

An Investigation Of The Use Of Water Elements In Historical Places Vis-A-Vis Basic Design Criteria: Ottoman Period

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Abstract

This study aimed to thoroughly investigate the water elements used with the architecture of the Ottoman Period vis-a-vis the basic design criteria, from the building and garden scale to the open spaces scale in squares. The use of water elements in the Ottoman Empire was not only remarkable due to intrinsic design features and details; but also, thanks to universal design values of the period inherited from other civilizations, as a matter-of-fact water element has always been one of the focal points of the discipline of architecture throughout history. The water elements, including fountains, mosque fountains, decorative pools, public fountains, and square fountains built by architects during the Ottoman period were investigated within the scope of this study vis-a-vis the basic design criteria, considering the period of construction and all the elements that helped constitute the building identity. The water elements in question included Kaptan-ı Derya Sadrazam Hüsrev Mehmed Pasha Fountain, Gazanfer Agha Fountain, decorative pool in Topkapı Palace, Ahmet III Fountain, Hümaşah Hatun Fountain, the ornamental pool in Hasbahçe, the Hagia Sophia fountain, and the Hagia Sophia trihedral fountain. The research methodology was based on literature review using the Google database. Eight different examples from the Ottoman period that survived until today were selected, and on-site discovery, observation, and photography activities were carried out for the investigation in the scope of the study. As a result of the study, it was seen that the eight examples met the basic design criteria in terms of color, texture, material, and scale. In the context thereof, the examples featured similar design characteristics. Furthermore, there were functional differences depending on the location of the architectural water elements.

Keywords: Types of Water Elements, Ottoman Gardens, Water Elements in Architecture, Ottoman Fountains, Ottoman Water Structures

1.INTRODUCTION

Architectural water elements in historical places fall within the domains of art and science in terms of their intended use with regard to their environment and building typology. Nevertheless, water elements featured a symbolic character, emphasizing water as the basis of life in a number of cultures throughout history. Water and architectural water elements have been used in a versatile way based

on universal design criteria, and the foregoing uses have demonstrated integrity in both functional and aesthetic terms. In terms of function, architectural water elements enhance the spatial atmosphere and appeal to the visual senses of the user. The flow, movement, and reflections of water add dynamism to the architectural structure and help create a calming atmosphere. As regards the environmental arrangements, the architectural water elements are used in landscaping to create a natural balance. Water-focused

environmental designs, including rainwater collection systems, water recovery systems, and natural irrigation methods can contribute to sustainable architecture approach. There are also different uses for architectural water elements in the context of functional uses. Water walls or waterfalls add the element of silence to the environment by absorbing noise, where the cooling properties of water can provide natural air conditioning in indoor spaces. Water can also be utilized towards the energy efficiency and sustainability targets. Water elements in terms of religious ritual were associated with ritual and symbolism in various cultures in the scope of religious rituals. Designers can accommodate symbolic uses of water and water elements. Water elements are included in a wide range of different uses, aesthetics, and environmental arrangements in architectural design. Architects and designers not only can consider water as a visual element, but also adopt certain functional, environmental and symbolic perspectives. This diversity is associated with the importance of water in architectural design, which helps spaces with offering a more meaningful and rich experience.

Marble production and operation Anatolia dates back to rather earlier periods across history. There are a number of ancient quarries in many regions across Anatolia. During then antiquity, marble production was concentrated in and around Şanlıurfa, Marmara Island, Mardin, Afyonkarahisar, Çanakkale, Bilecik, and İzmit. Marbles processed in these quarries are frequently seen especially in the works of art from the Roman, Byzantine, Seljuk, and Ottoman periods, which reigned over these lands in the last 1,000 years. Marbles reflect the prosperity and richness of a city, site, and life of the period they were used in. Marbles found extensive use in sarcophagi, churches, and statues during the Roman and Byzantine periods, and palaces, inns, baths, caravanserais, mosques, and madrasahs during the Ottoman and Seljuk periods. As evident from history, marble was used by people in Anatolia from ancient times to the present day as the most basic material for buildings and shelter purposes (Güngör, 2013).

Given that Istanbul was the last capital of the Ottoman Empire, a number of squares, buildings, and gardens were investigated by taking water elements that met the design criteria as examples in the scope of the study. Considering the relationship of water elements with the discipline

















of architecture, water is a component that determines the function of interior and exterior spaces. Accordingly, eight different Ottoman Period water elements were investigated in the article under certain design topics. These included the architectural technical and design elements of various surviving water structures in Istanbul manifested in different forms and spaces. In the scope thereof, the form, color, texture, and material details, space, and functions of the example buildings were investigated. The study also included a review of the impact of the inherited architectural styles from other civilizations on the water elements used in the Ottoman Period. During this period, water elements were considered an asset, which added quality to the atmosphere of cities, palaces, and gardens and gave an important identity to architecture. This study aimed to investigate design features of selected water structures in the Ottoman period, which helped them serve as an architectural element that met the needs of the society and create the urban structure and identity that brought the society together in public squares and mosques.

2. METHOD

2.1. Research Areas

Istanbul, the last and longest capital of the Ottoman Empire, had water problems since its foundation. In the beginning fountains were built in certain squares of cities in order to improve access to water. First used solely for functional purposes, the Ottoman fountains in the public squares were later built for decorative purposes by the sultans under the influence of the spirit of their time. Accordingly, eight surviving fountains from the Ottoman period were selected and their features were reviewed.

Table 1. Features of Research -1

Name of the Building	Gazanfer Aga Public Fountain	Hasbahçe Decorative Pool	Topkapı Palace Decorative Pool	Hagia Sophia Fountain
Year of Construction	Late 16 th century	1856	1478	537
Location				
Coordinates	41°01'04.6"N 28°57'19.6"E	41°02'17.5"N 28°59'49.8"E	41°00'42.1"N 28°59'00.2"E	41°00'30.0"N 28°58'44.2"E
Photograph (left to right: URL - 4-7)				
Country	Turkey	Turkey	Turkey	Turkey
City/District	Zeyrek, Fatih/ Istanbul	Beşiktaş/Istanbul	Fatih/Istanbul	Fatih/Istanbul
Designer	Davut Agha	Garabet Amira Balyan and son Nigoğos Balyan	Unknown	Architect Vedat and Kemaleddin
Name of the Building	Ahmet III Fountain	Hümaşah Hatun Fountain	Hagia Sophia Trihedral Fountain	Kaptan-ı Derya Sadrazam Hüsrev Mehmet Pasha Fountain
Year of Construction	1728-1729	1782	537	1780
Location				
Coordinates	41°00'30.2"N 28°58'52.6"E	41°06'21.0"N 29°03'18.0"E	41°00'33.0"N 28°58'43.2"E	41°02'43.9"N 28°56'58.4"E
Photograph (left to right: URL-10, 11,12,13)				

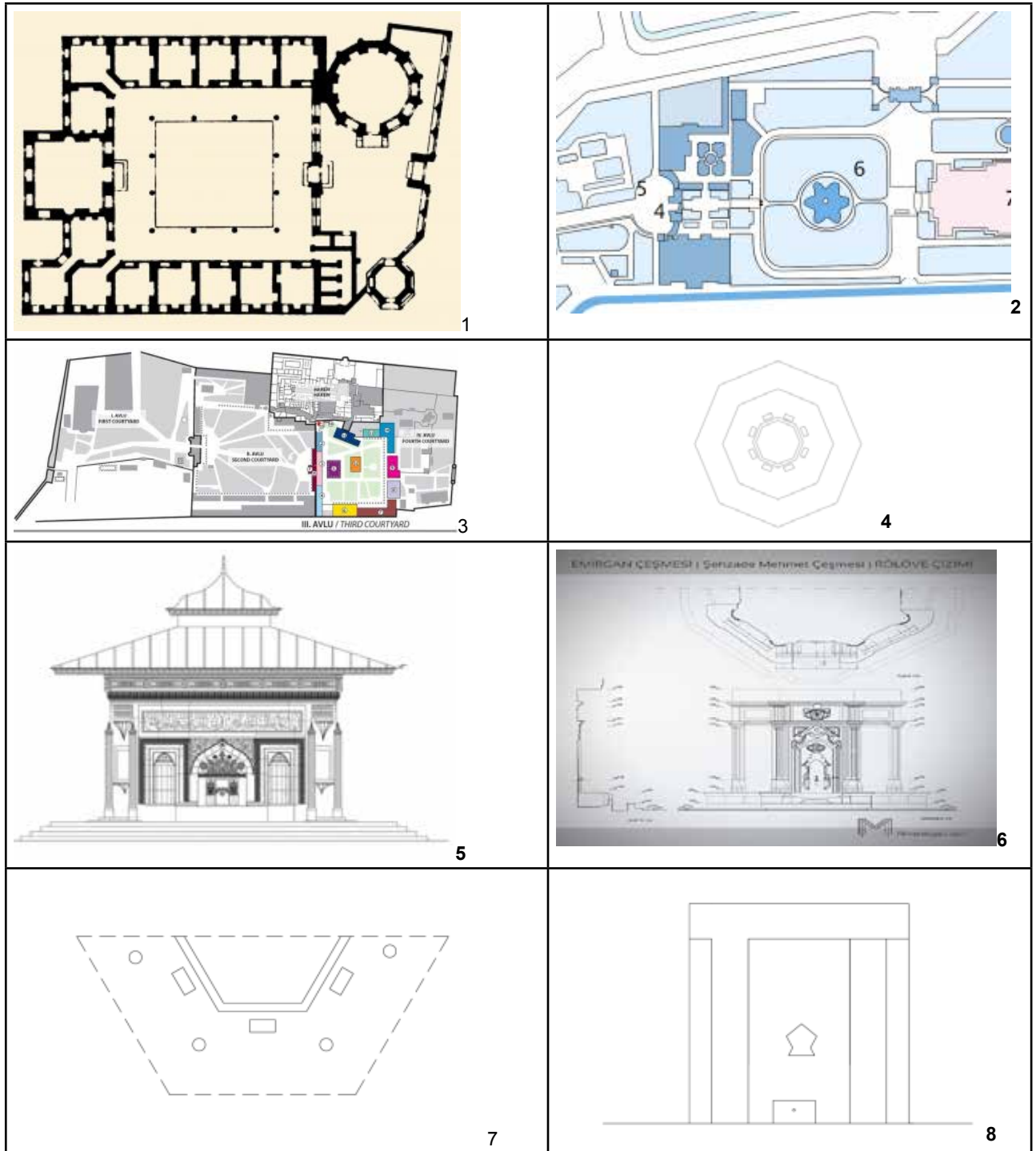


Figure 1. Technical drawings of the fountains, 1. Gazanfer Agha Fountain, 2. Hasbahçe Decorative Pool, 3. Topkapı Palace Decorative Pool, 4. Kaptan-ı Derya Sadrazam Hüseyin Mehmed Pasha Fountain (drawn by authors), 5. Ahmet III Fountain (URL-8), 6. Hümaşah Hatun Fountain (URL-9), 7. Hagia Sophia Trihedral Fountain (drawn by authors), 8. Kaptan-ı Derya Sadrazam Hüseyin Mehmed Pasha Fountain (drawn by authors)

2.2. Research method

Water elements in the Ottoman period also became a characteristic feature of Ottoman buildings and cities, not only incorporating functional and aesthetic value thereto, but also allowing social and religious rituals. For the purposes of the literature review in the scope of this study, Google Internet database, reviews, and miscellaneous Internet resources about architectural water elements were used. General information about Ottoman Period Water Elements were captured in tabular format. Observation and photography activities were carried out along for the field research.

3. RESEARCH RESULTS

As regards the function, the results of the study were indicative of the fact that the architectural water elements of the Ottoman period were not used for decorative purposes, but rather for hygiene, religious rituals, and drinking water supplies. As regards the marble material in use, neutral colors were preferred instead of warm and cold shades. As regards the material texture, the textures of the architectural water elements of the selected examples from Ottoman period were smooth and shiny.

	1	2	3	4	5	6	7	8
Function	Drinking Water Supply	Decorative	Decorative	Hygiene Religious Ritual Drinking Water Supply	Hygiene Religious Ritual Drinking Water Supply	Hygiene Religious Ritual Drinking Water Supply	Hygiene Religious Ritual Drinking Water Supply	Hygiene Religious Ritual Drinking Water Supply
Co-our	Neutral	Neutral	Neutral	Neutral and Golden Color	Neutral and Golden Color	Neutral and Golden Color	Neutral	Neutral
Texture	Smooth shiny	Smooth shiny	Smooth shiny	Smooth shiny	Smooth shiny	Smooth shiny	Smooth shiny	Smooth shiny
Material	Marble	Marble	Marble	Marble	Marble	Marble	Marble	Marble
Form	Polygon	Circle	Polygon	Polygon	Polygon	Polygon	Polygon	Polygon
Scale	Large	Large	Medium	Large	Large	Large	Large	Medium

Table 2. Research Results

1. Gazanfer Agha Fountain, 2. Hasbahçe Decorative Pool, 3. Topkapı Palace Decorative Pool, 4. Kaptan-ı Derya Sadrazam Hüsrev Mehmet Pasha Fountain, 5. Ahmet III Fountain, 6. *Hümaşah Hatun Fountain*, 7. Hagia Sophia Trihedral Fountain, 8. Kaptan-ı Derya Sadrazam Hüsrev Mehmet Pasha Fountain

4. DISCUSSION

During the 15th century under Ottoman reign, fountains built on public squares were used to provide access to water instead of installations for individual residences. This planning approach is indicative of the fact that public square fountains were one of the indispensable elements that shaped the environment in their surroundings. In addition, as regards function, the fountains were considered a complimentary element of the 'mosque yard-coffeehouse-platan shade triangle,' serving as small meeting areas that people used to socialize, as well as to clean themselves, drink water, and perform their religious rituals during the Ottoman period.

The main scheme of the fountains during the Ottoman period, which varied by building material, form, and style over the centuries;

- Neutral colors were preferred, given that the fountains were built for functional purposes during in the early Ottoman period.
- In addition to the functional purposes thereof, the fountains during the Ottoman period were generally decorated with golden foils in accordance with the architectural fashion of the period in addition to neutral colors in use.
- Furthermore, the fountains, which were built for decorative purposes in line with the wishes of the sultans of the period, featured inscriptions on the tap-mirror stone indicative of the person, who built the fountain, sometimes the type of water, the date of construction of the fountain, and chansonettes (mani) (Sedes, 2014).

Marble was frequently used in fountain construction during the Ottoman period, especially for fountains used for aesthetic purposes, due to its stylish and decorative appearance, being able to be designed as desired, being a hygienic and easy-to-clean material, resistant to impacts and scratches, and being an environmentally friendly natural material. In Ottoman fountains, the fountain textures were notably smooth and shiny due to the use of marble. In addition, previous studies by Robert Mantran on the history of Istanbul were suggestive of the fact that that there was a significant increase in the number of marble fountains built in the Galata district in the first half of the 18th century. The increase in the number of both marble tombstones and marble fountains was due to the fact that

the marble quarries on the Marmara Island and Kapıda Peninsula became operational again and the material could have been easily and cost-effectively transported to Istanbul (Delta, 2020).

Mostly the regular polygonal forms were used with the fountains of the Ottoman Period, especially as seen in Table 3. Later, circle forms were also used to complement the architectural element on which it was placed as influenced by the Baroque style. Nevertheless, most of the decorative elements of the fountains, including color, texture, material, and form did not survive except for their intended functions.

5. CONCLUSION

As a result of the review of eight examples included in the study, similar basic design criteria were used in color, texture, material, and scale, yet there were differences as regards the functional use of the fountains depending on their location. The study contributes in the relevant literature by an investigation of the design features of Ottoman period fountains. It can serve as a preliminary source of data for future studies.

REFERENCES

III. Ahmet Çeşmesi; <https://www.istanbulgeziyorum.com/3-ahmet-cesmesi-36.html>(Accessed on: 17.01.2024).

Ayasofya Cami; <https://tr.wikipedia.org/wiki/Ayasofya> (Accessed on: 17.01.2024).

DEMİR, B. G., & GÜNGÖR, N. (2013). Mermer Madenciliği ve Çevre. *İstanbul Aydın Üniversitesi Dergisi*, 5(20), 7-14.

Goodwin, G., (2012). Osmanlı Mimarlığı Tarihi. *Kabalcı Yayınları*

Güngör, N., "Mermer Madenciliği ve Çevre", (İstanbul Aydın Üniversitesi Dergisi, 2013).

Sadrızam Mehmet Paşa Çeşmesi; <http://www.suvakfi.org.tr/cesme/adalar/kaptan-i-derya-sadrizam-husrev-mehmet-pasacesmesi-h-1259-m-1843> (Accessed in January 2024).

Sakarya, G. A. (2018). MİMARİ TASARIMDA SU ÖĞESİNİN FARKLI KULLANIM AMAÇLARI BAKIMINDAN İNCELENMESİ: ANADOLU ÖRNEĞİ. *AsiaMinorStudies*, (SPECIAL), 107-120.

Sedes, F., "Geçmişe Bakıştan Osmanlı Çeşmeleri", *İstanbul Aydın Üniversitesi Uygulama Dergisi*, 2014

Tali, Sh. (2010). İSTANBUL SU MİMARİSİNDE FATİH SEBİLLERİNİN YERİ VE ÖNEMİ. *Journal of International Social Research*, 3(10).

URL-1.<https://islamansiklopedisi.org.tr/gazanfer-aga-kulliyesi>(Accessed on:12.11. 2023).

URL-2.https://tr.m.wikipedia.org/wiki/Dosya:Dolmabahce_Palace_plan.svg(Accessed on: 01.12. 2023).

URL-3.<https://i.pinimg.com/>

