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**Early Settlement of
Mathura: An archeological perspective**

Vinay Kumar Gupta



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Early Settlement of Mathura: An archeological perspective*

Vinay Kumar Gupta**

Mathura is one of the most important ancient cities of the world, situated in the Ganga-Yamuna doab region, about 150 km south of Delhi. There are a few other important archaeological-cum-holy city sites in the Indian subcontinent like Varanasi, Jhansi, Allahabad, Ujjain and Multan but in popular memory Mathura is associated with the *lilas* of Lord Krishna, a beloved god of the Hindu pantheon. Vrindavan, Govardhan, Gokul, Mahavan, Baldev, Nandgaon, Barsana — all linked to the Krishna myth are in and around Mathura. These are all of archeological significance.

This area which forms part of the vast religious-archaeological landscape of the *Braj* region differentiates Mathura from other ancient stand-alone sites. Even if the popular aspect of Krishna and the holiness of *Braj-raj* is left aside, the region is unique in terms of its archaeology. This paper will deal with the archaeology of the entire area in and around Mathura, which are the findings of my exploratory work.

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Geographical Features

Mathura is the largest ancient settlement of the region popularly known as *Braj-kshetra*, a term which in spite of occurring in ancient Indian literature became popular only in the medieval period. The old district of Mathura lay between Latitudes 27°14' and 27°58'N and Longitudes 77°17' and 78°12'E and covered an area of about 3,625 square km. The area of the modern Mathura district is 3,340 square km with a population of over 2 million people (as per district administrative records). The whole district of Mathura is a part of the Yamuna plains. The average altitude of Mathura district is about 600 feet from M.S.L. The area in the north is slightly higher while the south and south-east is less than 600 feet. Hence the slope of the land is from north to south and south-east. In between the Yamuna flows from north to south.

From the geo-morphological point of view, the region of *Braj* can be divided into three categories: the plains, the hilly area, and the *khadar* area. The plain area is much larger and is spread on both sides of the river Yamuna in the east and west. In ancient times, there were many *vanas* (forests) and sacred groves which are now more or less non-existent.

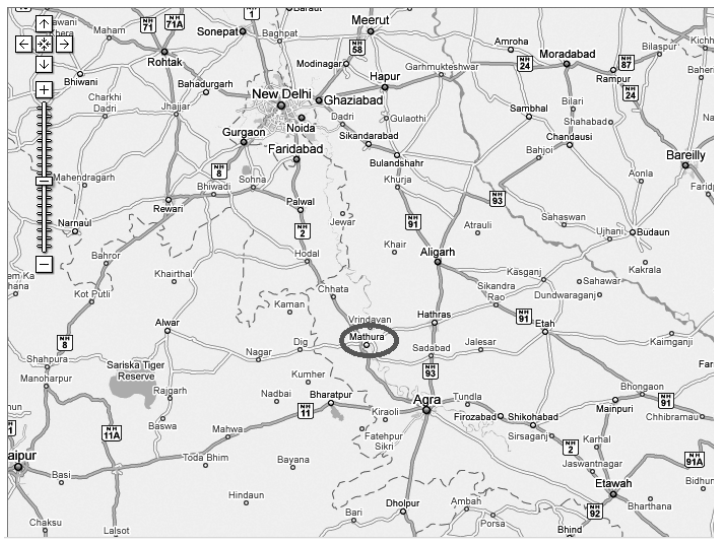
The area to the east of Yamuna (the *trans*-Yamuna tract) is more fertile in comparison to the west of the river (the *cis*-Yamuna tract) as *trans*-Yamuna area comprises of *domat* soil (fertile clay). In the *cis*-Yamuna area, there are many fertile pockets like Tarauli, Bathain-Jab and Mora-Sakna. Generally the soil of *cis*-Yamuna tract is *piliya* (a light yellow loam). Vegetation is of a dry-deciduous type and the original scanty tree species include *Faras*, *Pilu*, *Chheokar*, *Reonj*, *Babul*, *Kharjal*, *Kadamb*, *Karil*, *Hins* and *Bansi*. Other trees and shrubs do not differ from those of the Gangetic doab, though, hilly outcrops at Barsana and elsewhere produce some *Dhau*, *Kadamb*, *Paserid* and *Pilukhan* (Joshi 1968: 14).

The hilly area is limited to the west and north-west of *Braj*.

These low hills (less than 100 feet) are the off shoots of Aravalli and are considered to be of religious significance. The important hills in the region are: Govardhan, Barsana, Nandgaon, Kaman, Sikri and Charan Pahari. *Khadar* area is situated on both sides of River Yamuna in the form of thin strips and is made of soil brought in by river floods but the undulating sandy area near the river channel is also known as *khadar* land.

Among the major rivers and streams in the region mention may be made of Yamuna, Karban/ Jhirna, Patwaha, Sengar/ Arind, Gambhiri, Agra canal, Govardhan drain and Manth branch of the Ganga canal. Among these rivers Yamuna is the most important along which lie the important and extensive sites of Mathura, Vrindavan, Manth, Nohjhil, Gokul, Mahavan, Shergarh, Surir, Runakta, Agra and Bateshwar. Frequency of ancient sites is quite high along the Govardhan drain and the Manth branch of the Ganga canal. The major part of Gambhiri flows through Bharatpur district which might provide some link between the chalcolithic cultures of the Udaipur region and the proto-historic cultures of doab.

The location of Mathura district (Pl. 1) is a factor for making it archaeologically and culturally so important. It is situated at



Pl. 1

the entry-pot of Ganga-Yamuna doab. The *trans*-Yamuna region is climatically a part of the Ganga-Yamuna doab, while the western part of Mathura district with Aravalli off shoots is associated with the geographical and climatic conditions of Rajasthan. Moving from north to south, it changes from the climatic conditions of fertile Haryana land to a mixed condition. Because of its geographical location as a nodal point, various ancient routes criss-cross the region. These have now taken the shape of highways and railway tracks, though some have lost their importance because of modernization. In the past one route from Indraprastha and going to the Malwa-Gujarat region passed from here, following almost the present day route. One route went to Vidisha via Pawaya; one to Kausambi following the course of Yamuna in the east while one very important, but less studied, route went from here to the west and northwest Rajasthan via Kaman, Firozpur Jhirka. Other routes went towards the Bareilly region crossing Yamuna and Ganga and met with the Mauryan royal highway in-between. Thus Mathura district served as a meeting place for the desert with doab, hills with plains, north with south and east with west. All these routes were so important that Mathura became an important centre for international trade. Location of ancient routes passing via Mathura is also clear from the study of the Indian railways, as Mathura is still the biggest junction point of the railways.

Mathura in Ancient Literature

The epic literatures, especially the *Mahabharata* is stocked with references to Mathura, Vrishnis and the Surasena region. The genealogy of solar and lunar dynasties describes several kings who held sway over this land. Panini's *Ashtadhyayi* has a number of references to Mathura (all indirectly), some of which have been further elaborated by Patanjali while explaining the *sutras*. It says that the glory of Mathura can be traced to the traditions of the *Mahabharata* (IV.1.14, IV.2.82 and VI.2.34). The place has been described as a stronghold of Andhaka-Vrishni clans (Agrawala 1952: 361–364). In Patanjali's *Mahabhashya*, a text composed during *circa* second century B.C., Mathura is mentioned at least

on eight occasions (Keilhorn 1962 I: 1/1/57, p. 144; 1.2.1, p. 192; 1.2.64, p. 244; 2.4.7, p. 474; II; 4.1.14, p. 205; 7.1.1, p. 239; 7.2.62, p. 299) and at one place the text admires the general condition of this place saying that the people were happy and good looking and probably better off than the residents of Samkasya and Pataliputra (5.3.57). The *Manusmriti* (II.19) mentions *Vraja* region (Surasena) as part of *Brahmarshi* country. The *Garuda Purana* (II.28.3) mentions Mathura along with six other most holy cities of India in the famous *sloka*:

Ayodhya Mathura Maya Kasi Kanchi Avantika |
Puri Dvaravati chaiva saptaita mokshadayika ||

Uttarakanda of the *Ramayana* (*Sarga* 68–70) deals with the incidents of Madhupuri, the fight of Satrughna with Lavanasura and the establishment of the capital city Madhura. The *Harivamsa Purana* (54/56–62), which is one of the early *Puranas* (*Mahabharata Khilabhaga*) provides some important information about Mathura. It also says that this city was established in the forest area of Madhuvana by Satrughna, after killing the demon Lavanasura. It describes the fortification wall, the moat, the crescent shape, gardens, high rise buildings, prosperity (in terms of crop production, availability of precious jewels) and the commerce of the city.

The *Padma Purana* (73/44, 45) mentions Mathura to be even holier than the holiest city of Kasi. It further adds that Mathura is the city of Lord Vishnu and is worshipped by many devotees as a *sanatana puri* (583/12, 13, 14). In the *Varaha Purana* (152–8, 9), Lord Varaha tells the *Earth Goddess* that no place on earth, space or the nether world is so liked by him as Mathura, which is higher than the heaven in its reputation for being the birth place of Krishna.

Buddhist and Jain literatures are replete with references to Mathura. The *Majjhimanikaya* (*Madhuriya Sutta* 2.4.4) mentions that once upon a time Mahakatyayana lived at Gundavana in Madhura. The *Dipavamsa* account says that ‘in the past, Sadhina

and twenty-two of his descendants, the last of whom was Dhammagupta, ruled in Madhura' (Dipavamsa III 1879: 21). *Ghata Jataka* composed in Sri Lanka, mentions a much altered story of the Krishna legend, for which Mathura is famous. The sources enumerate Surasena in the traditional list of sixteen *janapadas* and include Mathura within that kingdom, but there is no specific mention of it as a capital city. The Mula-Sarvastivada *Vinayavastu* places Mathura lying near Bhadrassa and Otala, all within the territory of the Surasena kingdom. It designates the latter as the first kingdom (*adi rajya*) and hence was known as *Mahasammata*, 'the Great Elected' (*Gilgit Manuscripts* 1947: 3). The *Lalita Vistara* (1977: 21–22) mentions Mathura city along with other great cities like Hastinapur. The *Milinda Panho* mentions Mathura along with Ujjaini, Saketa, Magadha, Surattha, Kotumbara etc. (1885–1900: 211). In Beal's translation of the Chinese version of the *Abhinishkramana Sutta*, Mathura has been styled as the capital of the whole of Jambudvipa (Growse 1883: 105).

The early Pali canonical texts are silent on the issue of the Buddha's visit to Mathura but one passage in the *Anguttaranikaya* does say that he journeyed along the highway between Madhura and Veranja (II 1885–1900: 57). The Mula-Sarvastivada *Vinayavastu* repeats the prophecy of the Buddha regarding the founding of Natabhata vihara and the advent of Upagupta in Mathura (*Gilgit Manuscripts* 1947: 3). The 22nd Jain *Tirthankara* Arishtaneminatha was born at Sauripura/ Soriyanagara in Mathura and was a cousin of Krishna. One important fact in the history of Jain literary texts is that, for the most part, the Jain canon available to us today follows the texts of the Mathura council headed by Arya Skandila in the fourth quarter of fourth century A.D. (*Kalpasutra-vritti* by Samayasundara 1939: 107; *Nandisutra-churni* 1966: 9; Shah 1955: 110–111). Mathura was the seat of the last *Arhat Kevalin* Jambusvami. Among all Jaina texts "*Vividhatirthakalpa*" composed during A.D. 1307–40 by Jinaprabhasuri, a scholar during the reign of Muhammad-bin-Tughlaq, provides a detailed account of Mathura in its chapter "*Mathurapuri Kalpa*".



Nature of Archaeological Sites

The whole region of *Braj* is unique as most of the present day villages are situated atop the ancient mounds. In other parts of the country, majority of ancient mounds are left abandoned. Interestingly, there are not more than a few dozen isolated mounds in the *Braj* region in comparison to the overall number of archaeological sites (majority occupied by modern settlements) which are about one thousand. Generally sites take the shape of a high mound which has a height between 8–15 m. Few sites like Mathura, Lutsan (in Hathras), Paintha (near Govardhan) have a height of more than 20 m. Mathura city mounds (Pl. 2) at certain points have an elevation of about 25–30 m, e.g., near the top of Ghati Bahal Rai and Chaubiapara. It is also observed that the sites which have a height of more than 8 m are generally dated to P.G.W. period—in antiquity while the sites, with less elevation belong to the early centuries of the Christian era. A few sites which do not follow this general rule are the sites of Mukundpur (along Sonkh Road) and Nandghat (along Yamuna) to name a few which do not have a height of more than 2 m but still have P.G.W. deposit.

It indicates that some such sites were not used as regular habitation in the later periods, otherwise the height of the mounds would have been higher. There are a few sites which are quite elevated but do not contain a thick deposit. Such sites are exceptional and are normally seen on the banks of river Yamuna



Pl. 2

viz. the area of Barnauli-ki-Dhai, Nagla Chamaran situated opposite Vrindavan. At most of the sites, Sunga, Kushan period sculptures as well as structural alignments can be observed on top of the mounds, e.g. at Parkham, Sonkh-khera (near Pachawar) and in Bharna Kalan to name a few.

From Bharna Kalan village two Yakshas from Sunga period were brought to Mathura Museum in 1990s. These were found while digging for some construction activity at the top of the mound. On exploration, it did not appear that the site of Bharna Kalan, dating back to as early as P.G.W. period, was situated on an elevated natural surface of that height, but somehow the deposit of medieval period in spite of being quite visible at the site, might not be of considerable thickness throughout the mound. There is the possibility that when the sites were selected for habitation during the earliest phase, these could have been situated on elevated ground. At present, in none of the sites the archaeological deposit ceases to exist at the ground level. Rather, it is found below the ground level. That may be because of the fact that with the passage of time, soil collected all over the area, in the same way as the mound was formed. So, the elevation of the mound went on increasing as also the surrounding area. But at those sites where the habitation did not continue for a long time in succeeding periods, the site is generally observed on the ground level or even below the ground level, as many Kushan period structural alignments near the Sonkh Road were observed only below the ground level, whereas some were found at the ground level like the Triveni mound. But here it must also be kept in mind that these were monastic settlements of some kind and not part of regular habitation. In regular habitation mounds where the deposit continues from the P.G.W. (Pl. 3) associated with Black Slipped Ware (B.S.W.) (Pl. 4) and N.B.P.W periods, the Kushan and Gupta levels are generally observed at a substantial height from the ground level. Some of the important unoccupied or only partially occupied high mounds are: Gosna, Gudera, Sankhi, Sonoth, Bhadravan, Barnauli-ki-dhai, Mahavan, Karnawal, Gol, Sent-khera, Sehi-Garh, Tarauli, Nohjhil, Edalpur Khera, Bhagosa, Aring, Cheeta-khera, Sonkh (all in Mathura), Pengor, Kasoth

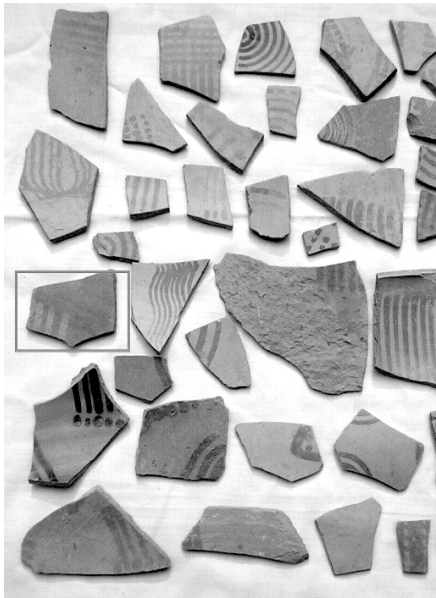


Plate 3



Plate 4

(Pl. 5), Aghapur (in Bharatpur), Asawari Tila (Pl. 6) Sonothi, Sahwara (in Agra), Maho (Pl. 7), Hathras Qila, Sasni, Bijaigarh Qila, Beswan Qila (Pl. 8), Mursan (in Hathras) and Khera near Banchari Railway Station (in Palwal) etc. Of these, Sonkh is a site excavated on a large scale by a German team led by H. Hartel from 1966–1973 and has an early apsidal structure under protection (Pl. 9).



Plate 5



Plate 6



Plate 7



Plate 8



Plate 9

Case-study of Gosna Mound

Gosna is a mound (Pl. 10 a) situated just 6 km east of Mathura across the Yamuna on the route to all the major *trans*-Yamuna sites including Aligarh, Hathras in the vicinity and Ahichchhatra, Kampil and Atranjikhera at some distance. It must have been an important township on the route to Mathura. The site is a typical archaeological mound with its cultural sequence starting with P.G.W. period with associated pottery of black-and-red ware, black slipped ware and red ware and continuing in the succeeding periods of N.B.P.W., Sunga, Kushan, Gupta, post-Gupta periods until late medieval times.



Plate 10a

Sculptures belonging to Brahmanical, Buddhist and Jain affiliations were already reported from the site. Because of such sculptural findings, the British declared it a protected site. The mound at its top has a height of about 12 m from the ground level. In the summer months of year 2009, a huge portion of the mound was cut illegally by JCB machines (Pl. 10 b–d). The cuttings exposed some charcoal samples in sections of the mound. A team of the ASI led by B.R. Mani including the author collected some charcoal samples from such sections after scraping and sent them for dating to BSIP, Lucknow.

The two C-14 dates from two of the samples from P.G.W. period's deposit came out to be 2150 ± 150 B.C. and $2160 \pm$



Plate 10b



Plate 10c



Plate 10d

These are the earliest known dates from anywhere in the *Braj* region and indicates there may be more. There is a possibility that the cultural horizon which is now regarded as belonging to the P.G.W. period might turn out to be as belonging to a period with only plain grey ware. For this more field work is required, especially in the hot summers when the vegetation is sparse. The site is also an example of the future of archaeological mounds in the region. When a protected site can be destroyed for months by JCB machines near the city, then what can be expected of those sites which are unprotected and far away from the cities or towns?

Present Condition of Archaeological Sites

A few of the abandoned and extensive archaeological mounds are still intact like the Asawari Tila near Khandoli which is situated along the Yamuna. It is very good from the excavation point of view. There are some mounds like Pelhora in district Mathura (Pl. 11), Qila Beswan in old Aligarh district, Maho in district Hathras and Kasoth in district Bharatpur which were free of modern habitation till some time back but are now either being destroyed or occupied by villagers. There are a few Kushan period monastic sites which are either already destroyed or would soon



Plate 11

be lost to posterity. Examples of some such sites can be looked in the author's earlier work (Gupta 2009). In a recent visit at the site of Pali-khera, some important Kushan period structural alignments were observed outside the village where a new housing project was in process (Pl. 12). Many ancient sites like a historical site outside village Konkera in district Mathura, have been fully destroyed in recent years by the people in the name of development (Pl. 13). The author was forced to see its destruction on a routine basis while passing by the site in Delhi-bound trains from Mathura but could not do anything to prevent it. Even the government could not stop the destruction of its protected site, Gosna, in spite of being aware of it. The same thing had happened to the sites of Chamunda Tila, Girdharpur Tila and Ahalyaganj Tila in the past. So, in a scenario when there is no scope of even securing government protected sites, it would be unreasonable to think of protecting an unprotected site. In Braj region, the ancient sculptural fragments and images are kept at some *Devi* shrine at or near the site, for example such a heap is visible in village Gwarau of district Hathras (Pl. 14). From such places the smugglers and thieves in connivance with some local people have lifted most of the important sculptures, which come to notice from time to time in foreign art collections. In the villages now



Plate 12



Plate 13

dominated by Mevs (Hindus converted to Islam) such shrines are either fully absent or are kept in hiding because of fear of the majority population like the one shrine in village Gundgaon in Bharatpur (Pl. 15) district.



Plate 14



Plate 15

Ancient Settlement Pattern in Braj Region

For the study of settlement pattern in the region during different time periods the recently acquired exploratory data is going to shed some new light on the existing knowledge. The earliest cultural horizon of this region starts during the proto-historic period, though, there is evidence of the presence of palaeolithic men in the Govardhan hills.

Potsherds belonging to (O.C.P.) cultural tradition have been observed at the sites of Aring and Gantholi in the *cis*-Yamuna tract and at Gosna and Nohjhil in *trans*-Yamuna tract.¹ The potsherds had incised zigzag designs on the surface (sometimes interior also). Some black-and-red ware sherds were also part of early cultural tradition, similar to sherds observed at the sites of Atranjikhera and Jakhera in Etah district.

In the region of Mathura various varieties of black-and-red ware can be observed of different fabrics at different sites. It is not only one variety of the thick black-and-red ware of later tradition, which M.C. Joshi and his team found at the sites of Ambarish Tila and others. From the site of Chaubara Tila, a copper celt, possibly belonging to copper hoard tradition was found by Cunningham (*Ancient India* No. 7, 1951: 37). In the year 1993, the Mathura museum purchased a lot of copper hoard implements (Acc. Nos. 93.5, 93.6, 93.51, 93.65 etc.) from a person of Mahavan *tehsil* who found these implements while digging somewhere near Baldev.² When we consider the archaeology of Old Mathura district (until 1995), there are evidences of copper hoard findings from a site near Sadabad, possibly Rasgawan. In the records of Mathura Museum some copper hoard objects (acc. Nos. 75.33, 75.34 etc.) are said to have been recovered from the

¹ This observation is based on my personal explorations as well as the observations of Prof. D.K. Chakrabarti and his team. Besides at the site of Aring, one officer of A.S.I. Mr. L.M. Wahal (*I.A.R.* 1982–83 : 99) had reported finding of O.C.P. and late Harappan potsherds.

² Personal information received from Mr. Shatrughna Sharma, a senior employee (now retired) of Mathura Museum.

digging of Rasganwan drain in Sadabad *tehsil* which came to Mathura Museum in the year 1975. There is a possibility that the copper hoard implement reported to have been found from Chaubara mound in Mathura may actually belong to a site in Sadabad *tehsil* near Chaubara. It is clear from the above discussion that Mathura had people from the copper hoard cultural tradition. In this study, if we associate the finding of O.C.P. from Noh, a site very near to Mathura border with Bharatpur district, it becomes clear that Mathura region was an important area for the development of O.C.P.—copper hoard cultural tradition.

Except for the excavations at Sonkh and at some peripheral sites of Mathura city, no major excavation has taken place in the district. As far as the excavations at Sonkh are concerned these were definitely done meticulously by Herbert Hartel and his German team. According to them the earliest culture at the site started with P.G.W. using people. As their area of the excavation was quite limited (about one third of the total site and this total area was even less than half of the actual area of the ancient site), there are chances that the few spots where O.C.P. related potsherds might have been present, were not excavated. Otherwise, it has to be accepted that at the majority of archaeological sites the significant cultural sequence starts with P.G.W. period. Another important point about the excavations of Sonkh is the finding of P.G.W. cultural horizon in all the trenches in different parts of the mound where the lowest levels could be reached. It is clear that during P.G.W. period the settlement of Sonkh was quite extensive. On the basis of archaeological data and the present condition of the mound it can be considered to be about 300 x 250 m in area at least. It makes the case more powerful for supporting the area of P.G.W. using cultural tradition at most of the sites as equal to the archaeological mound present at the site.

Mathura is itself one of the largest P.G.W. period settlements, having an area of about 2500 x 1500 m. P.G.W. pottery can be observed right from Raja Bali Ka Tila in south to Ambarish Tila in the north and from Katra area in the west to Kans Qila in the

east. In between, at an under construction site in Chowk area, a lot of fine quality P.G.W. pottery was observed in the deposit. Various localities in the peripheral area of Mathura town developed during the Mauryan and the early centuries of the Christian era such as Hathi Tila, Bhuteshwar area, Kankali area, Chaubara mounds, Chaurasi mounds, Govind Nagar, Chamunda Tila, Gokarneshwar, Jaisinghpura etc. A number of monastic settlements (especially Buddhist) came up on many of these sites as well as on various routes going out of Mathura to Govardhan, Sonkh, Bharatpur, Agra etc. Most of the roads and lanes in old Mathura city seem to be following the ancient roads and lanes. Mathura's importance is not just limited to being one of the largest urban centres but it was the most important centre for art in the past. Development of most of the iconographic forms whether it is the Buddha, Jaina Tirthankara, Vasudeva-Krishna, Vishnu, Durga, Parvati, Sri-Lakshmi, Hariti, Surya, Siva, Linga, Royal Portraits and others all owe a lot to the Mathura school. This school was at its peak during the early centuries of the Christian era and the Gupta period and continued to survive till much later times in spite of major hiccups.

I firmly believe that the sites of Ambarish Tila, Hathi Tila and the part of Katra mound were the later extensions of P.G.W. using people, the dating proposed by Joshi and his team needs a re-analysis. The main disadvantage of Joshi's dating is that he was biased towards a particular theory as he believed "the origin of N.B.P.W. is regarded by most of scholars to be somewhere in the 6th century B.C. in the mid-eastern India; its transportation to Mathura (from eastern India) might have taken considerable time in those days. Therefore we dated period IB around 500 B.C." (Joshi 1978-79: 43). It was the reason that he discarded a number of the early dates.

Some of these early dates were:

PRL-333 (Late Level of Period II, N.B.P.W.) – 610 ± 150 B.C., uncalibrated.

PRL-336 (Mid Level of Period II, N.B.P.W.) – 660 ± 100 B.C., uncalibrated.

Besides these dates, some other dates indicated that the average date of Period II at Mathura might have been earlier than 650–700 B.C. after calibration. Keeping it in mind, it is obvious to consider a date of about 1000 B.C. for the early phase of P.G.W. but it is for the single site of Ambarish Tila, not the heartland of ancient Mathura city.

B.B. Lal also tried to prove that the date of P.G.W. horizon at Mathura would date back to *circa* ninth–tenth century B.C. (Lal 1985: 109–112). This exercise was presumably done for fitting Mathura in his theory of associating P.G.W. culture with the time of his speculative *Mahabharata* age.

Painted Grey Ware Culture Sites in Old Mathura District
(Pl. 16)

P.G.W. sites in cis-Yamuna tract = 138
P.G.W. sites in trans-Yamuna tract = 67

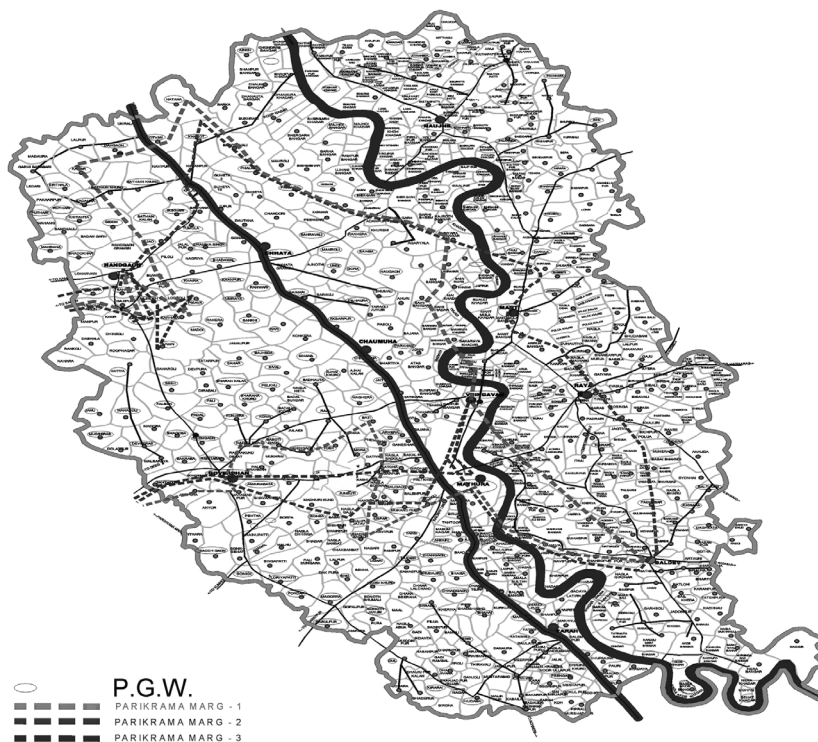


Plate 16

Total no. of P.G.W. sites in Mathura district = 205

Considering the total area of old district of Mathura to be 3,625 square km and dividing it with the total number of P.G.W. sites, we roughly get the presence of a P.G.W. site in an area of about 17.7 square km.

For the western sector, if we consider its area to be about 2,200 square km, we come at the figure of about 16 square km for the presence of a P.G.W. site.

For the eastern sector, if we consider its area to be about 1,400 square km, we come at the figure of about 21 square km for the presence of a P.G.W. site.

In the area west of Yamuna in the toposheet no. 54 E/ 9, the total no. of P.G.W. settlements within about 540 square km is 37 including the largest site of Mathura city which also has some isolated mounds as well. Hence in this area if we derive the minimum area required for the presence of a single P.G.W. site, it comes out to be 14.5 square km. This is the least area required for the presence of a P.G.W. settlement in the country, according to information available till now. Even in this area if we calculate the minimum area required per P.G.W. site in south, east and west sides of Chhata town, it would be about 9 or 10 square km for the presence of a P.G.W. site. This area shows the highest distribution of ancient sites in the country. This trend continued in the succeeding Mauryan period, the Sunga period and definitely during the early centuries of the Christian era. The trend of occupation of the sites has been quite similar until the recent years. Only an increase of 10–20% can be observed in the number of modern day settlements in this area.

In the toposheet no. 54 E/ 7 in the region of Kumher and Deeg, the total no. of P.G.W. sites is about 40.

In the area of roughly 700 square km total no. of P.G.W. sites = 40.

So the area required for the presence of a single P.G.W. site = 17.5 square km.

Total number of P.G.W. sites near Hathras and Sasni in the toposheet no. 54 I/ 2 ranges between 30–35 (35 or more Mauryan sites).

The minimum area required in this region for the presence of a single P.G.W. site = $700/ 30 = 23.3$ square km.

For a single Mauryan site this minimum area would come out to be lesser than 20 square km.

Mauryan Archaeological Sites in the Old Mathura District

During the survey of Mathura district, more than 98% of ancient sites were found to be occupied by modern villages. In sites lying in abandoned mounds like Gosna, Sonoth, Bhadravan, Bhagosa, Barnauli-ki-dhai, Sankhi, Sehi Garh, Tarauli, Karnawal and others all the early phases were identifiable in the form of P.G.W., N.B.P.W., B.S.W., B.R.W. and coarse grey ware.

It is clear from such sites that there was certain degeneration in the fabric of grey ware from P.G.W. period to Mauryan period, in which the place of deluxe pottery was taken by N.B.P.W. and the continuing tradition of B.S.W. At almost all the sites from where I have reported the finding of P.G.W., associated coarse grey ware was also found.

B.R.W. as well as B.S.W. are the pottery types which are associated with both P.G.W. and N.B.P.W. cultural traditions. At most of the sites these pottery types were observed. But it is quite difficult to ascertain the period of such potsherds which were generally found without any particular shape except for the findings of N.B.P.W. pottery. I must accept that except for the few above-mentioned mounds and a few other sites, N.B.P.W. potsherds were not observed at a number of the sites. Even at these sites the quantity of these sherds was less in comparison to

other pottery types. I strongly feel that the typical pottery of Mauryan period in this region is the coarse grey ware along with B.S.W., B.R.W. and red ware. The grey ware which was observed from majority of P.G.W. sites was of both fabrics—finer and coarser. Finer sherds were definitely part of P.G.W. tradition but the coarse grey ware sherds may belong to any of the two periods. The pieces found at the sites occupied by the modern villages were too small to differentiate as to which cultural tradition they belonged to.

But to me, it did not appear that the site got abandoned after the P.G.W. period. The sites were inhabited during the Mauryan, Sunga, Kushan and later periods without any major break. All the cultural indications at the sites point to this. I am not aware of any site which actually got discontinued after any of these early periods. There might have been some small intervals during various cultural periods but these were not long enough to deprive a site of the cultural deposits of these major periods. It is highly probable that many of the sites which have been considered as new Kushan age settlements, might have come into existence during the Mauryan or Sunga period. But without further evidence, this point can neither be proved nor discarded. We can safely assume that the total number of Mauryan sites would have exceeded the total number of P.G.W. sites. The numbers would have been *in excess of 225*.

Early Christian Era (often mentioned as Kushan period for being more convenient) Sites in the Old Mathura District
(Pl. 17)

No. of Kushan sites in cis-Yamuna tract = 235

Hence if we derive the minimum area required for the presence of a Kushan site, it comes out to be: Total area of cis-Yamuna region / Total no. of Kushan sites = 2200 / 235 = 9.36 square km

Total no. of Kushan sites in trans-Yamuna region = 110



Plate 17

So, the minimum area required per site = Total area of trans-Yamuna region / No. of Kushan sites in the trans-Yamuna region
 = $1400 / 110 = 12.7$ square km

Total number of Kushan sites in Mathura district = 345

So the minimum area required per site in the district of Mathura = $3625 / 345 = 10.5$ square km

Total number of Kushan sites near Hathras and Sasni in the toposheet no. 54 I/ 2 = 60

The minimum area required in this region for the presence of a single Kushan site = $700 / 60 = 11.66$ square km

From P.G.W. culture settlements to historical settlements, a certain increase in the number of sites can be observed. The total

number of P.G.W. sites which is about 205 in Mathura district might be higher than this number with an approximate fluctuation of + 10%. In this way the total number of the sites might be more than 225. There is a strong possibility of the presence of an earlier cultural horizon like P.G.W. at the sites of Sakna, Fenchri, Ganeshra, Maraura, Junhedi and Barauli, so this higher number is quite likely. If we take the number of total P.G.W. settlements as approximately 225 in Mathura district, then considering the total number of historical settlements at around 345, we can assume an increase of about 50% from P.G.W. period to the historical period. For the number of Kushan archaeological sites, we can again assume an approximate fluctuation of + 10%. In this way the total number of Kushan sites might increase to about 380. So, we may safely arrive at the conclusion that during the period between P.G.W. (*circa* ninth century B.C.) and early centuries of the Christian era, there was an increase of about 50–60% in the number of archaeological sites. Many of the sites which have been dated to the Kushan period might have actually come into existence during the Mauryan or Sunga period (fourth–second century B.C.). The grey ware which is generally associated with the Mauryan period of the late N.B.P.W. phase had continued during the Sunga period up to some extent, so there are possibilities of many Kushan sites actually dating back to this period. Even during the Kushan period, (we include the Saka Kushan period which actually starts in first century B.C) there is evidence that many important Kushan sites (dating back to P.G.W. period) got their name from Indo-Greeks and Parthians. Examples of some of these sites are Mandrak near Aligarh, Maryak near Hodal, Helak and Halena near Bharatpur, Amokhri, Tikari, Mursan, Tuksan and Lutsan in Hathras district, etc. The number of historical sites show around 50% addition in the form of new settlements during the early medieval period and medieval period (ninth–thirteenth century A.D. and seventeenth century A.D.). Many of these sites might have come into existence during the Gupta period and late Gupta period (fourth–seventh century A.D.), but based on the present state of knowledge available, we cannot say much about it. Another important point about this late period is that even as the number of total sites increased to about 540,

we cannot say that their economic and social condition had improved. Many of the already existing sites might have been occupied for a brief period and might have had lesser population. This period is quite long for any specific data but there are indications of new arrivals of Thakurs and Jats, especially from Rajasthan around the tenth century A.D. Except for the villages named as *Naglas* (with a very few exceptions) most of the village and town sites of Mathura district were occupied by the late medieval period (till about sixteenth–seventeenth century) whether for longer periods or shorter ones. In more than 90% of the modern villages in the region, I observed sculptures of the medieval period. This occupation of almost all the habitation settlements in Braj is further corroborated after looking at Growse's data, as almost all the sites before 1880 had been in occupation for many generations.

Analysis of Various Ancient Routes

1. Mathura to Palwal

Mathura – Jaint – Ajhai khurd – Chaumuha – Akbarpur (Sanpli Khera) – Senmari – Chhata – Dautana/Tumola – Kosikalan – Kotvan – Hodal – Banchari – Bamni Khera – Palwal.

During the Kushan period some smaller settlements, mostly religious in nature came into existence near this route. The new sites were Sarai Azampur, Kota, Allahpur, Chhatikara.

Alternate Route following Yamuna

Mathura – Vrindavan – Parkham Gujar – Sehi – Nandghat – Shergarh – Majhoi to sites in the Hodal region.

During the Kushan period many other sites came into existence on this route like Jaisinghpura, Kankor Tila, Ahalyaganj, Akkur Tila — between Mathura and Vrindavan; Sunrakh, Gond and Badi Atas, Sakraya — between Vrindavan and Sehi; Mai, Basai, Jaitpur, Bhogaon, Ogaha between Sehi and Shergarh.

2. *Mathura to Agra*

This route more or less followed the river Yamuna and went via Karnawal, Jhandipur, Runakta, Agra. Another route which is almost same as the N.H. 2 went via Baad (possibly a P.G.W. site), Mahuan, Farah (possibly a P.G.W. settlement), Pingri, Kitham, Arsena, Runakta and Agra.

On both the routes many new sites came into existence during the Kushan period like Sarai Azamabad, Aurangabad, Ronchi, Ladpur, Baburi Khera, Shahpur, Khairat along Yamuna in the *khadars*. On N.H. 2, the important sites which came into existence are Baad, Aganpur Khera, Farah and Kurkanda.

Alternate Route from Mathura to Agra

This route would have passed from Mathura via Aruki, Bhainsa, Chhargaon, Bhahai, Mahwan and then would have followed N.H. 2. Another option for the ancient travellers would have been via Dhauli Pyau (Chandrapuri) crossing — Aruki — Bhainsa — Chhargaon — Beri — Parkham — Pingri — Kitham — Arsena — Runakta — Agra.

3. *Mathura to Bharatpur and Uchchen*

This route is going towards Bayana and Karauli via Bharatpur and Uchchen. The ancient route (P.G.W. period) from Mathura to Uchchen passed via Dhauli Pyau (Chandrapuri) crossing — Narhali — Tarsi — Murhesi — Kosi Khurd — Sonoth — Rasulpur — Rarah — Jaghina — Bharatpur — Sewar — Uchchen.

4. *Mathura to Kumher and Nadbai*

The route to Nadbai and then to Dausa and Jaipur region was a very important one. The sites which lie on this route are: Pali Khera — Naugama — Jansuti — Sonsa — Sonkh. Another alternate route to Sonkh was Maholi — Mukundpur — Usphar — Unchagaon — Sonsa — Sonkh. During the Kushan period two new sites came

into existence on this route — Shahpur between Unchagaon and Sonsa and Borpa between Sonsa and Sonkh. From Sonkh the ancient route to Kumher would have passed via Bachhagaon – Pengor – Kumher.

5. Mathura to Alwar and Sikar via Govardhan, Deeg and Nagar

Mathura – Satoha – Khamni – Jachonda – Aring – Jamunata – Govardhan – Gantholi – Bahaj – Deeg. During the Kushan period some new sites came into existence but these were small settlements more of religious nature than regular habitation sites. These sites were Chaubara mounds, Girdharpur, Asgarpur (two sites) and Palai. From Deeg to Nagar the route passes via ancient sites of Panhori – Siswar – Nagar.

6. Mathura to Fatehpur Sikri, Jagner and further south

Mathura – Narhauli – Tarsi – Murhesi – Kosi – Sonoth/Mal – Santruk – Ol – Pipla – Ikran/ Hansela – Undra/ Chiksana) – Mahadau – Churyari – Sikri.

Another stone quarry very near to Sikri is at Santha and for that one would have followed the route Chiksana – Daulatabad – Sikri/ Santha.

There is another route which might have been used to reach Sikri. This route goes via Aruki – Bhainsa – Chhargaon – Pilua Sadakpur – Beri – Jhurawai – Sandhan – Arua Khas – Biyara – Daulatabad – Sikri/ Santha.

7. Mathura to Dholpur and Gwalior region via Achhnera

Mathura – Aruki – Bhainsa – Chhargaon – Sersa – Pilwa Sadakpur – Beri – Parkham – Baroda – Kachaura – Achhnera.

From Achhnera the route to Gwalior region would have gone via Puramana/ Muriapura – Nahchani – Akhwai – Gahera Khurd and then towards Saiyan-Dholpur region. Another route would

have gone via Raibha – Mahuar – Khalaua and then towards Saiyyan region of Agra.

8. *Mathura to Firozpur Jhirka and Punahna via Kaman*

a) Mathura – Arahra – Bati – Ral – Bhadal – Pelkhu – Sahar – Kamai/ Mandoi and Karahla – Barsana – Unchagaon – Akata – Kaman.

From Pelkhu another route with slight variations would have passed via

b) Bharna Khurd – Bharna Kalan – Dahrauli/ Seeh and Palson – Hathiya – Dhabhala – Sunhera – Bhajera – Kanwara/ Kaman.

c) Neemgaon – Palson – Seeh – Dahrauli – Barsana – Sanket – Rithaura – Dhilawati – Akata – Kaman.

Another popular route which is quite longer passes via Govardhan – Deeg – Parmandra – Khera – Kaman.

Ancient Alignments of Braj going to *trans-Yamuna* Region

9. *Mathura to Kasganj, Soron and trans-Ganga region via Hathras*

It would have been a very significant ancient route linking Mathura and Rajasthan site with mid-Gangetic doab region. The ancient route passes via Isapur – Lohvan – Gosna – Raya – Sonai – Mursan – Hathras Qila. From Hathras the ancient route might not have followed the present road to Sikandararao and Soron because on this stretch of about 35 km, I could locate only two P.G.W. sites. One of these two sites, Maindhu is also a part of another important ancient alignment while another site of Jau Inayatpur is about 9 km distant from Sikandararao. Some new Kushan sites came to be known on this route like Kanchana near Sonai and Thulai, Salempur and Jaitpur between Maindhu and Sikandararao. During ancient times the route from Hathras to Sikandararao would have passed via Hathras – Maindhu – Rajpur

– Paharpur – Punnair – Todh – Khिताuli – Pichhaunti – Jau Inayatpur – Sikandararao.

There are two possible ancient routes to Kasganj and Soron. One would be:

Mathura – Hathras – Maindhu – Daryapur – Tikari – Gangraul – Khera Sultanpur and then after crossing the G.T. road, towards Kasganj and Soron. From Soron the ancient route goes to Ahichchhatra (Anwla) near Bareilly.

The second altered route would have been via Mathura – Mursan – Asroi/ Khera – Tuksan – Ahbaranpur – Ruheri – Lutsan – Daryapur – Tikari – Barhad – Bijaigarh and then to Kasganj, Soron and *trans*-Ganga sites. A very important river from archaeological point of view, Kali Nadi can be crossed near the important city site of Kasganj and the Ganga at Soron.

From Sikandararao another important route goes towards Sahawar via Bargawan, Naglakhera, Kapretha, Qazikhera, Akhtauli, Sinsh and Atranjikhhera.

10. Mathura to Nidhauri Kalan and Etah via Hathras

The important route to Etah from Mathura goes via Hathras. Up to Hathras the route is similar as discussed in the previous route description. From Hathras the route would have gone via Ladpur – Chaturbhuj Khera – Maho – Band Abdullahpur – Hasayan – Andauli – Kanau – Maqsudpur (P.G.W.?) – Pilkhatra – Gadri/ Mitraul – Margayn – Nidhauri Kalan. From Pilkhatra, Nidhauri Kalan can also be reached going via Khera Nuh but it would be slightly longer. From Nidhauri Kalan which is definitely an important town site, Etah can be reached via Dholeswar – Songra – Baragaon and Mukharna.

11. Mathura to Kampil, Sankisa and towards Sravasti via Jalesar

The major sites on this route are Mathura, Raya, Hathras/ Sadabad, Maho/ Sarpau, Jalesar, Awagarh and then the sites

towards Ganga plain like Sankisa and Kampil.

One of the important routes would be from Mathura to Hathras and then Hathras – Parsara – Lakhnu – Aihan – Gwarau (Kushan site) – Simrao – Jalesar.

Another alternate route would have been Hathras – Ladpur – Jalalpur – Khera Chaturbhuj – Shahpur – Maho – Gwarau – Simrao – Jalesar.

The second important route would have gone via Mathura – Lohvan – Sihora – Karab – Pachawar – Jugsana – Unchagaon – Sadabad – Sahpau – Isonda – Berni – Jamaun – Jalesar.

The third route to Jalesar would have gone via Mathura – Gokul – Mahavan – Baldev – Sadabad.

12. Mathura to Aligarh

Mathura – Isapur – Lohvan – Gosna – Raya – Aiyera Khera – Nimgaon – Gorai – Kaimawali – Hastpur – Mahua – Aligarh.

Another alternate route to Aligarh would have passed via Mathura – Aiyera Khera – Beswan – Kanka – Sasni – Aligarh.

From Aligarh the ancient route went towards Harduaganj, Atrauli, Morra, Karnawas (crossing point at Ganga), Bahjoi, Sambhal/ Chandausi, Moradabad and Himalayan region sites. Another route went towards Jawan and further north.

13. Mathura to Nohjhil and Jewar

This important route went towards north after crossing river Yamuna. The route would have been via Mathura – Vrindavan – Chamar Nagla – Barnauli-ki-dhai – Manth – Bhadravan – Irauli – Samauli – Ohawa – Bhidauni – Surir – Mirpur – Bagharra (Sherka-Khera) – Nohjhil – Bajna – Awakhera – Gairaula – Jattari – Khandeha – Tappal – Jewar. From Jewar the route goes towards Dhankaur, Ghaziabad and Meerut region.

14. Mathura to Khair

The Mathura to Khair route passes via Mathura – Vrindavan – Nagla Chamar – Barnauli Ki Dhai – Arua – Jabra – Jaiswan – Nasiti – Harnaul – Karahari – Lohi – Khayara – Arni – Khair.

Another route from Mathura to Khair would have been via Arua – Nimgaon – Gorai – Deta – Rajawal – Arni – Khair.

Another route can be traced as Mathura – Vrindavan – Manth – Bhadravan – Erolu Gujar – Samauli – Ohawa – Bhidauni – Surir – Hasanpur – Jarara – Khayara – Arni – Khair.

Other Important Link Routes of the Region

1. Kaman to Khair

This route passes via Kaman – Akata – Rithaura – Sanket – Anjnokh – Khayara – Bhadawal – Chhata – Ladpur – Ranhera – Shergarh – Nohjhil – Parsauli – Shall – Pachahra – Khera Kasison – Khair.

2. Kumher to Khair

Kumher – Pengor – Kasot – Krenwa – Konder – Dehiya – Govardhan – Radhakund – Kaunhi – Pelkhu – Siwal – Sihana – Akbarpur (Sanpli Khera) – Pelhora – Tarauli – Sainwa – Ranhera – Shergarh – Nohjhil – Parsauli – Shall – Pachahra – Khera Kasison – Khair.

3. Aligarh to Jalesar

From Aligarh the route goes via Mandrak – Sasni – Lutsan – Daryapur – Punnair – Heta Raghunathpur – Maho – Chirgawan – Jalesar.

4. *Etah to Rewari*

From Hathras the route would have gone via Rohai – Tuksan – Kaimawali – Gorai – Khair – Gomat – Jattari – Tappal. From Tappal after crossing Yamuna, the route would have passed via Kusnak, Palwal, Dhatir, Sohna towards Rewari. From Sohna one important route goes towards Gurgaon, Bahadurgarh and Rohtak. One could also reach Palwal following the Grant Trunk Road up to Aligarh and then moving from Aligarh via Lodha, Andla and Khair to Palwal and Rewari. This link route would have been quite important joining the main *Uttarapatha* route with the other areas of Mathura–Takshasila trade route.

A brief description of a few important archaeological terms is as follows:

Ochre Coloured Pottery: It is a special type of pottery which leaves ochre colour on rubbing with hands. At few sites like Lal Qila in Bulandshahr district it was observed in sound condition. It has some specific features and the time span assigned to this pottery is generally considered to be pre-1500 B.C. which may go for many centuries on the lower side. It is generally found in upper doab region.

Painted Grey Ware: It is a deluxe kind of grey ware pottery with designs in black painting, generally found from archaeological sites in Western Uttar Pradesh, Eastern Rajasthan, Haryana and Punjab. It is a demarcating pottery for a period which is generally assigned between 1200 B.C. to 500 B.C.

Northern Black Polished Ware: It is another deluxe kind of pottery with a shining black surface possibly because of some polish. Sometimes the surface has bluish or greenish texture too because of the polish. Such pottery is generally found in the succeeding deposits of Painted Grey Ware pottery from north Indian (western U.P.) archaeological sites. The N.B.P.W. period is generally considered from about 700 B.C. to 250 B.C. and is often representative of Mahajanapada and Mauryan periods.

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