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Review article

La cubierta arbórea de la Alameda Central de la Ciudad de México: 1ª parte

Tree cover of the Alameda Central of Mexico City: 1st part

Héctor Mario Benavides Meza^{1*}

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¹Centro Nacional de Investigación Disciplinaria en Conservación y Mejoramiento de Ecosistemas Forestales, INIFAP. México.

*Autor para correspondencia; correo-e: benavides.hector@inifap.gob.mx

*Corresponding author; e-mail: benavides.hector@inifap.gob.mx

Abstract

In January 1592, Luis de Velasco, viceroy of New Spain, requested the City Council of Mexico City to build a place for the recreation and leisure of the inhabitants of the capital of the viceroyalty. As a result of this request, a site was selected at the west of the city, called *Alameda Central*, and in April of the same year approximately 1 000 *Populus alba*, *P. nigra*, and *Alnus* trees were planted. Since its creation, the *Alameda* of Mexico City has met all the criteria currently defined for an urban green area, which include that the site must be owned by the city, be located within its geographical limits, and be for public use for the enjoyment of its inhabitants. In the initial years, there were many difficulties in the establishment and consolidation of the trees, mainly due to periodic flooding and to the salinity of *Texcoco* Lake. As centuries went by, the environmental conditions of the basin, the city and the *Alameda* changed, bringing permanent challenges for its continuity. The activities that were carried out in this situation during the viceroyalty, the post-independence period, and the Second Mexican Empire are discussed, including the planting of various species such as *Salix* sp., *Fraxinus uhdei*, *Taxodium mucronatum*, and, subsequently, *Ligustrum lucidum*, *Cupressus lusitanica* and *Eucalyptus* sp.

Key words: Urban trees, urban green areas, urban forest, urban tree species, New Spain, urban parks.

Resumen

En enero de 1592, Luis de Velasco, virrey de la Nueva España, solicitó al Ayuntamiento de la Ciudad de México la construcción de un lugar que sirviera para el recreo y esparcimiento de los habitantes de la capital del virreinato. En seguimiento a dicha petición, se seleccionó un sitio al poniente de la ciudad que se denominó *Alameda Central* y en abril del mismo año se plantaron alrededor de mil árboles de las especies *Populus alba*, *P. nigra* y *Alnus* sp. La *Alameda* de la Ciudad de México cumplió desde su creación con todos los criterios que en la actualidad se definen para un área verde urbana, entre los que destacan que el sitio sea propiedad de la ciudad, se ubique dentro de sus límites geográficos y sea de uso público para el disfrute de sus habitantes. En los años iniciales, se presentaron muchas dificultades para el establecimiento y consolidación del arbolado, debido principalmente a inundaciones periódicas y la salinidad del Lago de *Texcoco*. Conforme pasaron los siglos, las condiciones ambientales de la cuenca, la ciudad y la *alameda* fueron cambiando, lo que implicó retos permanentes para su continuidad. Se comentan las actividades que se llevaron a cabo en torno a esta situación durante el virreinato, el período post Independencia y el Segundo Imperio Mexicano, entre las que destaca la plantación de diferentes especies como

sería el caso de *Salix* sp., *Fraxinus uhdei*, *Taxodium mucronatum* y posteriormente *Ligustrum lucidum*, *Cupressus lusitanica* y *Eucalyptus* sp.

Palabras clave: Arbolado urbano, áreas verdes urbanas, bosque urbano, especies arbóreas urbanas, Nueva España, parques urbanos.

Introduction

One of the most important elements of the urban environment is urban green areas (UGAs), which include parks and gardens, traffic circles, wide medians, cemeteries, spring and riverbanks cross the urban area, as well as hills and ravines that are inside the city (Benavides, 1989). According to this concept, an UGA must always be public property, be open for use and enjoyment by the citizens, and be located within the limits of the urban environment that corresponds to it (Benavides, 1989).

In the ancient cultures of the world, the establishment of gardens in the homes of the aristocratic, ruling and wealthy classes was a common practice, as was the establishment of temples and sacred places. Examples of the above have been documented for the ancient cities of Athens and Rome, and the area of influence of their empires (Albardonedo, 2015; Hartswick, 2017; Macaulay-Lewis, 2017), as well as for the City of Mexico *Tenochtitlan*, as the Palace of *Moctezuma* had beautiful gardens and even a zoo that amazed the conquistadors (Nutall, 1920; Díaz del Castillo, 1979). The *Mexica* emperors had several places of recreation in different parts of their kingdom, designated with the word *xochiteipancalli* (palace of flowers), where the cultivation and study of the plants of their possessions was practiced; among them, the *Chapultepec* and *Oaxtepec* Forests stood out (Nutall, 1920; Contreras, 1964; Fernández, 1975).

Within this context, it was common for the elites of all the cultures of the world to have gardens and groves for their recreation and enjoyment, while in the cities, the public area lacked open spaces with vegetation for the population, a situation that prevailed for centuries and was most likely related to the small size of the cities and to a relatively small urban population (Williamson, 1990).

The Industrial Revolution (18th century) induced an expansion and a greater urban complexity, as well as an increase in the urban population (Williamson, 1990), that made necessary and convenient the existence in the cities of green spaces for the recreation of the population. Therefore, from that time on, public parks and gardens were created, many of which, in the case of Europe, were originally the property of the royalty and the nobility (Taylor, 1995).

Nevertheless, before the Industrial Revolution, some public spaces with vegetation were created in certain cities (Albardonedo, 2015), as was the case of the *Alameda Central* in Mexico City, whose construction began in 1592 when the city had been founded less than 70 years before under Spanish urban planning criteria, and among the few public spaces was the Main Square (now known as *Zócalo*), as well as small squares and church atriums occasionally having a sparse tree cover, as they functioned as cemeteries.

Although extensive historical and architectural studies have been made of Mexico City's *Alameda Central* (Castro, 2001; Martínez, 2001; Pérez, 2019, among others), the objective for this work, which the author considered to be both necessary and relevant, was to describe those aspects related to the trees contained in this park, as well as the transition of species according to the changing conditions of the basin and the city. In addition, to highlighting the details of maintenance or the health of the trees that certain chroniclers referred to throughout the more than four centuries of existence of this park of Mexico City. The present contribution consists

of two parts: the first, from its beginnings up to 1870, and the second addresses what has been done since then until recently.

For the preparation of this contribution, as far as possible, original sources of information were consulted, as is the case of Marroquí (1900), who made a detailed description of what happened in the *Alameda* from its beginnings until the end of the 19th century, based on the minutes of the town Council and other archives of the viceroyalty or of the incipient independent Mexico of the 19th century, as well as the papers by Galindo and Villa (1901), Castro (2001) and Pérez (2019), among others.

Alameda Central: the first urban park in Mexico and the American Continent

On January 13th, 1592, in the nascent capital of the Viceroyalty of New Spain, the eighth viceroy Luis de Velasco y Castilla requested the City Council of Mexico City to build a place (of the type known as *alamedas* or *paseos*) for the recreation and leisure of the inhabitants of the capital of New Spain. This request was addressed on the following day and was recorded in the minutes of the town Council as follows: "On this day, the city discussed the communication by the Viceroy in the sense that an avenue be built in front of the *San Hipólito* market where *Morcillo's* house and tannery is located, so that a fountain and trees could be placed there for the ornament of this city as a venue for the outings and recreation of the neighbors" (Bejarano, 1889; Marroquí, 1900). The expenses for its construction would come from the City's own budget, and a gentleman alderman would be appointed as

commissioner of such work without receiving a salary. This position was assigned to Diego de Velasco, the Bailiff Mayor, and his assistant, Diego Angulo, who received a salary of 300 pesos of common gold per year (Bejarano, 1889).

According to Castro (2001), the term *alameda*, brought in the 16th century to the Hispanic colonies in America, was used to name not only the sites planted with poplars (*Populus* spp.), but any "recreation garden" planted with various flowers, herbs and shade trees that functioned as a public garden, and the term was even extended to promenades that were generally large and had wide walkways lined with trees (Castro, 2001). Albardonado (2015) points out that an *alameda* is understood as a public garden of trees, intended for recreation and urban ornamentation, regularly laid out by planting rows of large shade trees.

The custom of naming parks "*alamedas*" in Hispanic America has been maintained for several centuries, which is why *alamedas* can be found in cities as distant from each other as *Lima*, *Quito*, *Orizaba* or *San Luis Potosí*, and even in small towns such as *Juchipila*, *Zacatecas*.

Wilhelm Knechtel, who designed Emperor Maximilian's gardens and was in charge of their maintenance, documented in his notes that "...every major city founded by the Spaniards in their colonies has an *alameda*, where one can enjoy the fresh air once the heat of the day is over..." (INAH, 2012), while Castro (2001) comments that since these parks began to be built in the novo-Hispanic cities, they have always become a characteristic urban space, and various aspects of political history, culture and social issues are observed in the evolution of these places.

Mexico City's *Alameda Central* is the oldest urban park in Mexico and the Americas. In this regard, de Solano (1990) cites that it was the first public park to be built in any city in the Spanish Empire; Muñoz and Isaza (2001) confirm this, particularly for this continent, and report that it was preceded only by the *alameda* built in Seville, Spain in 1574 (Albardonado, 2015).

Since its establishment, the *Alameda* has met all the criteria that over the centuries have been defined for an UGA, since it was originally a public space under the responsibility of the City government, within its geographic limits. Its construction and design were also intended to be used for the recreation and leisure of the inhabitants of Mexico City (as stated in the town Council minutes), and, although in some accounts it is mentioned that "*léperos y menesterosos*" (the "rude and the needy") were not allowed in, this did not imply that it was exclusive to the aristocracy or to the ruling class, unlike many woods, parks and gardens in various parts of the world, which used to be found around the country or urban residences of the nobility for their exclusive use. It was in the 18th century that several of these places in Europe belonging to the nobility were opened to the citizens (Taylor, 1995).

The next UGAs in the Americas were established in the cities of *Quito, Ecuador*, later in *Lima, Perú*, in 1610 (Albardonedo, 2015), and decades later, in the city of Boston in 1640, in what was still the British colony of Massachusetts, with the creation of the Boston Common (Ryan *et al.*, 2010).

Construction of the *Alameda* and its development

The *Alameda* was established at the west of the city, near the *San Hipólito* market and church, next to the western shore of *Texcoco* Lake. The original layout, by Cristóbal Carvallo, was square in shape and of uncertain initial dimensions (Marroquí, 1900). Due to a dispute over the land it would occupy, it was decided to locate it a little farther away from the *tianguis*, in front of the hermitage of *Santa*

Veracruz, delimited by a ditch, and two small squares were left: one to the east and the other to the west (Marroquí, 1900).

On February 18th, 1592, the town Council authorized the Mayor, Diego de Velasco, to buy the brackets to build the irrigation ditches that would surround the city (Bejarano, 1889), and at the same time that the ditch was being dug, they were planting (it is said that the work was carried out by the indigenous people of *Iztapalapa*) the trees that on April 21st of the same year, the viceroy ordered to be brought from the town of *Coyoacán* "to settle and plant the *alameda*", which numbered up to 1 000 and included black and white poplar trees (*Populus alba* L. and *P. nigra* L.), as well as alders (probably *Alnus* sp.). The work was carried out by Francisco Vázquez, guardian of the *Alameda*, who carried out the planting "in the course of the year" (Bejarano, 1889; Marroquí, 1900).

The initial selection of species was appropriate, as the trees originally planted due to the muddiness of the site were *P. alba* and *P. nigra*, chosen for their adaptability to wet soils and for their rapid growth. However, their establishment has reportedly met many difficulties due to the periodic flooding and salinity of the water (from the salinity of *Texcoco* Lake), which was probably the most limiting environmental factor for these species. It is even indicated that "probably the proximity to the *tianguis* also influenced the survival of the trees, since the passage of people and cattle prevented them from thriving" (DGAS, 1956).

In relation to the above, the initial planting of trees in the *Alameda* met with several problems and, based on the minutes of the town Council of that time, Marroquí (1900) quotes that "poplars do not grow fast nor are they beautiful". Therefore, in 1594, Viceroy Luis de Velasco ordered the city Council to introduce "tall trees with a large crown to beautify the site", and, in January 1595, Juan de Urvela was hired to "take care of this promenade, its planting and irrigation". This situation led Marroquí to suppose that the first ash trees (*Fraxinus uhdei* (Wenz.) Lingelsh.) were planted

between the autumn of 1594 and the winter of the following year. Ash is native to the basin (Calderón de Rzedowski and Rzedowski, 2001) and to the present date remains one of the most widely planted species in Mexico City.

After the departure of Viceroy Luis de Velasco, his successor Gaspar de Zúñiga y Acevedo, Count of *Monterrey*, had to request the City Council several times to take care of the *Alameda*, since the ditches were too muddy to allow animals to pass through them. On December 24th, 1598, he addressed an order to the City Council in which he mandated that the *Alameda* should have a guard, a fence, a main gate with a fixed lock and a person in charge of cultivating and taking care of the grove; the furthermore warned the aldermen that “if the work was not carried out, he would have it done at the expense of the aldermen's salary...” (Marroquí, 1900; Ruíz, 1964).

Marroquí (1900) reports that by 1598 the *Alameda* already had poplars (together with the species mentioned above) and willows, probably the native taxa *Salix bonplandiana* Kunth (*ahuejote*) and *S. humboldtiana* Willd. (Mexican willow), or even the exotic species *S. babylonica* L. (weeping willow), which had most likely been introduced to New Spain by that time. Marroquí (1900) also mentions that “*ahuehuetes* or *sabinos* (*Taxodium mucronatum* Ten., i.e., *Montezuma* cypresses) were also planted” —these being “a species that grows in the vicinity of water and olive trees (*Olea europaea* L.)— [...] in lesser numbers”.

It is important to highlight the planting of both exotic and native species in the Valley of Mexico, many of them hydrophilic, as poplars, willows, ashes and *ahuehuetes* or junipers were established. The only taxon discordant to the site conditions was *O. europae*, given that it is recognized for its ability to withstand drought as well as poor and stony soils (Lancaster, 1980). Therefore, the planting of this species in the *Alameda* could be considered as a cultural imposition or an exaggerated attempt to remind of the Iberian peninsular landscape.

The choice of *T. mucronatum* as suitable for the conditions of the site, given its proximity to the lake and the occasional flooding of the park, is noteworthy. It is also worth mentioning that the planting of *F. uhdei* has gained relevance over the years and even centuries, according to the sources consulted, as it is preferred for its great size, beauty, and corpulence, and although it is not a strictly lacustrine species, it thrives best in locations with a humid soil, such as the bottoms of ravines and gallery forests (Calderón de Rzedowski and Rzedowski, 2001). The gradual predominance of ash trees was probably favored by the fact that the lake was drying up in that part of the city despite the persistence of a high groundwater level probably and the occasional floods that occurred during those centuries until the basin was opened.

17th and 18th centuries

At the beginning of the 17th century, a series of improvements were made to the gates and perimeter wall, thanks to the intervention of Viceroy Diego Fernández de Córdoba, Marquis of *Guadalcazar* (1618). And after a severe flood that occurred in the city in 1635, the viceroy Rodrigo Pacheco de Osorio, Marquis of *Cerralvo*, ordered improvements to the park, cleaning the irrigation ditches, embanking the walkways, and planting new trees (the species are not mentioned), "removing the old ones" (Castro, 2001).

Problems with livestock persisted at that time; therefore, a series of ordinances were issued to prevent damage, such as those published on February 7th and 14th, 1620, which warned that "the transgressor would be punished with 200 pesos fine

the first time, with double this sum the second time, and with the loss of the animal the third time". The ordinances even included the application of a penalty of six pesos and ten days' imprisonment to any person who "dares to remove earth or dig holes or remove trees" (Manero, 1883).

It is interesting to note that, given the scarcity of resources at this time, the City Council intended that the post of Mayor of the *Alameda* be leased and, in exchange, the person in charge would seek to compensate for the expenditure made to obtain the position. Among the possible options were included the rental of space and the sale of the leftovers derived from the maintenance of trees. This situation generated a great deal of controversy, and most of the members of the City Council spoke out against it, under the argument that "the promenade had been made to provide recreation for the neighbors and not to increase the city's revenues" (Marroquí, 1900).

Famous from this period is the representation of the *Alameda Central* in the renowned screen of the Palace of the Viceroy, which is located on the left side of the same, made between 1676 and 1700 and currently exhibited in the Museum of America in Madrid, Spain (<https://www.culturaydeporte.gob.es/museodeamerica/coleccion/america-virreinal/colonial/biombo-m-xico.html>). Likewise, Sabau (1994) presents a reproduction of a mid-18th century oil painting by an anonymous author, showing the square shape of the *Alameda*, the central fountain, multiple visitors, and, in the background, the aqueduct from *Santa Fe* (Figure 1).



Source:

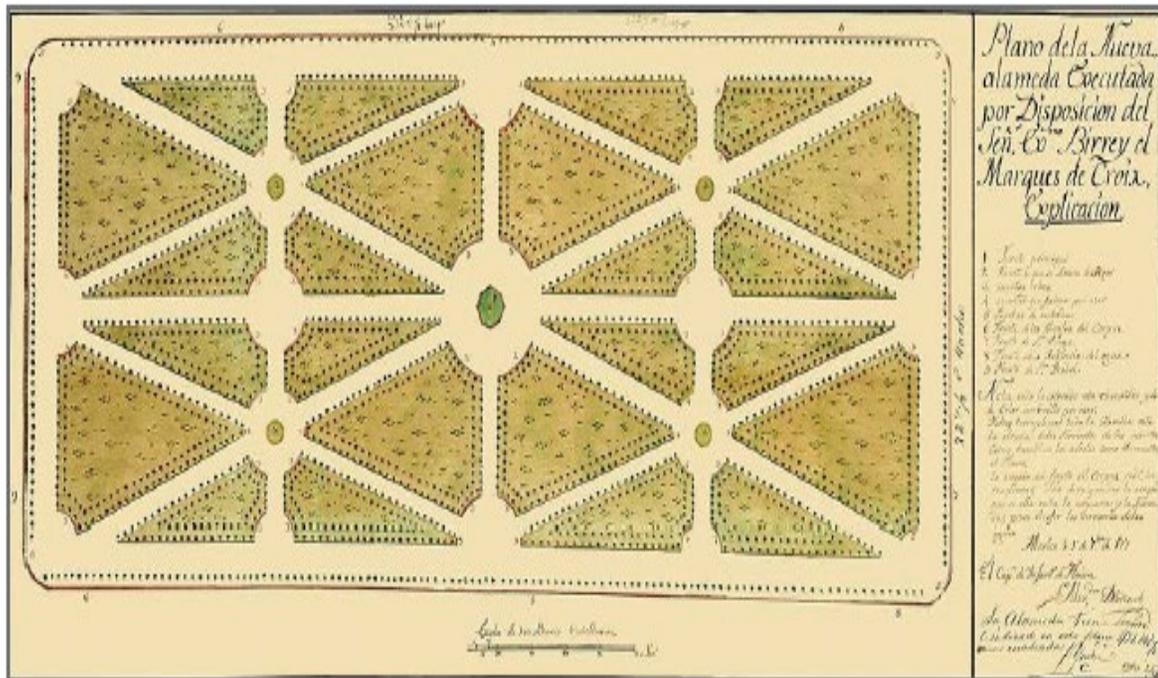
<http://ceres.mcu.es/pages/ResultSearch?Museo=MAM&txtSimpleSearch=Alameda%20de%20M%E9xico&simpleSearch=0&hipertextSearch=1&search=simple&MuseumsSearch=MAM|&MuseumsRolSearch=11&>.

Figure 1. The *Alameda* of Mexico. Anonymous painter, mid-18th century. Collection of the Museum of America, Madrid, Spain.

Marroquí (1900), based on the review of the town Council minutes and other documents of the time, indicates that from its beginnings and until the conclusion of the viceroyalty, the councils of the City were usually negligent with the maintenance of the *Alameda*, and often the viceroys regretted its abandonment, so its care and preservation are generally owed to the viceroys, a situation also referred by Luque (2016). An example of this occurred with the thirty-seventh Viceroy, Juan de Acuña,

Marquis of *Casafuerte*, who urged the City Council in 1727 to appoint the person in charge of the *Alameda*, "because it was in a pitiful state". The process having been delayed "with despicable pretexts ...as the time for planting was passing, and if this measure were not taken in time, the *Alameda* would be in disarray".

In 1769, Viceroy Carlos Francisco de Croix, Marquis of Croix, ordered that the *Alameda* be extended over the small squares of *Santa Isabel* and *San Diego*. The site occupied by one of the burning pits of the Holy Tribunal of the Inquisition (namely, the west end of the current *Alameda*), also extended southward to *Calvario Avenue* (today *Juárez Avenue*) (DGAS, 1956; Gutiérrez, 1968; Novo, 2005). These works were started in March of the following year (Marroquí, 1900). This modification gave the *Alameda Central* a new shape, from square to rectangular —513 m long and 259 m wide (Figure 2)—, although Prantl and Grosó (1901) report that the dimensions were 452 m by 217 m, being extended from 9.8 to slightly more than 13.2 ha of land.



Source: Pérez (2015).

Figure 2. Rectangular layout of the *Alameda Central* in Mexico City, after the expansion works ordered in 1769, drawn in 1771 by Alejandro Darcourt, infantry captain in Flanders.

The architectural project of the new *Alameda* is attributed to engineer Alejandro Darcourt, in whose design its walkways appeared broadened with the layout they have today, and the land was subdivided into 24 triangles or *parterres*, at whose intersections seven open round plazas surrounded by stone seats were formed (Marroquí, 1900). The work could not be completed before the departure of Viceroy de Croix; however, to the good fortune of the *Alameda* and the City, he was succeeded by Viceroy Antonio María de Bucareli y Ursúa, who completed the project (Marroquí, 1900). Manero (1883) writes that the 20 walkways were well lined with poplar and ash trees (the aforementioned *Populus* and *Fraxinus* species), symmetrically distributed and with some fruit trees scattered among them. The

author also comments that the centers or median strips of the walkways were populated with native flowers and flower species brought from the islands (most probably the Canary Islands) and from Castile, and already acclimatized in Mexico.

Marroquí (1900) states that in 1776, Viceroy Bucareli ordered "to continue the works of remodeling fountains, raising floors, building pipes and planting trees", works that were in charge of the Alderman Juan Lucas Lassaya.

At the end of the 18th century, an inventory of the trees in the *Alameda* was made. This is known thanks to the review of a file by Marroquí (1900), which recorded the existence of 1 995 trees: 1 596 ash trees, 287 willows, 98 poplars, eight alders, three willows (probably another species), one juniper, one *zompantle* (*Erythrina americana* Mill.), and one olive tree. It is interesting to note how this procedure, necessary for the proper management of urban trees, was carried out by those in charge of the *Alameda* and for which purpose, presumably, they programmed their activities.

19th century

Castro (2001) comments that the *Alameda Central* was seriously affected during the War of Independence (1810-1821), due to the fact that the soldiers took shelter in it and cut the trees to use them as firewood, and to the lack of personnel for its maintenance. Consequently —this author writes, based on documents from the early 19th century—, by 1822 there were only 1 600 trees (of which 1 596 already existed at the end of the seventeenth century), and the inexistence of nurseries to cultivate trees for the City forced those in charge of the

maintenance of the *Alameda* "to create a nursery in four of its *parterres* in order to produce the required trees and also ornamental plants such as roses, jimsonweeds, wallflowers, poppies and carnations" (Castro, 2001). This author comments that it was not until 1826 when it was possible to carry out a reconstruction of the round plazas, pillars and statues of the park, as well as to replace the trees. According to Marroquí (1900), this work was continued well into the third decade of that century, beautifying the promenade and cleaning the ditches that formerly "gave it a rather unpleasant outward appearance".

Marroquí (1900) and Novo (2005) point out that an additional factor of disturbance in the *Alameda* occurred in 1825, when the City Council authorized a group of citizens to celebrate in it the ceremony of the Cry of Independence, which resulted in serious damage to the site; the ceremony continued to be held there for several years until it was relocated to the *Zócalo*.

An example of the importance of the *Alameda Central* for the people of the capital is provided by Spahr (2011), who documents that General John A. Quitman, civil and military governor of Mexico City during the occupation of the U. S. army at the end of the war of intervention, ordered that the *Alameda* be rehabilitated for the recreation of the inhabitants, surely with the purpose of ingratiating himself with the inhabitants of the capital city.

After the U. S. intervention, the economic situation of the City was very poor and, according to documents of the City Council of that time consulted by Galindo y Villa (1901), by 1850 "the grove of the *Alameda* was mostly destroyed, and the pillar tops were covered by weeds and the paving was loose". This author refers that in a document of the City Council of 1851, mentioning that the *Alameda* "rather than a promenade, looked like an uncultivated and wild forest, much more appropriate to serve as a den than for the recreation of the inhabitants of a civilized town... and as a result of this neglect, the meadows were often occupied by idle and lowly people,

and robberies in broad daylight were constant". In relation to the above and due to the fact that the economic situation of the City Council was still very precarious, Eguiarte (1986) quotes, based on journalistic documents of that time, that "the state of sedimentation (*ensolve*) and filth in which the ditches (*acequias*) that surround the *Alameda* have long been drawing the attention of the public". For this reason, the reporter recommended the following: "...it is imperative to clean and make the *Alameda* ditches navigable". Consequently, the City Council proceeded to repopulate the *Alameda* by planting 800 trees (no mention is made of which species, but they were very likely ash trees) and made improvements in the infrastructure of the site (Galindo y Villa, 1901; Castro, 2001).

It took 17 years until the beginning of the brief Empire of Maximilian of Habsburg (1864 to 1867) for improvement activities to be carried out again in the *Alameda*. Marroquí (1900) refers that among Maximilian's directives it was determined that the care of the this place would be in the charge of Empress Carlota, who ordered that "...the meadows [be] cleared of bushes and weeds that gave it a rough and rustic appearance, in order to plant as many trees as possible —ensuring that their trunks [be] kept straight and clean—, a rose garden and English grass". "Willows and poplars were planted, and so were white cedars (probably *Cupressus lusitanica* Mill.), alders, *zompantles* (*Erythrina coralloides* DC. or *E. americana*), eucalyptus trees (*Eucalyptus* spp.), privets (*Ligustrum lucidum* W. T. Aiton o *L. japonicum* Thunb.), ornamental banana trees which may have been *Platanus* spp., although it is quite possible that they were *Musa ensete* J. F. Gmel., as individuals of this species can be seen in a photo in the book by Galindo y Villa (1901), palms (possibly *Phoenix canariensis* Chabaud or *P. dactylifera* L.), and peppercorn trees (*Schinus molle* L.)" (Marroquí, 1900; DGAS, 1956; Novo, 2005).

This plantation diversifies the species used and includes several exotic species not previously established, such as common privets and ornamental banana trees; the

use of the white cedar, a native tree taxon that had not been mentioned before in the site, is noteworthy, as is the fact that the planting of this species, together with the planting of flame coral, peppercorn and palm trees would indicate a change in the soil moisture conditions in the *Alameda*, as they require less water for their development than those planted almost two centuries earlier.

Within the context of that time, Knechtel described in his memoirs that the *Alameda Central* was a "large rectangle 300 m long by 150 m wide, with gates on its sides and three large central walkways and 24 diagonal paths". It also indicates that among the tree species were "oaks", however, it is not possible to define which species is being referred to, since this is a common name used in a very broad manner, and it is unlikely that species of the *Quercus* genus (oaks) had been planted at that time, for although native to the basin, they are found in the mountain area. Other planted species were "poplars, willows, and ash trees", which he considered to be "the appropriate trees for the humid soils of the area" (INAH, 2012). Knechtel pointed out that the *Alameda Central* was the city's park par excellence and a place of which all city dwellers were proud, since "for Mexicans it would be what Regent's Park is for Londoners or the *Champs Élysées* for Parisians" (INAH, 2012).

In 1869, once the Second Mexican Empire was over and the Republic had been restored, the irrigation ditches surrounding the *Alameda* began to be covered up, a cleaning that took four years to complete, and by 1872 a perimeter sidewalk was built (Marroquí, 1900).

A view of the *Alameda Central* close to the period mentioned above was painted by Castro *et al.* (1869), who produced a series of pictorial works that became very popular thanks to the lithographs that were published and that have survived to the present day (Figure 3).



Source: https://www.cervantesvirtual.com/obra-visor/mexico-y-sus-alrededores-coleccion-de-monumentos-trajes-y-paisajes--0/html/00cfadda-82b2-11df-acc7-002185ce6064_47.htm.

Figure 3. The Alameda of Mexico. Lithograph of Mexico and its surroundings. Plate VI. Castro *et al.* (1869).

Urban transcendence of the *Alameda Central* from the Viceroyalty to the mid-19th century

In the map of 1628 (a little over 35 years after the construction of the *Alameda*), the west of the city is towards the bottom, urban growth may be observed on a north-south axis. The *Alameda* is the only UGA in Mexico City, because the squares and atriums of the churches, even though they could be landscaped, did not have a significant tree cover. This situation can also be perceived in Nicolas de Fer's map of 1715, available on the Internet.

In the 1795 map (Figure 5), the *Alameda* is already rectangular in shape according to the enlargement work carried out in 1769. However, it continues to be the only important urban green area in the city, although it is interesting to note that the map shows a small garden in the Main Square, and the avenue named *Paseo de Bucareli* has a canopy of trees (lower left side).



Source: <https://www.geografiainfinita.com/2016/12/evolucion-de-la-ciudad-de-mexico-a-traves-de-los-mapas/>.

Figure 5. Map of Mexico City drawn by Lieutenant Colonel of Dragoons Diego García Conde in 1795. The *Alameda Central* can already be seen in a rectangular shape in the white oval. As a reference, the yellow square surrounds the Main Square, known today as *Zócalo*.

In the 1858 map (Figure 6), the City does not yet show a considerable expansion; further growth towards the north and south can be observed, and urban growth towards the west is consolidated with the outline of what will later be the *San Cosme Causeway*. The plan shows the *Alameda of Santiago Tlatelolco*, which would then be the second UGA of considerable size in the city. The Main Square no longer

has the landscaped area shown in the previous map, and the *Chapultepec* and *La Piedad* roads exhibit the same tree-lined alignment as *Paseo de Bucareli*.



Source: https://www.cervantesvirtual.com/obra-visor/mexico-y-sus-alrededores-coleccion-de-monumentos-trajes-y-paisajes--0/html/00cfadda-82b2-11df-acc7-002185ce6064_4.htm.

Figure 6. Map of Mexico City drawn by the Decaen Typographic Printing Company in 1858. The *Alameda Central* can be seen in the white oval and, as a reference, in the yellow square is the Main Square, known today as *Zócalo*.

Final comments

Notably, at the end of the 16th century, Viceroy Luis de Velasco and the City Council of Mexico City built and managed the *Alameda Central*. Despite the small size of the City and its small population, the principle was that it would beautify the capital of New Spain and would provide its inhabitants with a venue for recreation, which was surely of great importance for the city's inhabitants. It also highlights the application in the capital of New Spain of an urban planning concept that could be considered advanced for that time at world level and even democratic, since no city in Europe had, at that time, an urban park open to the population.

The role that the *Alameda* played for Mexico City in subsequent decades and centuries was notorious and endures to this day. For more than a century (until the arrival of Viceroy Bucareli), the *Alameda* was the only promenade (in the sense in which the word was used at the time), and for more than three centuries it was the only open space with vegetation that the population of the City could enjoy, and even when the construction of other UGAs began, its location in the center of the City continued to make it a meeting place for the majority of the inhabitants, as this area was the most densely populated.

During the three centuries that elapsed since the initial construction of the *Alameda*, the basin and the city underwent major environmental changes, mainly in the

hydraulic aspect, as the city went from being severely affected by floods that caused severe damage to the *Alameda's* infrastructure and trees, to the subsequent drying up of the basin, which also had an impact on the *Alameda* and its trees. Within this context, Marroquí (1900) already mentioned the sinking of the ground as a result of this, and in his work he often mentions the changes in the basin, which worsened in the decades following his writing. This issue will be commented on in the second part of this work, since the water situation of the City is closely associated with the Alameda Central until the present time.

It is important to highlight the change of tree species that took place during the almost three centuries in which plantations were carried out in the *Alameda*, ranging from those that were necessarily hydrophilic, such as willows, poplars and *Montezuma* cypresses, also known as *ahuehetes* or *sabinos*, to the introduction of white cedars, and flame coral, peppercorn and palm trees, which are not even tolerant to soils with excess water. It is also interesting to note the constant repopulation of trees in the *Alameda*, which, although initially associated with the problems caused by flooding from *Texcoco* Lake and the salinity of its water, is maintained subsequently in all the improvement actions that are carried out, as well as the constant mention of repopulation as a recurring activity. The need to repopulate the *Alameda* also became evident when in the 17th century, one of the persons who sought to obtain the lease or administration of the *Alameda*, offered to plant "a thousand trees with thick trunks" (Marroquí, 1900).

The impact of trees was most probably associated with their use for firewood, as well as with damage caused to them by animals, with the lack of maintenance to the irrigation ditches and of a gate to allow the entry, to the extent that in a town council act of November 17th, 1597 (a few years after the *Alameda* was built), an ordinance was published prohibiting the entry of cows, horses or other animals into the *Alameda*, under penalty of paying a fine of 10 pesos (Marroquí, 1900).

Finally, it should be noted that the consulted literature frequently mentions the uncertain and reduced allocation of resources by city councils to the *Alameda* for its maintenance and protection. This was a common situation almost from its beginnings and was even exemplified in 1620, when it was proposed to reduce the already "meager salary" of the mayor of the Alameda (Marroquí, 1900). After the independence of Mexico, this situation did not change, and the various authors who consulted original sources frequently mention it and refer to the neglect of the park at different times, which lasted until the twentieth century, a situation that will also be discussed in the second part of this paper.

Conclusions

The construction of the *Alameda Central* in Mexico City symbolizes a new paradigm in urban planning and the generation of urban green areas in the American continent, as it implied the creation of an open space with vegetation in the City for the recreation of the city's population, regardless of their social condition.

The events that have taken place over three centuries in the *Alameda Central* are a faithful reflection of the environmental, social and historical changes of the City, of the Valley of Mexico basin, and even of the country.

The change of tree species planted in *Alameda Central* during this period is an indicator of the environmental transformation of the basin and the City, particularly in the hydraulic aspect, as shown by the replacement of hydrophilic species with taxa with lower water requirements.

The lack of sufficient and continuous funding for the protection and improvement of the *Alameda Central* was constant from its initial stage and had an impact on the conservation of the site and its trees.

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Conflict of interest

The author declares that he has no conflict of interest with any company or institution related to this work.

Contribution by author

The author is responsible for all components of this paper.

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