

Architecture of the Traditional *Saqqāyāt* in Wādī Ḥaḍramūt, Yemen: An Archaeological and Cultural Study

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عمارة سقايات المياه التقليدية بوادي حضرموت- اليمن دراسة أثرية حضارية

Mohamed Ahmed Abdelrahman Enab

Assistant Professor of Islamic Architecture, Faculty of Archaeology, Fayoum University,
Egypt

Maa25@fayoum.edu.eg

Abstract

This study aims to investigate the archaeological *Saqqāyāt* or “water fountains” in Wādī Ḥaḍramūt, highlighting them as a significant form of charitable water infrastructure within Islamic architecture. These fountains are widespread across Wādī Ḥaḍramūt, a region renowned for its rich historical and cultural heritage, and have become integral to the urban fabric of various Ḥaḍramī cities. The research aims to document these *Saqqāyāt* and analyze their architectural and engineering features from historical and archaeological perspectives, emphasizing their cultural importance. Additionally, it examines the social and religious factors that influenced their establishment.

The significance of this study lies in its exploration of the unique architectural and cultural heritage of Wādī Ḥaḍramūt, with a particular focus on the earthen architecture that characterizes various Ḥaḍramī cities. The research employs a historical-analytical approach to examine these water fountains, aiming to understand their social and historical context. Furthermore, it compares the architectural design of al-*Saqqāyāt* with similar water infrastructure found in other Yemeni cities.

The key research questions focus on the origins of al-*Saqqāyāt* in Ḥaḍramūt, their intended purposes, their evolution over time, and their impact on the urban and cultural landscape of Ḥaḍramī cities. Additionally, the study examines how these systems have contributed to water sustainability, as well as the functional role of al-*Saqqāyāt* and its influence on their location and design.

Keywords

Al-Saqqāyāt; Yemen; Ḥaḍramūt; Tarīm; Shibām Ḥaḍramūt; water fountains, Say’ûn

المخلص

تهدف هذه الورقة البحثية إلى دراسة السقايات التقليدية في وادي حضرموت كأحد أنواع المنشآت المائية الخيرية في العمارة الإسلامية، وقد انتشرت سقايات المياه بكثرة في وادي حضرموت؛ والذي يتميز بقدمه التاريخي والحضاري، وأصبحت هذه السقايات جزءاً لا يتجزأ من النسيج العمراني لمدن حضرموت المختلفة، وتهدف الدراسة إلى توثيق هذه السقايات وتحليل خصائصها المعمارية والهندسية من منظور تاريخي أثري، ومعرفة أهميتها الحضارية الكبيرة، ودراسة الأبعاد الاجتماعية والدينية التي أثرت في انشاءها، وتكمن أهمية هذه الدراسة في أنها تلقي الضوء على التراث الحضاري والمعماري الفريد لوادي حضرموت كأحد أشكال العمارة الطينية التي تميزت بها مناطق حضرموت المختلفة، وتعتمد الدراسة على المنهج التاريخي التحليلي لهذه السقايات لفهم السياق الاجتماعي والتاريخي لها، وتتركز اشكاليات البحث وأسئلته حول كيف نشأت السقايات المائية في حضرموت، والغرض من بنائها، وكيف تطورت عبر العصور، وكيف أثرت وتأثرت هذه السقايات النسيج العمراني والحضاري للمدن الحضرمية، والدور الوظيفي وأثره على موقع وتصميم هذه السقايات، وكيف ساهمت هذه الأنظمة في تعزيز الاستدامة المائية.

الكلمات الدالة: السقايات؛ حضرموت؛ اليمن؛ تريم؛ المنشآت المائية؛ سببام؛ حضرموت

Introduction

The *saqqāyāt* (water fountains) are among the most renowned charitable and social architectural structures established by sultans, princes, and the general public

throughout Islamic history, either as independent entities or annexed to other buildings. Known as Sabils “*al-Asbilah*” in other regions, they are referred to as *al-saqqāyāt* in Wādī Ḥaḍramūt¹. These *saqqāyāt* have been fundamental to life in Yemen, where water is a vital resource, especially in light of the significant scarcity of water sources across various parts of Yemen.

The *saqqāyāt* of Wādī Ḥaḍramūt, which extends across eastern Yemen and includes famous historical cities such as Tarīm, Shibām Ḥaḍramūt, Say’ûn, al-Šihr, and others, are a crucial part of Yemen's traditional architectural heritage. They play a vital role in providing water to local community, particularly in the arid areas of Wādī Ḥaḍramūt, which are characterized by high temperatures and a lack of water resources. In this context, finding innovative means for collecting, storing, and distributing water was essential. Thus, *saqqāyāt* were constructed using traditional techniques adapted to the region's unique environmental conditions. These *saqqāyāt* are distinguished by their unique architectural design, reflecting the cultural and environmental influences of the surrounding area. They have become an integral part of the region's urban fabric, representing a form of earthen architecture that defines Ḥaḍramī style and harmonizes seamlessly with the adjacent structures.

This research aims to study and present these *saqqāyāt* (water fountains), exploring their origins and their significance. It seeks to analyze their architectural design, identify the local environmental factors that influenced their planning and architectural details, including the construction materials and methods used. The study also examines the various locations and forms of *al-saqqāyāt*, their mechanisms of operation, and their social and cultural dimensions. Additionally, it investigates the role of waqf in the establishment and continued operation of these *saqqāyāt*. The choice of this topic arises from the scarcity of specialized studies focusing on *al-saqqāyāt* in Ḥaḍramūt. Previous references to these structures have been brief and largely limited to travel writings and accounts of Western orientalists, without

¹ **Ḥaḍramūt** is originally the name of a tribe that became synonymous with the kingdom established on its territory, which eventually expanded its influence over neighbouring tribes. The land governed by the power of that state became known as the land of Ḥaḍramūt, signifying both the territory of the tribe and the land of the Kingdom of Ḥaḍramūt. Moreover, the name Ḥaḍramūt also came to denote the well-known valley, one of the three largest valleys in the Arabian Peninsula, running from north to south: *al-Dam’a*, *al-Dawāsir*, and Ḥaḍramūt. All of these valleys are characterized by connecting the eastern and western parts of their regions. Numerous ancient civilizations emerged in these areas, which were once ruled by the kings of Saba’ and Dhū Raydān. Ḥaḍramūt was one of the three provinces of Yemen, alongside al-Ġund and their surrounding regions, including Laḡḡ, ‘Adan, Ṣan‘ā’, and their neighbouring territories. Today, Ḥaḍramūt constitutes one of the governorates of the Republic of Yemen. For further information, see: al-Hamdānī, al-Ḥasan b. Aḥmad b. Ya‘qūb (d. after 336 A.H/947A.D), *Ṣifat Jazīrat al-‘Arab*, ed. Muḥammad b. ‘Alī al-Akwa‘ al-Ḥawālī, Maktabat al-Irshād, Ṣan‘ā’, 1st ed., 1990, pp. 165-167; al-Shāṭirī, Muḥammad b. Aḥmad, *Adwār al-Tārīḥ al-Ḥaḍramī*, Dār al-Muhāğir, al-Madīna al-Munawwara, Tarīm-Ḥaḍramūt, 2nd ed., 1983, p. 14; Bāfaḡīh, Muḥammad ‘Abd al-Qādir, “**Ḥaḍramūt**”, in al-Mawsū‘a al-Yamaniyya, Vol. 2, al-‘Afīf Cultural Foundation, Ṣan‘ā’, 2nd ed., 2003, pp. 1116-1124.

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highlighting their significant aesthetic and cultural value. This study aims to fill that gap by providing an in-depth analysis of the architectural design and distinctive characteristics of these *saqqāyāt*, which distinguish them from other forms of Sabils “*al-Asbilah*” across other Yemeni cities and throughout the Islamic world. The study explores their substantial historical and cultural significance, their relationship to the urban planning of Ḥaḍramī cities, and their distinct locations. Furthermore, it investigates the key architectural and artistic influences on their form and overall design, as well as how these *saqqāyāt* impacted social life in Wādī Ḥaḍramūt by serving as a vital water source. The study employs a historical inductive and analytical approach to examine the forms and architecture of these *saqqāyāt*, and a descriptive approach to three specific models. The research is divided into two sections: the first provides a historical and cultural preface to *al-saqqāyāt* in Wādī Ḥaḍramūt, while the second offers an analytical study of these *saqqāyāt*.

Section One: Historical and Cultural Background of *al-saqqāyāt* in Wādī Ḥaḍramūt: this section provides an overview of the origins and development of *al-saqqāyāt* (water fountains) in Yemen, with a particular focus on their historical evolution in Wādī Ḥaḍramūt. It also examines the views of travellers and orientalisks on these water structures, highlighting their significance and role in the region's cultural and architectural heritage.

1. Definition and Origin of *Al-Saqqāyāt*

Linguistically, the term *saqqāyah* is derived from the root “*saqā*” which means “to drink.” The term *saqqāyah* refers to a vessel from which water is served or a designated place for drinking. It describes a building or area where water is collected and distributed to people; thus, a structure where water is gathered and served is known as a *saqqāyah*². Additionally, a *saqqāyah* can refer to a location designated for providing water to both people and animals. In archaeological terminology, a *saqqāyah* is defined as a roofed structure located in public spaces, often situated nears the corners of religious or civil buildings³. It functions similarly to a room specifically designed for storing and distributing water⁴. They are considered one of the most significant forms of charitable water facilities that sultans, princes, and benefactors sought to establish diligently and competitively throughout various historical periods, motivated by the desire for divine reward, as providing water is regarded as one of the most esteemed forms of continuous charity (*ṣadaqāt jāriyya*). Initially, these facilities were attached to mosques and schools, with the best example being the water dispensers (*saqqāyāt*) that existed in the courtyard of the Prophet's Mosque in Medina,

² Ibn Manẓūr, Abū al-Faḍl Jamāl al-Dīn Muḥammad ibn Mukarram ibn ‘Alī, (D. 711 A.H/1311 A.D), *Lisān al-‘Arab*, vol. 3, Dār al-Ma‘ārif, Cairo, n.d., p. 2042

³ Rizq, ‘Āṣim, *Mu‘jam Muṣṭalahāt al-‘Imāra wa-al-Funūn*, Maktabat Madbūlī, Cairo, 2000, p. 137

⁴ Al-Jarmūzī, al-Muṭahhar ibn Muḥammad ibn Aḥmad (D. 1077 A.H/1667 A.D), *Tuḥfat al-Asmā‘ wa-al-Abṣār bimā fī al-Sīra al-Mutawakkiliyya min Gharā’ib al-Akhbār*, vol. 2, ed. ‘Abd al-Ḥakīm ‘Abd al-Majīd al-Hijrī, Dār al-Imām Zayd ibn ‘Alī al-Thaqāfiyya li-al-Nashr wa-al-Tawzī‘, 1st ed., Ṣan‘ā’, 2002, p. 823.

which numbered nineteen by the year 199 A.H/814 A.D⁵. Over time, these structures began to spread over time along public roads, in cities, and throughout various villages and their facilities⁶. During the first five centuries following the Hijra, they were commonly recognized as Sabils “*al-Asbilah*”, particularly from the late 5th century A.H/11th century A.D. In certain periods, they were referred to as “*al-ma‘rūf*”, especially in the Levant, Egypt, and the Arabian Peninsula. In Iran, these structures were known as “*sāqākhānah*”, while in Anatolia, they were referred to as “Çeşme”⁷. In the Maghreb region, the term *al-saqqāyāh* became associated specifically with this type of water-related infrastructure⁸. Additionally, in some parts of the Maghreb, they were locally called “*al-Aqanīyah*”⁹, among various other synonymous names that convey similar meanings and functions, as they all serve as charitable structures for providing and distributing water.

The concept of providing water to the people and facilitating access to it existed in the Arabian Peninsula before Islam, particularly through the establishment of *al-siqāyah* and *al-raḥādah* for the pilgrims visiting the Sacred House of Allah. The notable figures of Quraysh vied for the honor of supplying water to the visitors of the Sacred House and the caravans passing nearby, as this brought them prestige and elevated their social status. *Al-siqāyah* was a specific duty designated for supplying fresh water to incoming pilgrims, a practice that persisted from the days of *al-Jāhiliyyah* until the dawn of the Islamic era. Giving the scarcity of fresh water in Makkah, they would transport water from distant locations, often mixing it with ingredients such as dates and raisins before distributing it to the pilgrims. Those entrusted with the *siqāyah* of the pilgrims would fill numerous water skins and establish a designated area near the honored Ka‘ba to offer water, a practice that continued until the emergence of Zamzam water¹⁰.

From the *siqāyah* provided to pilgrims at the Sacred House of Allah in Makkah al-Mukarramah to the distribution of water along the routes connecting Islamic cities - particularly the road between Makkah and Madīna, as well as various pilgrimage

⁵ Al-Samhūdī, Nūr al-Dīn ‘Alī ibn ‘Abd Allāh al-Ḥusaynī (D. 911 A.H/1505 A.D), *al-Wafā‘ bi-Akhhār Dār al-Muṣṭafā* 𐤎𐤃𐤁, vol. 2, edited by Muḥammad Nizām al-Dīn al-Fitīḥ, Maktabat Dār al-Zamān li-al-Nashr wa-al-Tawzī‘, Medina, 2008, p. 575.

⁶ Al-Khatīb, Mustafa ‘Abd al-Karīm, *Mu‘jam al-Muṣṭalahāt wa al-Alqāb al-Tārīkhiyyah*, Al-Risālah Foundation, Beirut, 1st ed., 1996, p. 238.

⁷ Al-Ḥaddād, Muhammad Ḥamzah, *Al-Mujmal fī al-Āthār WA al-Ḥaḍārah al-Islāmiyyah*, Zahra al-Sharq Library, Cairo, 2006, p. 489

⁸ Al-Kaḥlawī, Muhammad, *Al-Saqqāyāt al-Maghribiyyah bi-Madīnatī Fās WA Marrāksh: Dirāsah Atharīyah Muqāranah ma‘ al-Asabīlāh al-Mamlūkīyah bi-al-Qāhirah*, published in Majallat Kulliyat al-Ādāb, vol. 4, Faculty of Arts, South Valley University, 1995, p. 3.

⁹ ‘Abd al-Fattāḥ, Muhammad Ḥasan et al., *Al-saqqāyāt al-Āthārīyah bi-Madīnat Ṭaṭwān bi-al-Maghrib al-Aqṣā fī al-‘Aṣrayn al-Waṭāsi WA al-Sa‘dī (869-1069 A.H/1645-1659 A.D): Dirāsah Tārīkhiyyah Āthārīyah*, vol. 46, no. 1, part 1, Majallat al-Dirāsāt al-Ifrīqiyyah, January 2024, p. 145.

¹⁰ Bāshā, Ayyūb Ṣabri (D. 1290 A.H/1890 A.D), *Mawṣū‘at Mir‘ūt al-Ḥaramayn al-Sharīfayn wa Jazīrat al-‘Arab*, vol. 1, translated by Mājdah Makhlūf et al., Dār al-Afāq al-‘Arabiyyah, Cairo, 1st ed., 2004, p. 301.

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routes- the Arabs carried this noble practice without any expectation of reward. Islamic states adopted the custom of constructing buildings specifically for the distribution of water to passersby or for charitable purposes in the name of Allah. They built basins to collect water and dug wells and springs to ensure a steady supply¹¹. The Well of Zamzam is regarded as the first *siqāyah* benefited by the pilgrims to the Sacred House of Allah, having been miraculously revealed by Allah for Ismail and his mother, peace be upon them, adjacent to the honored Ka'ba. Additionally, the Well of Rumah, which was purchased by Caliph 'Uthmān ibn 'Affān from its Jewish owner and dedicated for the free consumption of Muslims, is considered the first *sabīl* for supplying water in Islam. The commitment to establishing these charitable institutions for providing water continued throughout various Islamic periods, whether through the digging of wells, the construction of *al-Asbilah*, or other forms of water-related structures.. These institutions are considered an essential component of charitable endowments, which are intended by the endower as a means of facilitating acts of benevolence and public benefit¹².

2. The Emergence and Development of *Al-Saqqāyāt* in Yemen

Al-saqqāyāt have been widespread in Yemen since ancient times and are considered as one of the most important functional elements of Yemeni cities. They are very small architectural spaces in size compared to other structures and are also commonly referred to as Sabils "*al-Asbilah*" in many Yemeni cities. Their mention in Yemeni historical sources is often associated with mosques and wells. The number of *Saqqāyāt* is quite substantial in Yemeni cities, highlighting their significance in urban life. In the Old City of Ṣan'ā', there are over 60 Sabils, with most of these structures located in the neighborhoods. They were constructed to supply residential houses that lack wells with water. In Ṣan'ā', this type of *Saqqāyah* is known as "*al-Muḥsinah*"¹³. Historians note that each mosque in Ṣan'ā' has a *sabīl* with a dome, allowing people to draw water. Often, there are two domes: one for men and another for women, with unrestricted access. Additionally, there are water basins from which livestock can drink, as well as areas designated for workers and builders to draw water¹⁴.

¹¹ Al-Jabūrī, 'Abd al-Salām Muḥammad, *Al-Mushīdāt al-Waqfiyyah WA al-Khayriyah fī Bilād al-Shām 'ibān al-'Aṣr al-Mamlūkī*, Dār al-Kitāb al-Thaqāfi, Irbid, Jordan, 2013, p. 24.

¹² Sa'dāt, Maḥmūd Fatūḥ Muḥammad, *Al-Faḍā'il al-Nafīsa WA al-Ijtīmā'iyya li-Binā' al-Asbilah al-Mā'iyya al-Waqfiyyah al-Khayriyah*, Dār al-Hudā li al-Ṭibā'ah, Algeria, 2nd ed., 1437 A.H/2016 A.D, p. 29

¹³ Markaz al-Ṭāhir lil-Istishārāt al-Handasaiyah, Munazzamat al-'Awāṣim WA al-Mudun al-Islāmiyyah, *Usus al-Taṣmīm al-Mi'mārī WA al-Takhṭū' al-Ḥaḍarī fī al-'Uṣūr al-Islāmiyyah: Dirāsah Taḥlīliyyah 'alā al-'Āṣimah Ṣan'ā'*, Jeddah, Saudi Arabia, 2005, pp. 268-271

¹⁴ Al-Shahārī, Jamāl al-Dīn 'Alī ibn 'Abd Allāh ibn al-Qāsim ibn al-Mu'ayyad (D. after 1176 A.H/1762 A.D), *wāṣf Ṣan'ā'* mustal min al-Manšūrāt al-Jaliyyah, translated by 'Abd Allāh al-Ḥabashī, French Centre for Yemeni Studies, Ṣan'ā', 1st ed., 1993, p. 70, for more about Sabils in Yemen; Ḥusayn, Maḥmūd Ibrāhīm, *Dirāsah Aṭarīyah li-l-asbilah al-Yamaniyyah*, Majallat al-Tārīḥ wa-l-Mustaqbal, vol. 2, issue 1, 1992, pp. 213-244.

Sabils in Yemen received significant attention, particularly during the Rasulid dynasty (626–858 A.H/1229–1454 A.D), supported by sultans, kings, benefactors, and individuals devoted to charitable deeds. These structures were often attached to mosques and schools, providing substantial benefits to the community. Numerous examples are mentioned in Rasulid documents and endowments, including those established by Abū al-‘Abbās Aḥmad al-Nazārī (D. 646 A.H/1249 A.D) along Ta‘iz road, which consisted of two water troughs that have since fallen into disrepair. Among the most famous are the *saqqāyat al-‘Ajūz* and the *saqqāyat al-Najd*, both referenced in the documents of the al-Mu‘ayyidī, al-Jawharī, and al-Afḍalī schools located in Ta‘iz. Another significant example is the *saqqāyat al-Khaḍr* in the city of Zabīd, excavated during the reign of Rasulid King al-Ashraf II (d. 803 A.H/1400 A.D). Additionally, the *saqqāyat* of al-Madrasa al-Yāqūtīya in the city of Dhī al-Sufāl is among the many examples found throughout various regions of Yemen. A portion of the revenue from the endowment designated for mosques and schools was allocated to these *saqqāyāt*¹⁵.

Al Saqqāyāt in Yemen resembles the public fountains in the Islamic world in terms of their overall shape and functional purpose; however, they differ in certain details and building materials due to the unique characteristics of Yemen. The fountains and water troughs in Yemen do not include the element of the underground cistern, nor do they feature *al-kuttāb* that is commonly associated with Sabils in Egypt¹⁶.

3. History of *Al-Saqqāyāt* in Wādī Ḥaḍramūt and the Reasons for their Existence

Providing water has long been a deeply rooted tradition among the people of Ḥaḍramūt, passed down through generations as an act intended to earn reward and merit from God Almighty. Historically, the ancestors practiced the act of providing water to travelers or wayfarers through water containers known as *qirb* (water skins), which were hung beside homes or placed along the roadside. Subsequently, *Al-Saqqāyāt* became widely prevalent in Wādī Ḥaḍramūt, distinguished by their unique character, particularly in light of the historical depth of Wādī Ḥaḍramūt, which extends from the southeast of Yemen toward the west, running parallel to the southern coast of the Indian Ocean, with the Empty Quarter marking its northern boundary. From this region, five deep valleys branch out, including Wādī *Idīm*, *al-‘Ayn*, and *Dāw‘ān*¹⁷. Ḥaḍramūt is divided into Coastal Ḥaḍramūt, with its capital in the city of Al-Mukallā, the capital of the Qu‘ayṭīyah Sultanate, which is considered one of the largest cities in the region. The prominent cities within Coastal Ḥaḍramūt include *Al-Mukallā*, *al-Shahr*, *Ghayl Bāwzīr*, *Ḥajr*, among others. The other region is Interior

¹⁵ For more on these examples, refer to the illustrated edition of *al-Ghassānyah endowments*; Ghashīm, Muṣṭafā Ḥusayn ‘Alī, *Al-Asbilah fī al-Yaman fī ‘Ahd al-Dawlah al-Rasūliyyah*, Majallat Kulliyat al-Ādāb, no. 8, Jāmi‘at al-Hudaydah, March 2021, pp. 44-59.

¹⁶ Al-Ḥusaynī, Maḥmūd Ḥāmid, *al-Asbilah al-‘Uthmāniyyah in the City of Cairo 1517-1798 A.D*, Madbūlī Library, Cairo, 1988

¹⁷ Stark, Freya, *al-Bawābāt al-Janūbiyya li-Jazīrat al-‘Arab: Riḥlah ilā Ḥaḍramūt ‘ām 1934*, translated by Wafā’ al-Dhahabī, Abu Dhabi Tourism and Culture Authority, Abu Dhabi, 1st ed., 2013, p. 211.

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Ḥaḍramūt, with its capital in the city of *Say'ûn* and a center in *Say'ûn*, which includes the cities of *Tarîm*, *Shibām Ḥaḍramūt*, *al-Qaṭn*, and *Dāw'ân*, with its center in *Ḥuraydah*. Today, Ḥaḍramūt is the fifth governorate of the Republic of Yemen, located to its east. It is bordered to the north by the Empty Quarter, to the east by al-Mahrah Governorate, to the south by the Arabian Sea, and to the west by Shabwah Governorate. It is the largest governorate in Yemen in terms of area¹⁸. (Fig. 1, 2)

Wādī Ḥaḍramūt is considered one of the cradles of ancient Yemeni civilization, as the history of some historical cities in the valley dates back to the fourteenth century BCE. The valley is renowned for its significant historical and cultural heritage, having been part of the ancient incense trade route connecting the East and West. This region is distinguished by its unique location¹⁹. The architectural art in Wādī Ḥaḍramūt is distinguished by its unique identity and character, where mud brick serves as the primary building material for various architectural structures. This art form mud brick the general style of Islamic architecture with local architectural adaptations for mud brick construction. The earthen architecture, preserved by the people of Ḥaḍramūt since ancient times, is considered one of the most important features of the cities and villages of the valley²⁰.

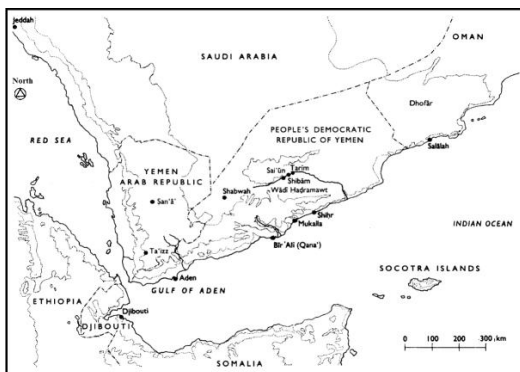


Fig 1. Map showing the location of Ḥaḍramūt and its borders. **Source;** Ronald Lewcock, *Wādī Ḥaḍramūt*, 1986, p. 17

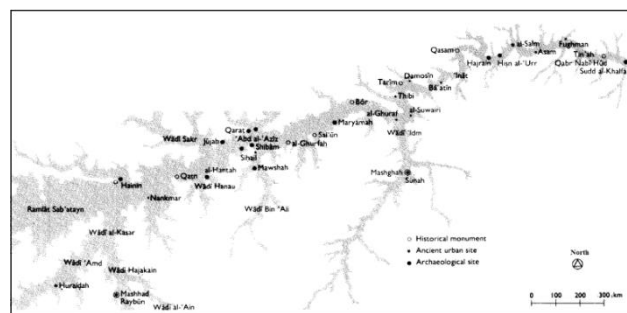


Fig 2. Map showing the most important cities, and historical sites in Ḥaḍramūt. **Source;** Ronald Lewcock, *Wādī Ḥaḍramūt*, 1986, p. 19

These *saqqāyāt* are considered one of the distinctive forms of earthen architecture in Wādī Ḥaḍramūt. In the local dialect of Ḥaḍramūt, the *saqqāyāt* are known by the term “*al-marābid*”, with the singular form being “*al-marbadah*”, where water is said to

¹⁸ For more information about Wādī Ḥaḍramūt and its cities, see: al-Ḥusaynī, Al-Sayyid al-Sharīf ‘Alawī ibn Ṭāhir ibn ‘Abd Allāh ibn Ṭāhā al-Ḥaddād al-‘Alawī, *Al-Shāmil fī Tārīkh Ḥaḍramūt wa Makhālīfihā*, edited by Muḥammad Abū Bakr Bādhīb, Dār al-Faṭḥ for Studies and Publishing, ‘Ammān, Jordan, 1st ed., 2017; Al-Shāṭirī, *Adwār al-Tārīkh al-Ḥaḍramī*, p. 16; Damluji, Salma Samar, *The Architecture of Yemen: From Yafī’ to Ḥaḍramūt*, Laurence King Publishing, London 2007, p.148

¹⁹ Sā‘id, Haytham Khūrshīd, *Al-‘Imārah al-Ṭīnīyah fī Wadī Ḥaḍramūt*, Al-Mawsū‘ah al-Yamaniyya, vol. 3, p. 2130.

²⁰ ‘Abd al-Na‘īm, Osama Ṭal‘at, *al-‘Imārah al-Ṭīnīyah fī Wadī Ḥaḍramūt: Mazārāt Qaryat Sha‘b Nabī Allāh Hūd ‘Alayh al-Salām Namūdhajan*, Majallat Kulliyat al-Āthār, no. 22, Faculty of Archaeology, Cairo University, 2019, p. 103.

yartabid (i.e., settle or remain still)²¹. They were widely distributed across the various cities and regions of Ḥaḍramūt. It was one of the diverse forms of water structures in Yemen, and many of these forms were metaphorically referred to as Saqqāyāt, as they served as places for water storage²².

4. Al-Saqqāyāt in Wādī Ḥaḍramūt in the observations of travellers and orientalists

These saqqāyāt captivated the admiration of Western Orientalists during their travels across Ḥaḍramūt, who praised their abundance and variety. The Dutch Orientalist **Van Den Berg** (1845–1927) mentioned them, noting that they were found along the various routes taken by travelers in Ḥaḍramūt. These saqqāyāt were constructed by benefactors to provide drinking water to travelers, sparing them the burden of carrying water during their journeys²³. It was discussed by the renowned British Orientalist **John Phillby** (1885–1960) during his journey to southern Arabia, who noted that they could be found here and there, a reference to their abundance and widespread presence²⁴. The Dutch Orientalist **Daniël van der Meulen** (1894–1989) mentions them during his journey to Ḥaḍramūt with the German Orientalist **Hermann Wissmann** (1853–1905). He states that they were abundant and that they moved from one siqāyah to another. These saqqāyāt were of great benefit, providing them with water in the arid, mountainous, desert-like terrain of Ḥaḍramūt, characterized by its extreme heat, where water is scarce²⁵. It is also mentioned by the British Orientalist and explorer **Freya Madeline Stark** (1893–1993) in her journey to Ḥaḍramūt in several instances. She states that after departing from the city of al-Qaṭn and heading along the road to Shibām, she observed that there were beautiful white saqqāyāt scattered here and there throughout the valley. **Freya Stark** speaks of the city of Say’ūn, noting the presence of white mosques and ornate saqqāyāt throughout the area. She also mentioned that these saqqāyāt served as prominent landmarks for travelers amidst the desert in

²¹ Damluji, Salma Samar, *Wadī Ḥaḍramūt: Handasat al-‘Imāra al-Ṭīnīyah, Madīnatā Šībām wa-Tarīm*, Sharikat al-Maṭbū‘āt lil-Tawzī‘ wa-l-Našr, Abū Dhabi, 1995, p. 445.

²² Among these forms, known as *saqqāyat*, are water cisterns, particularly in the region of Yāfi‘. These cisterns are distributed along routes to store rainwater or water pumped from nearby wells. The cistern was called *siqāyah* as it provided water for both humans and animals. Most of them are uncovered, while a few are roofed. They are typically cylindrical pits surrounded by a slightly elevated wall, constructed and lined with stones, and their walls are coated with qaḍāḍ or lime. The diameter and depth of the cisterns are approximately three meters each. Al-Ḍabā‘ī, ‘Abd Allāh Sālim, *al-Ḥaḍārah al-Yamaniyyah wa-Naḥīhāt al-Saḥāb al-Ḥaḡariyyah: Aṣālat al-Fann al-Mi‘mārī fī Yāfi‘*, Dār al-Wifāq lil-Dirāsāt wa-l-Našr, Aden, 1st ed., 2012, p. 184; Al-Ḥalāyfi, ‘Alī Šāliḥ, *Funūn al-‘Imāra al-Ḥaḡariyyah fī Yāfi‘*, Publications of the University of Aden, Aden, 1st ed., 2015, p. 169.

²³ Berg, Van Den, *Ḥaḍramūt wa-l-Mustawtanūt al-‘Arabiyyah fī al-Arkhibūl al-Hindī*, Translated by Mas‘ūd ‘Amshūsh, Dār Našr ‘Anāwīn, Aden, 2021, p. 81

²⁴ Phillby, Harry St. John, *Banāt Saba’: Riḥlah fī Jānūb al-Jazīrah al-‘Arabiyyah*, Translated by Yūsuf Mukhtār al-Amīn, Maktabat al-‘Ubaykān, Riyadh, 1st ed., 2001, p. 215

²⁵ Der Meulen, Daniël van and Wissmann, H. von, *Ḥaḍramūt: Izāhat al-Niqāb ‘an Ba‘ḍ Ghumūḍihā*, Translated by Muḥammad Sa‘īd al-Qudāl, Dār Jāmi‘at ‘Aden li-l-Ṭibā‘ah wa-l-Našr, Aden, 1998, p. 63.

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various regions of Ḥaḍramūt²⁶. Al-Yāfi'ī notes that examples of saqqāyāt are abundant in various regions of Ḥaḍramūt, particularly along the route between the cities of Dāw'ān and al-Mashhad²⁷.

Among the most renowned travelers who documented these saqqāyāt through their camera lenses is the famous English explorer **Wilfred Thesiger** (1910–2003), nicknamed Mubārak bin London, who visited large parts of the Arabian Peninsula, including Ḥaḍramūt²⁸. He authored his renowned book “*Al-Rimāl al-‘Arabiyyah*” in which he recorded his observations and travels in the Empty Quarter desert and its surrounding areas from 1945 to 1950²⁹. He documented many aspects of social and architectural life in the Arabian Peninsula, and among the structures he captured in his paintings were the traditional saqqāyāt of water, which he admired for their abundance and prevalence in the various cities of Ḥaḍramūt³⁰.

In fact, the strategically significant location of Ḥaḍramūt and its extensive trade relations were among the reasons for the proliferation of these saqqāyāt. The cities of Ḥaḍramūt became renowned for their substantial commercial and economic significance, and the Kingdom of Ḥaḍramūt was historically known as “**The Land of Frankincense**” or “**The Kingdom of Frankincense and Myrrh**”. It was characterized by two important factors that significantly impacted the flourishing of its trade both locally and internationally. The first was its strategic geographical location along global trade routes, particularly overland routes, and its control over a portion of the southern Arabian coast, where it established its ports and main commercial centers. The second factor lies in its economic resources, exemplified by its dominance in the cultivation of crops that were in high demand, such as myrrh and frankincense. These commodities constituted the backbone of Ḥaḍramūt's trade. Consequently, it enjoyed widespread fame and became a destination for trade caravans. The people of Ḥaḍramūt capitalized on their country's location along global trade routes and invested in commercial activities, establishing trade and cultural connections from early stages³¹. Large commercial markets were held in Ḥaḍramūt;

²⁶ Stark, Freya, *Al-Bawwābāt al-Janūbiyyah li-Jazīrat al-‘Arab*, p. 197, 211, 191, 220.

²⁷ Al-Yāfi'ī, Ṣalāḥ al-Bakrī, *Tārīkh Ḥaḍramūt al-Siyāsī: Muzayyān bil-Kharā'it wa-l-Ṣūrah wa-l-Rusūm*, vol. 2, Maṭba‘at Muṣṭafā al-Bābī al-Ḥalabī wa-Awlādih, Cairo, 1937, pp. 142, 145.

²⁸ Thesiger, Wilfred, A Journey through Tihama, The ‘Asir and the Hijaz Mountains, the Geographical Journal, Vol.110, NO. 41947, p.67; Thesiger, Wilfred, A Further Journey across the Empty Quarter, The Geographical Journal, Vol. CXIII, (June 1949), PP. 21-46; Ghāzī, ‘Alī ‘Afīf, *Riḥlat Thesiger ILA Tihāmah fī ‘ām 1945*, Majallat Fikr al-Thaqāfiyya, no. 29, Riyadh, 2020, pp. 60–62

²⁹ Thesiger, Wilfred, *Al-Rimāl al-‘Arabiyyah*, Motif ‘It for Publishing, Abu Dhabi, 1992.

³⁰ For a complete view of the album of paintings by Wilfred Thesiger, see: Pitt Rivers Museum, "University of Oxford". <https://www.prm.ox.ac.uk/>, Accessed August 7, 2024

³¹ Bāwazīr, Muḥammad bin Hāwī, *Ḥaḍramūt: Ittiṣālāt wa ‘alāqāt Tijāriyyah wa Ḥaḍārīyah Āsiyawiyyah wa Mutawassiṣīyyah, Dirāsāt Tārīkhīyyah ‘alā daw’ al-Mu‘īyāt al-Āthārīyah wa al-Naqshīyyah wa al-Maṣādir al-Waṣfiyyah al-Klāssīkiyyah*, Dirāsāt fī Āthār al-waṭan al-‘Arabī, Vol. 12, 1, al-Ittiḥād al-‘Āmm li-l-Āthārīyīn al-‘Arab, Ittiḥād al-Jāmi‘āt al-‘Arabiyyah, Cairo, 2009, p. 702-703.

therefore, there was an urgent need for the presence of these saqqāyat to facilitate access to water for passersby and those seeking it³².

As for the history of the emergence of saqqāyat in Ḥaḍramūt in their distinctive form, it remains unknown; however, it is presumed that this type of charitable architecture existed prior to the 12th century A.H/18th century A.D. "It is mentioned in the manuscript "*Al-Maqṣid fī Shawāhid al-Mashhad*" by Sayyid 'Alī ibn Ḥasan al-'Aṭṭās, dated 1172 A.H/1758 A.D, in the context of discussing some of the buildings he established in his settlement in the city of al-Mashhad, which he began constructing in 1167 A.H/1754 A.D. Among those buildings was the siqāyah of al-Mashhad, which is renowned for its blessedness, and it is believed that those who drink from it attain healing³³. It is mentioned that it was large in size and known as "*Ḥawḍ al-Nabī*"; it consists of two sections or wings: the southern wing, which has seven domes above it, and the eastern wing, which has four domes above it. Adjacent to them was a large well topped with a dome that supplied it with water. Additionally, there was another siqāyah known as "*siqāyah of al-Duwailah*", which was also large in size and featured five domes above it³⁴.

Section two: Analytical Study. This section includes several key elements, such as their architectural design, mechanisms of operation, construction materials, and building methods. Additionally, it explores the functional dimension and its impact on their locations, the environmental dimension and its influence on their architecture, as well as their decorative elements and the artistic influences that shaped them.

1) The Architectural Design of *Al-Saqqāyāt* in Ḥaḍramūt

The general shapes of Saqqāyāt in Ḥaḍramūt varied according to their location and the financial capacity of their builders. However, they were characterized by their simple architectural designs, typically adopting a fixed shape close to square or rectangular, with approximate dimensions of 2 × 3 meters and a height of 2.5 meters. The Saqqāyāt share common architectural components, consisting of three parts: the lower part, which is the stone base elevated above the ground, and it sometimes comprises more than one level. The middle part is the siqāyah chamber, which includes the stone water basin that is supplied with water, elevated approximately 1 meter above the ground level to facilitate access for those seeking water. This basin is considered an essential element of the siqāyah, as it is what retains the water within it. Therefore, some have defined the siqāyah as a covered basin that preserves water³⁵. Sometimes,

³² Bāfaḳīh, *Ḥaḍramūt*, Al-Mawsū'ah al-Yamaniyyah, vol. 2, p. 118

³³ Al-'Aṭṭās, Al-Ḥabīb 'Alī ibn Ḥasan (1121–1172 A.H), *Al-Maqṣid fī Shawāhid al-Mashhad*, edited by his grandson Aḥmad ibn 'Umār ibn Ṭālib al-'Aṭṭās, al-Ahsa, 1424 A.H/2003 A.D, p. 47; Abū Bakr, Muḥammad Ḥusayn ibn al-Shaykh, *Masājid Madīnat al-Shiḥr: Min al-Qarn al-Awwal al-Hijrī Ḥattā al-Qarn al-Thānī 'Ashar al-Hijrī/ al-Qarn al-Sābi' Ḥattā al-Thāmin 'Ashar al-Milādī: Dirāsah Aṭariyah Mi'mārīyah*, Ḥaḍramūt Center for Historical Studies, Documentation, and Publishing, Ḥaḍramūt, 2017, p. 311

³⁴ Al-'Aṭṭās, *Al-Maqṣid fī Shawāhid al-Mashhad*, p.269

³⁵ Al-Kindī, Sālim ibn Muḥammad ibn Sālim ibn Ḥumayd (d. 1310 A.H/1892 A.D), *Tārīkh Ḥaḍramūt al-Musammā bil-'uddah al-Mufīdah al-Jāmi'ah li-Tawārīkh Qadīmah wa al-*

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the siqāyah chamber contains two basins, and one of its walls features an opening for pouring water directly into it, or water may be poured into a connected basin through a channel that directs the water into the basin within the siqāyah. Additionally, there are several square or triangular openings in the four walls of this chamber, positioned at a height of five feet above the ground, allowing individuals to access water from within the siqāyah³⁶. This is done using a wooden cup or a pottery vessel, which were locally known as “*al-Maqdahah*” or “*al-Miḡrāf*”³⁷. The final part of the siqāyah is the roof, which is typically covered by a single dome. Sometimes, however, it is topped with two domes, particularly in some examples of Saqqāyāt found in various villages of Ḥaḍramūt. Most of these domes have a pointed cross-section and terminate in a short column that projects from their apex, adorned with spherical balls or circular finials resembling the metal spires found on minarets and domes of Islamic mosques³⁸. (Fig. 3, 4) The Saqqāyāt featured a door on the rear side for cleaning purposes, which was a very small door designed to accommodate only one person. This door was intentionally designed in such a manner and size to protect the water from contamination and to minimize evaporation.

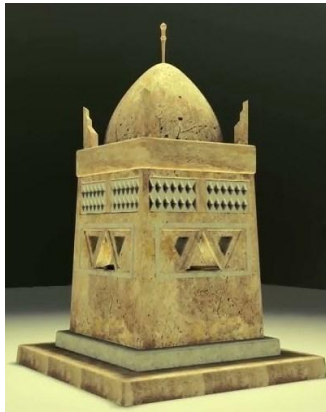


Fig 3. General perspective of *al-saqqāyāt* in Ḥaḍramūt using 3D MAX application.
Source: Ḥaḍramūt Center for Historical Studies, Documentation, and Publication.



Fig 4. General perspective of the components of *al-saqqāyāt* in Ḥaḍramūt showing the base and the water chamber.
Source: Ḥaḍramūt Center for Historical Studies, Documentation, and Publication.

Sometimes, an external stone basin is attached to the Saqqāyāt, designated for watering the livestock and animals used by travelers in their journeys in the past. The

Ḥadīthah, edited by ‘Abd Allāh Muḥammad al-Ḥabashī, vol. 1, Maktabat al-Irshād, Ṣan‘ā’, 1st ed., 2003, p. 278.

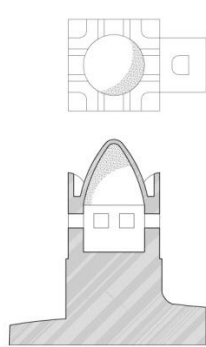
³⁶ Al-Yāfi‘ī, *Tārīkh Ḥaḍramūt al-Siyāsī*, Vol.2, p.142

³⁷ Maṣjidi, Aḥmad ‘Umar, *Al-Binā’ Al-Mi‘mārī Al-Qadīm Fī Aryāf al-Shiḥr wa ‘Aṣālat al-Insān*, Majallat Ḥaḍramūt li-Dirāsāt al-Tārīkhiyyah wa al-Tawthīq wa al-Nashr, Vol. 9, July-September 2018, pp. 34-40.

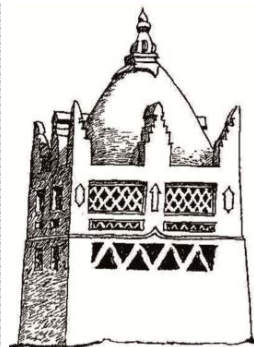
³⁸ Kogin, Yury Fyodorovich, *Al-‘Imārah al-Ṭīnīyah al-Ḥaḍramīyyah al-Taqlīdiyyah Min al-‘Alf al-Awwal Qabl al-Mīlād Murūran bil-‘Aṣūr al-Wusṭah al-Mutā‘akhhīrah Ḥattā al-‘Aṣr al-Ḥadīth: Tārīkhuhā wa Ba‘ḍ Anwā‘ihā wa Mumayyizātihā al-Bārīzah*, translated by ‘Abd al-‘Azīz Ja‘far ibn ‘Aqīl, 1st ed., 2016, p. 172; Hülīfirtīz, Hānz, *Al-Janūb al-‘Arabī al-Mansī: Al-Wedīān wa al-Ḥaḍr wa al-Bādū*, translated by Maḥmūd Abū Sarī‘ Sālim, Dār al-Wifāq al-Ḥadīthah li-Nashr wa al-Tawzī‘, Cairo, 1st ed., 2019, p. 162.

addition of this basin is considered a common feature among the majority of the *Asbilah* and *Saqqāyāt* across various regions of the Islamic world. This basin may be constructed as an independent unit or attached to different *Asbilah* and *Saqqāyāt*³⁹.

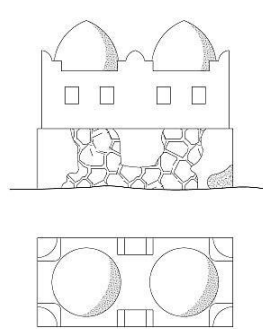
The different forms of the *saqqāyāt* in Ḥaḍramūt varied between independent and attached; some were incorporated into religious or civic structures or into the walls of Ḥaḍramī cities, while the majority were in an independent form. Among these forms is also the *saqqāyāt* covered by a single dome (Fig. 5 A-B). Or the double *saqqāyāt* covered with two domes (Fig. 6 A-B). This depends on the size of the *saqqāyāh*, its location, the available space allocated for it, and the ability and desire of the builder to have a larger *saqqāyāh* to serve the greatest number of beneficiaries.



(A)



(B)



(A)



(B)

Fig 5. The *saqqāyāt* covered with a single dome: (A) Vertical section and perspective view. (B) Illustrative shape.

Source:

A. By the author

B. Yury Kogin, *Al-‘Imārah al-Ṭīnīyah al-Ḥaḍramīyah*, p. 171.

Fig 6. The *saqqāyāt* covered with two domes: (A) Vertical section and perspective view. (B) Illustrative shape.

Source:

A. By the author

B. Yury Kogin, *Al-‘Imārah al-Ṭīnīyah al-Ḥaḍramīyah*, p. 171.

One of the most notable extant examples of *al-saqqāyāt* covered by a single dome is ***Saqqāyah of the Great Mosque in Shibām Ḥaḍramūt***. It is situated in front of the Great Mosque on the eastern side of the city⁴⁰. This *saqqāyah* is referred to as

³⁹ For more on livestock watering basins, see: Al-‘Umarī, Āmāl, *‘Aḥwād Saqī al-Dawāb Khilāl al-‘Aṣrayn al-Mamlūkī WA al-‘Uthmānī bil-Qāhirah*, journal of Al-Ittiḥād al-‘ām li-l-Āthārīyīn al-‘Arab, Cairo, pp. 55-86; Yāghī, Ghazwān Muṣṭafā, *Munšā’āt Ri’āyah al-Ḥayawān fi-l-‘Imārah al-Islāmīyah*, Majallat al-Ma’rifah, no. 586, July 2012, pp. 199-200.

⁴⁰ This mosque is known as the Mosque of Hārūn al-Rashīd. It is considered the oldest mosque in the city. It is attributed to Al-Ḥusayn Salāmāh, the Minister of State for the Banī Zyād dynasty in Yemen, who is renowned for his many architectural contributions, including the construction of mosques in various cities of Ḥaḍramūt, as well as in Tarīm and Šibām. It is believed that the construction of this mosque predates his contributions significantly. The mosque has numerous endowments attributed to the Abbasid Caliph Hārūn al-Rashīd, which is why it is commonly referred to as the Mosque of Hārūn. For more see; Al-Saqqāf, ‘Abd al-Raḥmān ibn ‘Ubayd Allāh, *Idām al-Qulūb fī Dhikr Buldān Ḥaḍramūt: A Historical, Literary, and Social Geographic Dictionary*, Dār al-Minhāj, Beirut, 1st ed., 2005, p. 524; Al-Shāṭirī, *Adwār al-Tārīkh al-Ḥaḍramī*, p. 145; Lewcock, Ronald, *Wadī Ḥaḍramūt and the walled city of shibam*, UNESCO, 1986, p.90.

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“*saqqāyah of Taflah*”, named after a woman from the *Āl-Kathīr* tribe. Its construction dates back to the *Āl-Kathīr* dynasty's rule over Shibām⁴¹. The Saqqāyah forms an integral part of the mosque's infrastructure, serving both the mosque and the local community. An associated endowment exists in a nearby house, with the condition that residents are responsible for the Saqqāyah's upkeep and maintenance. This *saqqāyah* is one of three ancient *Saqqāyāt* restored by the Yemeni-German Cooperation Foundation⁴². (Fig. 7)

This Saqqāyah exhibits certain architectural details that differ from the typical design of Saqqāyāt found in Ḥaḍramūt, likely reflecting the influence of Shibām's unique urban and architectural environment. Its design is characterized by simplicity, emphasizing geometric details consistent with the traditional architectural style of Ḥaḍramūt, while also achieving a balanced aesthetic that embodies the local character. The saqqāyah has a square shape with each side measuring approximately 2.5 meters in length and a height of about 3 meters. It was constructed using locally traditional materials found in the region⁴³. Stones were used to construct the base of the saqqāyah, which is elevated above ground level. This design contributes to protecting the structure from dust, rainwater, and various environmental factors. The chamber of the saqqāyah was constructed using mud bricks, with wall thicknesses reaching 50 centimeters. The chamber is divided into two levels, each crowned with a projecting cornice that adds an aesthetic dimension to the architectural design. In the first level of the chamber, there are two similar rectangular openings on each of the four walls of the saqqāyah, each measuring approximately 40 x 30 centimeters. These openings allow passersby to access water from the basin located inside the saqqāyah. The construction of the saqqāyah's walls follows the traditional method practiced in Ḥaḍramūt, where the wall thickness gradually decreases towards the interior as the height increases. This architectural style, known as the “**incomplete pyramid**”, is common in the region, as previously mentioned. This saqqāyah is characterized by the symmetry of its four Façades, which imparts a sense of balance and architectural harmony that enhances the building's aesthetic appeal. It reflects a keen attention to geometric details that contribute to achieving visual and architectural integration within the saqqāyah (Fig. 8, 9).

⁴¹ For further information on the *Āl-Kathīr* dynasty, see; Ibn Hāshim, Muḥammad, *Ḥaḍramūt: Tārīkh al-Dawlah al-Kathīriyyah*, Tarīm for Studies and Publishing, Tarīm, 2002.

⁴² Bāwazir, Muḥammad ‘Abd Allāh Bin ‘Alawī, *al-Turāth Al-Mi‘mārī: Tārīkh wa Ḥaḍārah al-Turāth al-Umrānī wa Al-Mi‘mārī al-Taqlīdī fī Ḥaḍramūt wa Subul Ḥimāyatahu wa al-Ḥifāz ‘Alayh*, in Ḥawliyat Al-Āthārīn Al-‘Arab: Dirāsāt fī Āthār Al-Waṭan Al-‘Arabī, vol. 11, no. 1, al-Ittiḥād al-‘ām lil-Āthārīn Al-‘Arab, Cairo, October 2008, pp. 410-411

⁴³ These traditional materials will be thoroughly discussed and analysed in the part on building materials and construction techniques.



Fig 7. Location of the saqqāyah of the Great Mosque in Shibām, Ḥaḍramūt. **Source:** Google Maps Accessed August 7, 2024.

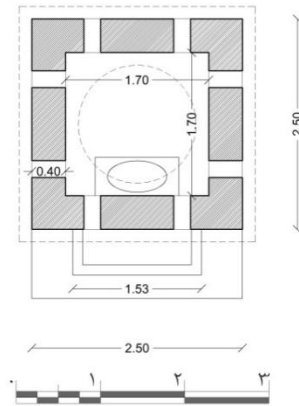


Fig 8. Plan of the saqqāyah of the Great Mosque in Shibām, Ḥaḍramūt. **Source:** By the author

The saqqāyah is topped with a pointed dome that covers the main chamber, surrounded by four simple piers at each corner. Arched connections between the piers create a harmonious and cohesive appearance for the dome from all sides. Inside the chamber, a rectangular basin is elevated approximately one meter above ground level, facilitating convenient access to water for passersby. The Saqqāyah features a small entrance designed for a single person, typically the caretaker responsible for its maintenance, water supply, and cleanliness. Adjacent to the saqqāyah is a large circular stone basin that was used for watering livestock and animals, reflecting the dual functional nature of this saqqāyah in catering to the water needs of both humans and animals alike. This saqqāyah was restored and coated with *Nūrah* in 2003 (**Fig. 10**).

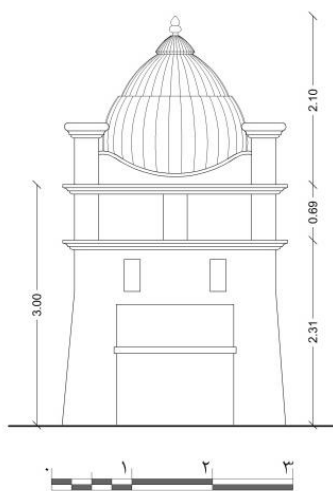


Fig 9. Vertical Section of the saqqāyah of the Great Mosque in Shibām, Ḥaḍramūt. **Source:** By the author



Fig 10. General view of the saqqāyah of the Great Mosque in Shibām, Ḥaḍramūt, before and after restoration in 2003. **Source:** Damluji, Urban Development Project Shibam, Yemen, On Site Review Report, 2007

One of the most prominent remaining examples of al-Saqqāyāt featuring two domes is the *Saqqāyah* of the Tomb of the Prophet Hūd in Tarīm. It is regarded as one of the

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oldest examples of *al-Saqqāyāt* in Ḥaḍramūt. Although the identity of the individual who originally constructed the tomb is not precisely known, it is believed to have been established after the end of the 9th century A.H/15th century A.D, during the period when the Tomb of Hūd was embellished⁴⁴. This Saqqāyah likely dates back to the same historical period⁴⁵. It was built to provide water for the large number of visitors and pilgrims who traveled to the tomb, as well as to support the extensive market held annually in the month of Sha‘bān. This market was considered a major seasonal event in Ḥaḍramūt, attracting people from both within and outside the region. These factors contributed to the significant functional and social importance of this Saqqāyah⁴⁶.

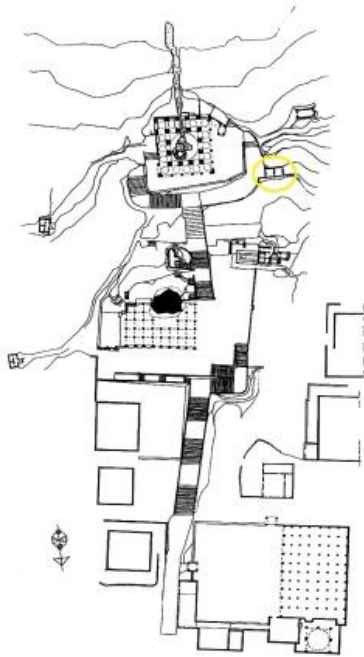
This *saqqāyah* belongs to the type of double fountains covered by two domes. It is situated to the right of the ascending western staircase leading up to the tomb of Prophet Hūd (**Fig. 11**). It consists of a rectangular room measuring 4.30 meters in length, 8.80 meters in width, and approximately 2 meters in height. It consists of three parts: the base, which is constructed from irregularly shaped limestone blocks and rises 40 cm above the current ground level. The second part is the water chamber, constructed from mud bricks coated with *Nūrah*. Above that, there is a hollow wall divided horizontally into two levels: the lower level features a zigzag pattern executed

⁴⁴ Some historical sources mention that the person who undertook the reconstruction of the tomb was Sheikh al-Faqīh Ḥakam ibn ‘Abd Allāh Bāqashīr, who passed away in 878 A.H/1473 A.D or 879 A.H/1473 A.D. The site of the tomb was rugged and undeveloped, prompting Sheikh Ḥakam to undertake a complete renovation of the tomb, constructing it with stone and mortar. He also built the dome that exists over the tomb of the Prophet Hūd and carried out the construction of the associated facilities, including this saqqāyah. Ibn Shanbal mentions in his history that the mosque located at the tomb of the Prophet Hūd was restored in the year 903 A.H/1497 A.D. This indicates the existence of the mosque prior to this date. In the year 1097 A.H/1685 A.D, Sheikh Abū Bakr ibn Muḥammad Balfaqīh constructed a grand dome next to the crumbling chamber. Later, in 1306 A.H/1888 A.D, Sheikh ‘Abd Allāh ibn ‘Alawī al-Kāf rebuilt the dome. He also renovated the staircase leading to the mausoleum in the year 1318 A.H/1900 A.D. Al-Ḥaḍramī, Fahmy ibn ‘Alī ibn ‘Ubaidūn al-Tarīmī, *al-Durr al-Manḍūd fī Akhbār Qabr WA Ziyārat al-Nabī Hūd*, Dār al-Faqīh for Publishing and Distribution, Tarīm - Ḥaḍramūt, 1st ed., 1998, p. 45; Ibn Shanbal, Aḥmad ibn ‘Abd Allāh, (d. 920 A.H/1514 A.D), *Tārīkh Ḥaḍramūt*, commonly known as the History of Shanbal, ed. ‘Abd Allāh Muḥammad al-Ḥabashī, Ṣan‘ā’, 1994, p. 43; Al-Ṣabbān, ‘Abd al-Qādir Muḥammad, *Ziyārāt WA ‘Ādāt Ziyārat Nabī Allāh Hūd*, translated by Linda Boxberger and ‘Awaḍ ‘Abd al-Ḥalīm Abū Ḥalīqah, American Institute for Yemeni Studies, Ṣan‘ā’, 1982, pp. 27–28; Muḥayriz, Aḥmad ‘Abd Allāh, *Qabr Nabī Allāh Hūd ‘alayhi al-salām*, Symposium on Yemeni Antiquities and Ways to Protect it, Ṣan‘ā’, 1989, p. 19. For more information about the tomb of the Prophet Hūd, see; Al-Saqqāf, *Idām al-Qulūb fī Dhikr Buldān Ḥaḍramūt*, pp. 1017-1035; Breton, Jean-François & Darles, Christian, Le tombeau de Hūd, *Revue Saba*, 3 & 4, Ḥaḍramūt, la vallée inspirée, 1996, p.8

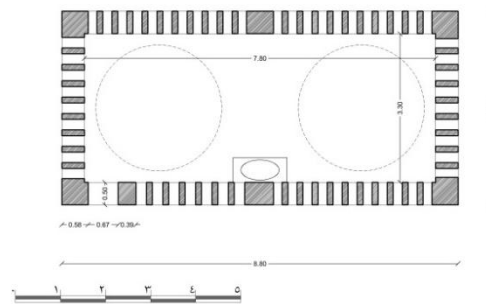
⁴⁵ One of the most significant challenges in studying *al-saqqāyāt* in general is the difficulty in accurately determining their dates of establishment or attributing them to specific individuals. Most of these structures were built by benevolent individuals seeking spiritual rewards and virtue, often without precise historical documentation. This lack of detailed records complicates efforts to trace their origins and understand the context in which they were constructed.

46 Al-Ṣāṭirī, *Adwār al-Tārīḥ al-Ḥaḍramī*, p. 37

with mud brick, while the upper level consists of a horizontal row of rhombus shapes. The Façades of the saqqāyah are crowned with stepped crenellations that have pointed ends. Inside the saqqāyah, there is a large basin that is filled with water. As for the third part of the saqqāyah, which is its top, it is adorned with two domes, each tapering upward into a pointed vertical section resembling conical shapes. At the apex of each dome, there is an architectural ornament resembling a column with a pointed top and a small cylindrical protrusion in the middle (**Fig. 12 A-B, 13**).



(A)



(B)

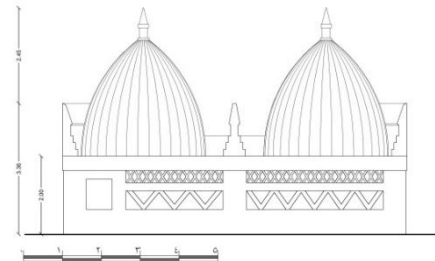


Fig 11. Map of the Shrines of the Prophet Hūd in Tarīm, highlighting the location of the *Saqqāyah*. **Source:** Breton& Darles, *Le tombeau de Hūd*, pp. 79-82.

Fig 12. *Saqqāyah* of the Tomb of the Prophet Hūd in Tarīm.

(A) The plan of the *Saqqāyah* (B) Vertical section of the *Saqqāyah*. **By the author**



Fig 13. General view of the *Saqqāyah* of the Tomb of the Prophet Hūd in Tarīm.

By photographer James Conlon,

<https://mcid.mcah.columbia.edu/taxonomy/term/12689?page=1>, Accessed August 7, 2024.

Among the notable examples of *al-Saqqāyāt* with two domes is the *saqqāyah* of the **Mosque of Imām al-Saqqāf⁴⁷** in Say'ūn, located in al-Ḥūṭah neighborhood of

⁴⁷ *Āl-Saqqāf* family is a large lineage of Ḥaḍramī 'Alawīs descended from 'Abd al-Raḥmān al-Saqqāf ibn Muḥammad Mawlā al-Duwaitlah ibn 'Alī ibn 'Alawī ibn al-Faqīh al-Mudqīm ibn

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Say'ûn. The construction date of this *saqqāyah*, as recorded on its façade, is 1311 A.H (1893 A.D), during the reign of Sultan Maṣṣūr b. Ghalib bin Muḥsin bin Aḥmad al-Kathīrī in Say'ûn (1286 A.H -1870 A.D/1342 A.H - 1924 A.D). This *saqqāyah* is classified as a large double water fountain covered with two domes. It has a rectangular structure measuring approximately 2.86 meters in length, 2.48 meters in width, and 2.48 meters in height. It consists of three main parts: the base, the rectangular water chamber that contains two basins inside, and the covering, consisting of two pointed domes, each situated above a stone basin. Traditional local building materials were used in its construction: the base and basins were made of limestone, while the walls were built with mud bricks. The domes, made of mud brick reinforced with sticks from the 'ilb tree, were coated with *Nūrah*, which also covered the interior and exterior walls.

The façade of the *saqqāyah* is divided into two levels: the lower level features zigzag lines that form alternating triangular openings, which were used by passersby to access water. The upper level is adorned with interlocking rhombus shapes that resemble lattice work, additionally, the façade of the water chamber features an inscription in Arabic stating the testimony of faith; “lā 'ilāha 'illā Allāh, Muḥammad Rasūl Allāh” along with the construction date of 1311 A. H. The corners of the *saqqāyah* are adorned with spiral lines, while the surfaces of the two domes feature zigzag decorations. The *saqqāyah* also contains two openings on the northern side. This water chamber is associated with the Imam Al-Saqāf Mosque and is filled and supplied by the mosque's private well. There used to be a canal connecting the well and the *saqqāyah*, which facilitated the transfer of water to the two basins within the chamber. However, this canal is no longer present. (Fig. 14, 15, 16, 17)

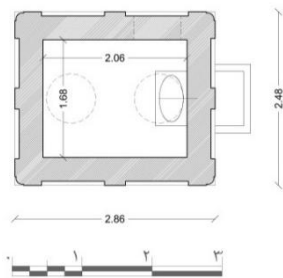


Fig 14. Plan of the *saqqāyah* of the Mosque of Imām al-Saqāf in Say'ûn. **Source:** By the author
Fig 15. General view of the *saqqāyah* of the Mosque of Imām al-Saqāf in Say'ûn. **Source:** By the author

‘Alī ibn Muḥammad Ṣāhib Mirbaṭ ibn ‘Alī Khālī’, whose ancestry traces back to Imām al-Ḥusayn ibn ‘Alī ibn Abī Ṭālib. *Āl-Saqāf* family comprises numerous households spread across Yemen, as well as in Asian countries, Ḥijāz, and the Gulf States. Among their branches are: *Āl-Miḥḍār*, *Āl -Ṣāfi*, *Āl- ‘Aydarūs*, and *Āl -Shihāb*. For more information, see Al-Miḥḍārī, Ibrāhīm, *Mu ‘jam al-Buldān WA al-Qabā’il al-Yamaniyyah*, vol. 2, Maktabat al-Jil al-Jadīd, Ṣan‘ā’, 5th ed., 2011, pp. 976-977.

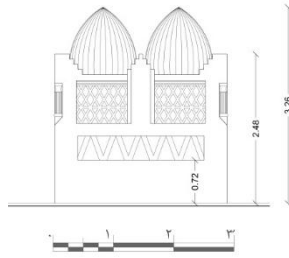


Fig 16. Vertical Section of the saqqāyah of the Mosque of Imām al-Saqāf in Say'ūn. **Source:** By the author



Fig 17. Details of the dome shapes, decorations, and the foundational inscription of the saqqāyah of the Mosque of Imām al-Saqāf in Say'ūn. **Source:** By the author.

This *saqqāyah*, characterized by its two domes, generally resembles numerous examples of Saqqāyāt found in the various cities of Ḥaḍramūt; however, the differences lie in the design and section of the domes that cover them. Among the most notable examples that share similarities are the saqqāyah of the grave of the Prophet Hūd in Tarīm, as well as the saqqāyah of the *Āl al-Hādī*⁴⁸ in al-'urīd, located in the city of al-Qaṭn⁴⁹, and the saqqāyah of Banī 'Alawī in the city of Ḥurayḍah⁵⁰, among others (**Fig. 18, 19, 20**).



Fig 18. Saqqāyah of Banī 'Alawī in Ḥurayḍah.

Source: Kogin, **Traditional Ḥaḍramūt Mud brick Architecture**, Image 93, p. 306.



Fig 19. Saqqāyah of the Āl al-Hādī in al-Qaṭn.

Source: By the author, <https://www.youtube.com/watch?v=I9jyEGBgoV8>, Accessed August 7, 2024.



Fig 20. Saqqāyah in Say'ūn.

Source: Unknown Author, "Saqqāyāt from Wādī Ḥaḍramūt", Website of the Prince Ghazi Endowment for Qur'anic Thought, August 19, 2023.

⁴⁸ *Āl al-Hādī* is considered one of the well-known tribes in Ḥaḍramūt, representing a branch of *Al-'Awāmir*, one of the tribes of *Al-Shanafir*. Their villages are located in the Wādī al-Dhahab, west of Tarīm in Ḥaḍramūt. For further details, see: Al-Miqḥafī, Ibrāhīm, *Mu'jam al-Buldān wa al-Qabā'il al-Yamaniyyah*, vol. 3, Maktabat Al-Jīl Al-Jadīd, Ṣan'ā', 5th ed., 2011, p. 2152.

⁴⁹ *Al-Qaṭn* is a city located in the heart of the Wādī Ḥaḍramūt, situated at the confluence of the main waterways of the region, namely Wādī al-'Ayn, Wādī 'Amd, Wādī Dāw'ān, and Wādī Haynin. It lies on the route between al-Mashhad and Shibām. For further information, see: Al-Kindī, *Tārīkh Ḥaḍramūt*, vol. 1, p. 278; Al-Miqḥafī, *Mu'jam al-Buldān wa al-Qabā'il al-Yamaniyyah*, vol. 2, pp. 1487-1488.

⁵⁰ *Ḥurayḍah* is located to the southwest of the city of Shibām in Ḥaḍramūt, at the foot of Wādī 'Amd, and is an ancient archaeological area. Notable villages in the Wādī Ḥurayḍah include al-Hajrān, 'Andal, al-Qūrayah, and others. Among the most prominent families of Ḥurayḍah are the *Āl al-'Aṭṭās*. For further information, see: Al-Miqḥafī, *Mu'jam al-Buldān WA al-Qabā'il al-Yamaniyyah*, vol. 1, pp. 462-463.

2. Building Materials and Construction Techniques

The construction of these saqqāyāt utilized traditional local materials that were prevalent in the Wādī Ḥaḍramūt, which is characterized by its earthen architecture. Mud brick was the primary building material used in the construction of most of the various structures in the Wādī Ḥaḍramūt. These were built using a high-quality type of clay mixed with straw, which serves as a substitute for lime; this mixture absorbs carbon dioxide from the atmosphere, allowing the construction to bond together effectively⁵¹. The foundations and bases of these saqqāyāt are generally constructed from limestone, built with precisely and securely arranged stones that are not bonded by any type of mortar to prevent moisture rise through capillary action⁵². These stones are sourced from the surrounding mountains of the valley, and the depth of the foundations depends on the nature of the soil on which the saqqāyāt are constructed. Additionally, the level of the ground floor is elevated above the natural ground level. The foundations are coated with a mixture of lime and *Nūrah* to protect against moisture and the effects of groundwater. On these foundations, the external walls are constructed, which shape the overall structure of the saqqāyāt⁵³. The construction is then initiated with the locally known adobe brick in Ḥaḍramūt, referred to as “*Madar*”, which denotes sun-dried Mud bricks. *Madar* is considered the fundamental element of earthen architecture in Wādī Ḥaḍramūt. Regarding its manufacturing process, the clay is piled to form a basin-like structure with an opening at the top. A sufficient amount of water is poured into it until it is full, and then it is left to ferment for a period. Afterward, it is mixed with a quantity of straw, which helps reduce cracking and shrinkage during drying, while also enhancing the cohesion of the clay material⁵⁴. Animal manure and hair are sometimes added to the mixture, which is then left to ferment for a period of one to two weeks. It is subsequently poured into wooden molds of various dimensions, known as “*al-Maftal*”, to take the final shape of the brick according to the construction requirements. The bricks are then left to dry under the sun⁵⁵. In general, the length of the brick mold does not exceed 40 cm, while its width ranges from 25 to 28 cm, and its thickness is about 5 cm⁵⁶. The construction of the siqāyah walls then begins, using mortar made from the same clay material to bind the brick molds together. According to well-established building traditions, the construction process typically takes place in the winter to avoid the intense summer

⁵¹ Al-Yāfi‘ī, *Tārīkh Ḥaḍramūt al-Siyāsī*, Vol.2, p.122

⁵² Othman, ‘Abd al-Ḥakīm Aḥmad, *Aḥjār al-Binā’ wa-al-Tashīyd wa-al-Şinā’āt al-Taqlīdiyyah wa-al-Istikhrajīyyah fī al-Yaman*, Şan‘ā’, 2000, p. 72

⁵³ Bārāshid, Khalid Nāşir, *Mawād al-Binā’ al-Maḥalliyyah fī Wādī Ḥaḍramūt: Dirāsah Taḥlīliyyah Handasaiyyah Mi‘mārīyah*, Ḥaḍramūt Journal for Studies and Research, vol. 2, no. 2, Center for Historical Studies, Documentation, and Publishing, 2002, pp. 36-41.

⁵⁴ Shaybān, Mush‘il Aḥmad, al-Saqāf, Muḥammad ‘Abd Allāh, *Al-‘Imārah al-Ṭīnīyah fī Wādī Ḥaḍramūt WA Madā Mulāmātihā lil-Bi‘ah*, Majallat Jāmi‘at Ḥaḍramūt lil-‘Ulūm al-Ṭabī‘īyah wa al-Taṭbīqīyah, vol. 16, no. 1, June 2019, pp. 78-79.

⁵⁵ Bārāshid, *Mawād al-Binā’ al-Maḥalliyyah fī Wādī Ḥaḍramūt*, p.36-41

⁵⁶ Darles, Christian, Mud Brick Architecture in Ḥaḍramūt-Yemen under the Qu‘aiti and Kathiri Sultanates, Earthen Architecture in Muslim Cultures Historical and Anthropological Perspectives Edited by Stéphane Pradines, Brill, Leiden, Boston, 2008, p.153-154.

heat, which can cause cracking in the earthen structures⁵⁷. The roof of these saqqāyāt is covered with one or two domes, also constructed from clay reinforced with *‘ilb* wood. Wood is considered one of the primary materials used in constructing roofs, doors, windows, and other elements. Among the most well-known trees used in Wādī Ḥaḍramūt are *‘ilb* (or *nabq*), commonly known for “*sidr* wood”. Its branches are used to cover the roof beams, and this tree is notable for its resistance to pests and insects⁵⁸.

Finally, the plastering process of *Al-Saqqāyāt* is completed. The interior and exterior walls are coated with a mixture of soil and straw, which is then moistened and dampened with water. The first layer of clay plaster, with a thickness of 10 cm, is applied and smoothed, followed by a second layer of clay plaster (**Fig. 21, 22-A**). Lastly, a coating of *Nūrah* is applied, giving the siqāyah its distinctive white color, which is characteristic of most Ḥaḍramī structures. *Nūrah* is a material renowned for its brilliant white hue. Limestone is considered the primary raw material from which *Nūrah* is manufactured. It is produced from the calcareous stones found in the mountains and valleys of Ḥaḍramūt that are unsuitable for construction. The limestone is transported from there and placed in special furnaces, where it is burned at high temperatures that drive off carbon dioxide, resulting in the formation of calcium oxide, commonly known as quicklime. When water is added to quicklime, it transforms into calcium hydroxide, the primary ingredient in *Nūrah* mortar⁵⁹. Then, ten to twenty men strike it with heavy sticks to prepare and break it down into a fine powder⁶⁰ (**Fig. 22-B**). *Nūrah* is used as a fundamental material in the building industry, particularly in Ḥaḍramūt. Its predominant use is in plastering work for coating walls, both internally and externally. *Nūrah* is mixed with sand and a locally known material called “*al-Baṭḥah*”, which enhances its hardness and water resistance, preventing water infiltration⁶¹. One of the most distinguishing features of *Nūrah* is its ability to overcome the deficiencies of clay and its vulnerabilities to various erosion factors such as humidity, wind, and rain. Moreover, it plays a significant role in improving the properties of clay due to its thermal insulating capacity and its ability to reduce solar radiation by reflecting a substantial portion of the sunlight that falls on the building's surface. Consequently, it reduces the amount of heat absorbed, as the white coating can reflect up to 80% of the incident sunlight. A layer of *Nūrah* plaster is reapplied after three months to repair and address any cracks. *Nūrah* imparts

⁵⁷ Sā‘id, Haytham Khūrshīd, *Al-‘Imārah al-Ṭīnīyah fī Wadī Ḥaḍramūt*, Al-Mawsū‘ah al-Yamaniyya, vol. 3, p. 2134

⁵⁸ Bārāshīd, *Mawād al-Binā’ al-Maḥalliyyah fī Wādī Ḥaḍramūt*, p.39

⁵⁹ Othman, Muḥammad ‘Abd Al-Sattār, *Al-I‘lām bi-Aḥkām Al-Bunyān li-Ibn Al-Rāmī*, Dār Al-Wafā’ li-Dunyā Al-Ṭībā‘ah wa Al-Nashr, Iskandarīyah, 2000, p. 153; Al-Bannā, Al-Sayyid Maḥmūd, *Dirāsah Tarīm wa Ṣiyānah Madīnat Ṣan‘ā’ Al-Qadīmah Khilāl Al-‘Aṣr Al-‘Uthmānī*, Ph.D. thesis, Kulliyat Al-Āthār, Jāmi‘at Al-Qāhirah, 1993, pp. 119-124.

⁶⁰ Lewcock, Wādī Ḥaḍramūt, p.100

⁶¹ Jerome, Pamela, community building and continuity of tradition: the decoration of Mud-Brick Surfaces in the Ḥaḍramūt Region of Yemen, Proceedings from the International Colloquium Organized by the Getty Conservation Institute and the National Park Service, Mesa Verde National Park, Colorado, USA, September 22-25, 2004, p. 146; Al-‘Aṭṭās, *Al-Maqṣid fī Shawāhid al-Mashhad*, p.269

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durability, strength, and aesthetic appeal to the walls of the saqqāyāt, and it is also utilized for creating various decorative elements⁶².

These saqqāyāt, with their brilliant white color, have been a source of admiration for all Western Orientalists who visited Ḥaḍramūt, often referring to them as “the white saqqāyāt”. This significant diversity in the building materials used in constructing the saqqāyāt reflects the ingenuity of the Ḥaḍramī builder, their extensive expertise, and their adept utilization of locally available materials in the Ḥaḍramūt Valley to achieve sustainability in Ḥaḍramī architecture.

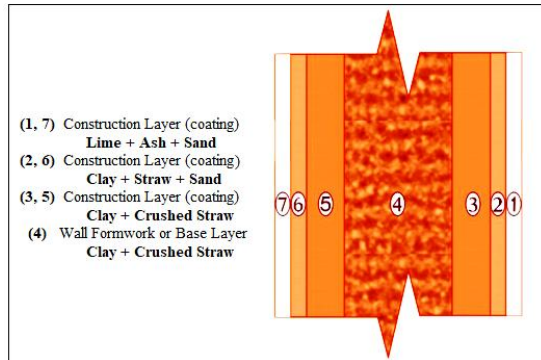


Fig 21. Layers of Earthen Walls in Ḥaḍramūt Architecture. **Source:** Mush‘il Ahmad Shaybān, *Al-‘Imārah al-Ṭīnīyah fī Wādī Ḥaḍramūt in Wādī Ḥaḍramūt*, Figure 4-3-1, p. 80.



(A)

(B)

Fig 22. Manufacturing Traditional Building Materials in Ḥaḍramūt. (A) Manufacturing of Earthen Brick “*Madar*” (B) Production of “*Nūrah*”. **Source:** Christian Darles, *Mud Brick Architecture*, (A) Fig 7.9, fig 7.10, p.155; (B) Fig7.18, p.163.

The construction style of these saqqāyāt is in harmony with the architectural style of Ḥaḍramūt, characterized by the phenomenon of vertical urbanization in building⁶³. Where the foundations and bases are built with limestone, then the walls are constructed with Mud bricks “*Madar*”. The walls are built gradually inward, using different sizes of bricks according to the height of the building. As the size of the bricks and the thickness of the walls decrease with increasing height, this reduction occurs in the external Façades. So that the upper course (of bricks) recedes inward by a few centimeters from the course below it. This method is called “*Al-Sahbah*”, where the thickness of the lower course (of bricks) is large, and the upper course recedes inward over the course below the building until the end of the structure. As a result, a slight inward slope is created, measuring a few centimeters. This method is

⁶² Bārāshid, *Mawād al-Binā’ al-Maḥallīyyah fī Wādī Ḥaḍramūt*, p.39; Sā‘id, *Al-‘Imārah al-Ṭīnīyah fī Wādī Ḥaḍramūt*, Al-Mawsū‘ah al-Yamaniyya, vol. 3, p. 2134

⁶³ Vertical urbanization is a specific style pertaining to the height of a building or a group of buildings that can occur under particular circumstances. For more details, see: Othman, Muḥammad ‘Abd Al-Sattār, *Malāmih Al-‘Umrān Al-Ra’sī lil-Dūr fī Madīnat Ṣan‘ā’*, in *Dirāsāt wa Buḥūth fī Al-Āthār wa Al-Ḥaḍārah Al-Islāmiyyah*, Al-Kitāb Al-Awwal - Al-Juz’ Al-Thānī (Al-‘Imārah), Al-Kitāb Al-Tidhkārī li-Duktūr ‘Abd Al-Raḥmān ‘Abd Al-Tawwāb, Dār Al-Wafā’ li-Dunyā Publishing and Printing, Alexandria, 2005, pp. 336-379.

geometrically known as the concept of the “**incomplete pyramid**”. This explains why the walls incline inward as the height increases. This technique reduces loads, and it is believed that the reason for constructing the walls in this manner is to maintain the solidity and strength of the walls, whether they are made of stone or mud brick; because vertical walls are weaker than those with a pyramidal shape, the setback distributes pressure on the stones and thus does not concentrate it on a specific point, which leads to increased solidity, longevity of the building, and the cohesion of its walls, preventing them from cracking⁶⁴. This method has spread widely across the Arabian Peninsula and has been extensively used in Yemeni cities, particularly in Wādī Ḥaḍramūt. One of the most famous examples of this is the houses of the city of Shibām Ḥaḍramūt, which are known to be the first earthen skyscrapers in the world. Western tourists have referred to them as the “**Yemeni Manhattan**”⁶⁵.

3. The Functioning Mechanism of *Al-Saqqāyāt* in Ḥaḍramūt and the Role of Endowments in their Sustainability

The operational mechanism of the saqqāyāt in Ḥaḍramūt differs from other water fountains in the Islamic world, where the basins of these saqqāyāt were filled with water by individuals responsible for supplying each saqqāyah with water, which was brought from distant wells, either carried on shoulders or transported in large water skins carried by camels over long distances. Water is stored in one or two stone basins in the center of the saqqāyah chamber, relying on the movement of the winds for cooling. However, in modern times, most saqqāyāt are supplied with water through pipes⁶⁶. These saqqāyāt are built as ongoing charitable endowments (waqf) that the locals are keen to establish to provide a permanent water supply for the travellers. Philanthropists do not stop at constructing the saqqāyah building alone; they must also ensure a continuous supply of water to it, especially in remote and isolated areas. Therefore, a number of individuals were assigned to oversee the saqqāyah, and they are responsible for cleaning it from the inside and maintaining it. Their salaries are paid from the endowments established by the owners of these saqqāyah to ensure the continuity and sustainability of their operation⁶⁷. An adjacent well may also be constructed next to the saqqāyah, and it is also designated as an endowment for supplying water to it. Yemen has known Islamic endowments since the advent of Islam, and it has gained a reputation for the abundance of its endowments and the numerous benefactors who have donated their money and properties for the maintenance of various religious and charitable institutions. These endowments have

⁶⁴ Al-Khalāyifī, ‘Alī Ṣāliḥ, *Funūn Al-‘Imārah Al-Ḥaḡariyyah fī Yāfi*, Iṣḍārāt Jāmi‘at ‘Aden, ‘Aden, 1st ed., 2015, p. 44.

⁶⁵ Al-Miḡhafī, Ibrāhīm, *Mu‘jam al-Buldān wa al-Qabā’il Al-Yamaniyyah*, vol. 2, p. 1031; Ḥanṣūr, Aḡmad, *Mawād Al-Binā’ al-Ṭabī‘iyyah wa Āthāruhū fī Ta‘addud al-Anmāṭ al-Mi‘mārīyah fī al-Yaman*, Majallat Taqniyyāt Al-Binā’, no. 19, Wizārat al-Shu‘ūn al-Baladīyah wa al-Qurawīyyah, Riyadh, 2009, p. 89; and for more on the engineering characteristics of Shibām Ḥaḍramūt, see; Ḥanṣūr, Aḡmad et al., *al-Khaṣā’iṣ Al-Handasaiyah li-l-‘Imārah Al-Ṭīnīyah fī Madīnat Shibām*, Majallat Al-Muhandisīn, Ittiḡād Al-Muhandisīn al-Yamaniyyīn, ‘Aden, no. 1, 1988, pp. 10-15.

⁶⁶ Kogin, Al-‘Imārah al-Ṭīnīyah al-Ḥaḍramīyyah al-Taqlīdiyyah, p. 172

⁶⁷ Der Meulen, Ḥaḍramūt, p.63

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encouraged increased social solidarity among people in the community. The forms of endowments in Yemen are diverse, and their purposes vary widely. One of the most well-known forms of endowments in Yemen includes the maintenance of wells, water fountains, watering places for livestock, roads, caravanserais for travellers, and their animals. The endowment system in Yemen was not limited to sultans and rulers; many scholars, jurists, and affluent individuals also participated by dedicating their properties to these institutions, recognizing the necessity of supporting them with endowments to ensure their continuity and sustainability⁶⁸. The culture of charitable endowment (*waqf*) emerged among the Ḥaḍramīs from the time they embraced Islam in the tenth year after the Hijrah, extending from the dawn of Islam to the era of the Sultans of the Qu‘aiti and Kathīrī dynasties, who were distinguished by their abundant generosity and love for benevolence⁶⁹. They would endow several date palm trees, which are widely spread in the Wādī Ḥaḍramūt, along with a number of agricultural lands. Additionally, Most of the ancient mosques in Ḥaḍramūt, located in both the valley and the coastal areas, were associated with endowments of agricultural lands, properties, houses, and other assets⁷⁰. Among the examples of endowments dedicated to the *saqqāyāt* in Ḥaḍramūt is the agricultural land endowed by Zayn ibn Muḥsin al-Hādī for the two well-known *siqāyahs*: the first located in *Hunaynah*, and the other adjacent to his house next to the mosque of Shaykh ‘Aydā⁷¹.

4. The Functional Dimension and its impact on the locations of *Al-Saqqāyāt* in Ḥaḍramūt

The locations of *Al-Saqqāyāt* are intrinsically linked to their intended purpose, which is to conserve water and provide it free of charge to the local inhabitants as well as travelers and wayfarers. The functional dimension of the *saqqāyāt* in Ḥaḍramūt reflects the local community's response to the pressing and increasing need for water, particularly given the arid desert nature of most regions in the Wādī Ḥaḍramūt and the scarcity of water sources therein. Consequently, the construction of the *saqqāyāt* was not a mere coincidence; rather, it was influenced by functional, social, geographical, and religious considerations. The presence of *saqqāyāt* and the associated public water

⁶⁸ Al-Ḥaṭāmī, Dhikrī Muḥammad, *Al-Waqf al-Islāmī fī al-Yaman wa Āthāruhū al-Iqtisādiyyah*, *Majallat al-‘Ulūm al-Insāniyyah wa al-Ijtīmā‘iyya*, vol. 7, no. 4, Al-Markaz al-Qawmi lil-Buḥūth, Gaza, April 2023, pp. 59-79. For more on the *saqqāyāt* and their endowment, see; Al-Azmīrī, Muḥammad ibn Walī ibn Rasūl al-Qurashī (d. 1165 A.H/1751 A.D), *Makhṭūṭ Risālah fī Shu‘ūn al-Saqqāyāt wa Waqfihā*, Study and Investigation by Balqīs ‘Aydān Luwīs, *Majallat Dirāsāt fī al-Tārīkh wa al-Āthār*, no. 54, College of Arts, University of Baghdad, Ramadan 2016, pp. 370-410.

⁶⁹ Bāhirūn, Muḥammad ‘Alī, *Al-Waqf al-Khayrī wa-al-Ahlī fī Ḥaḍramūt*, *Journal of Ḥaḍramūt for Historical Studies, Documentation, and Publishing*, vol. 1, July-September 2016, pp. 26-27

⁷⁰ Al-Shāṭirī, *Adwār al-Tārīkh al-Ḥaḍramī*, p. 258; for more information on the *saqqāyāt* and its endowment, Al-Azmīrī, *Makhṭūṭ Risālah fī Shu‘ūn al-Saqqāyāt WA Waqfihā*, pp. 370-410

⁷¹ ‘Abd al-Nūr, Muḥammad Yaslam, *Al-Waqf al-Khayrī fī Tarīm*, *Journal of Ḥaḍramūt for Historical Studies, Documentation, and Publishing*, no. 2, October-December 2016, pp. 96-97.

fountains “*Asbilah*” was linked to three main factors: firstly, proximity to the primary water sources; secondly, ease of access to these sources; and thirdly, the areas with the greatest need for their existence. In general, they were distributed in areas easily accessible to residents and travelers, appearing in various neighborhoods of the Ḥaḍramī cities. They were situated in public squares and old districts near historical mosques and close to public places such as markets, thereby addressing the daily needs of the local population. They were commonly found within the Ḥaḍramī villages, particularly adjacent to fields and agricultural lands, due to the farmers' acute need for water, especially during the extreme heat of the harvest season. Farmers benefited from these water sources during their travels to and from the fields, particularly in light of the scarcity of potable water. One of the most notable examples of this type is the Saqqāyāt of *Āl al-‘Amūdī* in the town of *Kanīnah* in Ḥajr, Ḥaḍramūt, which featured a simple design⁷².

Moreover, the water troughs were constructed near the tombs of the well-known Sufis persons in various cities of Ḥaḍramūt (**Fig. 23**), serving as a resource for visitors to these shrines, whether they are local residents or outsiders. This is especially true during the annual celebrations held at these shrines, which extend throughout much of the year. The gatherings have expanded to encompass many cities in Ḥaḍramūt, with continuous visits and countless crowds traveling from the region of Hūd in the east to the Wādī Daw‘an in the west, flocking to these sacred sites. These celebrations are locally known in Ḥaḍramūt as the “*al-Waqfāt al-Mūqadasah*”, which are accompanied by significant commercial activity. Large markets are established during these gatherings, attracting numerous individuals, which necessitates the presence of a water source near these tombs. Among the most notable visits is the pilgrimage to the shrine of the Prophet Hūd (peace be upon him), recognized as one of the oldest Sufi pilgrimages in Ḥaḍramūt⁷³.

Saqqāyāt were also constructed near the main gates and outer walls to provide water for passersby and visitors to the Ḥaḍramī cities. Among the most notable examples is the saqqāyah located in the city of Say‘ūn (**Fig. 24**), as well as the saqqāyah situated beneath the northern wall of Shibām (**Fig. 25**). Saqqāyāt were also widely spread along the main roads and throughout the pathways connecting the urban centers and villages of Ḥaḍramūt, particularly in Ghayl Bāwazir and its outskirts. These saqqāyāt are situated along the accessible routes to the villages in the surrounding areas, as well as the pathways leading to the city of al-Shiḥr. One of the most famous among them is the “*Saqqāyat Bin ‘Aqīl*”, located between the villages of *al-Ṣadā‘* and *Ma‘yān al-Masājidah*⁷⁴. The demand for these Saqqāyāt was especially urgent along these routes,

⁷² *Kanīnah* is a small town located in the Jowl area of the Ḥajr district along the coast of Ḥaḍramūt. It was formerly the capital of the Ḥajr Valley and is inhabited by the Bāṣabārah tribe, a branch of the *Nawḥ al-Ḥankah* tribe, as well as a group from *Āl al-‘Amūdī*. For further details, see: Al-Miqḥafī, *Mu‘jam Al-Buldān WA Al-Qabā‘il Al-Yamaniyyah*, vol. 3, p. 1715.

⁷³ Al-Tarīmī, *Al-Durr al-Mandūd fī Akhbār Qabr WA Ziyārat al-Nabī Hūd*, p. 32.

⁷⁴ Bāwazir, *al-Turāth Al-Mi‘mārī: Tārīkh wa Ḥaḍārah al-Turāth al-‘Umrānī wa Al-Mi‘mārī al-Taqlīdī fī Ḥaḍramūt wa Subul Ḥimāyatahu wa al-Ḥifāz ‘Alayh*, pp. 399-429.

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as they are desert areas with a complete lack of water sources. Additionally, these areas are characterized by their extreme heat, which poses significant challenges for travelers and wayfarers. Historically, travel took a considerable amount of time to reach the intended destination, making the presence of these water facilities essential for providing water. This necessity reflects a profound understanding of how to adapt to the harsh geographical and environmental conditions of Wādī Ḥaḍramūt⁷⁵. These *Saqqāyāt* have become an integral part of the architectural and urban fabric of Ḥaḍramūt. This is further affirmed by the Dutch orientalist Daniel van der Meulen, who stated that they were the distinctive architectural feature in various parts of the valley⁷⁶.

These *Saqqāyāt* were not merely points for distributing water; they evolved into vital centers that played a crucial role in sustaining daily life and facilitating movement between the diverse communities in Ḥaḍramūt. Moreover, they served as landmarks for travelers and Western explorers, guiding them during their journeys. They were of significant importance as they facilitated travel across the deserts of Wādī Ḥaḍramūt. The Bedouins in these regions have a thorough knowledge of the location of each water facility and plan their routes accordingly⁷⁷.



Fig 23. The *saqqāyah* adjacent to the outer wall of *Say'ūn*, near the grave of Imam Al-Ḥabashī, by Wilfred Thesiger in 1947.
Source: Pitt Rivers Museum, University of Oxford.



Fig 24. The *saqqāyah* in *Say'ūn*, adjacent to the well that supplies it with water, by Wilfred Thesiger in 1947.
Source: Pitt Rivers Museum, University of Oxford.



Fig 25. The *saqqāyah* adjacent to the outer wall of *shibam*, by Wilfred Thesiger in 1946.
Source: Pitt Rivers Museum, University of Oxford.

5. The Environmental dimension and its impact on the architecture of *Al-Saqqāyāt*

The environmental dimension of these *Saqqāyāt* reflects the close relationship between the natural environment of Ḥaḍramūt and traditional architectural practices. It demonstrates a profound understanding of the environmental challenges faced by local communities in arid regions. The architectural design of *al-saqqāyāt* showcases ingenuity in utilizing available resources and a deep understanding of environmental conditions. The primary function of the troughs was to meet the urgent water needs in the harsh desert environment of Ḥaḍramūt. Thus, these *Saqqāyāt* were designed as structures covered by one or two domes, with the primary function of storing water

⁷⁵ Kogin, *Al-ʿImārah al-Ṭīnīyah al-Ḥaḍramīyah al-Taqlīdiyyah*, p. 172

⁷⁶ Der Meulen, *Ḥaḍramūt*, p.63

⁷⁷ Der Meulen, *Ḥaḍramūt*, p.71-72

while keeping it cool and clean. This necessitated that these structures be robust and sturdy to withstand the harsh climatic variations characteristic of the natural environment of Wādī Ḥaḍramūt. The climate is regarded as one of the most significant components of the natural environment and exerts a profound influence on various architectural structures. The primary elements of climate include temperature, atmospheric pressure, winds, humidity, and precipitation. Wādī Ḥaḍramūt is considered one of the regions in the world most exposed to sunlight. It experiences a hot, arid climate in the summer and cold temperatures in the winter. Summer temperatures range from 35 to 44.6°C. Due to the region's proximity to the equator, heavy monsoonal rains fall during the summer months, leading to increased precipitation in Wādī Ḥaḍramūt during both the summer and autumn seasons⁷⁸. These rains can result in flooding that lasts for several days, causing significant damage to buildings. The traditional earthen architecture of Ḥaḍramūt has proven to be one of the most effective forms of construction due to its greater stability against tensile stresses and its resistance to winds and rainstorms⁷⁹.

This is reflected in the design of the saqqāyāt using local building materials, which the Ḥaḍramī architect employed in a manner that demonstrates his extensive engineering expertise and his understanding of the environmental and geographical conditions of Wādī Ḥaḍramūt. The architect diversified the building materials used, employing limestone for the construction of the base of the saqqāyāt to ensure greater stability and to support the remaining components of the saqqāyāt, including the walls and dome. This base is elevated above the ground and consists of multiple levels that gradually decrease in size as they move inward. The purpose of this base is to protect the structure of the saqqāyāt due to its proximity to the ground and rainwater, as well as its susceptibility to environmental factors.

The walls of the saqqāyāt chamber were constructed using mud brick “*Madar*”, a material renowned in Ḥaḍramūt. These thick walls provide protection against sunlight, while domes were employed to cover these saqqāyāt. The distinctive white material known as *Nūrah* was used to coat all the external and internal walls of the saqqāyāt, due to its remarkable ability to insulate surfaces and protect them from various erosive factors, including humidity, winds, and rainfall. Additionally, this material is characterized by its high thermal insulation properties and its ability to reduce solar radiation, thereby maintaining a stable internal temperature in the saqqāyāt and preserving the coolness of the water within. In fact, the use of traditional natural building materials generally reduces environmental pollution and helps maintain suitable temperatures for the water within the saqqāyāt. *Nūrah* was also used to coat the stone water basin located within the saqqāyāt chamber, allowing for prolonged water retention and preventing leakage. This basin features thick walls to reduce heat transfer and maintain the coolness of the water inside. Multiple openings were

⁷⁸ Al-Shāṭirī, *Adwār al-Tārīḥ al-Ḥaḍramī*, p.17-18

⁷⁹ Ḥanšūr, Aḥmad and Mubārak, Šāliḥ, *Al-‘Anāšir Al-Mi‘mārīyah fī Al-‘Imārah Al-Ṭīnīyah Li-Mudun Wādī Ḥaḍramūt*, in the proceedings of the First Scientific Conference "Earthen Architecture at the Gateway to the Twenty-First Century, Ḥaḍramūt University of Science and Technology, February 2000, pp. 1-18.

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designated to allow visitors to access water and facilitate the filling of containers. These openings served as important sources of ventilation, cooling the interior of the saqqāyāt by replacing stale air with fresh, cool air, thereby helping to keep the water chilled. The Ḥaḍramī builder ensured that there were openings on all four sides of the saqqāyah, as wind directions vary from month to month. The prevailing winds typically come from the northeast and east⁸⁰.

The covering of the saqqāyāt with domes reflects the architectural expertise of the Ḥaḍramī builder. In addition to enhancing the aesthetic appeal and harmonizing with the domed elements of Islamic architecture in Ḥaḍramūt, the domes serve a functional role by protecting the saqqāyāt from sunlight and dust, thereby preserving water quality and reducing evaporation. Moreover, they play a critical role in ventilation and cooling the water. The shape of the domes, their thick walls, and the limited number of windows significantly contribute to lowering temperatures during the summer. The domed roofs mitigate heat by ensuring that the entire surface is not continuously exposed to sunlight throughout the day. Furthermore, domes facilitate the expulsion of hot air as it rises, while cooler, more humid air enters through the openings of the saqqāyāt⁸¹. lastly, The architecture of these saqqāyāt meets the fundamental criteria required for the construction of various structures, including utility, durability, beauty, and economy. Additionally, it fulfills the material, psychological, and spiritual needs of individuals⁸².

6. Decorative Elements

The saqqāyāt in Ḥaḍramūt serve not only a functional architectural purpose but also fulfill an aesthetic role. With their decorative elements, these *saqqāyāt* are an integral part of the local architectural traditions in Ḥaḍramūt. The decorations on these saqqāyāt were simple. They were also influenced by certain geometric decorative elements that were prevalent on the Façades of buildings in Wādī Ḥaḍramūt. Among the most notable of these are the interlocking hollow lines, zigzag patterns, and horizontal bands decorated with repeated Rhombus shapes, and crenelated spearhead shapes, with some saqqāyāt adorned at their corners with descending stepped decorations and sawtooth patterns. These geometric decorations bear similarities to the decorative motifs found on the facades of buildings in the Old City of Ṣan‘ā’, where interlocking geometric forms were created using brick molds⁸³. (Fig. 26, 27)

⁸⁰ Shaybān, *Al-‘Imārah al-Ṭīnīyah*, p.78-79

⁸¹ Ismā‘īl, ‘Amr, *Fī al-Fann al-Mi‘mārī al-Islāmī: Namādhij Min Tashkīl al-‘Imārah al-Dīniyyah*, Wikālat al-Ṣaḥāfah al-‘Arabiyyah, Cairo, 2020, p. 88.

⁸² Sāmy, ‘Irfān, *Naẓariyyat al-Waẓīfiyyah fī al-‘Imārah*, Dār al-Ma‘ārif, Cairo, 1966, pp. 1-2

⁸³ Markaz al-Ṭāhir lil-Istishārāt al-Handasaiyah, *Usus al-Taṣmīm al-Mi‘mārī WA al-Takhṭīṭ al-Ḥaḍarī*, pp. 530-531

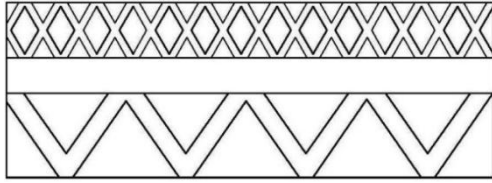


Fig 26. Zigzag decorations and intertwined line patterns on the facades of various buildings in Ḥaḍramūt. **By the author.**

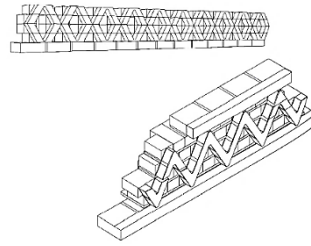


Fig 27. Decorative shaping technique using brick on the facades of the buildings in the Old City of Ṣan‘ā’. **Source:** Markaz al-Ṭāhir lil-Istishārāt al-Handasaiyah, *’uss al-Taṣmīm al-Mi‘mārī WA al-Takhṭīṭ al-Ḥaḍarī*, p. 531.

Saqqāyāt were also influenced by the forms of tiered crenellations with spear-shaped tips, which were a distinctive feature of the architecture in Wādī Ḥaḍramūt, adorning the walls of its various structures. These were known as “*Tashrīfāt*” or “*Taṣārīf*” and were widely used in Yemeni architecture, adorning the four corners of buildings or embellishing the walls or the upper sections of structures in general. These *Taṣārīf* are pyramid-shaped structures with a small base, constructed at the four corners of a building's roof. They were typically built atop mosques and homes that exceed four stories in height⁸⁴. These *Taṣārīf* played an important role in Yemeni culture, particularly in Yāfi‘ and Ḥaḍramūt. The term *Taṣārīf* is derived from the Arabic term “*sharaf*”, which means nobility or honor, signifying the elevated status and prominence of the place. They are considered an adornment and a distinguishing mark that signifies the house is complete and honorable. They serve as a form of *tashrīf* for the building, imparting dignity and prestige to it. *Al-Taṣārīf* is known in some regions as “*al-kawāthir*”, with the singular form being “*kawthara*”. They resemble the crowns that adorn the endings of the building⁸⁵. (Fig. 28, 29, 30)

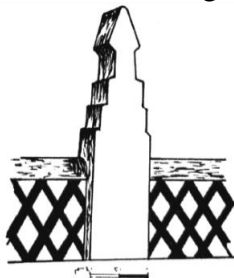


Fig 28. Gradated spear-shaped crenellations. **Source:** Ḥusayn Abū Bakr al-‘Āydarūs, *Al-Muḥḍār: A Creative Architectural Masterpiece*, Fig. 20, p. 235.

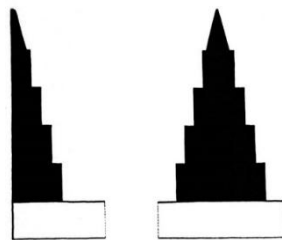


Fig 29. General shape of “*Tashrīfāt*” **Source:** Salma Samar Damluji, *the Architecture of Yemen*, p.89



Fig 30. General view of the crenellations “*Tashrīfāt*” atop the buildings in *Say‘ūn*, by Wilfred Thesiger in 1947. **Source:** Pitt Rivers Museum, University of Oxford.

⁸⁴ Ḥanšūr, Aḥmad, *Al-‘Imārah Al-Taqlīdiyyah fī Yāfi‘*, 2nd Engineering Conference, Faculty of Engineering, University of Aden, Yemen, March 30-31, 2009, p. 34; Salma Samar Damluji, *the Architecture of Yemen*, p. 290.

⁸⁵ Al-Ḍabā‘ī, *al-Ḥaḍārah al-Yamaniyyah wa-Naṭīḥāt al-Saḥāb al-Ḥaḡariyyah*, p. 149; Al-Khalāqī, ‘Alī Ṣāliḥ, *Mu‘jam Lahjat Sarūḡ Ḥimyar – Yāfi‘ wa Shadharāt min Turāthihā*, Markaz ‘Abbādī li-d-Dirāsāt wa al-Nashr, Ṣan‘ā’, 1st ed., 2012, p. 61.

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In addition to these geometric decorations, some inscriptions bands were used. One of the façades of these *saqqāyāt* bears an inscription band in Arabic script, displaying the testimony of faith; (**lā 'ilāha 'illā Allāh, Muḥammad Rasūl Allāh**), along with the construction date and, at times, the name of the builder.

In summary, the artistic influences exchanged between the *Saqqāyāt*, buildings, and other architectural units in Ḥaḍramūt clearly demonstrate a blending and harmony, which reinforces the principle of unity in urban design and contributes to preserving the distinctive cultural and architectural character of the Ḥaḍramī cities. These cities, which possess a unique identity and character, reflect in their architecture the influences resulting from the inhabitants of Ḥaḍramūt's desire to draw architectural forms from various religious structures, particularly the tombs of saints and Sufi sheikhs dispersed throughout the different regions of Ḥaḍramūt.

7. The Architectural and urban impact on the architecture of *Al-Saqqāyāt*

These *saqqāyāt* were not merely structures for storing water; they were an integral part of the architectural fabric of Wādī Ḥaḍramūt, which included mosques, palaces, schools, and other buildings. Together, they highlighted the artistic and architectural values that distinguish Ḥaḍramūt. These *saqqāyāt* were architecturally influenced by religious structures such as mosques and domed tombs that are widespread in various cities of Ḥaḍramūt. They also bore similarities to architectural elements like the entrance and the minaret⁸⁶. The general shape of the *saqqāyāt* was a polygon supported by four circular columns that held circular arches. The top of this polygon was crowned with spearhead crenellations, and its final covering was often a dome topped with a decorative element. One of the most notable examples that shared a similar form with the *saqqāyāt* was the main and secondary entrances of the Faqīh Mosque⁸⁷. This mosque is considered the oldest mosque in the 'Aynāt⁸⁸ region; it is attributed to

⁸⁶ Masjidī, *Al-Binā' Al-Mi'mārī Al-Qadīm*, p. 34-40

⁸⁷ Damluji, Salma Samar, the restoration of *masjid al-faqih in 'Aynāt*, Wādī Ḥaḍramūt, British- Yemeni Society Journal, Vol.9, 2011, p.17

⁸⁸ 'Aynāt is considered one of the most renowned villages in Ḥaḍramūt, located approximately 8 km east of the city of Tarīm. It was first established by the Āl-Kathīr family in 629 H/1232 CE. Al-Saqqāf, *Idām al-Qulūb fī Dhikr Buldān Ḥaḍramūt*, p. 974

The settlement of the Āl-Kathīr family in 'Aynāt in the Wādī Būḥ occurred in the year 629 A.H/1231 A.D, during which they began establishing the Āl-Kathīr state in Ḥaḍramūt, taking advantage of the tribal chaos prevalent in the region at the beginning of the 7th century A.H / 13th century A.D. Āl-Kathīr family quickly seized control of most of the cities and villages in Ḥaḍramūt at the beginning of the 8th century A.H / 14th century A.D. Over time, they were able to diminish the Emirate of Āl-Yamānī. 'Alī ibn 'Umār ibn Ja'far al-Kathīrī (814–825 A.H/1411–1422 A.D) is considered the first leader to transform the Āl-Kathīr alliance from a tribe into a state. He was the first to be proclaimed Sultan of Āl-Kathīr over Ḥaḍramūt in the year 714 A.H/1411 A.D, and he passed away in 825 A.H/1421 A.D. Āl-Kathīr state governed vast areas of Ḥaḍramūt. For more see; Bāmṭarif, Muḥammad 'Abd al-Qādir, *Al-Mukhtaṣar fī Tārīkh Ḥaḍramūt al-'ām*, Dār Ḥaḍramūt for Studies, Publishing, and Distribution, Mukallā, Yemen, 1st ed., 2001, pp. 79-80; Al-Ja'īdī, 'Abd Allāh Sa'īd, *Al-Salṭanah al-Kathīriyyah al-*

the founder of the ‘Alawī al-Ḥaḍramī school, Muḥammad ibn ‘Alī Bā‘alawī (574–653 A.H/1178–1255 A.D.)⁸⁹ (Fig. 31, 32 A- B).

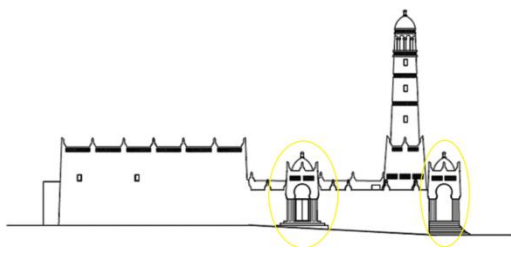


Fig 31. Vertical section of the Mosque of al-Faqīh in ‘Aynāt. **Source:** Daw‘an Mud Brick Architecture Foundation website.

<https://www.dawanarchitecturefoundation.org/projectdetails.aspx?ProjectID=12>. Accessed August 7, 2024.

Fig 32. The Mosque of al-Faqīh in ‘Aynāt. (A) The eastern main entrance. (B) The southern secondary entrance from inside the mosque. **Source:** https://www.archnet.org/sites/6996?media_content_id=79688. Accessed August 7, 2024.

They also resemble the entrance of the Mosque of *al-Wa‘l* in Tarīm⁹⁰, which is considered one of the oldest mosques in Tarīm, dating back to the first century A.H

Ūlā fī Ḥaḍramūt (814–1143 A.H/1411–1730 A.D.), Tarīm for Studies and Publishing, Tarīm, Ḥaḍramūt, 1st ed., 2014, pp. 30-40.

⁸⁹ The title “**Alawī**” is conferred upon those who trace their lineage to Imam ‘Alī ibn Abī Ṭālib. In Yemen, as well as in southern Arabia, Ḥijāz, and other regions, the designation “**Alawī**” is specifically applied to the descendants of Imam ‘Alawī ibn ‘Abaydullāh ibn Aḥmad al-Muhājir. He is the first to bear this title, and they may also be referred to as “**Āl Abī ‘Alawī**”. In the context of southern Arabia, they are commonly known as “**Āl Bā‘alawī**”. They reside in the Ḥaḍramūt region of southern Arabia. Their presence in Ḥaḍramūt began in the year 319 A.H/931 A.D, following the arrival of their ancestor Aḥmad al-Muhājir. Subsequently, they spread to various parts of the world. They became associated with one of the prominent Sufi orders in the Islamic world, known as “**Ṭarīqah of the Sayyids Āl Bā‘alawī**”. They consist of numerous households from which distinguished individuals emerged, contributing significantly to the propagation of Islam in Asia and Africa. For further details see; Al-Mashhūr, Al-Sayyid al-Sharīf ‘Abd al-Raḥmān ibn Muḥammad ibn Ḥusayn, *Shams al-Zuhūra fī Nasab Ahl al-Bayt min Banī ‘Alawī, Furu‘ Fāṭimah al-Zahrā’ wa Amīr al-Mu‘minīn ‘Alī (may Allah be pleased with him)*, vol. 1, edited by Muḥammad Diyā’ Shihāb, ‘Ālam al-Ma‘rifah, Jeddah, 1st ed., 1984, p. 64; Al-Ḥusaynī, al-Ḥabīb Zayn ibn Ibrāhīm ibn Sumayṭ Bā‘Alawī, *Al-Manhaj al-Sawī Sharḥ uṣūl Ṭarīqat al-Sayyids Āl Bā‘Alawī*, Dār al-‘Ilm wa al-Da‘wa, Tarīm, Ḥaḍramūt, 1st ed., 2005.

⁹⁰ The Mosque of *al-Wa‘l* is considered the first mosque built in Tarīm. It was established by the esteemed Imam Aḥmad ibn ‘Abād ibn Bashūr al-Anṣārī, with its original construction dating back to the year 43 A.H/663 A.D. It has several names, including the Mosque of the Preachers, the Mosque of al-Khulafā’, and the Mosque of al-Anṣārī. It is commonly known as the Mosque of al-Wa‘l, a name attributed to Imam ‘Alī ibn Muḥammad al-Khaṭīb due to his esteemed status. The mosque has undergone several renovations, notably in the year 916 A.H/1510 A.D. Also, it was restored by the renowned scholar ‘Umar ibn ‘Abd al-Raḥmān Bāmuṣbaḥ al-Kindī. For more details, see; ‘Abd Allāh, Al-Sayyid Ḥāmid ibn Muḥammad

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(Fig. 33). Additionally, they bear similarities to the entrance of the Bā‘Alawī Mosque in Say‘ūn, located in the al-Suḥayl neighborhood, which is regarded as the oldest mosque in the city of Say‘ūn (Fig. 34 A, B).



Fig 33. General view of the Mosque of *al-Wa‘l* in Tarīm.

Source:

By photographer James Conlon, <https://mcid.mcah.columbia.edu/taxonomy/term/12689?page=2>. Accessed August 7, 2024.



(A)



(B)

Fig 34. Bā‘alawī Mosque in Say‘ūn (A) Archival photograph by Wilfred Thesiger, 1947 (B) the current mosque, saqqāyah on the right of the main façade. **Source:** (A) Pitt Rivers Museum, University of Oxford. (B) By the author.

It also resembles the entrance of the Mosque of Abū Bakr al-‘Āydarūs in Tarīm (551 A.H/1156 A.D) (Fig. 35) and shares similarities with the entrances of various structures in Say‘ūn (Fig. 36). Additionally, the design of the saqqāyāt generally resembles one of the styles of minarets in the city of Tarīm, such as the minaret of the Mosque of Abū Bakr al-‘Āydarūs in Tarīm⁹¹. (Fig. 35)



Fig 35. General view of the Mosque of Abū Bakr al-‘Āydarūs in Tarīm, and its Minerat. **Source:** Abd al-Ghanī et al., *Mā‘zin al-Masājid al-Qadīmah fī Ḥaḍramūt*, p. 133



Fig 36. General view of the entrance to a building in Say‘ūn, photographed by Wilfred Thesiger in 1947. **Source:** Pitt Rivers Museum, University of Oxford

ibn, *Al-Dalīl al-Qawīm fī Dhikr Shay‘ min ‘Ādāt Tarīm*, Tarīm for Studies and Publishing, Tarīm, 2nd ed., 2009, pp. 137-139; Bāghūth, Khālid ibn Sa‘īd ibn Muḥammad, *Al-Durār al-Thamīna fī Tārīkh Masājid Tarīm wa Ma‘ālimihā al-Qadīmah*, Dār al-Faqīh Library at Dār al-Muḥṭafā, Tarīm, 2010, p. 31.

⁹¹ ‘Abd al-Ghanī, Reem et al., *Mā‘zin al-Masājid al-Qadīmah fī Ḥaḍramūt: Mā‘zin Masājid Madīnat Tarīm*, Journal of the University of Damascus, vol. 19, no. 2, 2003, p. 133; Āl-‘Āydarūs is a family of significant scholarly, political, and social prominence, comprising many scholars and jurists, widely spread across Ḥaḍramūt, southern Arabia, the Ḥijāz, Iraq, India, and beyond. Al-Mashhūr, *Shams al-Ḥahīrah fī Nasab Ahl al-Bayt*, p. 95

The *saqqāyāt* were also influenced by the architectural and decorative elements that were prevalent in the various structures of Ḥaḍramūt, including the domed shapes that taper upward. These forms were commonly employed, especially in the tombs of saints and Sufis found throughout the cities of the Ḥaḍramūt valley. Among the most notable examples; are the domes of the Prophet Hūd in Tarīm, and the dome of the tomb of Sheikh Abū Bakr b. Sālim in ‘Aynāt, which also bear similarities to their entrance, along with many others in various regions of Ḥaḍramūt (Fig. 37, 38)



Fig 37. The dome of the Prophet Hūd in Tarīm. **Source:** [MadainProject] ([https://madainproject.com/maqam_hud_\(hadhramaut\)](https://madainproject.com/maqam_hud_(hadhramaut))). Accessed August 7, 2024.).



Fig 38. The dome of the tomb of Sheikh Abū Bakr bin Sālim in ‘Aynāt. **Source:** Breton, Jean-François, *Shibam and the Wādī Ḥaḍramūt*, 1985, p.18

Conclusion

In conclusion, this study examines the traditional *Saqqāyāt* architecture in Wādī Ḥaḍramūt, revealing their widespread distribution across the region's cities and villages as a significant component of Yemeni heritage. The research emphasizes that these *saqqāyāt* were vital charitable projects, supported by the local population as a means of seeking spiritual merit. Additionally, it highlights the interplay between cultural and environmental factors in a region characterized by a hot desert climate and limited water resources. *Al-Saqqāyāt* not only fulfilled the community's water needs but also showcased the ingenuity of ancient architects who employed sustainable construction techniques. However, these structures, which date back to various historical periods, are increasingly facing neglect due to aging and the shift toward modern water coolers.

Architecturally, these fountains reflect the traditional style of Wādī Ḥaḍramūt, characterized by the use of readily available and simple construction materials. Mud bricks, locally known as "*Madar*" serve as the primary building material. In addition to employing stone for the construction of the foundations of these *Saqqāyāt*, wood was utilized to support the coverings. Furthermore, white lime "*al-Nūrah*" was used to coat the walls of them, both inside and outside, which is a distinctive feature of the architecture in Wādī Ḥaḍramūt. The designs of these *saqqāyāt* exhibit simplicity in architectural composition and can be categorized based on their coverings: some are topped with a single dome, while others feature two domes.

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The study highlights several significant findings, particularly the architectural harmony of the *Saqqāyāt* with the local environment of others structures in different cities of Wādī Ḥaḍramūt. These water cisterns exemplify a design that integrates seamlessly with the region's traditional mud architecture, enhancing the cohesion between the *Saqqāyāt* and other urban features in Ḥaḍramūt. Furthermore, the *Saqqāyāt* are often integrated into the urban fabric, where they form an essential part of the landscape, reinforcing the visual and cultural continuity of the area's traditional architectural elements. An additional dimension of the study reveals the significance of waqf as a foundational system for the construction and upkeep of *Saqqāyāt*. The waqf, serving as a social and economic institution, has been instrumental in financing these charitable facilities, which provided essential water services for both locals and travelers. This underscores the broader role of waqf in supporting urban infrastructure and public amenities in Wādī Ḥaḍramūt. These *Saqqāyāt* they embody a balanced architectural approach that merges aesthetic appeal with practicality. The simplicity of their design, combined with careful attention to decorative details, enhances the visual identity of the urban landscape of Wādī Ḥaḍramūt. These findings emphasize the enduring cultural and architectural significance of the *Saqqāyāt*, serving as a vital link to the region's history and heritage.

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