DELHI Heritage TOP 10

Baolis

VIKRAMJIT SINGH ROOPRAI

Foreword by Sohail Hashmi

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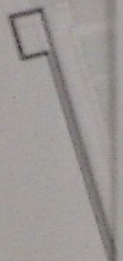

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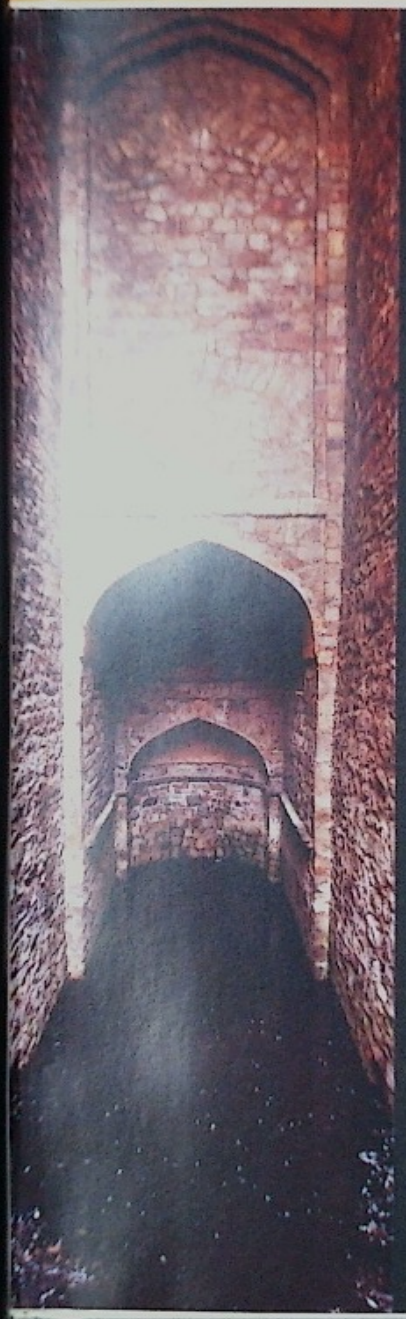

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FOREWORD

All ancient civilizations, those that graduated from hunting and gathering to settled agriculture, had developed methods of harnessing water for agriculture and for daily consumption. Each civilization adapted to the peculiarities of their climatic conditions, the terrain they inhabited, the seasonality of precipitation, and developed techniques that were best suited to their conditions.

In different parts of the world from the heights of Andes where the Incas lived to southern Mexico, Guatemala, Northern Belize, and Western Honduras inhabited by the Mayas, from the flood-prone plains of the Nile in Egypt to the lands inhabited by the Assyrians, the Sumerians, the Romans, the Chinese, and other ancient civilizations, there were as many solutions to problems of seasonal plenty and scarcity, even excess and flooding, or paucity and absence of water that were unique to each society.

In India, during the times about which we do not know enough, there were those who settled in the

Indus Valley and whose settlements gradually grew into towns and cities. It were these people who developed a network of drains, some open while some underground, to carry water to all parts of the city. They also built large public baths, and we are still trying to understand how the entire system worked.

The inheritors of these great cultures keep talking about their rich ancient civilizations, and how advanced were their techniques of urban planning, and it is the same with us. Whenever we participate in international colloquia on hydrology and on water management, we never tire of preening ourselves before the world community, telling them about the underground network of drains and the great baths and the hydrants, the remains of which can be seen even now. We try to present these as unique, and this we do because we have convinced ourselves that we are the fountainhead of all knowledge. It does not occur to us that each great civilization, some as old as ours, and a few even older, had found their own methods of solving the most crucial problem of human existence—water management.

Boasting about a past—partly understood, partly misunderstood, and mostly imagined—is the

foundation upon which the edifice of the nation state is constructed. Despite the phenomenal diversity—climatic, cultural, social, and historical—that has informed these myriad ideas of a glorious past, there is one similarity that cuts across all, and that is our refusal to learn anything from this fantastic past, especially when it comes to practices that help sustainable living.

We are creating newer and newer methods to exhaust our resources, ones that we do not have the mechanisms to regenerate. And one of these resources is water. The speed with which we are consuming, polluting, wasting, and destroying this one resource that every civilization had learnt to conserve makes one wonder if we can actually claim to be more civilized than all earlier civilizations.

The slim volume *Delhi Heritage—Top 10 Baolis* put together by Vikramjit Singh Rooprai, a young heritage enthusiast and photographer, looks at stepwells and their importance in meeting the water requirements of the residents of the capitals that rose and fell in what is now the national capital territory of Delhi, and also of the villages that have existed in this region much before the capitals came up.

Aside from the stepwells, the residents of Delhi depended on natural waterbodies, man-made ponds and reservoirs, wells, natural streams, and canals, one of which brought water to the city of Shah Jahan across a distance of 130 kilometres. Most of the natural and man-made waterbodies have been encroached upon and built over, while the others are counting their last days. The canals are mostly gone, as are most of the wells. What remains of the traditional waterbodies are a score or so of stepwells, some visible and still in use, while others marking their time before they too meet the fate that has befallen most traditional waterbodies.

You will find interesting details about the positioning of the stepwells, their location and their links with places of worship; you will come across little nuggets of information about architectural details and also imagined and created histories based on folk recounting; but, most importantly, you will come across a deep and abiding concern for our shared heritage and ideas that can perhaps help us arrest the ever-depleting water table of Delhi.

According to figures presented by the Central Ground Water Board before the Supreme Court of India on

8 May 2018 (*TOI*, 9 May 2018), the water table in almost all of Delhi, except for a few pockets of west and central Delhi, is in a semi-critical or critical zone.

The ever-declining water table of Delhi owes much to the large number of cars that need more and more land under roads. So we have a situation where, for every sq. km of land in Delhi, there are 224.7 kms of roads [1,483 sq. kms (total land area in Delhi) – 3,31,198 kms (total road length in Delhi)]. Add to this the tendency to concretize all walkways and all courtyards, which are then decorated with potted plants. There is little chance for rainwater to seep into the ground, and then we have the builder lobby constantly pumping out water for their multi-storey towers.

Vikramjit's proposal to use the stepwells as aquifers and to divert rainwater run-off into them might be one way of, at least, partially reversing the unending cycle of continuous exploitation of our most precious exhaustible resource—water.

Sohail Hashmi

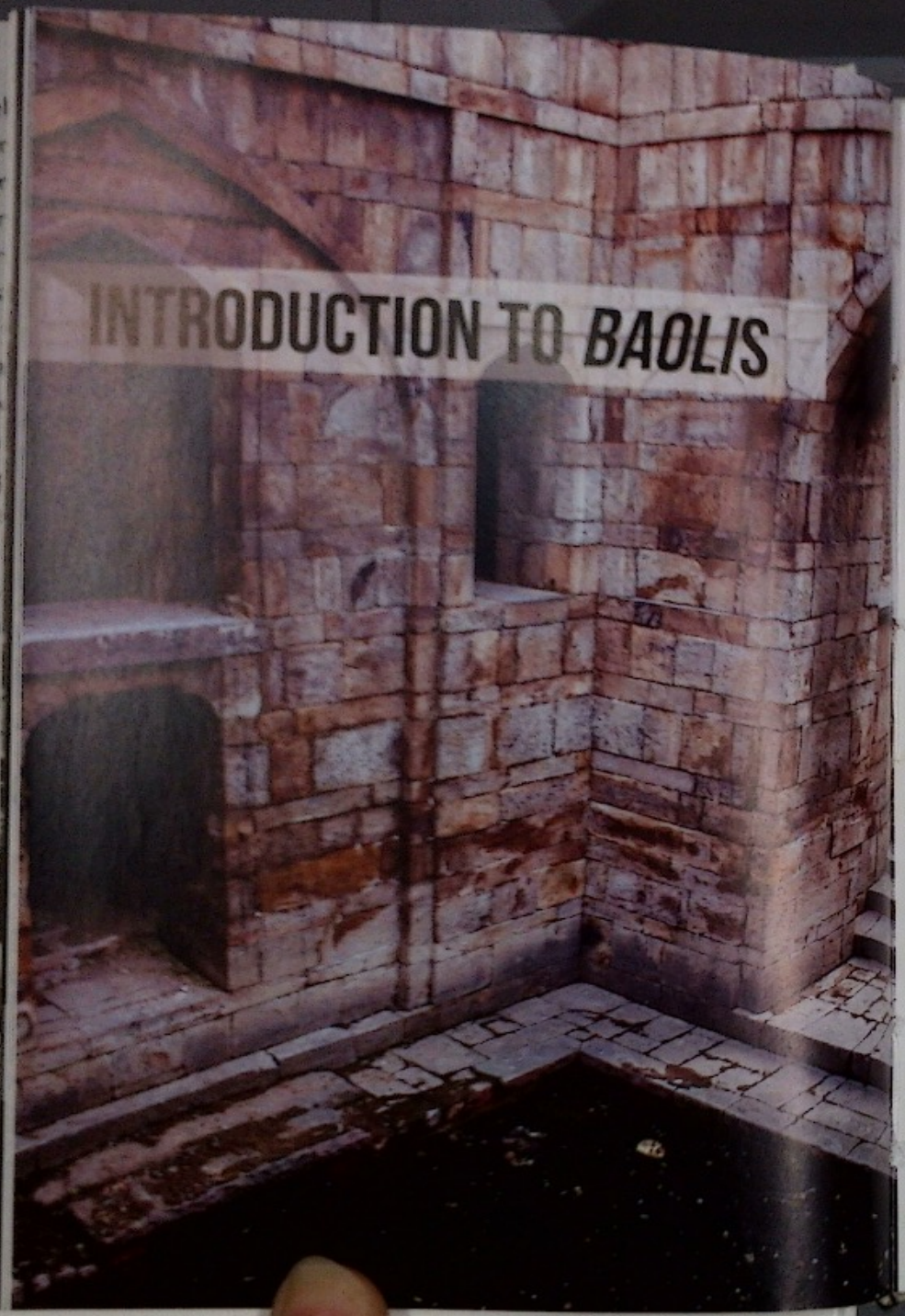
The idea of writing about *baolis* came to my mind sometime around 2012. Since then, I started exploring and learning more about these structures. It took me five years to collect the information that could do justice to such a book.

To my surprise, many travellers writing in English ignored the water structures of the towns in their accounts. Most writers took the water structures for granted, probably because they were available in such abundance. Except for one or two major *baolis*, most historians did not mention the others. On the face of such a situation, this book became a challenge. I had to learn Urdu to study documents that have not been translated yet. A book in Japanese and few records in Persian revealed many secrets, after I got some help in deciphering them. Some historic records mention more than hundred *baolis* in Delhi, out of which less than fifteen are accessible to the public today. After many debates and lengthy discussions with experts, I was able to compile this book.

While selecting the *baolis* for this book, I investigated major factors like accessibility to visitors, cleanliness of the water, cleanliness of the surroundings, usage, size, shape, and the age of the structures. The factor that surprised me was the size. I calculated the area covered by each *baoli* on the surface, and while I was hoping for Ugrasen ki Baoli to be the largest in Delhi, as it appeared to be the longest on the map, the circular *baoli* of Kotla Feroz Shah won the race. Rajon ki Baoli followed it, pushing the longest *baoli* to the third rank in terms of area. Given that the research took almost half a decade, before I could start writing, I was witness to several changes that happened around these *baolis*. But this made my job more difficult, as the water level and the surroundings kept changing every season, and the order of my list was affected with each rainfall. Few *baolis* got restored during this period, completely changing the way they looked. The order of *baolis* in this book is based on the data available in November 2018.

On 24 October 2009, I visited Rajon ki Baoli, the first *baoli* in my life. That time, the water level in the *baoli* was so low that if I had dipped my hand right in the middle of the tank, my wrist would have remained dry. A decade later, we could only see two out of the

four storeys of this *baoli*, as water had filled more than half of the structure. In 2010 and 2011, I paid many visits to Rajon, Gandhak, and Ugrasen *baolis*. These three happened to be most famous back then, apart from Hazrat Nizam-ud-Din ki Baoli. On 31 May 2012, I was invited by Sohail Hashmi to accompany him and Dr Narayani Gupta to see the Red Fort Baoli. I had not heard about this one till then. This visit was a game-changer, as, for the very first time, I saw a functioning *baoli*. The water pockets around the well were much higher than the water level due to which spouts of water were gushing down the well. The water level inside the well and the tank was low, since water was pumped out of the *baoli* for irrigation purpose. I always had a perception that *baolis* were long, rectangular structures. The Red Fort Baoli, being an L-shaped structure, broke that myth. Later, my expeditions led me to find that the *baolis* of Feroz Shah Kotla, Arab ki Sarai, and Tughlaqabad also don't follow a rectangular pattern.



What is a *Baoli*?

Since the beginning of civilization, humans have tried to hold water for their consumption. In India, techniques to store and source water have evolved from the Great Bath of Mohenjodaro to modern dams and reservoirs. In the last 1,500 years, people in South Asia have refined their ways of accessing subterranean water by extending the utility of wells. We started by digging wells, building step ponds and baths, and later realized that water used for bathing and drinking was no longer potable. Hence, the architects came up with an interesting solution in some parts of the subcontinent, where wells and tanks were constructed separately yet connected by a window. These structures became popular by many names like *bawadi, bavari, vaav, pushkarni, barav, baoli, bavali, bain*, or simply 'stepwell' in English.

Facing page: The Red Fort Baoli tank, with the well shaft visible in the left and steps from the west visible partially in the lower right corner

Speaking of Delhi, a typical *baoli* consists of a well which is attached to a separate water tank or basin. Wells are dug deep enough to penetrate the underground confining the impervious layer (crossing the underground water table/unconfined aquifer). Tanks are built at a much lesser depth with a window between the well and the tank. They may or may not connect with the first layer of underground water aquifer. The window allows water to get transferred from the well to the tank. Since the tank has a larger surface area, it exerts less pressure on the water surface. On the other hand, the well is a long cylindrical shaft exerting higher pressure on the water, thus transferring water from the well to the tank, but not vice versa. Medieval builders believed that since the water from the tank can never return to the well, the tank water can be used for bathing, washing, and other chores without the risk of it contaminating the water in the well, thus making the well water safe for drinking. A flight of stairs is constructed to reach the tank. Multiple levels are raised as the tank gets deeper, each with an optional set of chambers. These chambers serve a dual purpose: *first*, to provide strength to the structure by counterbalancing the inward thrust at the sidewalls, and *second*, to provide room for its visitors. It should be noted that several architects experimented with new, innovative styles

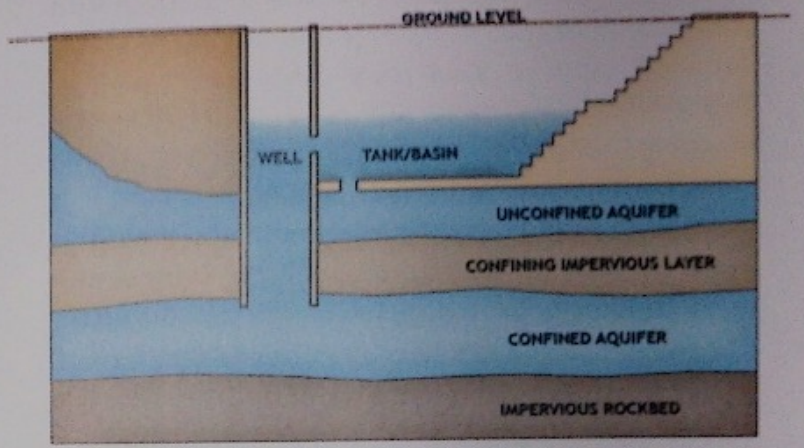


Diagram of a *baoli* with steps, a tank/basin, and well, positioned over the underground water aquifers

and gave us such fine architecture like the Red Fort's L-shaped *baoli* and Feroz Shah Kotla's circular *baoli*.

Another interesting thing to note is that many *baolis* in Delhi have their wells towards the south with steps leading from the north to the south. In case of the *baolis* of Hindu Rao Hospital Complex, Tughlaqabad, and Arab ki Sarai, the well and tank arrangement does not match the said description, but one flight of steps in each case still descend from the north to the south. Old Fort Baoli and Ugrasen ki Baoli had a different requirement and space constraint, hence the steps lead from south to the north. The only

exception here is the *baoli* of Feroz Shah Kotla, which is circular in shape.

A possible explanation for such an architectural alignment is the effect of sunlight. If the deeper portion (that is, the tank) is towards the north/south, it is exposed to sunlight for the least amount of time. This keeps the water cool and provides shade to those who climb down a large flight of steps to reach the water. The north-south alignment also ensures that for half a day, one side remains in the shade and the other side gets proper sunlight. Sides switch as the sun moves. It benefits during both summer and winter.

Baolis and wells work on the simple process of sedimentation. While the well penetrates the confined aquifer, the walls of the well/*baoli*/tank also allow the seepage of water through small gaps between the stones. This creates water pockets behind each such gap. The pockets are interconnected by tiny water channels created naturally after rainwater seeps in through the catchment area. Mud, mixed in water, settles in the tank, and one gets clean water on the top.

Baolis were not just sources of water, but also served as important community sites. Almost all *baolis* and tanks had a place of worship attached to them. The oldest reference in Delhi is of Anangtal

in Sanjay Van, Mehrauli. It is a stone's throw away from the temple of Yogmaya. The Surajkund tank (in Faridabad) came later, built by Raja Surajpal Singh Tomar. It had a Sun Temple attached to it. The Muslim reign began after this, following which almost every *baoli* constructed was either attached to a dargah or a mosque. Every religious place needed water for its daily rituals and for the visitors. And so, they always had a source of water within the complex. Depending on the footfall, it could be a well, a tank, or a *baoli*. It is very difficult to say whether the *baoli*/tank/well was built because of the religious structure or otherwise. One very interesting practice related to public waterbodies can still be seen in the smaller villages of India. According to this practice, men do not go to any public waterbody around noon. Noontimes were always (and still are) reserved for women. If men need water, they walk close enough to the waterbody such that they would not be able to see anyone present there but can talk to someone inside. They either cough or shout to check if women are present at the waterbody. In case there are ladies using the *baoli* or the pond, they respond and give the man some water. If no response comes, the man is free to go to the water source. I do not think that such a practice is followed at the wells. But I have observed this custom in many

villages of Punjab and Uttar Pradesh in the last fifteen years.

People also avoid touching the base of the tank while using buckets or when diving, as it disturbs the settled mud and the water will have to be left idle for some time before it can be reused.

REVIVAL OF *BAOLIS*

Can the *baolis* be revived? This is a common question I often encounter. Can these *baolis* solve the water problem of Delhi? Can we connect the *baolis*, wells, and other historic waterbodies with our modern water circulation system?

The answers to such questions may sound easy, but would be as difficult to implement. Currently, water from only four *baolis* is being pumped out, namely the Red Fort, Old Fort, Feroz Shah Kotla, and Banjaron ki Baoli. *Baolis* like Gandhak ki Baoli, Rajon ki Baoli, and the ones inside the dargahs of Hazrat Nizam-ud-Din and Khwaja Kaki contain water, but have not been used. Stagnant water becomes dirty and may lead to diseases and infections. Since the *baolis* of Nizam-ud-Din Dargah and Gandhak are believed to be holy and medicinal, people take a dip in them and sip the water as a religious practice, despite the hygiene factor. The

underground water connected to these *baolis* must also be contaminated. To completely revive the *baolis*, it is important that we dry them up, clean the bed, and direct rainwater to them for a few seasons. We will also have to ensure that this redirected water is circulated properly, so that all the choked pores in the walls of the *baolis* are desilted. And while we do all this, another challenge standing our way is the sewerage system in Delhi. The sewerage in this city is quite old and, at certain places, the underground sewers are punctured. This also contaminates the groundwater. Even if we manage to clean the *baolis*, interconnected underground water channels will pump in dirty water at all times. We need a citywide underground water decontamination plan. And it is high time that this be pushed to the utmost priority.

Another important aspect to keep in mind is that we no longer have adequate catchment areas around each *baoli*. With carpeted streets and dense concrete jungles, the probability of the underground water table getting recharged naturally is next to zero. Although this problem can be tackled by redirecting the rainwater from rooftops and streets to the underground water table, it also requires a major infrastructural change. More than the financial and logistical challenge, this requires political will.

THE *BAOLIS* OF DELHI

The following list of *baolis* has been prepared after consulting the historic records of ASI and books like *Monuments of Delhi: Lasting Splendour of the Great Mughals and Others* (1916) by Maulvi Zafar Hasan, *Asar-us-Sanadid* (1847) by Sir Syed Ahmad Khan, and *Waqiaat-e-Darul Hukumat Delhi* (1919) by Bashir-ud-Din Ahmad. Many *baolis* had no formal name given to them. With time, they were referred using the name of nearby village/locality. However, since the names and boundaries have changed to a great extent, and many new structures have come up around these *baolis*, most names mentioned in the given table are modern for the ease of the reader, so that one can easily identify the structures. However, official names, as recorded in current government records, have been used for the *baolis* that fall under government protection. The list that follows is sorted as per the estimated/known year of construction of the respective *baoli*.

Gandhak ki Baoli

Location	Condition as on November 2018	Access
On the crossing of Dargah Road, turning to Dargah of Khwaja Kaki, Mehrauli	Contains water; used for bathing	Open to public

Palam Baoli

Location	Condition as on November 2018	Access
In Palam village, near Babri Mosque; said to have important inscriptions which were lost by early 1900s	Lost/buried	None

Adhchini Baoli

Location	Condition as on November 2018	Access
Near the enclosure of the dargah of Bibi Zulaikha, mother of Hazrat Nizam-ud-Din	Lost/buried	None

Hazrat Nizamuddin Baoli

Location	Condition as on November 2018	Access
At the Northern Gate of Nizam-ud-Din Dargah Complex	Good; water used for bathing	Open to public

Tughlaqabad Baoli I

Location	Condition as on November 2018	Access
Along the southern wall, walking westward from the present visitors entry	Dry	Open to public

Tughlaqabad Baoli 2

Location	Condition as on November 2018	Access
In the main citadel, towards south-east	Dilapidated; dry	Open to public

Kotla Feroz Shah Baoli

Location	Condition as on November 2018	Access
North-west of the pyramidal structure inside Feroz Shah Kotla Citadel	Good; water being used	Access granted with permission from ASI

Ridge Baoli

Location	Condition as on November 2018	Access
Between the main building of Hindu Rao Hospital and Pir Ghaib; opposite the residential complex of the hospital	Contains clean water; not being used	Open to public

Red Fort Baoli

Location	Condition as on November 2018	Access
Northern area of Red Fort, outside Mehtab Bagh, on track to Salimgarh	Good; water being used	Access granted with permission from ASI

Ugrasen ki Baoli

Location	Condition as on November 2018	Access
Hailey Road, connecting Kasturba Gandhi Marg and Barakhamba Road	Dry	Open to public

Banjaron ki Baoli

Location	Condition as on November 2018	Access
Hidden under a large floor of the historic Mattya Mahal Mosque; a small window on the floor and another on the sidewall under the mosque gives a glimpse of the *baoli* well and pipes pumping the water out	Contains water; pumped through pipes and supplied to Matia Mahal	Closed completely; well visible from a small window

Moradabad Pahari Baoli

Location	Condition as on November 2018	Access
Inside Qasai Wala Gumbad Complex, Moradabad Pahari, Vasant Vihar	Dry or is filled by rainwater	Closed (private property)

Qadam Sharif Baoli

Location	Condition as on November 2018	Access
Inside Qadam Sharif enclosure, Paharganj	Lost/buried	None

Lado Sarai Baoli

Location	Condition as on November 2018	Access
Behind Ahinsa Sthal	Lost/buried	None

Talimabad Baoli

Location	Condition as on November 2018	Access
Inside Hamdard Education Society Complex, Talimabad	Dry	Private property

Baoli near Kabuliwala

Location	Condition as on November 2018	Access
In Mehrauli village, next to the enclosure known as Kabuliwala	Lost/buried	None

Teghanpur Baoli

Location	Condition as on November 2018	Access
Possibly somewhere near Sector 10 metro station, Dwarka	Lost/buried	None

Kharera Baoli

Location	Condition as on November 2018	Access
Near Chor Minar, Hauz Khas Enclave (area originally known as Kharera)	Lost/buried	None

Sultanpur Baoli

Location	Condition as on November 2018	Access
Inside a farmhouse in Sultanpur on Mehrauli–Gurgaon Road	Unsure	None

Basti Baoli

Location	Condition as on November 2018	Access
Defence Colony; inside Defence Colony Mosque (originally tomb and mosque of Khwaja Sara Basti Khan, Raipur Khurd)	Lost/buried	None

Kotla Mubarakpur Baoli

Location	Condition as on November 2018	Access
To north-west of Kotla Mubarakpur; only the edge of the well is visible now	Lost/buried	None

Rajon ki Baoli

Location	Condition as on November 2018	Access
Towards the western end of Mehrauli Archaeological Park	Contains dirty water; not used	Open to public

Munirka Baoli

Location	Condition as on November 2018	Access
Also known as Baoli of Wazirpur Gumbad Complex—Sector 5, R.K. Puram	Dry	Open to public

Loharheri Baoli

Location	Condition as on November 2018	Access
Dwarka Sector 12; between Dwarka International School and Gangotri Apartment, on Azad Hind Fauj Marg	Dry	Open to public

Purana Qila Baoli

Location	Condition as on November 2018	Access
To south-west of Qila-i-Kuhna Mosque inside Purana Qila (Old Fort)	Little water; being used	Access granted with permission from ASI

Khari Baoli

Location	Condition as on November 2018	Access
Under the present Khari Baoli Market, behind Fatehpuri Masjid, Old Delhi	Lost/buried	None

Arab Sarai ki Baoli

Location	Condition as on November 2018	Access
In a less-visited compound (known as Meherban Agha's Market), south of Arab Sarai, Humayun Tomb Complex	Contains water; not used	Access granted with permission from ASI

Aurangzeb ki Baoli

Location	Condition as on November 2018	Access
Near Zafar Mahal, towards the west	Lost/buried	None

Khairpur Baoli

Location	Condition as on November 2018	Access
Inside Lodhi Gardens, right outside the mosque and the rose garden (Lodhi Gardens was built by relocating a village known as Khairpur)	Lost/buried	None

Zeenat Begum Baoli

Location	Condition as on November 2018	Access
Next to Zeenat Begum's mosque, Aliganj (now Jor Bagh)	Lost/buried	None

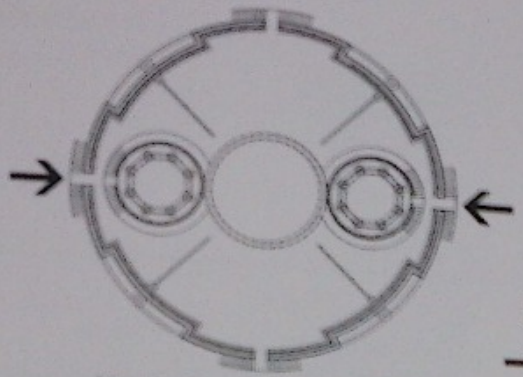
Hakim ji's Baoli

Location	Condition as on November 2018	Access
Next to the mosque in Hakim ji's garden in Raisina village (exact location of garden unknown)	Lost/buried	None

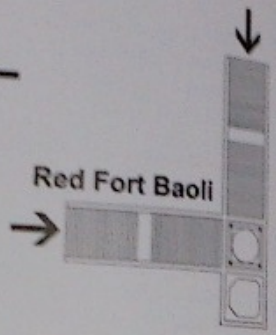
Dawood ki Baoli or Qutb Sahib ki Baoli

Location	Condition as on November 2018	Access
Inside the dargah, under the southern courtyard outside Majlis Khana	Contains dirty water; not used	Access granted with permission from Dargah Committee

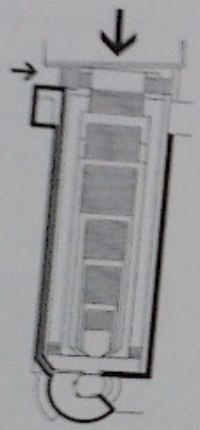
Map of the *baolis* of Delhi



Kotla Feroz Shah Baoli

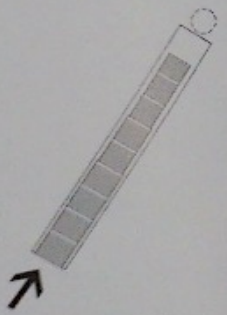


Red Fort Baoli



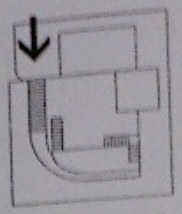
Gandhak ki Baoli

Munirka Baoli

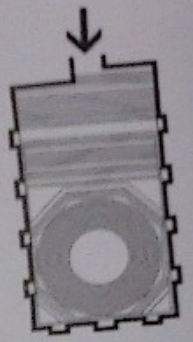


Purana Qila Baoli

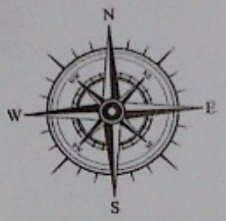
The illustration shows the top ten *baolis* relative to each other

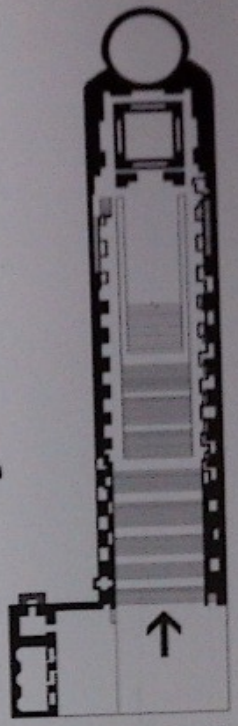


Ridge Baoli

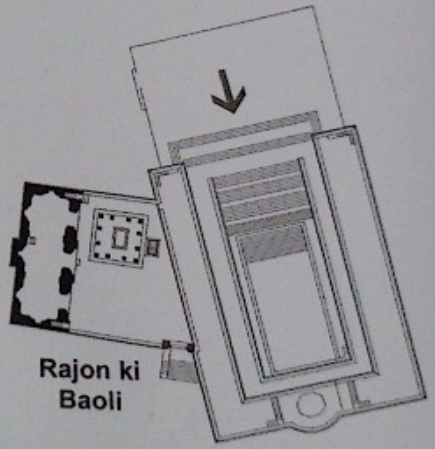


Hazrat Nizam-ud-Din Baoli

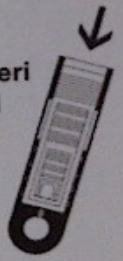




Ugrasen ki Baoli



Rajon ki Baoli

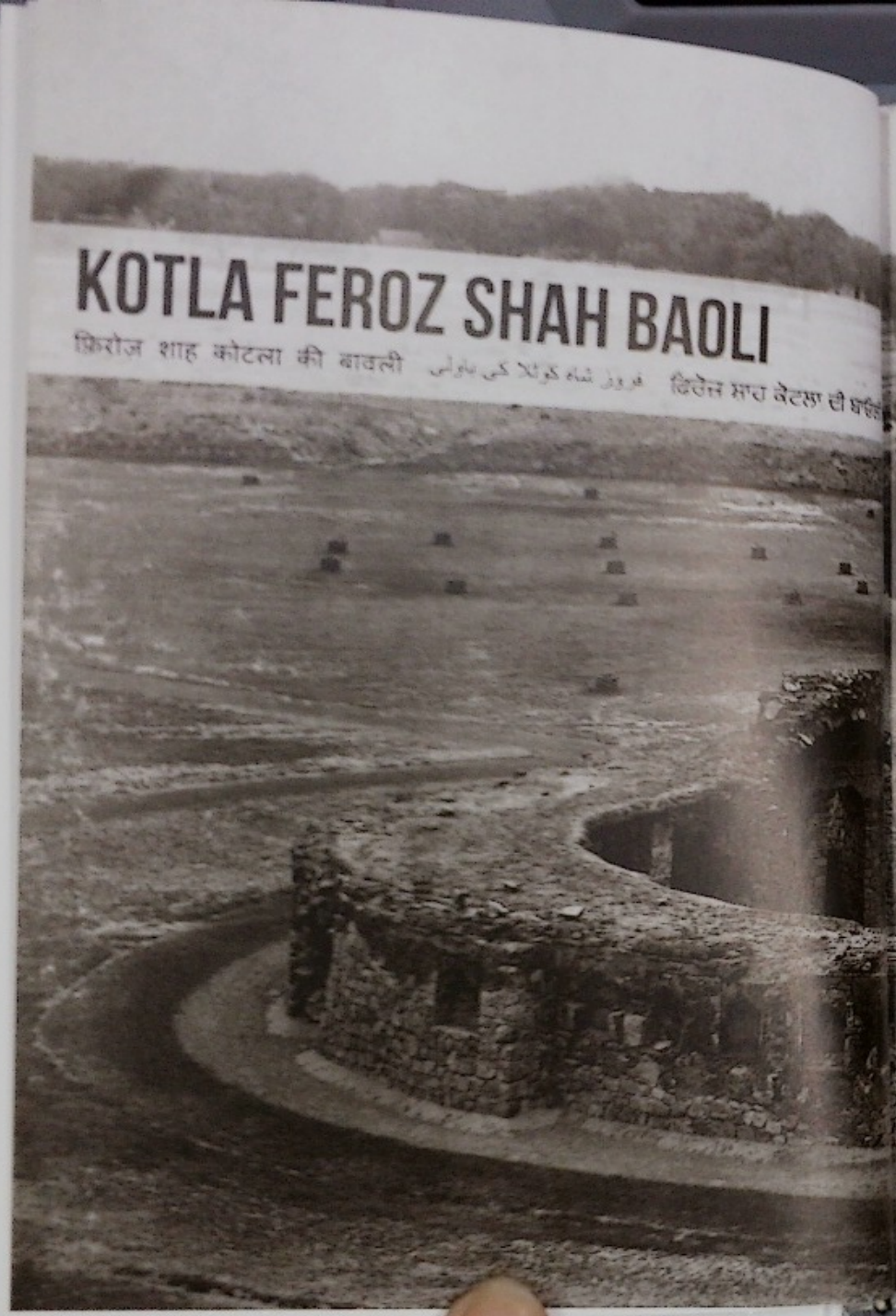


Loharheri Baoli

Disclaimer: All illustrations not to scale

KOTLA FEROZ SHAH BAOLI

फ़िरोज़ शाह कोटला की बावली فیروز شاہ کوٹلہ کی باولی ਫ਼ਿਰੋਜ਼ ਸ਼ਾਹ ਕੋਟਲਾ ਦੀ ਬਾਉਲੀ



A panoramic view of the Kotla Feroz Shah Baoli in 2018

Previous page: An extensive view of the Kotla Feroz Shah Baoli in 1923. The picture has been taken from the edge of the pyramidal structure in the fort. *Source: ASI Photo Archives*

Feroz Shah Tughlaq (r. 1351–1388) took special interest in strengthening the infrastructure of his empire. Not only did he build new structures, but also invested time and money in repairing buildings built by his predecessors. One of the best examples would be the Qutub Minar, which was extended by Tughlaq to its present state consisting of five storeys. Feroz Shah is more famous for commissioning buildings of architectural shapes that were seen as unconventional during his era. He is also considered the father of the irrigation system in India for channelizing rivers to provide water through canals to a large part of the country.

Feroz Shah Tughlaq came to power after the death of his cousin, Sultan Muhammad Bin Tughlaq. Muhammad Bin Tughlaq was known to be a lunatic king. His decision left the treasury dry and the economy collapsing. Feroz Shah avoided the throne for a long time, but due to pressure from the nobles, he eventually agreed to be the third sultan of the Tughlaq dynasty.

Instead of wars, he decided to spend more time and money on city planning, construction of public buildings, roads, water channels, and utilities. One of his commissioned structures is the *baoli* inside the citadel of Ferozabad. The citadel is known as Kotla-i-Feroz Shahi (the fortress of Feroz Shah), but more commonly referred to as Feroz Shah Kotla. Today, this fort is the favourite destination for those who believe in djinns and want to have their wishes granted or their problems solved. You can see devotees sitting

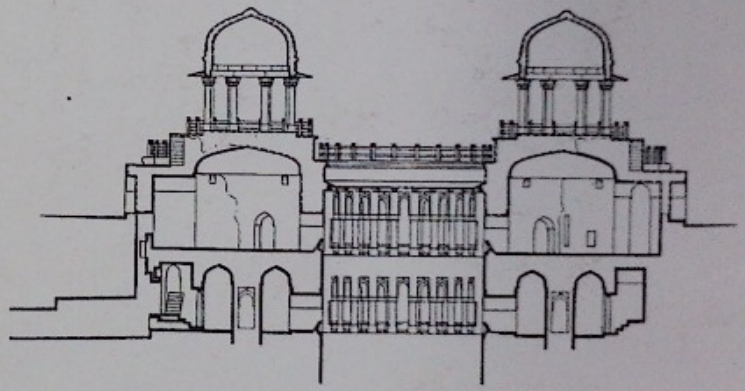
View of the *baoli* with the Ashokan Pillar above the pyramidal structure visible in the background

in almost every corner, lighting earthen lamps or incense sticks and praying to djinns. But what may amuse some first-time visitors is that many devotees also write their prayers on a piece of paper and stick them on the walls. Of late, people have also started lighting a lamp in a small window on the outer wall of the *baoli*.

This *baoli* is situated right before the pyramidal structure, containing the Ashokan Pillar, which

A stunning view of the *baoli* as seen from the remains of the Eastern Tower

The slim volume *Delhi Heritage—Top 10 Baolis* put together by Vikramjit Singh Rooprai, a young heritage enthusiast and photographer, looks at stepwells and their importance in meeting the water requirements of the residents of the capitals that rose and fell in what is now the national capital territory of Delhi, and also of the villages that have existed in this region much before the capitals came up.



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