

Dhunge-Dharas in the Kathmandu Valley - An Outline of their Architectural Development

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1. Water conduits—a building task throughout the Nepalese history

The construction of *dhunge-dharas* (new. *lho hiti*) is a building task in the Kathmandu Valley which can be traced back to the Licchavi dynasties and lost its significance only a few decades back - it covers a period of about fifteen centuries. The changing situation of urban and even village life, particularly with regard to the introduction of modern water supply systems, has lead to a loss or damage of numerous traditional water conduits. Nevertheless the number of existing examples is still large enough to give us an idea of both their function and their architecture.

In the following the paper will deal two different areas: aspects regarding the use of water conduits on the one hand and considerations on urban and architectural design on

the other.

2. Aspects on the use of water conduits

The usage patterns of water conduits have remained basically unchanged throughout the centuries. The range of functions comprises the following uses:

* washing of face and body. Users still point out the advantage of *hiti*-water which appears cool in summer and warm in winter.

* water for drinking and household purposes.¹ Despite the growing supply of water from pipe systems the digestive quality of *hiti*-water is in demand. Quite a number of conduits is believed to possess healing powers against certain sicknesses.²

* water for the purification of images. The images of the deities of the quarter are venerated with water from the nearby conduit.

* washing of laundry. There are quite a

number of water conduits where this activity is not permitted. The professional washing of laundry is done by the members of the *dhobi* cast. Their conduits deserve some attention. Frequently they comprise two or even a series of conduits which are fed by the previous one situated in the upper position. This allows the maximum exploitation of the water quantity.

These *dharas* are preferably distributed at the town's outskirts. The *dhobis* need plenty of water and sufficient space for drying their laundry.

The relationship between the water conduit and the range of beneficiaries mainly depends on its location: e. g. inside the living quarter it naturally serves the local inhabitants; the *dharas* accompanying the routes outside the settlement are intended to fulfill the needs of the traveller.³ A number of water conduits is located at the foot of the hills surrounding the valley: pilgrimage spots such as the *Nau dhara* at *Godavari*, *Matatirtha*, *Macche Narayan* and the *Bais dhara* at *Balaju*.

It has only been during the last few decades that everyone has been permitted to use every water conduit. Before Nepal gave up its isolation in 1951 members of the so-called impure casts were forbidden to touch the water spouts of the conduits of the higher groups. Also other restrictions are observed with decreasing intensity: eg. to take off shoes before entering the floor area (*hiti gah*). Women, however, still stay away from the conduits during their menstruation periods.

One aspect of utilization is the role of water conduits within the annual schedule of festivals. For instance the *Bhimdyo hiti*, Bhaktapur, serves the *sivamargis* during the festival of *siva-ratri* on the one hand and was

included previously during *janai-purnima* in a *jatra* called '*gupu hiti sikegu*': nine conduits with their spouts facing east were to be visited.⁴ The *Manga hiti* at Patan's Mangal Bazaar plays a role in the true sense of the word: during the *kartik-nakh* festival when the drama of *Narasimha* is enacted once a year on the *Darbar* square the actor representing *Hirnyakasipur* will be reanimated by water from the left spout of this conduit.

The structural condition and the maintenance situation of *dhunge-dharas* varies wider among the three cities of the Kathmandu valley. The local communities of Patan were able to preserve their bathing culture at a high level. At Bhaktapur the situation is more serious.

The maintenance of water distribution systems— including the water conduits— apparently has been a great challenge in the past. Inscriptions from the Licchavi period give the earliest proof. King *Jitamitra Malla* of Bhaktapur was forced, in the last quarter of the 17th century, to issue a strict law on cleaning and maintenance of the water distribution system. Today the maintenance problem of water conduits has become even more serious due to various reasons such as the unclear ownership and subsequent lack of funds on the one hand and the introduction of modern water supply systems on the other which have reduced the need for traditional institutions. The best state of maintenance can be observed in those cases, where certain families or the local population have taken over the responsibility.

Thorough cleaning takes place at least once a year at the festival of *sithinakha* (in the month of *Jyestha*) and at certain days individually observed by the local population.⁵

3. The water source and supply

Information on the source of water conduits in the Kathmandu Valley generally is little reliable. Distinction must be made between two different water source systems. The more frequent solution can be considered to be the conduit dependent on a ground water source. In some cases users believe in an initial act of creation of the supply by tantric power.⁶ The second supply system depends on a pipe conduction or a canal which brings the water from a distant source or reservoir. During the 17th century the rulers of the three cities initiated ambitious projects of this sort. King *Pratap malla* of Kathmandu (1641-74) and King *Jitmitra Malla* of Bhaktapur (1673-96) built long-distance canals, so called *raj kulos*, primarily for religious purposes, but also to feed conduits and facilitate the irrigation of the farm land.

It is worthwhile referring to a sketch from an old textbook⁷. The author laid emphasis on the filter part of the *hiti*-design: the filter is organized as a swastika pattern. Apparently information is given on ritual purity rather than on structural reality. As told by chief masons of Bhaktapur existing filter systems are designed differently: a series of gravel filters— from coarse to fine granulation— is connected by a clay pipe system (U-shaped profile, covered by bricks; called *hiti du*) and leads the water from the source to the inner entrance of the spout (*hitimanga*). The sewerage system is designed with accuracy, too. The sewerage pipes are interrupted by settling tanks, which are similar to traditional laundry pots. The used water is drained towards the fields or creek.

It is a prevalent belief that the well-functioning of a conduit depends on the

well-being of its *nagaraja*. Whenever a conduit is blocked the users are of the opinion that this was caused by the *nagaraja* due to misuse of the conduit, e. g. washing of laundry.

4. Aspects on urban and architectural design

There is hardly any restriction with respect to the location of water conduits. The conduit is a component of the urban as well as the village ensemble on the one hand and it's an individual structure in the open landscape on the other. It is to be found on a square, bordering a street and is even installed in a courtyard. The easy access of water is a vital factor for site selection. The sloping ground seemed to be preferred by the builder due to relatively small amount of work involved: The sloping edge bordering the densely built-up area can be identified as a preferred site. The village of *Sakhu* is an example where this principle can still be studied.

The water conduits are indispensable parts of the architectural ensembles of the Kathmandu Valley. Primarily it is the intimate connection between *dhara* and *dharmasa*. Among those conduits bearing characteristics of certain antiquity, attention must be drawn to an ensemble type combining *dhara* and twin *mandapas* flanking the main access. The most eminent example is the *Manga hiti* of Patan.

During the 18th and 19th century other design approaches were favoured, e. g. the *dha* bordered by a two-storey *satah* either on one side or surrounding it forming a courtyard⁸. The close neighbourhood of *pati* and conduit is a common appearance, too. A limited number of examples has been selected to give evidence of a period from the 6th century A. D. to the 19th century A. D.⁹

The *Manga hiti* of Patan contains a stone inscription dating back to 570 A. D., although the present structure most probably has undergone changes. The *Sundhara* of Kathmandu, on the other hand, was constructed in 1829 representing the end of a line of *dhara* development and continuity.

The *Manga hiti* of Patan and the *Beimdyo hiti* of Bhaktapur are examples with 'archaic characteristics'. The spout wall with respectively three and one *hitimanga* follows the same design principle and is executed in both cases with a higher degree of workmanship than the other surrounding walls of the conduit's basin (*hiti gah*). In this context it is interesting enough to look at simple *dhara* structures attached to the natural slope: they consist of a spout wall against the hillside and a paved floor area.¹⁰

Further investigation, therefore, will concentrate on the main wall with the spouts. The view is firstly attracted by the central niche with the *hitimanga* defining the axis of symmetry. The main niche is flanked by two corner niches leading over to straight wall sections on both sides, ending at a groove-like gap. It is interesting enough that the historical sketch quoted before shows a detailed layout with measurements regarding the spout wall only! A close look at the spout wall identifies the following element. A plain masonry wall made from burnt bricks or stone starts from the floor; it is interrupted by a horizontal frieze set in a recess,¹¹ followed by a *kulam*-course topped by a row of edge blocks which are sometimes decorated with a *kasimo*-pattern. The centre of the main niche contains the main spout (s). Each spout is topped by a small niche with a image of the *hiti* deity. Below the spout one finds as a rule an image of *Bhagiratha*.¹²

The late Malla-period is known as an era of active building and competition between the 'town kingdoms' of the Kathmandu Valley. The construction of new water conduits was one of the meritorious acts. One of those examples is the *Layaku hiti* located amidst the *Darbar* Square of Bhaktapur, established by King *Jitmitra Malla* of Bhaktapur in 1691.¹³ Although the general layout remains unchanged, some of its elements have undergone modification and development. The trinity of *hitimanga*, cult-image and *Bhagiratha* remains as such; however the image in now found in an independent shrine structure. The corner niches flanking the main niche became duplicated in this example. The elevation system of the spout wall is enriched by pedestal courses and decorative string courses of terracotta. The spout itself shows a change of its decorative motives. The side views are furnished with images of deities.¹⁴ The *Bhagiratha* does not follow anymore the representation of *gana*-like figures, but chooses the sage blowing the conch shell.

The royal bath of king *Jitmitra Malla* represents a breathtaking concept of the late Malla era, comprising *dhara*, *pokhri* and two *Jaladronis*.¹⁵ The royal bath of Bhaktapur has left behind the 'archaic' canon for the most part although the conduit consists only of the spout wall - a striking analogy to simple *hiti* structures attached to the hill slope.

The most eminent example of the *Saha*-period is without doubt the monumental *Sundhara* at Kathmandu, built by Queen *Lalita-Tripura-Sundari* and Prime Minister Bhimsen Thapa in the name of the goddess *Tripura-Sundari*. It is quite obvious that the design concept of this conduit has undergone fundamental change in comparison to

'archaic' examples. The layout plan reveals the leading idea of a central symmetry applied to all sides and to the plinth levels of the conduit, only counterbalanced by the main spouts placed at the north segment and the access from the south side. The elevation principle contributes to the comprehensive concept, too. The selection of materials, the proportions and the application of cornices reveal the hand of a master designer. The *satah* in the north of the conduit supports the dramatic composition.

A close look at certain elements of this conduit will lead to the conclusion that development and continuity exist at the same time. The trinity of *hitimanga*, cult-image and *Bhagiratha* is still existent. But all spouts are topped by detached shrine buildings. The main spout follows the ultimate design solutions known in the late Malla period. There exists the hierarchy of the dominating wall of the *hiti gah* and a subordination of the plinth structures. The frieze remains the governing element of horizontal organization of the basin-wall. It is not limited, however, to the spout wall, but runs around the whole basin.

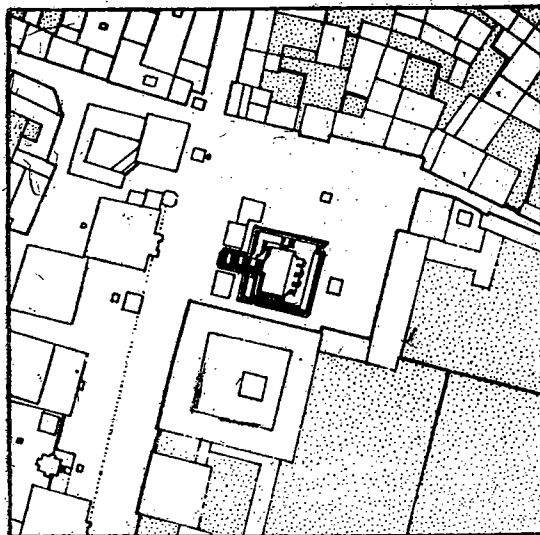
The principles of design of water conduits have been maintained over nearly fifteen centuries. It is within this framework that craftsmen and builders have searched for new solutions for layout concepts and details since the late Malla period.

Notes

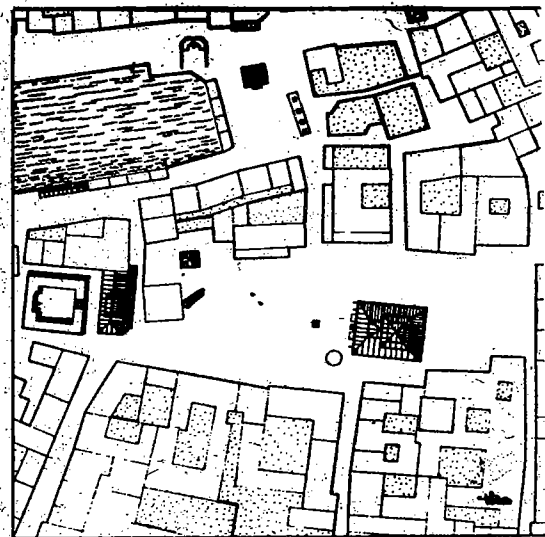
1. Frequently a spigot fountain (*jahru*, *jaladroni*) is integrated in the basin wall of the conduit, especially for supplying clean drinking water
2. e. g. the *Sundhara* at Kathmandu is believed to possess healing powers against arthritis; the *gah hiti* at Bhaktapur's *Gvahmadhi tvah* against goitre
3. The steep route leading up from *Sakhu* to the sanctuary of *Vajra yogini* is furnished with a series of conduits to offer facilities to the pilgrim
4. a *jatra* of this kind still exist in the village of *Sakhu*
5. Preferably at the full moon days (*purnima*) of the months of *Bhadrapada*, *Sravana*, and *Kartika*
6. e. g. *Bhimdyo hiti* at Bhaktapur's *Tacapah tvah*
7. This sketch was first published by G. AUER and N. GUTSCHOW (1974 : 37) in their book on Bhaktapur
8. e. g. *Bvalache hiti* and *satah (Akha bahal)*, Bhaktapur; *hiti* and *pati* in the village of *Chagu Narayan*; the conduit in the centre of the *satah* courtyard of the *Vajra yogini* sanctuary
9. The main objects of investigation have been: *Manga hiti*, Patan; *Bhimdyo hiti*, *Layeku hiti*, *Thanthu Darbar hiti*, all Bhaktapur; *Sundhara*, Kathmandu *Nau dhara*, *Godavari*
10. A series of such water conduits accompany the steep footpath upto the *Vajra yogini* sanctuary of *Sakhu*
11. The frieze element running around the head section of each level of *cibhah*-structures of the Licchavi era follows the same characteristics
12. They are designed as karyathides of a *gana*-type, either single or as twins.
13. The inscription is engraved at the sides of the *hitimanga*, dated N. S. 811
14. *Surya*, *Ganesa*, *Narayana*, *Bhairava*, *Bhagavati*
15. This layout probably had been influenced by king *Siddhi Narasimha Malla's* bath at Patan built in 1647

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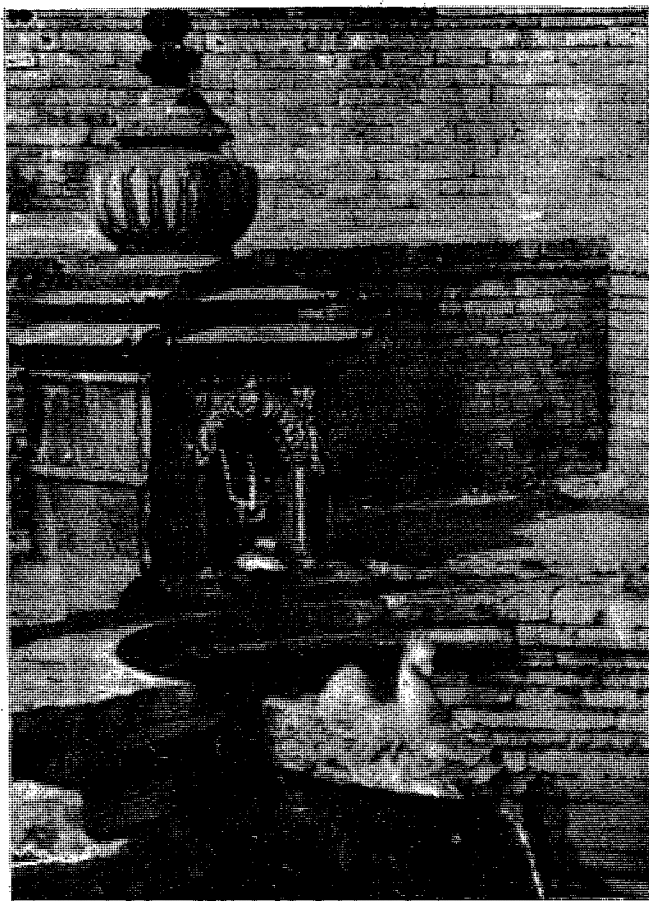
Patan, Darbar Square, Manga hiti



Bhaktapur, Tacapah tvah, Bhimdyo degah and hiti

Plate No. 1

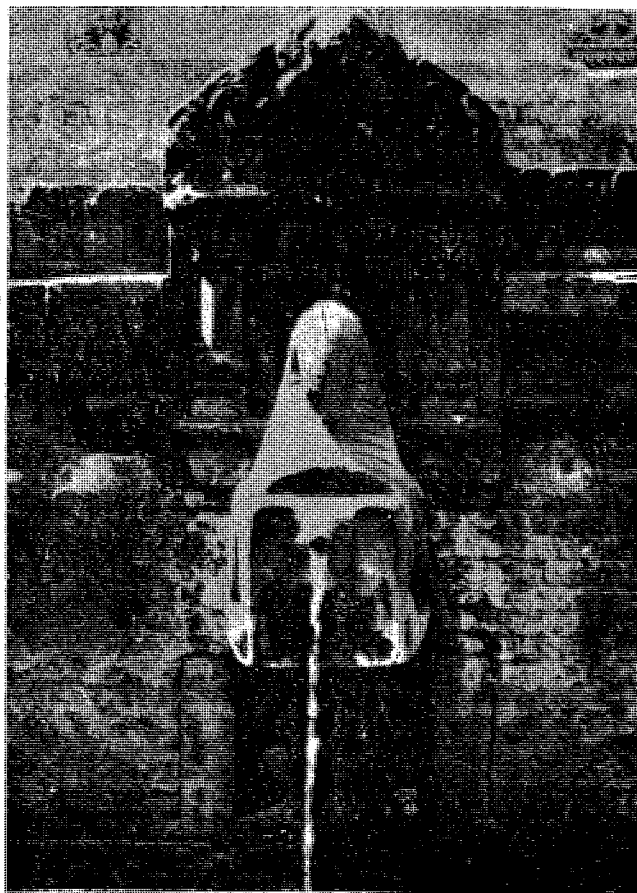
Ancient Nepal



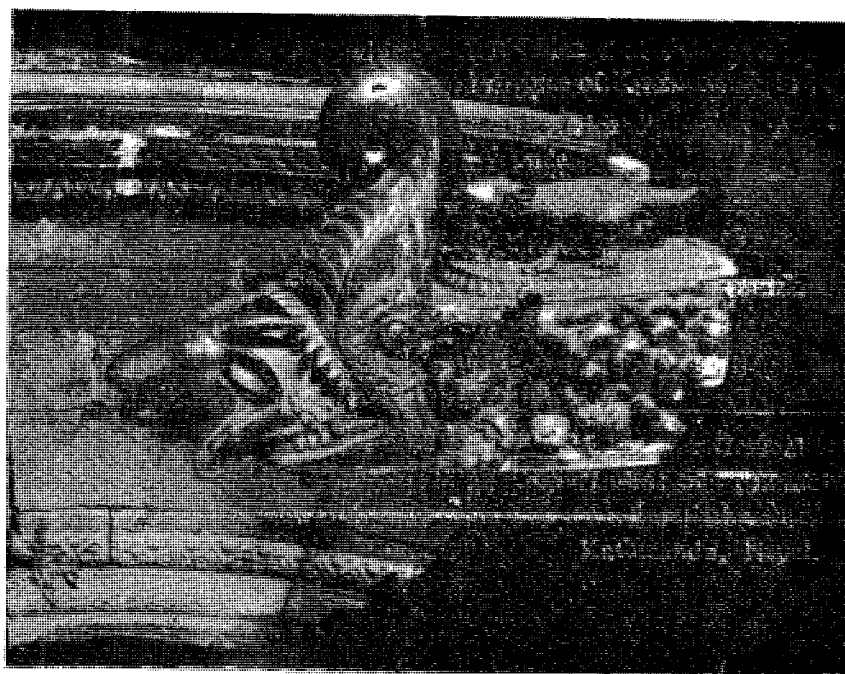
Kathmandu, Sundhara, hitimanga and Shrine
of Garuda Narayan

PLATE NO. 2

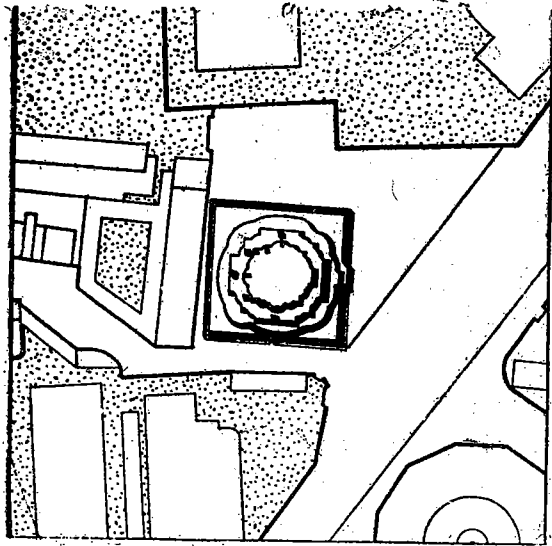
PLATE NO. 2



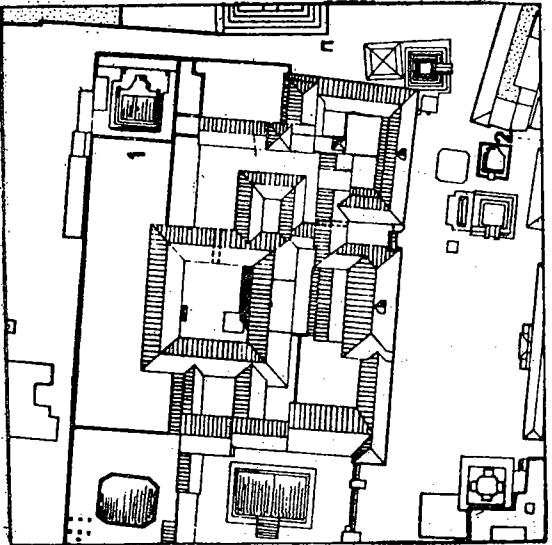
Bhaktapur, Bhimdyö hiti, trinity of hitimanga,
image of Baruna and Bhagiratha



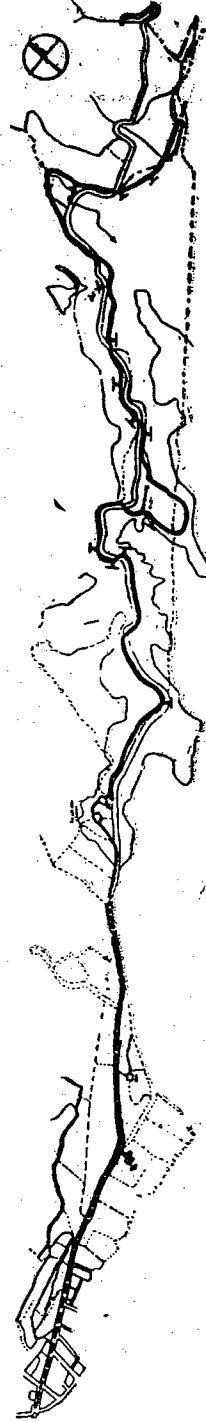
Bhaktapur, Thanthu Durbar hiti, Spout from 1688 A. D.



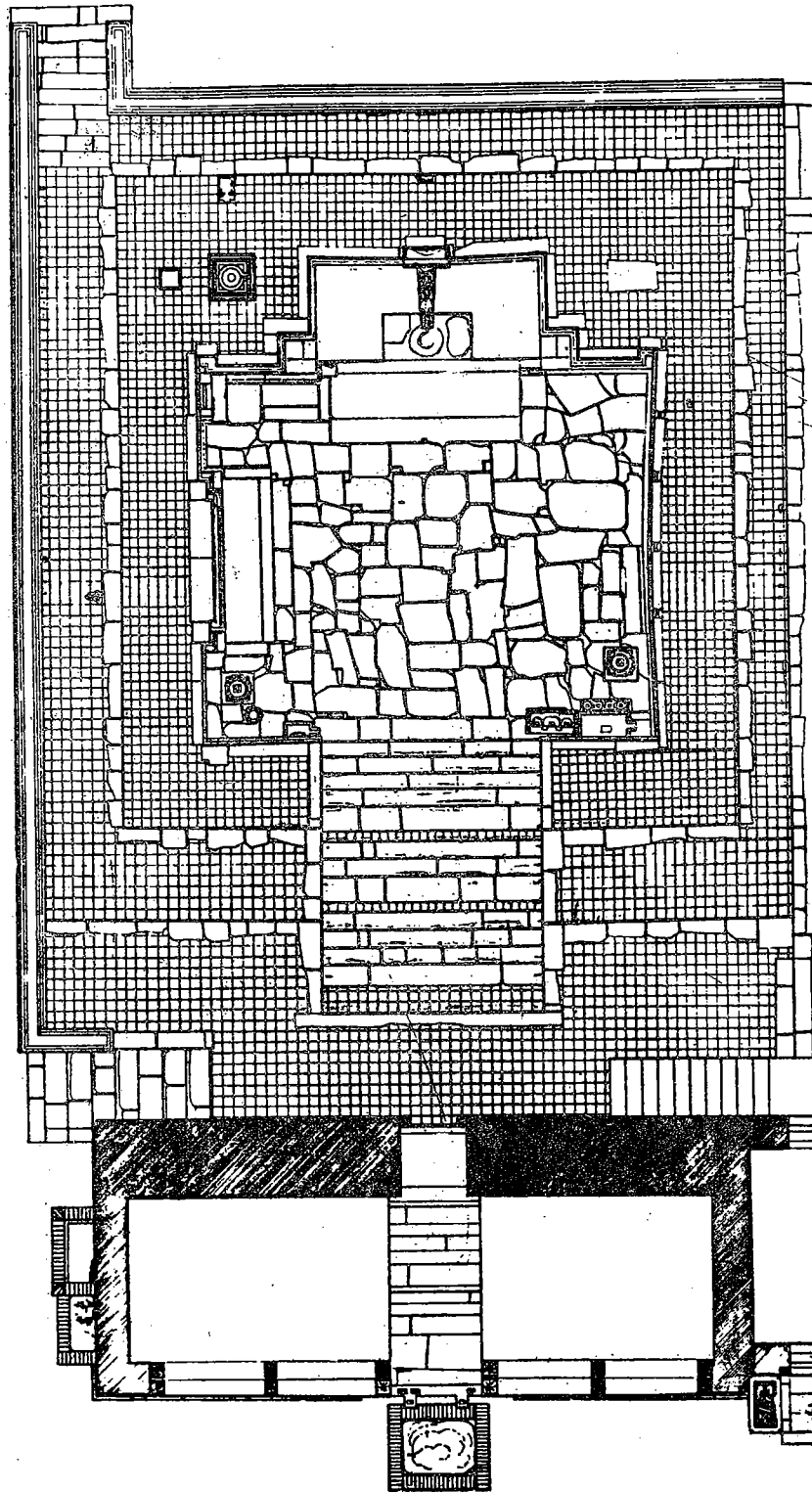
Kathmandu, Sundhara



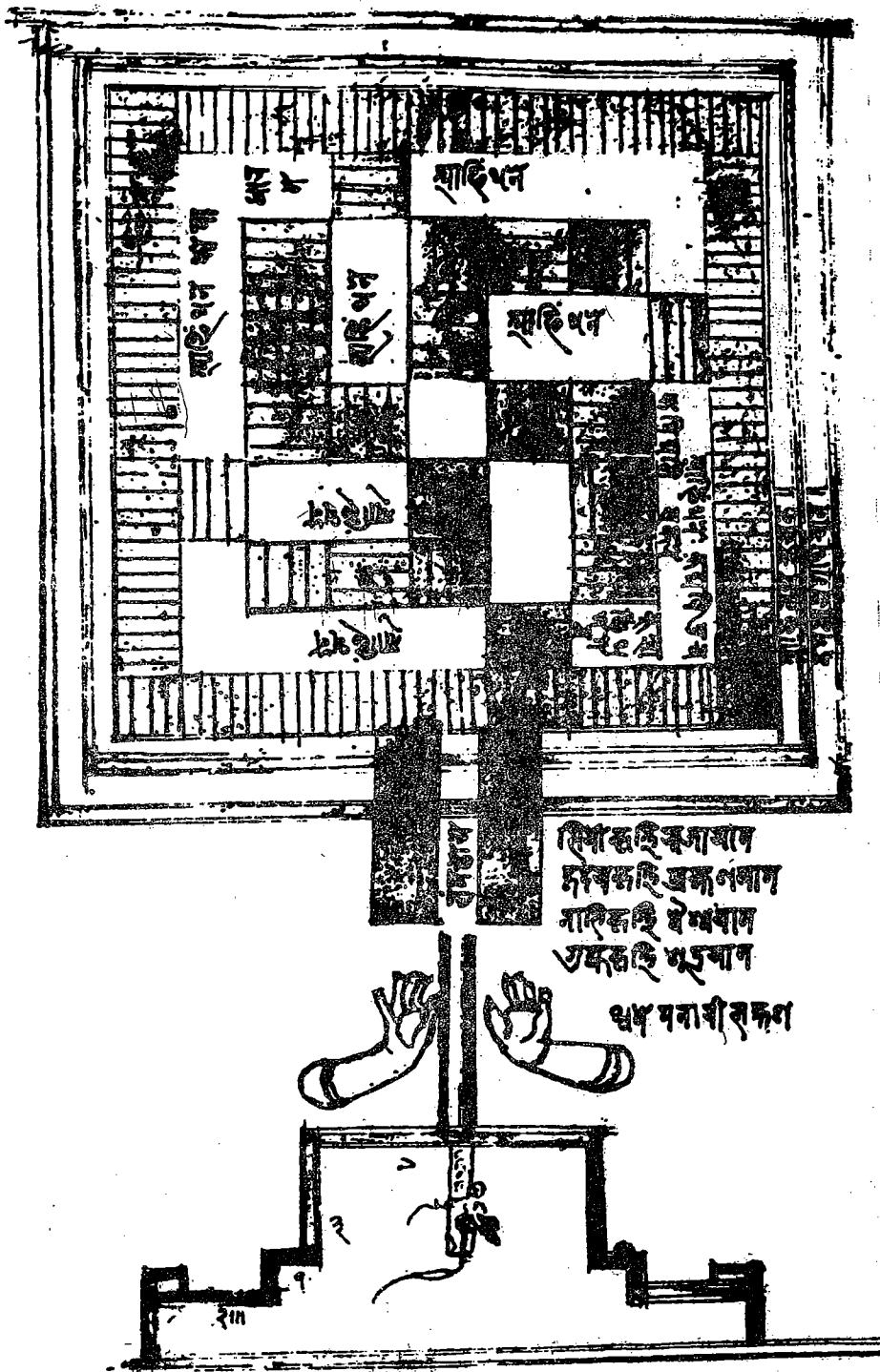
Bhaktapur, Darbar square, Thanthu Durbar
hiti (1) and Layaku hiti (2)



The Raj kulo between Bageswari and Bhaktapur (after M. KOHL, Bhaktapur Development Project 1978)



Bhaktapur, Tacapah tvah, Bhimdyo hiti, layout plan



Symbolical sketch from an old textbook representing the internal filter system of a hiti designed as a svastika. The lower portion shows the wall with the spout wall. The dimensions outlined are probably hat and angula.