Influence of Ancient Mesopotamian Aesthetics of Gardens/Parks and Water Installations on the Development of Landscape Architecture

Based on information from fundamental historical sources, it can be stated that the origins of the oldest civilization are found in the valleys of the Tigris and Euphrates rivers. Important trade and migration routes stretched through Mesopotamia, which also influenced the emergence and development of one of the first urban-type civilizations in the world. It was here that the Sumerian civilization developed, which led to a major cultural and technological breakthrough. Their widely used irrigation canals influenced not only the landscape but also the entire ecological, economic and political systems of the time, and water was a particularly important factor in this civilized space. The oldest known gardens have also expanded here, and the Hanging Gardens of Babylon still fuel people's imaginations. Due to its unique geographical location, the region has had a profound impact on the surrounding peoples, and it is no coincidence that the imperial parks of Assyria in northern Mesopotamia have had a major impact on subsequent civilizations. There is no doubt that ancient Mesopotamia occupies a fundamental place in the development of garden art. As roofing gardens are increasingly being developed in the world in recent times, and plants are used in modern architectural buildings as a vital compositional tool, it is worth exploring more closely the origins of this process, which is important for the architecture of the landscape.

Keywords: Ancient Mesopotamia, cultural landscapes, hanging gardens of Babylon, water installations

Introduction

Based on information from fundamental historical sources, it can be stated that the origins of the oldest civilization are found in the valleys of the Tigris and Euphrates rivers. The territory of Mesopotamia is bordered on the north and east by mountain ranges, on the south by the waters of the Persian Gulf, and on the west by desert areas. Unsurprisingly, due to the favorable natural conditions for agriculture, nomadic societies began to develop in these areas. The most fertile region consists of the areas between the two major rivers, where fertility was increased by the constantly renewed alluvial soil from water flows. However, there was a constant risk of river floods and droughts. In total, floods occurred as much as eight times a year, so it is not surprising that the region has developed a complex system of irrigation, dikes, dams and canals. Artificial irrigation systems adapted in the southern part of Mesopotamia date back to the VI-V millennium BC. m. e, which is a millennium earlier than in Egypt. Unlike other major river valley civilizations, the geography of this region does not have favorable natural barriers to protect against nomadic influxes, which determines the special dynamics of this region, which has left a
strong mark on the culture of many later civilizations. (A. Andrijauskas, 2017, 22-24). However, despite the constant political changes in this region, the multicultural nature, the constant state of struggle, the stability of the visual and architectural unity of the Mesopotamian civilizational space is astonishing. Here, art not only empowered and reflected political power, but also developed a visual narrative in search of opportunities to convey narratives through art (Davies PJE, et. Al., 2010, p. 21). Researcher R. Pournelle (draws 2007) from the assumptions of various researchers, archaeological research, and aerial photographs that the first water canals were used for navigation, transport, and trade, so there was no need for a long period of organized, mass slavery social development, as in Egypt, to the emergence of an expanded hydraulic civilization. In her view, with the drying up of the climate and the onset of large-scale urbanization, this navigational experience was easily adapted to the subsequent engineering water system developed by perpendicular canals, dikes, dams, reservoirs and irrigation furrows connecting Sumer crops, cities and the river, form (Pournelle JR, 2007, pp. 29-62). Early urbanization, written, cultural and technological developments led to the relatively early emergence of political systems in the region, and the formation of the first known historical empires. The political and social system of the ancient Sumerian cities-states was based on the belief in the divine origin of the rulers, supported by the social stratum of the priests. SN Kramer’s (1963) research also reveals the origins of democratic governance, which later spread widely in the Greek world. However, since the emergence of the first settlements, independent cities-states have been fighting each other for political influence in the region, so the region has had the characteristic nature of political fragmentation. Finally, the successful growth of food resources in Sumerian cities and the growing wealth due to trade ties did not go unnoticed by the surrounding nations, leading to the penetration of different communities of Semitic origin towards southern Mesopotamia. About 2334 BC The region was relatively easily conquered by Sargon of Akado and established the first Middle Eastern empire, covering not only the Sumerian settlements but also the northern lands covering present-day Iran and Syria. The academic period is historically important as it defines the period when the Sumerian cities-states of Southern Mesopotamia were first united. At the time, in southern Mesopotamia, the increase in agricultural production led to a significant increase in population, whereas in the past city-states suffered from deprivation due to constant conflicts, which in turn increased the economic power of the region (Jamieson A., 2016, pp. 45 - 51.). Towards the end of the Akkadian Empire (2334 - 2154 BC), competition between many city-states intensified and around 2200 BC, me, as the centralized political influence of the Akkadian dynasty weakened, power was shared by local leaders. At that time, the Akkadian Empire was tormented by an influx of nomadic Gutta tribes, and they eventually took over. Yet the Gutian rulers were unable to cope with the subtleties of the empire's rule, so the years of their reign are called the Dark Ages. The lands of Mesopotamia were engulfed in chaos, and after a while the aliens were driven out by the newly emerging third dynasty of Ur, also known
as the New Sumer Empire, but covering a much smaller territory. This short but striking period in Sumerian history is described by experts as the "Sumerian Renaissance." Around the time of the New Sumer, archaeological data revealed traces of the Amorites of Semitic origin, who spoke a language related to the Academics but in a different dialect. This nation of a semi-nomadic way of life, a few centuries later, finally overthrew the third Ur dynasty and began to dominate southern Mesopotamia (Jamieson A., 2016, pp. 45-51). In the region, competition between individual cities and states, which has lasted for several centuries, is starting again. The Sumerians, who came under the influence of the Amorites of Canaan origin, no longer recovered politically, while in the free northern part of Mesopotamia the Assyrian rulers dominated the academic-speaking population. Meanwhile, in southern Mesopotamia, Babylon, first ruled by the Amorites and later by the Chaldeans, emerges. The dynamics between the two academically speaking states led to the development of the entire region, until Mesopotamia was finally conquered by neighboring peoples of Iranian descent, ushering in a whole new cultural phase of civilization. The history of Assyria is divided into three periods, which correspond to the expansion of Assyria, accompanied by periods of contraction and decline. These are the Old Kingdom of Assyria (2000 - 1740 BC), the Central Kingdom of Assyria (1363 - 1056 BC) and the Neo-Assyrian Empire (934 - 609 BC). The Assyrians were first famous for their military power. The discovery of vast iron ore resources in their populated areas led to the emergence of an arms industry that allowed Assyria to have the best-armed military forces of its era (Jamieson A., 2016). However, to ensure successful trade, the Assyrians established colonies in Asia Minor and established ties with the cities of Egypt, the Mediterranean, Anatolia, Iran, and the Caucasus, making their capitals a major intersection of trade routes in the Middle East. They have achieved a breakthrough in sculptural and architectural arts, which stand out with their unique stylistic features, the maturity of art forms. The Assyrians paid much attention to the development of the royal palaces, which symbolized their power, and they were richly decorated with reliefs of war and hunting glorifying the rulers. Many of their artistic features were taken over by the Persians who later dominated its territory (Andrijauskas A., 2018, pp. 78-84).

Meanwhile, the early phase of Babylon’s life, accompanied by the Amorite rule called the Old Kingdom of Babylon (19th - 16th century BC), was followed by a dark period in which Babylon, weakened by the attacks of the growing Hittite kingdom, fell into the hands of the Kasits. XII century BC). At that time, the Mesopotamian region was influenced by four hegemonies: Egypt, the Hittite Empire, Mitania, enslaved by Assyria, and the Cassite Babylon, renamed Cardunias. From the 12th century BC new wave of nomadic tribal migration began in Mesopotamia, so strong that scholars refer to it as the Aramaic Invasion, while Babylon came under the rule of the Elamites of its eastern neighbors, yet the rise of the Central Assyrian kingdom halted further disintegration in the region. (Charpin D., 1995, pp. 807-829). Even before the beginning of this expansion, these tribes have been influenced by
Mesopotamian culture for centuries, their governance forms and social organization were similar, therefore these processes did not affect the civilizational and cultural changes of Mesopotamia (Andrijauskas A., 2018, pp. 70-76). X BC Assyria weakened briefly due to internal conflicts, but since 911 BC thanks to the active ruler Adadnirar II, the Assyrian expansion resumed, leading to the third reunification of the region and the rise of the Neo-Assyrian Empire, whose rulers completely solved the so-called “Babylonian problem” and independence (Luckenbill DD, 1924). The Assyrian Empire was in a state of constant military conflict, which is thought to have followed, with the addition of internal divisions and weakening. Finally 612 BC Nabopolasar, the ruler of Chaldean descent, extended his influence to Babylon, and in the east, the charismatic leader Kíaxar, who united Persia and Medes, carried out an uprising by mutual agreement and divided the vast possessions of Assyria. Thus arose the New Babylon, also known as the Chaldean, which prospered until 539 BC until the Achaemenid Persia took control of Mesopotamia. Babylon lost power for centuries, but it continued to appear as one of the most important provincial centers of the empire. The ruler of the Achaemenid Empire also had the traditional Mesopotamian titles of "King of Akkad and Sumer," "King of Babylon," and "King of the Four Worlds." When Alexander the Great 330 BC occupied the region, dentition was still used here. Later, during the Hellenistic period, the orthodontics remained largely in the limited strata of the intelligentsia, which still supported the ancient cults of Babylon and Uruk, which have survived until Muslim times. The last dental record was made in about 70 years of our era, ending a tradition that has flourished for more than three millennia. (Charpin D., 1995, pp. 807-829).

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<th>Table 1. Evolution of Ancient Mesopotamian Civilization Periods</th>
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Ancient Mesopotamian Gardens

Recent archaeological and artistic research by scholars in various fields refutes the prevailing view that the Ancient Eastern countries developed under conditions of cultural isolation, on the contrary, they maintained close ties.
This is evidenced by the material archeological monuments of culture and art, analogous art styles, aesthetic canons, cosmogonic myths, epics, motifs of light and radiance aesthetics. The Sumerian trade routes stretched incredibly widely, with economic and cultural ties maintained with Egypt, India, and through the Oronto Valley and with Phenicia and Palestine. It is obvious that Mesopotamia was located at the center of cultural interactions between these Ancient Eastern countries. It was here that the original ocean from which all creation, the flood, the gardens of paradise, the golden age of mankind, and other later widespread mythological archetypes were formed. Many elements of the Sumerian worldview undoubtedly influenced the formation of biblical Hebrew texts, and thus the spread of all cultural spaces covered by Abrahamic religions (Andrijauskas A., 2017, pp. 36 - 43). One of the fundamental images that formed in ancient Mesopotamia and reached our time is the gardens of paradise. The Greeks used the Persian word "paradeisos" to describe the enclosure, the garden, the orchard, and the Eden garden of paradise. The famous Sumerian SN Kramer (1963) observes that although the divine gardens found in the myths of the Sumerians and later the Babylonians, Dilmun, are inhabited only by the gods, they have many parallels with the later common images of paradise gardens, so they can be treated as the origins of the latter. Important here are the motives of the gardens, their implied location, fruit-eating, subsequent death, ribs, and painless childbirth, which, according to Kramer, later transform and transition to a semitic worldview (Kramer SN, 1963, pp. 147-149). Clearly, the idea of an enclosed space is fundamental to the gardens of ancient Mesopotamia, and the tree of life in the biblical gardens of paradise from which the four rivers flow, including the Tiger and the Euphrates, occupies an important place. The tree, taken together, was the most important compositional element of the garden (Patrick DP, 2016, p. 40).

Very little is known about early period gardens or ornamental water use, as these elements change the most over time and survive the shortest period of time compared to architecture, sculpture, or other archaeological heritage (Campbell CS, 1978, p. 15). M. Laurie (1986) argues that the origins of orchards must be derived from agricultural practices, and that the first fenced orchards may be associated with primary garden prototypes and therefore the beds, shapes, and dimensions of these orchards corresponded to the parameters of the cultivated fields. Irrigation canals and ponds, in these primary gardens, were integrated not only for functional purposes but also for sensory pleasures to enjoy the water in the hot climate. To protect crops and gardens from the scorching sun and dry winds, the Sumerians planted them, providing shelter and shade with a tree strip (Figure 1) that was irrigated with confusing canals, and the Sumerian gardens were walled to keep wild and domestic animals and insects (Laurie, M., 1986, p. 17). Such walled gardens have been found in many ancient Mesopotamian cities of various periods: Uruk, Mari, Babylon, and Nineveh (Girot, C. 2016, p. 53). The gardens of the city of Uruk are described in the Sumerian mythical "Epic of Gilgamesh", where it is stated that one third of the city consisted of a residential urban area, one third of cultivated fields and the remaining third of gardens. However, it is not very clear what
specific gardens are involved, as the early Sumerian word describing gardens applies to both conventional and orchard gardens (Jellicoe GA, Jellicoe, S., 1995, p. 24).


Not surprisingly, in the Sumerian civilization space, complex pipelines and sanitary facilities were also found, and the cities had developed waste water and rainwater drainage technologies. Habuka Kebira, a short-lived Sumerian trade colony in northern Mesopotamia, discovered by archaeologists, was built in the city in the mid-fourth millennium BC. me, a particularly complex sanitary system is found, with various pipes, drains and even toilets. There is no doubt that the city was built with prior knowledge based on the technology and design used in the central city of the metropolitan city of Uruk. It is far more surprising to researchers that these advanced sanitary technologies have become forgotten over time (Mays, LW, 2010, pp. 38-42). It is therefore not surprising that the first known aesthetic water facilities are also found in the civilized space of Mesopotamia. Oldest surviving cascades located, decorated with carvings water bowls (Eng. Basins) where water is a thin tube that stepped system flowed from one to another until it reaches the lower bowl interspersed with pure lion's head, found 3000 BC in Girsu. Another important find unearthed in Mari, dating back to the Akkadian-Sumer period, is the 2000 BC dates a figure of a woman with a jug of water from which gushes, water is supplied by pipes, which is the earliest known prototype of a fountain (2 Figure). This figure of researchers is associated with the goddess of fertility and political power Ishtara (Plumptre G., 1993, p. 19; Girot, C. 2016, p. 51; and https://www.britannica.com/art/fountain).
Located in the middle of the Euphrates, one of the largest courtyard gardens in Mesopotamia is also found. The tracks in these gardens were based on terracotta, fired clay bricks, and traditionally they were raised slightly above the yard surface to keep them from dusting. It is known from written sources that the palace had several gardeners’ posts, and that the rulers often had snacks in those gardens. These gardens were planted with palm trees and had an ornamental pool. The pool, though, wasn’t built into the center, but a little to the side. At the center was, in ancient Mesopotamia, a much more significant element - the tree (Dalley S., 1993; and Taylor, P., (ed) 2006, pp. 308-309).

According to one of the earliest written sources, gardens in southern Mesopotamia have been typical since Sumerian times. These gardens, dating back to the fourth millennium BC. me, like the later Babylonian gardens, were based on ritual and economic incentives. In Mesopotamia, gardens have always been associated with a sacred place, but with links to economics, magic, poetry, and religion. The early functions of gardens were to give rulers a proper place to participate in religious rituals (Patrick DP, 2016, p. 32). It is known that the gardens were also a stage for cult ceremonies, such as the New Year Festival, and at the same time functioned as industrial harvest suppliers. Although both functions were associated with kings, it is difficult to determine whether the same places were used for both of these purposes, and whether the rituals occupied separate gardens. There is also not enough data to reconstruct the layout or appearance of these gardens, making it very difficult to estimate gardens from the fourth to mid-millennium BC. me (Amrhein A., 2015). However, since the time of the Middle Assyrian Kingdom, there are far more written, archaeological and iconographic sources. Like many other cultural and ritual aspects of Mesopotamia and Babylon, the Assyrians have absorbed many traditions and cult rites (Patrick DP, 2016, p. 32). The ruler of the Neo-Assyrian Empire, Sennacherib (705-681 BC), built a temple for the New Year Festival (Figure 3) outside Nineveh outside Nineveh. Archaeological excavations have also revealed traces of the layout of the gardens belonging to this rectangular temple, after a thorough examination of the planting pits found,
but it was not possible to identify which trees or shrubs grew there. In the
central inner courtyard, and outside it, there were plantings planted at regular
intervals on all sides. From the point of view of the scientist S. Dalley,
although archeological excavations have reconstructed the plants as shrubs, it
could also have been the trees of thin stems, giving the temple an impression
among the grove (Dalley S., 1993). A. Asadpor, also notes Sennacherib’s
records claiming that he dug two irrigation canals for the temple and planted it
in orchards (Asadpor A., 2018). However, archaeological research reveals that
the planting pits on the outside of the temple were irrigated with irrigation
pipelines, confirming that the temple was surrounded by permanent gardens.
However, the planting pits in the courtyard garden were not connected to the
piping system, which suggests that the trees were planted here on designated
occasions for ritual purposes. The rebuilding of the trees and their non-
permanent installation, as well as the temporary exposition, clearly testify to
the decorative nature of the aesthetics of these gardens. Various written sources
also claim that the trees were sacrificed to the gods, and various cylindrical
imprints describe the transportation of the trees in pots or baskets. (Amrhein
A., 2015). Using this, the oldest known archeological example of temple
gardens, it can be said that the courtyards of the temples, like the courtyards of
the palace, were used for gardening. Still, the researchers note that comparing
the northern Assyrian temples with the southern Babylonian ones, it is clear
that the Babylonian temples owned much more land around them, and those
lands were divided and successively supplied various crops, especially dates,
figs, and pomegranates, for cult purposes. (Dalley S., 1993).

Figure 3. New Year’s Festival Temple, Archaeological Finds and
Reconstructive Visualizations, Amrhein, 2015, Neo-Assyrian Gardens: A
Spectrum of Artificiality, Sacrality and Accessibility, Studies in the History of
Gardens & Designed Landscapes, 35: 2, psl. 97 DOI: 10.1080 /
14601176.2014.945832

Many ancient Mesopotamian temples are found decorated with columns
imitating the trunks of date palms, and in a spiral trunk palm with inedible
fruit, possibly Chamaerops humilis. The facades of the temples were also
decorated in a similar manner. Using the deduction method, researchers make
strong assumptions that the architectural form and decor given to some urban
and suburban temples was intended to symbolize the environment of a sacred
grove in a garden of paradise (Dalley S., 1993). Temple gardens, or those adjacent to the temples, were given more attention to appearance, their smell, and the shadow they provided, as they were designed to convey the city’s fame and prestige (Patrick DP, 2016, p. 34). The records of Esarhaddon (681-669 BC), the ruler of the Assyrians, describe the garden of the temple at Babylon, which had water canals, fruit trees and bearing beds. From the record of King Merodach-Baladan II (721-710 BC and 703 BC), a record of plants found in the royal gardens of Babylon, reaches us from the briefly regained independence of Babylon, the reign of the Neo-Assyrian Empire. The records of another ruler, Nebuchadnezzar II, reveal that he grew fruits and vegetables as sacrifices to the gods, but imported grapes and raisins because the grapes did not ripen in southern Mesopotamia. Still, researchers do not find evidence or other data on former Assyrian-style public parks or hunting gardens in southern Mesopotamia (Taylor, P., (ed) 2006, p. 309). However, the Babylonian royal palace gardens (Kirilen ekaliim) have been mentioned since the reign of Adad-suma-usur (1200-1180 BC), and are reaffirmed in later records, and the temple gardens in Babylon have been known even since the reign of the Kasits, from the 16th century BC (Wiseman DJ, 1983, p. 138).

In earlier centuries, during the time of the New Sumer Empire, the region was united by King Urnam, the ruler of Ur. It was one of the first written acquis, restored order, stabilized the economy, and brought back the Sumerian language (Jamieson A., 2016, pp. 45-51). During the reign of Urnam, the greatest surviving Sumerian monument was erected - the Great Ur Zigurat, which dates back to 2250 BC, caused no small fuss in our time. Initially, when this monument was unearthed, it was wrongly assumed that its terraces were planted with ornamental plants, although this was soon refuted (Taylor, P., (ed), 2006, p. 308), but this false statement is widespread. is still accepted after almost a century, based on the popular reconstructions of the Uric ziggurat presented by L. Woolley, and the presumed assumptions of mystical hanging gardens. S. Dalley (1993) explains that when archaeologist L. Woolley excavated the zigurate, he saw that it was composed of silt bricks and the outer layer was covered with burnt clay bricks, but the entire structure was perforated at regular intervals with holes that penetrated through masonry. Woolley interpreted these openings as drainage, but after a few more zigurates were excavated, researchers confirmed that the towers were not actually planted with trees or shrubs, after all, Dalley argues, even despite structural problems in growing greenery on mud bricks. buildings, and the difficulties that would have to be overcome in raising the water to such a height, it is practically impossible to supply such greenery with the required amount of water without washing the sludge brick building. The openings were in fact intended to ventilate this structure in order to dry the structure so that it would not later decompose or collapse (Dalley S., 1993, p. 6). It is noteworthy that over time, some zigurats broke and actually collapsed, and later such dilapidated structures in the eyes of contemporary Israelites may have provided the basis for the development of the myth of the collapse of the Tower of Babel (Rogers, E., R., 2001, p. 35).
Hanging (Terraced) Gardens of Babylon

In later times, during the reign of the New Babylonian kingdom, ruled by the Chaldean dynasties, Babylon became an influential Old World city, distinguished by the distinctive Babylonian stylistic aesthetics of architecture, sculpture and decor. Like the pre-dominated Assyrians, the Chaldeans also built monumental, astonishing architectural buildings on their scales, created magnificent temples and palaces, ruled gardens, and surrounded the city with strong and impressive defensive walls (Andrijauskas A., 2017, pp. 43 - 47). Babylon was founded after one of the regular changes in the course of the Euphrates River bed, but the river acquired its now characteristic curvature around the 7th century BC, during the New Babylonian period, when, for militaristic needs, three artificial bends and a huge artificial lake in the upper reaches were dug, according to Herodotus' testimony (Jellicoe, GA, Jellicoe, S., 1995, p. 27). The ruins of the Old Babylonian city are unfortunately washed away by the Euphrates, due to the constant rise in water levels, and now only the ruins of the New Babylonian city are known (Mark JJ, 2011). During this period, a unique Ishtar Gate, reinforced with heavy portals, column-reinforced frames and bronze doors, was also built, the legendary Tower of Babel was rebuilt, from which only a large foundation has survived - the base remains, and the representative buildings are no longer embossed with colored glazed bricks (Andrijauskas A., 2018, p. 73). Babylonian culture has traditionally nurtured temple gardens, and there were quite a few of them in Babylon dedicated to various gods and rites. Scholars know that the Babylonian gardens, which raised the prestige of the city, were renovated during the New Babylonian period (Wiseman D., 1983, p. 138). Traditionally, the legendary "Hanging Gardens" are also attributed to Babylon of this period. At different times, attempts have been made to create different visual representations of these gardens. The Dutch artist Maarten van Heemskerck, in 1572, spread more widely, depicting a cycle of seven wonders of the world, an interpretation of these gardens that met the aesthetic requirements of the time but relied more on the author’s imagination than on real facts (Figure 4). However, later, in the 17th century. In Germany, the Jesuit Athanasius Kircher, a famous scholar of his time, based on classical texts and the scientific knowledge of his time, presented a much more realistic version (Figure 5), but was again influenced by the Western cultural mindset of his time (https://www.wonders-of-the-world.net/Seven/Gardens-of-Babylon.php). However, not all written sources attribute the construction of the latter to Babylon and its ruler Nebuchadnezzar II, some claim authorship of the kings of Assyria as well, so in recent years it has been hypothesized that these gardens may not have existed in Babylon but actually found in the Assyrian capital Nineveh. Archaeological excavations have not yet confirmed the presence of these gardens in Babylon either, so scientists have several assumptions. One of them states that hanging gardens did not exist at all, and the surviving descriptions represented Mesopotamian gardens in general as such (Stiebing WH Jr., Helft SN, 2017). Another common hypothesis is that classical sources have somewhat exaggerated and
misinterpreted existing Babylonian buildings when describing these gardens. A proponent of this hypothesis, D. Wiseman (1983) argues that the terrestrial structures between the Euphrates, which possibly supplied water to these structures, and the Southern Palace were documented in ancient cylinders and were interpreted as hanging gardens (Figure 6). However, critics note that the Euphrates bed had changed again from those times until the period of the classical springs that reached us, and irrigating such gardens at the south gate would have been very impractical (Stiebing WH Jr., Helft SN, 2017).

**Figure 4.** Maarten van Heemskerck 1572, based on the Author's Imagination, a Widespread Visualization of Hanging Gardens
https://www.wonders-of-the-world.net/Seven/Gardens-of-Babylon.php

**Figure 5.** 17th c. Visualization based on Jesuit Athanasius Kircher Sources,
https://www.wonders-of-the-world.net/Seven/Gardens-of-Babylon.php
Gardens of the Assyrian Empire

Much more knowledge about the gardens of ancient Mesopotamia comes from the Assyrian Empire. As the Assyrians originated from the plains, it also led to changes in landscape architecture, much freer garden layout, and imitation of natural nature. They are characterized by hunting parks enriched with cedars and other imported trees, as well as exotic animals brought from conquered lands or donated by rulers of distant lands. At least since 2000 BC, the kings of Mesopotamia held exotic animals and plants in separate parks. These parks were further away from the palace of the rulers or even outside the city walls. One of the most impressive such parks was owned by the ruler Tiglath-Pileser I (1115-1074 BC), who, according to his royal records, bred herds of horses, cattle, donkeys, gazelles, various species of deer and mountain goats, and planted a hunting garden in cedar, beech trees, oaks, and exotic fruit trees and, to a, a crocodile, and a large monkey (Dalley S., 1993; Taylor, P., (ed) 2006, p. 308). These hunting gardens were called "ambassas" and were associated with kings, gods and rituals, and were somewhat open to the general public. Ritual hunting of lions took place in these places. These parks were less artificial, more naturalistic, as they mimicked the wild areas inhabited by lions. The hunts that took place here were for public viewing and were heavily staged. Successful hunting was associated with the re-establishment of the king’s divine support, ruler power, and dominion, as well as the triumph of the Assyrian civilization (Amrhein A., 2015). Animals and plants from different countries collected in these gardens were designed to represent the whole known world (Novak M., 2004, p. 181).
Over time, expressing their royal ideology, the rulers of Assyria began to build much larger gardens, and paid more attention to their layout and design. The king of the Neo-Assyrian Empire, Ashurnasirpal II (883-859 BC), initiated huge water management projects and brought water from the hills and mountains to irrigate his newly planted city orchards in his new capital, Nimrude (also known as Kalhu). Springs, and from the upper part of the Zab River in the mountains, water was diverted to the rocks through channels carved into the rocks (Taylor, P., (ed) 2006, p. 308). The waters around these gardens are his own record that canal water flows into the gardens from above (Dalley S., 1993). Ashurnasirpal II, calling these gardens near his new capital Nimrude, called "kiri rishate" - "the garden of pleasure." Here he planted 41 different species of trees, and also kept several different species of animals, suggesting that these gardens were fenced. These gardens, according to the ruler who implemented them, were for the enjoyment of the Assyrian people, while Tiglath-Pileser I said of his gardens that they were built exclusively for the joy of the king (i.e., himself) (Patrick DP, 2016, p. 34). However, at that time the dichotomy of state and religion did not exist and therefore no great distinction could be made between royal and divine gardens, as in their worldview all aspects of life were associated with gods and cult. In an effort to imitate divine gardens, royal gardens were characterized by greater decorativeness, artificiality, introversion, and ritual activity. These gardens covered an area of 25 km² and, for the first time in Assyria, were equipped with a panoramic platform connecting with the palace to view the view of the gardens. The term "used to describe this construction bitumen" is. These platforms were used not only for royal purposes but also for ritual cult needs, had porticoes and columns surrounding the facades, and were thought to have been adapted from the architecture of the Hittite palace (SyrianAmrhein A., 2015). It is the first architectural element used in the Assyrian gardens that enabled visual communication between architecture and the landscape. (Donald P Patrick, 2016, p. 34). Interestingly, crypts of queens' graves are also found under the courtyard gardens of the Royal Palace in Nimrud. Thus, these gardens may have also served as memorial functions (Dalley S., 1993, p. 3).

Undoubtedly, the art of the Assyrian gardens and the conceptual worldview that accompanies it, judging by archaeological, literary, iconographic and cultural-historical research, were developed during the Sargon dynasty (722-609 BC). It is probable that until then most of the Assyrian gardens, in addition to their size, did not have stylistically highly developed forms, the most striking feature of which was the terraces. During the organ dynasty period, royal gardens were built outside the palace, but shone alongside their walls. The terminology has also changed, as L. Oppenheim notes, before that period the garden was called "kiru", but it evolved into "kirimahhu", meaning "large or glorious garden". This word is a Sumerian debt to emphasize the prestige of gardening as an ancient heritage (Amrhein A., 2015). Along with the name, the concept of gardens changed during the reign of Sargon II and later his son Sennacherib, when gardens changed their traditional, somewhat "utilitarian" function to a more predominant exposition
assignment (Patrick DP, 2016, p. 33). In Dur Sharukin, the new capital of Sargon II, a relief depicting a king resting in his gardens, near a pond and an artificial hill (c. 715 BC) (Figure 7), is one of the earliest works of landscape style art (Jellicoe, GA, Jellicoe, S., 1995, p. 27). Regularly planted dates grew in these royal gardens, which were also planted along the canals, along with a wide variety of fruit trees such as apples, figs, peaches, plums, cherries, and pomegranates (Rogers, E., R., 2001, p. 39). Sargon II copied the model of the old capital, Nimrod, and all the characteristic elements in creating his new city. However, the layout of the city was almost an ideal square and, as a result, it was far more regular in shape and geometric layout than other Assyrian cities. The main highlight here was the fortified citadel, which housed the public buildings, most prominently highlighted by the palace of the rulers, which extends beyond the citadel, thus breaking down the square layout and providing greater contrast. The palace, seen from the city side, was visible from three sides (Figure 8). Unlike Nimrude, the main visual highlight of Dur Sharukin was no longer the temple, but the royal palace. On the other side of the palace were the royal gardens, which, as can be seen from the reliefs, also housed “bitana” observation pavilions, artificial mountains, and ponds with boats (Novak M., 2004, pp. 181-182). Ponds, at the latest since the time of Sargon II, have become a common feature of the Assyrian royal gardens (Albenda P., 1974, p. 6).

Figure 7. Sargono II Park

Figure 8. Reconstruction of the Dur-Šurukas citadel with a palace;

Sargon’s son Sennacherib (704-681 BC) developed gardens in particular, and since his reign the gardens have become a particularly prominent and characteristic part of the Assyrian landscape. Again, he moved the capital of Assyria to the pre-existing city of Nineveh, rebuilt and expanded it, surrounded by two walls, and planted gardens both inside and outside the city, probably for the sake of a more convenient and problematic water supply in Dur Sharukin. The two artificial mounds—mounds in the river crossing the city were transformed into powerful citadels. The basic urban structure used for the transformation of the city was taken over from the former capitals Nimrud and Dur Sharukin. At the top of the main, larger citadel closer to the edge, the Royal Palace of Sennacherib was built, overlooking the riverbank and gardens, and later on the sides and the palace of his grandson Ashurbanipal II (668-627 BC), with temple buildings in the center. Due to its positioning, the facade of the royal palace was visible from outside the city. This largest and last capital of the empire reveals the culmination of the development of urban planning in Assyria, and the growing importance of urban elements, namely citadels, fortifications, and royal gardens, in the architecture of the time (Novak M., 2004, 181-182). Significant New Year Festival temple gardens were found outside the city, by the river valley. These are the best archaeologically preserved temple-type gardens in Mesopotamia. Semi-public ceremonies for the elite took place here. The New Year Festival was a very important cultural and ideological celebration, enshrining the symbolism of the king and his reign, and unity with the god Ashuru (Amrhein A., 2015). Hunting and play gardens were also set up outside the city walls. These "Thereambassu" were several of" gardens, some on the north side of the Adad Gate and the others east of the Shamash Gate. Ritual hunts were held here, and judging by the reliefs of the later ruler Ashurbanipal II, military exercises were also organized.
in these gardens. These gardens, as usual, were looser structures to mimic chaos-dominated wildlife. The other part of the city's land is also used for public purposes, the plots are designed for growing trees and vegetables and divided for the people of Nineveh. It is not known exactly what was grown in these private gardens, but Sennacherib leaves a record of assigning them to human health and joy, giving them an individual source of food. Many of these gardens were distributed to high-ranking officials who generated income from them (Patrick DP, 2016, pp. 35-43). Finally, in the northern part of the city, there were also public orchards and orchards, which were also used for harvesting and were therefore thought to have little cultic significance and were therefore poorly stylistically developed. But here, too, public, landscaped observation platforms are also found from which the entire city and its visual structure were to be seen, thus symbolically showing the viewer the full grandeur of the Assyrian Empire (Amrhein A., 2015). For its ambitious projects From the mountains, Sennacherib brought waters to its new capital, with the help of canals and aqueducts, the surviving ruins of which are still visible today. He initiated impressive canals, which in some places reached 80 m. area and 20 m. depth, according to data collected by researchers, were constructed in four stages: first implementation of the Kisiri Canal, 13.4 km., 702 BCE; the system was later supplemented by the Musri mountain canal, which collects spring and basin waters, in 694 BC; then the Northern System was created, 46.4 km, 690 BC; and finally the ambitious Khinis system, 55 km., 690-688 BC Khinis, the latest water supply system, consisted of canals and tunnels, and as the city crossed the lowlands, water reached the aid of an aqueduct. It consisted of 6 pillars - pillars, had breakwaters and lasted for 280 m. To Sennacherib’s pride, innovative automatic water slides were also installed that did not require human physical effort to operate. All of these systems helped supply water to meet Nineveh’s enormous needs throughout the year, but in the spring, with the melting mountain snow, floods formed that could cause damage. To address this problem, Sennacherib designed an excess water discharge system that directed unnecessary water outside the city to specially designed artificial ponds. It is one of the oldest known and the first described sewage pond regulating excess water, based on the principles of sustainable architecture, which is especially relevant in our time. (Mays, LW, 2010, p. 7; p. 38). The design of these ponds was inspired and developed after Sennacherib’s successful military expedition to the then semi-independent, constantly rebel province of Assyria, Babylon, which ended in the destruction of the latter city. Therefore, this nature reserve has been planted with plants and animals and birds typical of southern Mesopotamia, which is much wetter, and therefore likely to be poorly adapted (Dalley S., 1993), thus symbolically emphasizing not only nature but also the kingdom of Babylon. The natural area of this artificial pond, which was near the city gate of Kar-Mulissi (Figure 9), allowed wildlife to breed and reproduce naturally. Over time, this area, having reached the stage of maturity, has become dangerous for local people coming to enjoy the reed harvest that is abundant here (Patrick DP, 2016).
The most important gardens, from Sennacherib’s perspective, were his own royal gardens, located within the city walls of the Kuyunjik Citadel. They were no doubt perfectly planned and decorated, and every element had to be thought through in detail, as these were the most important gardens of the empire. They were meant for the pleasure and joy of the gods and the king and his queen, as well as for ritual rites. These royal gardens were laid out in such a way as to provide easy access to temples and royal residences (Patrick DP, 2016, pp. 35-38). In addition, based on the latest hypotheses and research, Sennacherib is credited with realizing one of the wonders of the ancient world, the Hanging Gardens. Typically, these gardens, based on Greek sources, were attributed to Babylon, but until recently there were no archeological or Babylonian textual sources to determine the location and characteristics of the hanging Babylonian gardens, which allowed many speculations to occur. However, S. Dalley (1993) argues, using sound arguments, that Greek sources relied on gardens built by King Sennacherib of Assyria, Nineveh. They, in her opinion, are also depicted in the reliefs of Nineveh (Figure 10). Ninevija and Babylon were often confused by biblical, classical, and later authors, and thus Sinacherib of Assyria was merged with Nebuchadnezzar II of Babylon. The gardens, according to S. Dalley, were built on an artificial hill next to the palace and were designed and laid out to mimic a natural mountainous landscape with trees and flowing water. The shape and dimensions were similar to Greek theater (Figure 11), and the water was supplied to the top by bronze screws mounted in cylinders. The present invention is often attributed to Archimedes several centuries later, but images of propellers are found in Assyrian reliefs. Sennacherib’s analogues also testify to this garden, in which he is also proud of the new water supply technologies that have earned them the name of a world wonder (Dalley S., 1993, pp7-10.). The stone vaults supported the upper part of the gardens, the highest levels consisted of open terraces and columned paths.
with roofs planted with trees so that visitors walked under the roots, the
gardens were equipped with a pavilion with columns, “bitumen”, and probably
the lowest level was recreational. Taylor, P., (ed) 2006, p. 29. However, Dr.
David Stronach (2014) criticizes this hypothesis in his lectures, and although
he agrees with the possible argumentation of confusion between Nineveh and
Babylon in classical sources, he believes that such gardens near the royal
palace, especially the artificial lake, are unlikely as they block and impede the
most obvious and direct access to the palace. The relief of his beliefs
depicting the gardens of Nineveh is of a more abstract nature, conveying not so
much a realistic picture as all the achievements of the ruler in one place.

Figure 10. Nineveh Gardens, believed to possibly convey “hanging gardens,”
Mesopotamian Gardens and the Identification of the Hanging Gardens of
Garden History Society

Figure 11. Visualization of Hanging Gardens in Nineveh Illustr. Taylor, P.,
ed) 2006, The Oxford companion to the garden, Oxford University press,
Iconography of Mesopotamian Gardens In the context of Assyria, all gardens and parks were permeated with sacral meaning, the gardens were the meeting place of the gods, and also mediated between man and the gods. They were imbued with religious, cult, magical and political underpinnings. The visual discourses of the ritual rites taking place in them became forms of political-religious indoctrination. Textual sources indicate that the gods of both Babylon and Assyria also had personal, private private gardens in their heavenly habitats (Patrick DP, 2016, p. 39). However, in addition to the physical manifestation, the Assyrian gardens also had a visual representation conveyed in the reliefs of the royal palace. A particularly large number of such reliefs are found in the new palace built by Asurbanipal II, the grandson of Sennacherib, who continued to nurture his grandfather’s gardens in Nineveh. Such a relief, called The Garden Party (Figure 12), depicts a resting king with a queen in the gardens of Nineveh, after the victory over Elam, whose king Teumman’s head is evidently hung on a tree. In the hands of the ruler is a water lily, it is believed that these gardens had one or more ponds, the latter being covered with their flowers. Scientists believe that water lilies (Nymphaea) in Mesopotamia originated in Egypt (Albenda P., 1974, p. 6). The image of these depicted royal gardens conveys a complex composition based on a high level of layout and design, combining different greenery. Art historian P. Albenda reconstructed the full context of the image of this relief, revealing that the image was found in three registers depicting a wider panorama. The upper register, which contains the original relief, is dedicated to the king and depicts the gardens closest to the palace. The middle register depicts more public hunting gardens, and the last, lower register conveys artificial ponds outside the city walls. This layout reveals that the gardens closest to the royal palace were most carefully designed for ritual activities, but the gardens farther away from the palace deliberately used far less formulation, compositional means, even permissible chaos, and uncontrolled nature (Amrhein A., 2015, p. 100). A. Asadpor (draws 2018), after a more detailed analysis of Assyrian gardens, also conclusions about the existing connection between the center and the periphery, and the level of application of geometric planning and design. In the center, in the palaces or temples of the rulers, in the gardens, the highest degree of design is applied, which decreases steadily as you move towards the peripheries. Such planning is related to the dichotomy of order / chaos, conveying the ideological worldview of Assyria. In this context, the city is to be treated as a symbol of order, and wildlife as an opposition to unrest and chaos. The king, as a trustee of God, introduces order and harmony in a chaotic world, which is especially noticeable as he approaches from the periphery to the center. As a result, fully-fledged gardens flourished throughout the Assyrian Empire, the culmination and apogee of which were entrenched in the imperial capital, thus emphasizing the political, ideological, and religious dominance of the Assyrians in the country (Asadpor A., 2018).
Figure 12. Asurbanipal II Palace “Garden Party” Terrain


Figure 13. Reconstructed full-length reconstruction of “Garden Party” by P. Albenda


Iconography of the gardens themselves, as well as their visual representation, played an equally important ideological and propaganda role. In the conceptual perception of the world in Mesopotamia, both Babylon and Assyria, the visual did not differ from the real world, and was a more active factor than just the visual representation of the environment. A phenomenon, object, or person could have been easily reached through its visual representation or even name. Those who had access to the reliefs perceived them in a context adjacent to the physical gardens, and therefore gained a fuller experience, a broader perception of the reliefs. However, real gardens have more sensory features such as smell, sound, and space, creating a deeper mental spectacle, and the perception of terrain requires some education, iconography, and symbolism, making it a more conceptual experience as opposed to direct physical garden experiences. In this way, the “sixth sense” is used to understand the reliefs, which requires specialized doctrinal knowledge (Amrhein A., 2015, pp. 107-8). Thus, gardens were magical places where sculptures of gods were perceived as equally real and could be revived during ritual rites (Patrick DP, 2016, p. 66). Looking more broadly, it is clear that textual rhetoric was aimed at the educated elite, future generations and most importantly the gods, visual iconography in relief for those who lived or worked in the palace, and foreign kings or diplomats, and gardens more
symbolic than real physical places for the general public. Thus, the conceptual discourse of gardens was widely developed on many levels and functioned inextricably as a message of propaganda, indoctrination, cult, and ideology. For greater persuasiveness, gardens have been eroticized, in both religious and poetic texts, providing a wide variety of allegories. In order to achieve the mystery effect, the rituals of the gods were also performed here in the second month of the Assyrian calendar, during which the cult statue of Nabu was transferred to the cult statue gathering of the Tashmet bedroom of (Patrick DP, 2016, p. 40). Thus the image was established that fertility, fertility, and the prosperity of the kingdom were given to the people by the gods, and supported and cherished by the kings of Assyria. The reliefs established the image of Assyria as the center of civilization, from which the order spread to the otherwise chaotic peripheries. The gardens were designed to convey the king’s control over the environment - land, water and plants, thus strengthening his authority. And the greenery brought from the conquered lands was treated not only as trophies, but also symbolized dominance over the conquered nations.

Conclusions and Summaries

The technology of Mesopotamian gardens originated in the early period of the Erids and the influence of this garden art spread over time to Egypt, the Media, the Mohenjo-Dar Indus Valley and Patalipur in the Moorish Empire in India. In Europe, this influence was manifested in the construction of the Minoan Palace in Crete (Girot, C. 2016, p. 55). In Mesopotamia, two different types of gardens are traditionally distinguished. The Assyrians are characterized by northern-type gardens, most of which are freer in layout and tend to mimic the natural landscape, and southern-style gardens, typical of the Sumerians and Babylonians, with geometric planning structures, mostly associated with temples and cult needs. However, courtyard gardens found in palaces can also be singled out in this region (Taylor, P., (ed) 2006, pp. 308-309). The famous Hanging Gardens of Babylon, while not reaching the visual form of our time, have been heating our imaginations for centuries and causing different interpretations at different times, which in turn deserve special attention in the evolution of the idea of landscape architecture.

Clearly, gardens in ancient Mesopotamia acquired much broader cultural value and served as an agent of cult, worldview doctrine, formalization and dissemination of mythical thinking. Gardening was not only a matter of prestige but also a tool of politics. Some scholars tend to hold the view that the gardens depicted in the Assyrian reliefs are of a clear naturalistic nature and therefore cannot be the origins of geometric Persian gardens (Dalley S., 1993). However, to say so unequivocally would be too narrow an approach.

Many scholars point out that although Assyrian gardens are more naturalistic than geometric, ornamental Egyptian gardens or Mediterranean peristyle gardens, they do not have a sentimental and romantic attachment to nature, as did the 18th-century English or three-thousand-year-old Chinese and
later Korean and Japanese gardens. (Grecevičius P, 2015) Therefore, in comparison, it is not appropriate to look at them as more natural or wild, but equivalent or even more artificial and decorative, as they primarily sought to imitate alien landscapes. (Amrhein A., 2015). All the more so, as the authoritative scholar D. Stronach observes, for the first time in the history of Mesopotamia the tradition of royal, public gardens developed, and this culture of gardens as a political tool was first adopted by the Persians and later by other surrounding civilizations. (Stronach D., 1990, psl. 171-180). It is clear that ancient Mesopotamia occupies a fundamental place in the development of world garden art.

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