

SANITARY MANAGEMENT IN NORTHERN BLACK POLISHED WARE CULTURE

Dr Jamil Ahmed

Department of Ancient History, Culture & Archaeology,
University of Allahabad, Allahabad**Abstract**

It was Harappan civilization where a special emphasis was given to the public health and its unparallel management. After the Harappans, we hardly get any such sanitary management in the well known cultures of India till we come to about seventh-sixth centuries BCE viz the era of the Northern Black Polished Ware culture. The present paper will deal with the various sanitary devices and their possible significance in the particular period of Indian Archaeology.

Key Words: Ring wells, Drains, Soak-pits, Pit latrines, Northern Black Polished Ware

Not only in the Indian sub-continent rather in whole of the ancient world, it was the Harappan civilization where a special emphasis was given to the public health and its unparallel management. Excavations of a number of Harappan sites have amply demonstrated that nearly each house was provided with a courtyard and a bathroom. The obtained archaeological evidence for its context such as drain, street, main-wholes etc clearly suggested that the Harappans were very conscious about hygienic. After the Harappans, we hardly get any such sanitary management in the well known cultures of India till we come to about seventh-sixth centuries BCE viz the epoch of the Northern Black Polished Ware. As material culture reveals, the early Phase of Northern Black Polished Ware (NBPW) which is likely to go back to the end of the seventh or the beginning of the sixth century BCE. represents the time when Painted Grey Ware (PGW) was almost coming to an end and a new deluxe ware commonly known as the NBPW, with more iron and general development in other cultural material was emerging in its full bloom. There are, however, no indications, in this early phase, of an advanced cultural prosperity such as of baked-brick houses, system of coinage, town-planning etc, which could be evinced only in the late phase of NBPW around fourth-third centuries BCE. and usually are treated as advanced cultural prosperity. Material components of urbanization, such as writing, trade and commerce, town planning with elaborate sanitary arrangements, and more large-sized settlements were to be met in this late phase of NBPW. Significantly, during this phase NBPW expanded to a great extent beyond the mother zone of eastern Uttar Pradesh and Bihar and occupied an area greater than Harappan culture (Wheeler 1968:138-140).

The high sense of sanitation exhibited by the NBPW people is astonishing. In the early and middle phase of the Iron Age, while the drinking water might have been obtained from the nearby river

or rivulet or stream, individual houses had their own sanitary contrivances for the disposal of the sewage. The evidence from excavations is not adequate in the sense that we have no proper idea about the exact location, depth and other details of the privy or soak pits or pits in the houses or streets. The following paragraphs will deal with the various sanitary devices and their possible significance in this particular period of Indian Archaeology.

Disposal device of human excreta or Privies or Pit latrines are just as effective as these modern methods in controlling faecal borne diseases and are cheap to build and easy to maintain. Pit latrines may divide into two groups – Type A and Type B mainly on the basis of their depth (Ahmed 2007:303-304). Type A: A pit latrine has two components-namely an unlined dugout circular pit and a squatting arrangements (or seat). In the early-middle phase of NBPW at Rajghat these pit latrines consist of a circular pit about 60-50 cm in diameter dug out to a depth of 1.2 m and then natural soil to a depth of 5.94 so as to extend below the water table. To avoid collapse of unlined pit wall, the outer side of the pits was found filled with rough kankary soil. They lie in close proximity and the distance between the two was not usually more than 76 cm. Three such pit latrines (Numbers 14, 15 and 16) were located at Rajghat (Narain and Roy, 1976). The second part or a squatting place or a seat might consist of two timber planks which have now perished and hence their remains are not to be found. These pits were found filled with loose brownish earth and a coating of greenish moss on the sides along with NBPW and associated wares. The find of some complete vases of dull Red ware resembling a lota, inside these pits shows some significance (Roy 1986:98). Type B: The second type of pits (Numbers 1, 2, 3 at Rajghat-II and Numbers 8, 9, 10, 11, 12 and 13 at Rajghat-V) were also located at Rajghat and were also used as pit latrines by people belonging to the early-middle phase of NBPW (Roy 1986:98). The main difference between Type A and Type B of this disposal device are (i) The diameter of these pits was larger normally varies from 73 cm to 1.03 m and (ii) To eliminate the need to construct very deep pits, these were cut into the natural soil only up to the maximum depth of 4.36 m. Thus these are constructed so as not to extend below the water table so the pit remains dry and ground-water contamination is minimized.

More or less similar pits were also reported during the Early Phase of NBPW at Kaushambi (Sharma 1960, IAR 1955-56:20), Sravasti (Sinha 1967:17) and Rajgir (Ghosh 1951, IAR 1953-54) but it is doubtful whether they were used as pit latrines. In the corresponding strata of comparable age i.e. in the Painted Grey Ware occupation at Jakhera, we have a similar evidence of a circular unlined pit. This pit was located on one side of a road outside the limit of a house and according to the excavator it was used as refuse pit (Shahi, 1994).

Disposal device of human excreta or Pit latrines, however, have been found to provide satisfactory service in the early phase of NBPW when the population was not so dense and with sufficient

open space all round and the need for private arrangements did not arise. One of the most important technical contributions in the field of sanitary engineering of this the late phase of NBPW period was the introduction of the ring-wells. These ring-wells have to be distinguished from the early two types of pit-latrines (Type A and B) because of being always lined with circular terracotta rings. One of the most important technical advances of this phase is the design of these rings which were placed inside the pits for stopping the contamination and collapse of the sides.

Thus this step-by-step improvement leading from Type A to Type B and then switching on to ring-wells is an example of sanitation sequences and shows that in the late phase of NBPW, the socio-economic status of the people improved. Secondly as we shall see below these ring wells were not only used as pit latrines but were also put to variety of usages.

In the late Phase of NBPW Period, we get two types of ring-wells. In the first category, are those ring-wells, the walls of which were lined with earthen ware rings up to certain depth, below which the pit narrowed and left unlined. In the second, are those, which have terracotta or earthen ware rings placed throughout their depth. The second type of ring-wells (supra) with terracotta rings placed throughout their depth has been reported from a large number of sites. Their largest concentration is however seen in the Ganga plains. They have the following characteristics – (i) Pits are excavated sufficiently deep into the natural soil or below the water table so that the excreta may fall sufficiently deep and may not be visible to the eye. The absence of odour, minimal fly and mosquito nuisance could be also avoided in such a construction. (ii) These are encased with a set of earthen ware rings throughout their depth in order to prevent the collapse of sides and contamination of the adjoining area and (iii) The upper part of these ring wells are lined with a few courses of wedge-shaped bricks so that it may properly support the wooden squatting planks in which the person using an inside toilet sits. In some cases, it was seen that this lining also continued slightly below the ground level. This might have been done in unstable soil conditions. The wedge-shaped lining in some cases is also seen above the then ground level which must have been done to prevent surface water from entering the pit (Roy 1986:99-103).

To cite instances under the above category where the ring wells were used as latrines the best evidence comes from Rajghat, a ring-well shows a super structure of wedge-shaped bricks. This ring-well belongs to circa 200 BCE. One of the ring-wells at Bhita also had a similar superstructure constructed of wedge-shaped bricks and the pit was also more than 6 m in depth. The practice of constructing such super structure also continued in the Pala Period as is evident from an example of a ring-well at Bangarh (Roy 1986:100-102).

These ring-wells, therefore, represent the final stage in the development of pit latrines in India. Despite the fact that these pit latrines in the initial stage of their evolution were used by the village

communities in the early phase of the NBPW period as early as seventh-sixth centuries BCE., the so called ring-wells (pit latrines with terracotta lining) made their appearances only in the urban settlements of the late phase of NBPW period by about fourth century BCE. They are, therefore, one of the dominant attributes of the culture associated with this phase of NBPW period. They continued to be in use in the subsequent periods and the tradition of their being used either as latrines or draw wells still continues in some parts of India.

Those ring-wells which were unearthed inside a kitchen or in a courtyard and reaching the sub-soil water except in sandy or rocky ground or when the water table is high and having a pavement or surmounted by well-heads may generally be taken as wells for drawing water. At Sisupalgarh and Bhita the ring-wells were capped by a stone with an aperture of the same diameter as that of the ring-well (Marshall 1911-12). At Rajghat, Kumarahar, Bangarh, Nevasa, Nasik, Besnagar, Biardh, Mahasthangarh and Paharpur, a brick platform or stone pavement, serving an embankment for approach to the well have been noticed. The most interesting evidence was furnished by the excavations at Rajghat where a ring-well was enclosed within a well laid brick pavement and located in between two house complex of the same period. This might have served as a draw well and its brick platform served the purpose of an embankment or provided an approach to the well.

There are a few instances where ring wells have been used as soak-pits. This is probably because we have other better as well as less economical means for the disposal of sullage water. Drains in the vicinity of a ring-well have been reported from Ujjain, Rajghat and Mathura but whether these were connected to the ring-well in any way is not known (IAR 1956-57:27). Soak-pits in the late phase of NBPW, another type of sanitary arrangement for the disposal of the dirty water have been encountered. These are soak-pits with earthen ware soakage-jars with perforated bases. In this case several large storage vases were placed vertically one above the other in a pit dug for the purpose. The bottom of every jar was perforated. Thus they were set one above the other with holes knocked through their bottoms. While the people were careful enough to ensure the collection and removal of the solid waste from the jars, the hole in the bottom permitted liquid waste to be soaked into the ground. These have been reported from Hastinapur, Rajghat, Prakash, Vaisali, Sravasti, Taxila and Tamluk. They usually have two or three jars and hence are shallow in depth, but at Prakash, we have a succession of seven earthen jars with their bottoms knocked off (AI Nos 20 & 21:18). The most unique evidence is from Vaishali where in one row three sets are seen. It is an example where these soak-pits occur in close proximity to each other. This may be due to the fact that they were intended to use alternately, one being left to dry, while the other was in use (Roy 1986:100-103).

The houses as well as lanes and streets were provided with surface drains, to carry rain and/or waste

water is attested to from Rajghat where the remains of a kachha drain was exposed in the early phase of NBP. The drain was 2 meter wide at the top and was exposed up to a length of 4.56 meter. It had a gradual slop passing close to a soak-pit and was dug into the natural soil. It appears that the soak-pit was not able to receive the total output of the sullage water from the area and hence overflowed and its water silted and joined the drain (Roy 1986:104). Later on both the drain and the soak-pit silted up and fell into disuse and as is evidenced by two well-reserved human foot impression over the silted drain. This was a unique evidence of its kin in the middle phase (Narain and Roy 1976:23, 40). In the PGW level we have, so far, no evidence of any drain.

In the late phase, every individual house had a paved bath where from dirty water could find an outlet into the mains through a private drain. Such drains were either of burnt brick or of terracotta piper. The first type of drains are to be found at Kausambi, Hastinapura, Mathura (IAR 1954-55:16), Ujjain and Rajghat while the latter one at Awra, Rairh, Ujjain and Chandraketugarh. The burnt brick drain was sunk out one meter from the ground level and was provided with a paved surface. To make the masonry water tight, the surface of the drain was paved and sometimes polished (Roy 1986:104).

A drain was traced from Hastinapur to a length of more than 7 m. It was sunk about a meter deep from the ground level and was provided with a brick floor and lining (AI Nos 10 & 11:16, 25). At Kausambi, a drain was excavated to a length of little less than 4 m (IAR 1958-59:47). Baked brick drains of both rectangular (size: 44 x 22 x 6 and 50 x 25 x 7 cm) and wedge-shaped variety (size: 45 x 30 and 17 x 7 cm) are reported from Purana Qila (IAR 1970-71:8). The dimensions of these drains suggest that they were responsible to drain out dirty water from a large part of a town. To ensure the smooth flow and to check the back flow of sullage water necessary gradient was maintained. In order to check the solid waste from blocking the drain, another device was made. By far the most unique example of this device is from Rajghat. Here drain C (3rd - 2nd century BCE) was brick lined and was traced up to about 2.75 m in length, after which it was found to be covered with large sized bricks (Narain and Roy 1976:26-27). Thus it was partly open and party covered. Its alignment was from north to south. Two bricks were found fixed vertically in the drain just before it was closed. The opening between the bricks, and the inner surface of the drain was such as to prevent blockage of solid wastes like brickbats, stones etc and to allow only the liquid waste to pass through. At Mathrua (IAR 1955-56) although the brick drain is not of such a dimension as at Hastinapur, Purana Qila and Kaushambi but it is found passing close to a ring-well (IAR 1954-55:16). A stone drain, 0.86 deep and 0.45 m wide, built of dressed stone with flush point was found to a length of 4.64 m at Kausambi (IAR 1961-62:51). Pottery drains having spigot and fancet joints made of earthenware have been reported at Sugh, Awra, Rairh, Ujjain and Chandraketugarh. Terracotta drain pipes are also reported from Awra and Sugh (IAR 1965-66:26).

A micro and macro level survey as the hard fact of the sanitary management in the concern period, the following observations may be made:

- (a) The available hard facts are extremely limited in view of drawing socio-economic perspective of the sanitary management.
- (b) The paucity of horizontal excavation it is hardly possible to identify the association of the available sanitary devices with their corresponding specific placement in the area such as house, road, other public places etc.
- (c) The discovery of the disposal device of human excreta is very important in many ways. However, it needed supportive evidence of the chemical analysis of the decomposed material as found in the concerned pits.
- (d) Despite the limitation imposed by vertical excavation the available information clearly shows evidence of development over the earlier periods. It indicates trend of upward movement in society.
- (e) Keeping in view the importance of the subject in question it needs a comprehensive study with horizontal excavation of both the urban and rural cities of the NBPW period.

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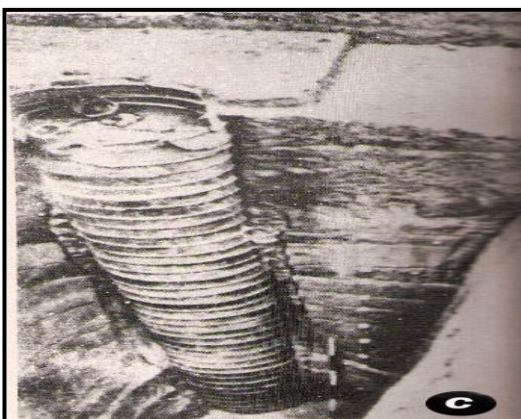
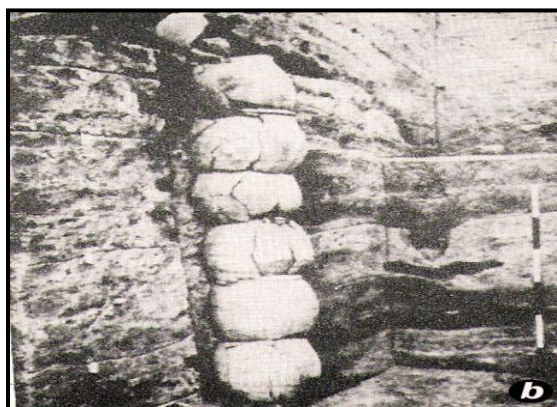
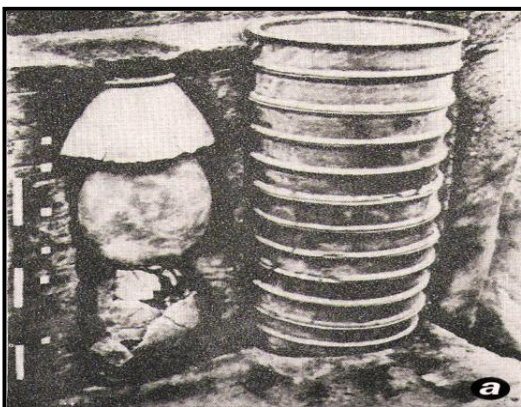


Plate : (a) Two different types of Soak-pits at one place, Rajghat; (b) Seven earthen Jar with bottom knock off, Prakash; (c) Ring wells having forty seven rings with reaching the bottom, Hastinapur ; (d) A drain to a length of little less than 4 m , Kaushambi.

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