



Re-excavation of canals: *Rajabwah* and *Ulughkhani*

Kaynat

Research Scholar, Department of History, AMU, Aligarh, Uttar Pradesh, India

Abstract

This paper comprises of detailed study of Sultan Firuz Shah Tughluq's contributions to the water management in the region of *Hissar-i-Firuz* with special reference to canals *Rajabwah* and *Ulughkhani*. Medieval Indian history begins with the Sultanate. Several things have made this period noteworthy in history of India. Among such aspects, the promotion of agriculture was one of the major agenda of the Delhi Sultanate. We have satisfactory details about the water management system of the Delhi Sultanate. There are various facets of agriculture, such as the method of farming, method of irrigation, types of soil for a particular crop and crop rotation. In this paper, we are going to discuss the networks of canals laid by Sultan Firuz Shah Tughluq to irrigate this desert region (*Hissar-i-Firuz*); these were the same canals that were repaired, renovated, and extended by emperor Akbar and Shahjahan both, particularly in the region *Hissar-i-Firuz* such as *Shekhu-Ni*, *Shihabnahr* by Akbar and *Nahr-i-Bihisht* (*Nahr-i-Faiz*) and *Shah Nahr*. This paper is mainly about the renewal and extension of canals in '*Hissar-i-Firuz*' under Akbar and Shahjahan. Sultan Firuz Shah Tughluq founded *Hissar-i-Firuz* in 1354, which we know today as the 'Hisar' district in Haryana.

Keywords: '*Hissar-i-Firuz*,' Canals, *Ulughkhani*, *Rajabwah*, Agriculture, *Shaikhu-Ni*, *Shihabnahr*, *Shah Nahr* and *Nahr-i-Bihisht* (*Nahr-i-Faiz*).

Introduction

The settlement of Hissar, which was once known as *Hissar-i-Firuz*, can be found at 29° 10N 75° 44E ^[1] it holds an important position at the point where the old Delhi-Multan route splits off to go to Khurasan. Firuz Shah, realising the difficulty of rehabilitating this stretch of desert, came up with the idea of founding the town as a solution to the problem. It was during this time that the Sultan made the decision to construct the city of *Hissar-i-Firuz*. At that time, there were two large villages located on the spot where *Hissar-i-Firuz* was eventually going to be constructed. The first group was referred to as huge Laras, and the second group was referred to as small Laras. There were fifty animal sheds made of bamboo located in the large Laras, and in the tiny Laras, there were forty animal sheds made of bamboo. There was no such thing as a community that did not have such bamboo sheds ^[2]. *Hissar-i-Firuz* is located in an arid zone, so much so that at times the land of this region suffered from water scarcity to such an extent that when a traveller from Khurasan came here or passed through the Delhi-Multan route, a pitcher of water could cost him four *Jittal* ^[3]. Firuz Shah was conscious of the fact that the place was without water. He, therefore, decided to arrange for water and personal attention and saw that through canals. He constructed a double system of canals ^[4] the water from two rivers, Sutlej and Yamuna ^[5], was carried to the city. The canal from Yamuna was *Rajabwah*, (*wah* means canal) while the other from Sutlej was *Ulughkhani* (*ni* meaning channel, river) ^[6].

The *Rajabwah* and the *Ulughkhani* are the names given to these two canals, and it is possible that they were named after Sultan Firuz Shah's father, Rajab, and cousin Ulugh Khan, (Mohammad-Bin-Tughluq), respectively ^[7].

From there, these canals covered a distance of eighty to ninety *kurohs* (*kos*) ^[8]. This would make the length given in the text approximately to present an estimate of the distance

between Karnal and *Hissar-i-Firuz* that is approximately 120 kilometres. Afif has apparently given the same length of the two canals to reach the town of *Hissar-i-Firuz* ^[9].

The original canal had two significant 'feeder-canals' leading into it. The Jamuna River, which is located close to Khizrabad and is the point at which the river first enters the plains, was the source of the *Rajabwah* (from Sirmur hills) ^[10]. When Afif turned his attention to *Rajabwah*, he mentioned that the *Ulughkhani* canal originated in the Yamuna River close to Karnal. To reach *Hissar-i-Firuz*, both canals travelled a total distance of 240 kilometres, or 80 *kurohs* ^[11].

According to *Sirat-i-Firuzshahi*, *Ulughkhani* was excavated 'from Santaur and Mandi,' ^[12] According to Hodiwala, Santaur in the text of our time period refers to the city of Santaugarh in the Dehradun district. Santaugarh was the former capital of the Sirmur state before the seat of capital moved to Nahan in the Sirmur (Himachal Pradesh's district) ^[13].

According to Afif, who was the only other historian of the period who made reference to the *Ulughkhani* canal, the *Ulughkhani* and *Rajabwah* canal both cut from Yamuna and carried water to *Hissar-i-Firuz*. This not only evidently contradictory to *Sirat-i-Firuzshahi* ^[14] in respect of its source and beginning course but also of its terminal point, since the *Sirat-i-Firuzshahi* makes the *Ulughkhani* run south so that, after flowing into a river called Radhikar and then passing Wazirabad, Delhi's north, it fell into the Yamuna.

Nevertheless, it is not impossible to bring these two accounts into agreement with one another. Imagine that the *Ulughkhani* was severed from somewhere close to the Sirmur hills, as the reference in *Sirat-i-Firuzshahi* to Santaur suggests, and that it then ran south towards Wazirabad, close to the Yamuna. It would have been necessary for it to come into contact with the *Rajabwah*, which originated from the Yamuna (its deserted arm, as

Yahya bin Sirhindi asserts). The waters of both canals would have mixed at such a crossing unless significant work was done to take one canal over the other on a masonry passageway, of which there are no remnants, and it could then be assumed that *Ulughkhani* had joined *Rajabwah* to flow towards Hissar with a branch going to Wazirabad. If this solution is accepted, the *Ulughkhani* would have continued to flow south. It may very likely be the 'Panipat stream,' where Timur set up camp after travelling eighteen km (six *kuros*) from Panipat to the area of Delhi [15].

Making a canal structure at multiple levels is evident in the renewal of canal of Firuz Shah on the Jamuna, where a skilled *mi'mār* (A builder; a mason; an architect), the superintendent of construction, and the *faujders* (Officers) all worked in unison to make the canal [16]. Small chiefdoms or political units could build seasonal canals, but much larger states and extremely well-coordinated and cohesive activity in different places at different levels was a given mandatory for the canal system that was of the magnitude of the canals of the fourteenth century or 16th-17th centuries. For the canal system of this magnitude, the coordination of various agencies and structures of the state at multiple levels would be important for any canal-making exercise. Additionally, Shah Jahan expanded the Firuzi canal on the Jamuna to reach Delhi [17].

It was of the utmost importance to him to secure a reliable supply of water in an area that received insufficient rainfall and did not have any rivers that remained permanently

flowing. It is remarkable that prior to Firuz Shah Tughluq's decision to draw water from the Jamuna and the Sutlej rivers, he had initiated to cut through a mountain in order to assure that there was a stream that flowed continuously in the area [18]. In spite of his efforts, his endeavour was unsuccessful. After that, water was taken from rivers that flowed year-round on two sides of the area that were completely separate from each other. This enormous activity required a lot of hard work. While Akbar, on revisiting the canal, had the ability to organised local labour everywhere [19], this could not have been possible during the reign of Firuz Shah Tughluq due to the fact that a large share of the region was not under cultivation and was, as a result, only moderately populated [20]. It is reasonable to assume that Firuz Shah utilised his slave labour, of which he was the master. He made the acquisition of slaves and their education in various fields a central plank of his administration [21]. The canals reached a stable state [22], agricultural production that is both expanded and diversified. They provided a boost to the production of cash crops, which resulted in the proliferation of orchards in every region that the canals reached. Around *Hissar-Firuz* and the surrounding area, there used to be only one harvest. The system of canals was responsible for the growth of two different types of crops [23]. Both crops began to yield ample produce, and various flowers and fruits began to be produced. The Sultan and the nobles made orchards and gardens on a large scale.

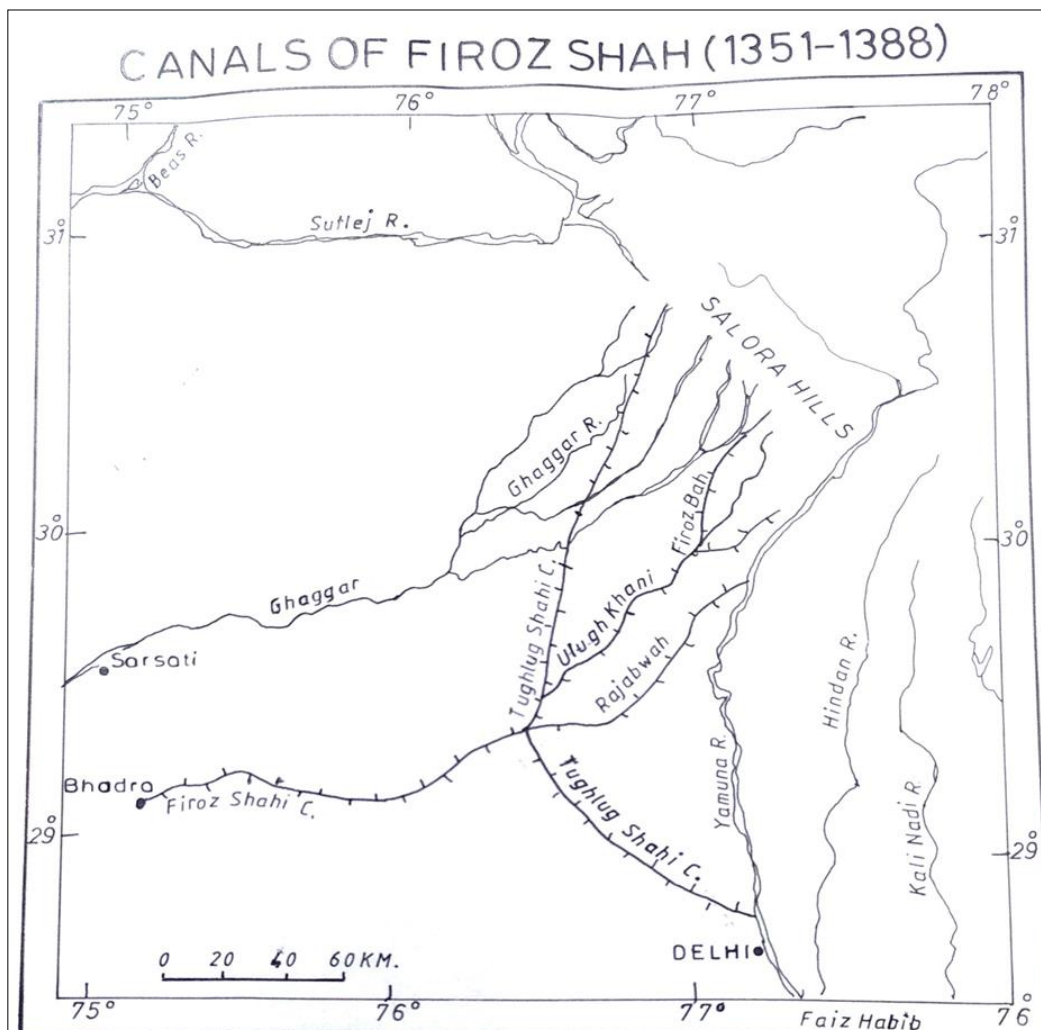


Fig 1

Re-excavation of Canals

In the fourteenth century, Firuz Shah Tughluq was responsible for constructing two significant canals, while Akbar and Shahjahan each constructed at least one canal during their reigns. These canals eventually went out of use and were repaired, extended, or redesigned by successive monarchs^[24].

Due to the lack of maintenance after Sultan's passing, the canal eventually dried up and became blocked. During the reign of Akbar, Shihabuddin Ahmad Khan^[25], the *subahdar* (governor) of Delhi, was responsible for restoring the canal and getting it back into working order so that it could assist in the irrigation of the agricultural lands in the area around it. The waterway is now generally known as the *Shihab Nahr Canal*^[26]. As soon as his tenure came to an end, it once again fell into neglect, and it returned to its initial condition, which was clogged^[27]. Both the canal built by Firuz Shah on the river Jamuna and the new canal that Akbar constructed on the river Ravi were repaired by Akbar. As was previously mentioned, Akbar was responsible for the reconstruction of the Firuzi canals. In addition, Shahjahan improved and widened them^[28]. After Shahjahan focused his attention on the construction of the fort and the daulatkhana (palaces) that were housed within it, the mandatory orders were issued to repair the canal. The embankments should be raised on both sides of the canal, and everything else should be done to make it possible for water to flow unimpeded from Khizrabad to Safedon, the canal's original route. There was a distance of thirty imperial kuroh that separated Khizrabad and the Fort that was being constructed at the time^[29].

It was Akbar's explicit instruction that restructuring Firuzi canal to the Hissar-i-Firuzi in order to ensure that the canal would be navigable; even on very small canals, small boats were able to make their way through the waterways. These canals, as a result, provided a communications network to a variety of regions and sub-regions and associated those networks with other, larger networks of communications. An increase in commercial activity would be a natural corollary to the expansion of agricultural production. Because the network of canals is navigable, it will make commercial activity more convenient. Trade would also be beneficial to the state as well as certain groups within society. First and foremost, canals served as a form of protection against famines^[30].

During the reign of Akbar, which began around the year 1560, the initial repairs to the canal were most likely carried out by Shihabuddin Ahmad Khan, the Subadar (Governor) of Delhi. Shihabuddin Khan was responsible for making the repairs^[31]. Because it is generally accepted that the canal ran all the way from the Yamuna to Safedon, the river that was re-excavated must have been the *Rajabwah* and not the *Ulughkhani*. Following the conclusion of the renovations, he bestowed the name '*Shihabnahr*' upon the canal, in honour of himself^[32].

After some time had passed, in the year AH 978 or AD 1570-1, it was Akbar himself who gave the order to refurbish the canal. The opening of the canal, which was to be called '*Shaikhu-ni*' ('*Shaikhnai*' in translation), is mentioned in a *farman* (*Sanad*) of Akbar that was issued from Firuzpur and dated AH 978/ AD 1570-1. The document was issued from Firuzpur^[33]. The name, also used by Badauni^[34], was given after Jahangir, whom Akbar always called Shaikhu Baba, and who was born on August

30 1569^[35]. The *Sanad's* omission of any mention of the '*Shihabnahr*' can only be understood by assuming that the time's existing order was considering the *Ulughkhani* rather than the *Rajabwah*. The *Sanad* claims that this is in fact the case because water no longer travels via Firuz Shah's canal past 'the limits of Kaithal.' Akbar gave the order to repair and rebuild the canal directly from the hills at Khizrabad. It is fair to assume that the canal's source was very near to the *Ulughkhani* because the water originated from numerous streams and nalas that once flowed into the Yamuna. The river Sonb was used to collect the water.

Nevertheless, instead of directly connecting to the Chitang, the canal wound up flowing into the *Rajabwah* River's bed. This assertion is supported by the fact that Abul Fazl mentions the '*Shekhu-ni*' travelling via Karnal. Moreover, Badauni informs us that the canal passed via Karnal its route to Safedon^[36].

With a few minor adjustments here and there, this technique was effective for many centuries. A rising collection of evidence indicates that in addition to the *Shah Nahr*, a permanent canal formerly existed in the elevated region of the Upper Bari doab. Very likely, the water of the Beas and Ravi rivers were combined to build this canal^[37]. Shah Jahan oversaw the construction of the *Shah Nahr*, which is situated on the Ravi and has its headquarters in Madhopur. It went through the upper Bari Doab and carried water to Lahore^[38].

The Subahdar was in charge of advancing and expanding agriculture during the Mughal era^[39]. It was assumed that irrigation infrastructure would expand. In any case, he was in charge of structures that involved water^[40]. He might have made the choice to create canals. Yet Akbar was the one who took the canal^[41]. This can be because Salim (Jahangir) controlled Delhi and the Sarkar of Hissar. In any case, the project's long-term viability requires that the rulers make all decisions^[42].

Long-distance perennial canals were much harder and more complicated to construct than seasonal or nearby perennial canals. Long-distance perennial canals had always encountered challenging terrain, competing streams, and heavy flow along the route. For example, the *Shah Nahr* had to cross the Chakki and Jena torrents while flowing^[43]. Only the administration could have managed the project's technical details and implementation.

The canal system required constant upkeep and surveillance of the canals, as well as control over the water supply. Annual desilting was necessary for both types of canals since the Himalayan rivers always brought a lot of sediment with them due to the weak geological formation of the highlands. This had an impact on both headworks^[44], and the canals, as well as the auxiliary waterways. Hence, regular annual desilting was the norm. This was done in the winter, when the rivers' water flows were significantly lower.

It indicates that by the sixteenth century, Firuz Shah's River was blocked with debris. The canal used to have water in it for at least four or five months out of the year, according to Akbar's *Sanad*, which has already been mentioned. "So choked that for last hundred years, the waters have not flowed past the boundary of Kaithal and thence to Hissar" this claim was made in light of the fact that the canal is currently dry. The Firuz Shah canal being discussed here is the *Ulughkhani*, which is the higher canal. As was previously mentioned, this canal joined the Chitang River in

the Ladwah region. The Chitang travelled through the pargana of Kaithal before entering the chakla of Hissar after crossing Kaithal's limits, according to a note that was written in 1635^[45].

Furthermore, according to the *Sanad*, at a distance of roughly 100 kurohs from Khizrabad, the canal entered the Chitang. This shows that, rather than the intersection of the *Ulughkhani* with the Chitang near Ladwah, the junction was that of the *Ulughkhani* with the Chitang near Dhatrat, where Firuz Shah's Rajabwah canal once connected the Chitang (1A Sheet 48). There is no mention of the Yamuna River being the location of the canal's head in Akbar's *Sanad*. It would appear that the canal did nothing more than gather water from the western streams that flowed into the Yamuna. Nonetheless, the revived *Rajabwah*, often called as the *Shihab Nahr*, which it joined above Karnal, may have still been delivering water from the Yamuna. It is conceivable that Badauni was alluding to this as the foundation for his assertion that the *Shaikhu-ni* was dug from the Yamuna^[46].

Emperor Akbar gave the order to build and deepen the canal to ensure that Hansi and Hissar had access to water all year round. Every pargana's shiqdars, chaudharis, muqaddams, and raiyat (peasants) were needed to offer essential aid, including labour, in order to build bunds wherever it was necessary to do so. Plans were to be made throughout the growing season to decide how the water from the canal would be dispersed. The construction of bunds was intended to follow that of the bridges. Badauni said that the canal's builder was Nuruddin Muhammad Tarkhan. Nuruddin Muhammad Tarkhan is given the title of *Mir-i-Ab* in the *Sanad*, which means 'Canal Superintendent.' The canal also needed to be made passable by creating a substantial passage over it so ships could travel down it^[47].

Akbar ordered that the people in each pargana should be content with the quantity of cuts, which should be evenly distributed among the parganas, and that no one should take

more than his allotted amount when using water for irrigation^[48].

Badauni confirms the claims made in the *Sanad* and tells us that Mulla Nuruddin Muhammad Tarkhan, who was in charge of Safedon's pargana at the time and held it in jagir, was the person responsible for digging the canal. The name '*Shekhu-ni*' was given in honour of Prince Salim. The canal extended past Karnal and continued beyond that town, with an estimated length of fifty kurohs (or 125 miles) from the Yamuna^[49]. According to Badauni, this resulted in a large increase in the amount of cultivated land as well as the population's overall wealth^[50].

One can assume that the *Shaikhu-ni* was once a permanent canal because there are two masonry bridges that cross it—one at Safedon and the other at Karnal. During Akbar's reign, Monserrate made mention of the Karnal bridge^[51], and the Safedon bridge must have been built at that time because Shahjahan's *Nahr-i Bihisht* never passed through Safedon.

To the west of the Delhi crest, beyond Safedon and all the way down to Palam, it appeared that a subsidiary of the *Shaikhu-ni* river had been taken. In his *Badshahnāma*, Lahori recalls Shahjahan's visit to a park that was watered by a dam Asalat Khan constructed at Palam on 'the Karnal stream.' Of course, this can only refer to a subsidiary of the *Shaikhu-ni*, which once ran by Karnal. In the eleventh year of Shahjahan's rule, this visit occurred. On IA Sheet 49, a canal can be seen to be going in the direction of Palam from the 'Rajbuka' ('*Rajabwah*') channel. This is the waterway the *Shaikhu-ni* had been accessing, as we have seen above^[52].

Shahjahan decided to use the *Shaikhu-ni* alignment for a sizeable stretch of his massive canal, the *Nahr-i Bihisht*, also known as the *Nahr-i-Faiz* and the *Shahnahr*^[53]. A later account had a mistake when it claimed that Ali Mardan Khan was in charge of building this canal^[54]. It was dug under the supervision of Ghairat Khan, according to the both official chronicler Muhammad Salih and Waris^[55].



Fig 2: Water structures in the Nahr-I Bihisht (River of Paradise) in the red Fort (courtesy James L. Wescoat Jr.)

On September 20, 1638, construction started ^[56]. Ghairat Khan worked for almost four months before being sent to the Thatta's governor. The task was given to Ilahwardi Khan, the Delhi's governor at the time, who oversaw the construction for more than two years before Mukarmat Khan completed it in 1647-8 ^[57]. This denotes to the main canal. Four years later, in 1650, it was reported that Shahjahanabad (Delhi) fort's canals and aqueducts distributing its water were finished at the cost of two lakh rupees ^[58].

Muhammad Waris and Salih assert that the canal originates from the Yamuna in or around Khizrabad. It utilised the former canal channel that descended to Safedon (stated to be about thirty kurohs or seventy-five miles). By excavating a new, thirty-kuroh-long channel beginning here, the canal was transported to the new city of Delhi or Shahjahanabad ^[59].

Mukhlispur on the Yamuna was the location of the canal headwaters, according to later sources ^[60]. A location Shahjahan favoured greatly ^[61]. Hence, it shouldn't be surprising that they decided to make the cut there. According to Sanderson, it was characterised as follows: At Fatehgarh at Dadupur, some 14 miles below Tajewala, the river supply flowing down the Jumna's right bank was bundled up every year ^[62]. To keep the supplies flowing into the canal, annual operations were necessary. The West Yamuna canal's current headwaters are located at Tajewala ^[63].

The canal, like the *Shaikhu-ni*, ran via Karnal from its sources. This specific information is taken from the *Chahar-Gulshan* route map ^[64]. It ran towards Safedon from here, according to Waris and Salih.

In any case, West Yamuna Canal Shahjahan had its terminus firmly moved from Hissar to Delhi, making it impossible for any canal to transport water to Hissar anymore ^[65].

Conclusively we can say that, during the reign of the Delhi Sultanate, Ghiyasuddin Tughluq, the first Sultan of the Tughluq dynasty, conceived of the idea of opening canals and most likely carried out some preliminary work on a small scale. Firuz Shah Tughluq also contributed to the provision of water facilities by building canals. During the medieval period, Firuz Shah built India's largest network of canals. Canals built by Sultan Firuz Shah Tughluq in the 14th century are well known. The trend seems to have continued under the Mughals. Canals play an important role in irrigation in the northern plains. The *Faiz Nahr* was approximately 150 miles long during Shah Jahn's reign. The biggest drawback of Mughal canals, according to Irfan Habib, was that they rarely ran above the surrounding plain, which limited the amount of water that could be gathered for cultivation. The region's canal network continued to grow.

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54. *Chahar-Gulshan*, f. 47a; *Halat-i Manazilaz-Shahjahanabad ta-Kabul*, f. 2a; Colvin, 'Ancient Canals', p. 107; W. Francklin, *History of the Reign of Shah Aulum*, London, 1798, 208.
55. Waris, p. 39; 'Amal-i-Salih, III, 29.
56. *Ibid.*, Salih gives the date of excavation as 15 Jumadi al-Awwal AH 1049/ AD 13 September 1639.
57. Waris, pp. 39-40; 'Amal-i-Salih, III, p. 29. Salih says that the construction was completed by Ghairat Khan during his tenure as Governor.
58. 'Amal-i-Salih, Op.Cit., III, 116.
59. Waris, p. 39; 'Amal-i-Salih, III, 29.
60. Sujan Rai, pp. 29, 36-9; *Chahar-Gulshan*, f. 47a *Halat-i Manazilaz-Shahjahanabad ta-Kabul*, f. 2a. Sujan Rai writes that cut was made at the base of the hills of Sirmur, while the *Halat-i Manazilaz-Shahjahanabad ta-Kabul* puts it below the foothills of Nahan. The location is the same.
61. 'Amal-i-Salih, Op.Cit., III, 240-1.
62. Sanderson, *A Guide to the building and Gardens (of the Fort at Delhi)*, Calcutta, 1929, 40.
63. *Ibid.*; also see *Punjab District Gazetteers, Ambala District*, 1892-3, 11.
64. *Chahar-Gulshan*, f. 143a; *Halat-i Manazilaz-Shahjahanabad ta-Kabul*, f. 3a. It also refers to the masonry bridge near Karnal over the canal.
65. Singh, Abha, Op.Cit., 57.