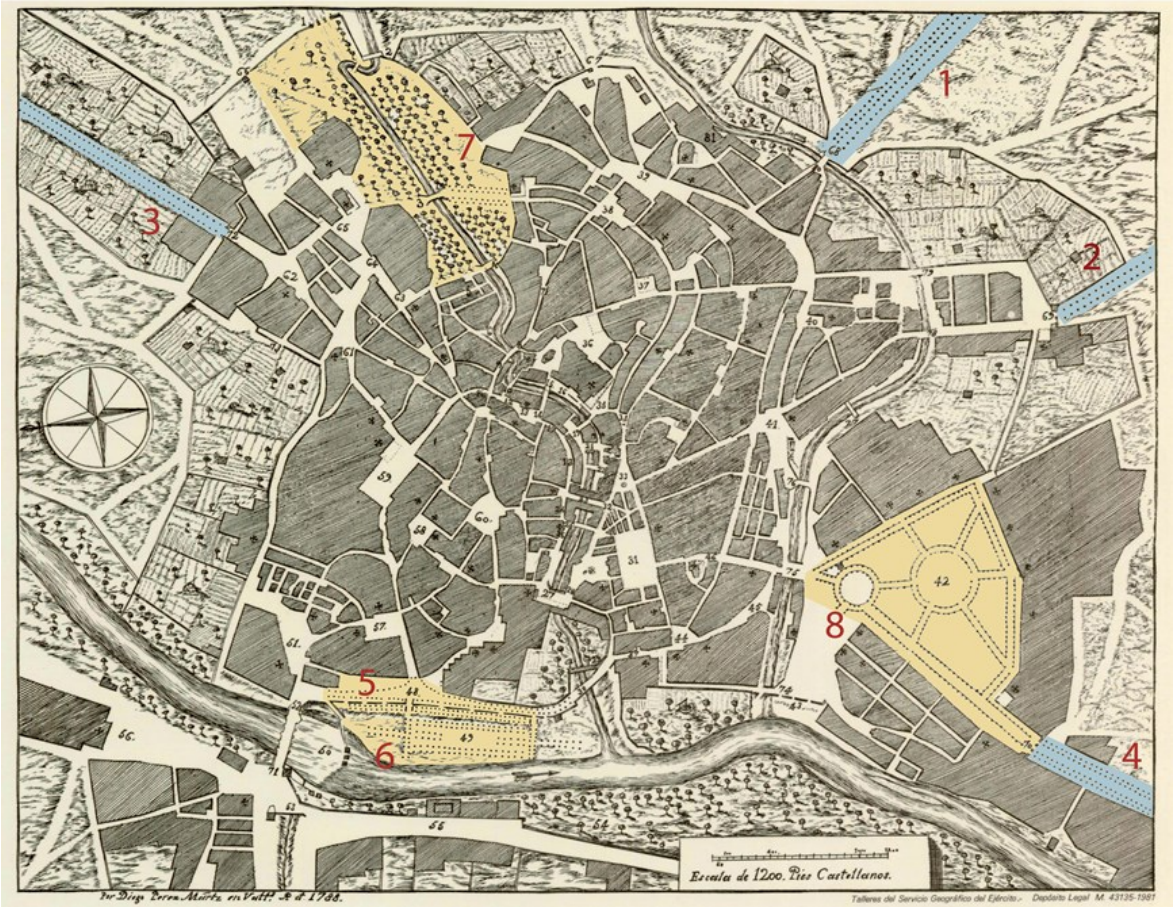

Fig. 1. *Plano de la Ciudad de Valladolid*. Diego Pérez Martínez, 1788. Source: *Archivo Municipal de Valladolid* (AMV), https://www10.ava.es/cartografia/planos_historicos.html and own elaboration.

Similarly, it takes place during the second half of 18th century the remodeling of four large open spaces of the city – the Espolón Nuevo (No. 5), The Moreras (No. 6), the Prado de la Magdalena (No. 7) and the Campo Grande (No. 8) -, in which a large number of trees, such as elms, mulberry trees - related to the silk industry - willows and poplars were planted (Merino, 1990).

From the foundation, in 1784, of the Real Sociedad de Amigos del País de Valladolid, this entity will be the promoter of plantations of trees in roads and open spaces (Fig. 2). In both cases, the common feature is the provision of parallel alignments of trees (the so-called *paseos* –promenades-) and not proper gardens, as this is a concept that will appear in later times, mid-nineteenth century.

The evolution of these wooded spaces (roads and open spaces) will be different over the following centuries. Most of them, except the Campo Grande, which was consolidated as the main romantic garden of the city, have undergone great transformations, with total or partial loss of the trees that characterised them in the Enlightenment century.

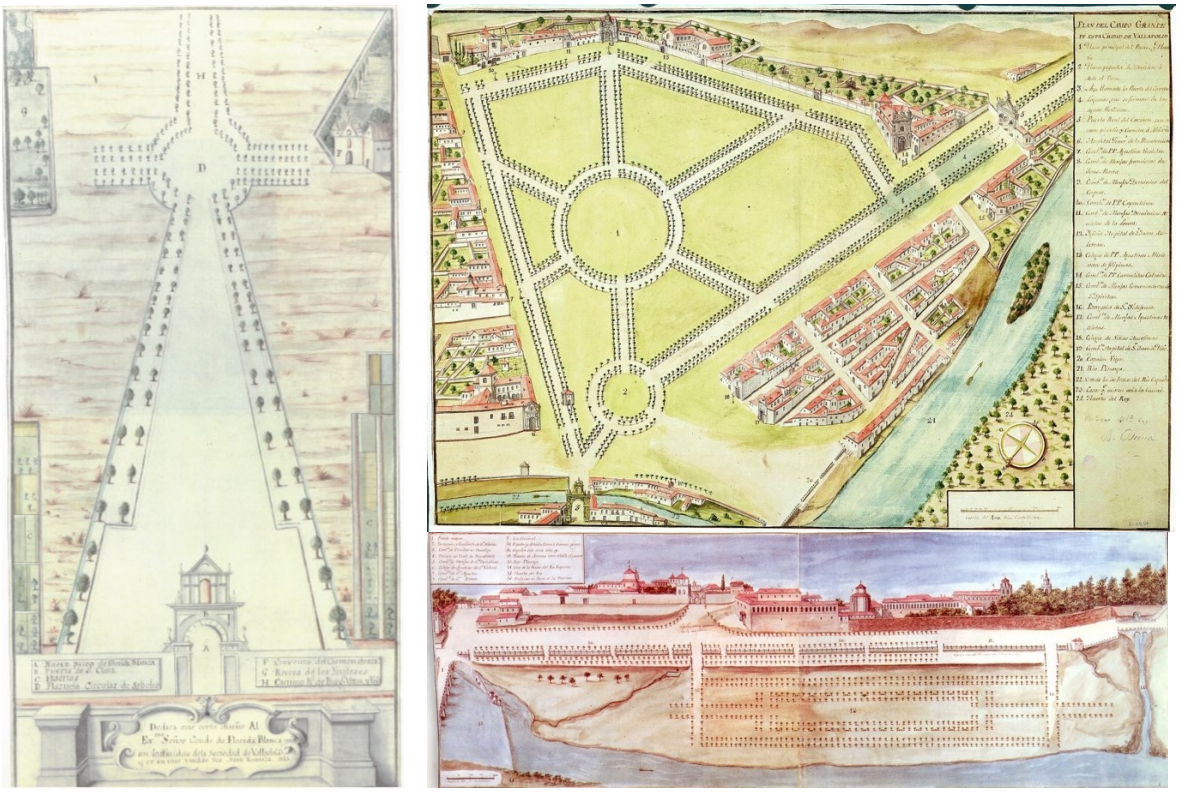

Fig. 2. Left: *Paseo de olmos llamado de Floridablanca*, Juan Romanza, 1784. Source: Sociedad Geográfica Española, Castilla la Vieja, nº 244. Top right: *El Campo Grande*, Diego Pérez Martínez, sin fecha (hacia 1787-1788). *Source*: Sociedad Geográfica Española, Castilla la Vieja, nº 246. Down right: *Proyecto de arboleda para el Espolón*, Diego Pérez Martínez, sin fecha (hacia 1785). Source: Sociedad Geográfica Española, Castilla la Vieja, nº 245.

19th century and first half of the 20th century: Hygienism and the importance of trees

The appreciation for trees continues in the nineteenth and first half of the twentieth centuries, although new points of view are introduced. Hygenism, a new scientific-based doctrine whose object of study focuses on the sanitation of cities, which arises, to some extent, as a

counterpoint to the negative effects of urbanization in cities, will propose the entry of sun in streets and buildings, ventilation and presence of vegetation and trees as great allies to make healthy cities.

The doctors of this period defend in their essays the need to plant trees in streets, gardens and peri-urban spaces, because "trees have a beneficial effect on public health as they purify the environment, clean the soil of harmful substances and act as thermal regulators avoiding sudden changes in temperature ", as Dr. Blas Llanos refers in his *Memoria sobre los medios de mejorar el clima de Madrid, restablecer su salubridad y fertilidad*, published in Madrid in 1825 (Urteaga, 1985-86, 420).

The nineteenth century will be lavish in the planting of trees, as Quirós (1991) points out, who calculates, based on the Madoz Dictionary, that 55% of the tree-lined promenades in Spain were created after 1834. In addition to their ornamental, recreational and functional values (providing shade and resources of wood and fruits), trees are appreciated in this period for its positive effects on environmental hygiene and public health. For this reason, Carlos María de Castro considers green spaces as "air tanks in the built space" and trees as "powerful agents of public hygiene", and Ildefonso Cerdá conceives wooded urban spaces as "air regeneration spaces". (Gómez Mendoza, 2006, 61 and Capel, 2002, 303). Hence, in their respective urban expansions of Madrid and Barcelona, respectively, trees are distributed generously arround streets, parks, squares, gardens and interiors of blocks.

In addition to the tree-lined promenades, implemented in the cities in the Enlightenment period, parks and gardens on romantic style will be added since the second half of 20th century. The squares and small open spaces distributed among the urban fabric will begin to be populated with vegetation: not only trees, but also shrubs, borders, flowers and plants will become ubiquitous in the urbanization of public space.

This new conception of the idea of ornamentation and sanitation of the urban environment is clearly reflected in the cartography of this period in the city of Valladolid (Fig. 3) and in the historical photographs of the early 20th century (Fig. 4). In the *Nuevo Plano of Valladolid*, the urban layout appears dotted with landscaped spaces of different scale, but also with tree-lined streets, orchards and tree plantations in the periphery. It is evident in it the relevance that vegetation has acquired at the end of the 19th century.

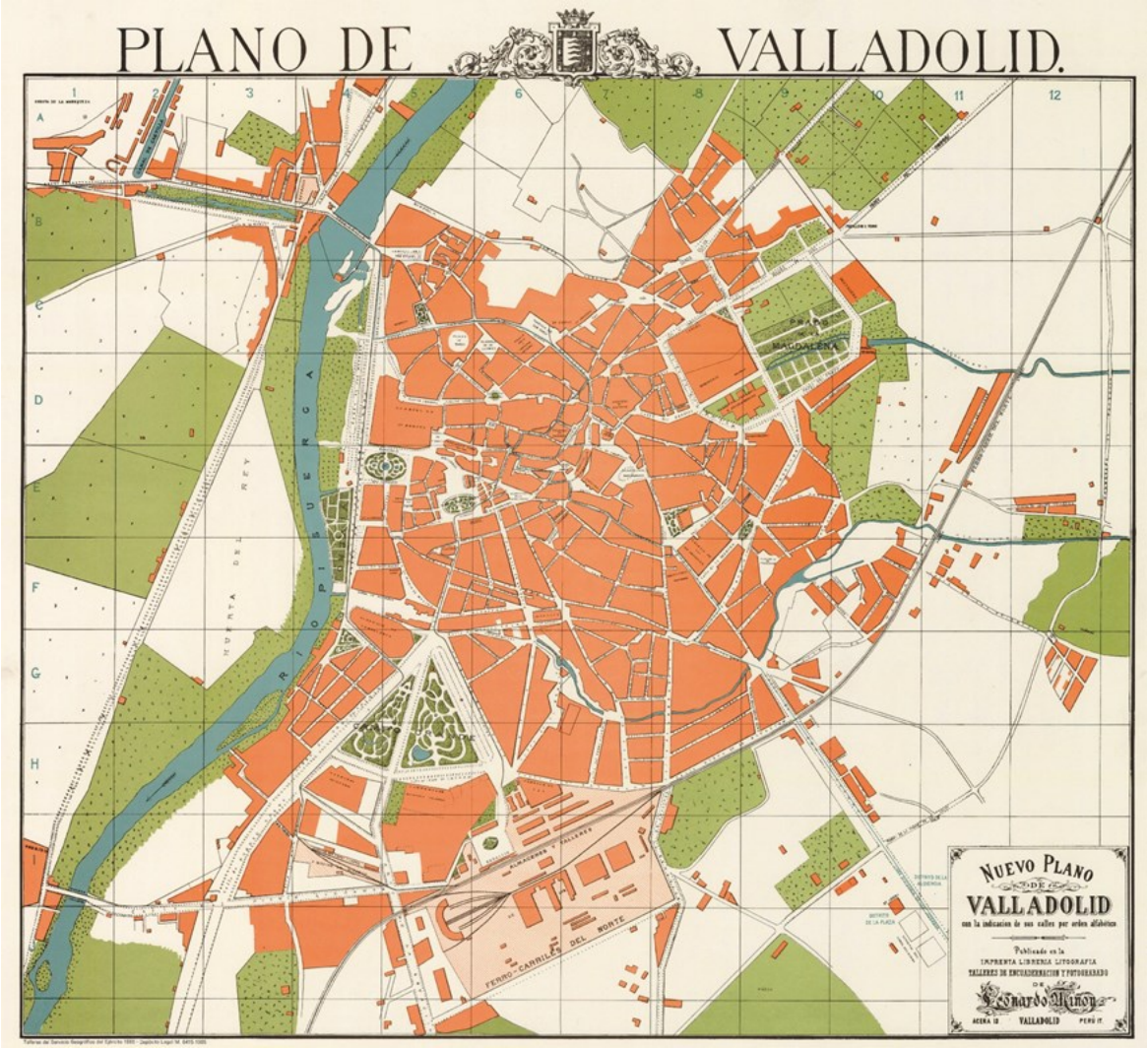

Fig. 3. *Nuevo Plano de Valladolid con indicación de sus calles por orden alfabético*. Leonardo Miñón. Undated (circa 1890). Source: AMV. https://www10.ava.es/cartografia/planos_historicos.html

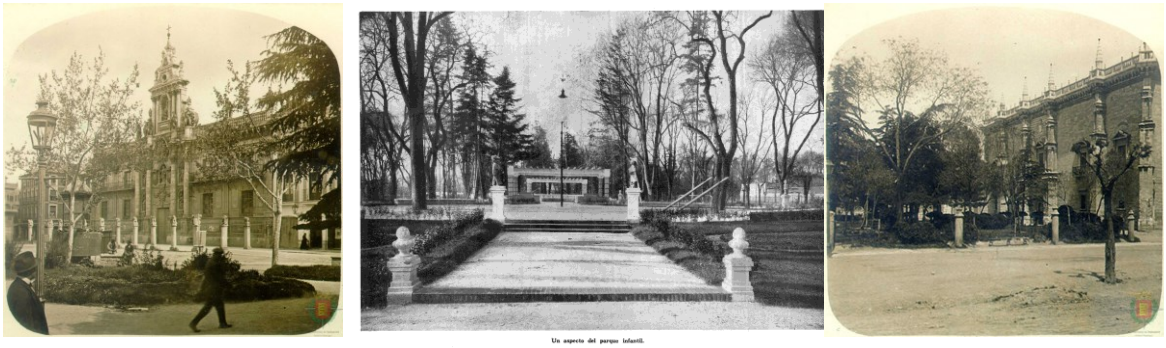

Fig. 4. Various squares and historic gardens of Valladolid in the first decades of the s. XX. Left: Plaza de la Universidad. Without date. Joaquín Martín de Uña Collection. Source: AMV, signature MU 039. Center: Plaza de Poniente, 193? Source: AMV, signature BA C 1-14-14. Right: Plaza de Santa Cruz. Without date. Joaquín Martín de Uña Collection. Source: AMV, signature MU 028.

The irruption of the car and its demand for road space

The intense mix of vegetation and buildings that characterised the cities until the middle of the 20th century (both in public and private spaces) will be truncated as the use of cars becomes increasingly intense. After the Second World War, cars will gain prominence as the main mode of urban mobility in European cities. Thus, between 1945 and 1970, Europeans incorporated the car into their daily lives, and cities and cars became interdependent, so that the existence of the car led not only to the generalization of sprawl city models, but to the implantation of zonning and the appearance of the so-called urban highways. And these, at the same time, fed back the dependence of the car on a growing and infinite process (Del Caz and Pérez, 2018).

The reductionist criteria of traffic engineering, which were a priority in the management of cities for decades (only questioned a few years ago), led to the transformation of the urban scene and the worsening of the environmental quality of the cities. The roadways were widened, the parking spaces occupied the space of the pedestrians, the turning radios of the crossings were extended, alignments of streets were modified and new openings were made, all in favor of a greater fluidity and speed of the automobile traffic. For this, nobody did hesitate to sacrifice the trees and vegetation of the streets and the squares, without ever questioning the model. And when, after the 80s, the way of proceeding began to be slightly questioned, the municipal policies focused not on reducing the presence of cars in urban areas, but on trying to hide them, or diverting them arround peripheral roads or providing them parking in the subsoil (Fig. 5). Both policies have shown to have a boomerang effect, generating more and more traffic, more and more dependence on the car and greater environmental problems.

Fig. 5. The Plaza Mayor of Valladolid. The image on the left shows the appearance of the square, at the end of the 50s, with a central garden. Source: AMV, UA 0281. The image on the right shows the current appearance of the square. The trees were felled in 1972, year in which the city's first underground car parking was built. Source: (Wikipedia, query: April 2018).

The Municipal Archive of Valladolid (AMV) keeps numerous records that endorse the radical transformation of the public spaces of the city from 1950. Files like the one of *Supresión de árboles en la calle Dos de Mayo*, of 1960 (AMV, File C 01405-034), where this suppression is requested

because "these are (trees) very bulky and disproportionate in relation to the aforementioned street, removing visibility to the offices and preventing that with the location of the same parking can be made that are considered necessary." Even when the director of gardens of the city council considered the request inappropriate, because “they are vigorous and healthy trees (...) that decorate and give shade to the aforementioned street (...) perfectly fulfilling the mission for which they were planted ", the trees were finally felled, without being replaced for others of smaller size, integrated into the parking lots, as suggested by the gardens director.

Fig. 6. Above: Fragment of the *Plano de Población de Valladolid*, Sheet 21, 1915. Source: IGN, 1915. The map shows a street profusely wooded, with two rows of trees on each side of the roadway. Center: Fragment of the *Proyecto de pavimentación de los Paseos de España, Filipinos y Plaza Colón*, 1968. Source: AMV, C 9232 - 4. The map shows the intervention carried out, consisting of widening the roadway, construction of a lane service and an angle parking space. The project involved the elimination of two of the tree alignments. Bottom left: Pedestrian walkway of the Paseo de Filipinos, where the double alignment of trees was still maintained. Source: AMV, ONXZ 00704 - 002. Bottom center: current image. Source: the author. Bottom right: Fragment of the *Plano de Valladolid*, Oficina Técnica del Ayuntamiento, (circa 1941). Source: AMV.

These and other similar arguments served, not only to eliminate numerous specimens of trees that flanked the roadways, but also to eliminate large earthen areas where they were planted. The public space was transformed, thus, into a more denaturalized space, largely devoid of trees and impermeable to rainwater. From the numerous documents consulted, this article presents the case of the *Paseos de España, Filipinos y Plaza de Colón* (Fig. 6), which in 1968 "have armored concrete roads 9 to 7 meters wide, which are insufficient when, as often happens, cars park on both sides of them. In addition, there are large areas of unused land, and very old sidewalks that require frequent repairs "(AMV, File C 9232 - 4). With this argument, in which again preference is given to circulation and parking of cars in front of any other consideration, two of the four rows of trees were eliminated and the pedestrian walkway was replaced by an angle parking space and a service lane (Fig. 6).

Trees as allies in adpatating and mitigating climate change

The drastic modification of the public spaces to adapt them to the circulation and parking cars needs, suffered in Spain since the mid-twentieth century, will begin to be timidly corrected from the decade of the 80's of the last century. In Valladolid, this first correction will take place in 1982, year in which the pedestrianization of the main commercial street of the city takes place. Subsequently, in the following two decades, there will be undertaken some discrete widening of the sidewalks and planting some trees in the wider ones, although maintaining the city model favorable to car mobility. However, recently, although in a slow way, some policies have started to promote other modes of mobility (public transport and cycling) and to improve the environmental quality of the public spaces. Supported by European funding, the city is carrying out at present some policies of renaturation and incorporation of Nature based Solutions (NbS), such as Quick Urban Forestation project, Urban Green Up project or, the recently approved one, INDNATUR.

All of them are projects aligned with policies aimed at adapting and mitigating climate change, since the growing ecological valuation of vegetation as an ally of these policies is now a priority. There are numerous publications that highlight the benefits of trees as carbon sinks, as well as their capacity for hygrothermal regulation and the improvement of urban comfort, their capacity to alleviate atmospheric and acoustic pollution and to contribute to the improvement of the energy efficiency of buildings. But also they can imply an increase of biodiversity and of resilience of cities, or an improvement of physical and mental health of people (European Commission, 2015).

Conclusions

The essay presented has not been proposed as a nostalgic review of the city, but as a call for attention on the relevance that vegetation and trees had in other times, although from different points of view.

There seems to be today a *revival* in relation to the need to incorporate vegetation into the cities and, again, its necessity is claimed with the old argument that vegetation contributes to make cities healthier. Without minimizing the value of this argument, in recent years another new argument has gained strength to support the need to renature cities: the capacity of vegetation, and especially of trees, to function as carbon sinks. This faculty of the vegetation makes it very important among the policies of adaptation and mitigation of anthropogenic climate change, one of the most worrying phenomena of the current era. The complexity of this phenomenon should lead to addressing drastic solutions, focused, among other things, on reducing the use of fossil fuels. Nevertheless, the vegetation is an important complement, capable of fixing the CO_2 generated by the combustion of these compounds of fossil origin.

In urban areas, cars, in addition to generating CO_2 and other substances harmful to the health of citizens, consume a huge amount of public space, impoverishing their quality as a social space. That is why it is so necessary to reconsider its design, incorporating trees and nature based solutions, promoting a healthy, comfortable, resilient and beautiful space for pedestrians, since they are the ones who give meaning to the public space.

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