

CHAPTER - II

BRICK INDUSTRY IN ITS HISTORICAL PERSPECTIVE

(i)

Brick has been used from ancient time to date as a basic building material for any kind of construction. The connotation of the term 'Brick' has undergone a change. Any building material made of clay was earlier understood as brick, but now the term connotes a building material with a particular shape regardless of the raw material used in making it. "It is interpreted as nothing but a rectangular prism of suitable size that can be handled, conveniently"¹. Generally two types of bricks - clay and calcium silicate (Sand lime bricks) - are found to be used in construction. Though some of the items such as plastering can be saved by using sand lime bricks, clay bricks are more popular and widely used. Very recently fly ash brick has been introduced.

The history of brick making is intimately associated with human civilisation from remote pre-historic period. The history of brick manufacturing deserves close study in terms of archaeological findings and analysis of ecology and socio-economic situations of communities and nations of the ancient world that predominantly covered Western Asia, India, Egypt, the Eastern Mediterranean, the Far East, and the America distinguished by the emergence of the Aztec and the Inca civilisations. In fact, the annals of urban civilisations of

1 Dayaratnam, P. - Brick and Reinforced Brick Structures, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi-1. Edn. 1987, Page 1.

antiquity are often linked with the technical progress in making bricks and tiles, either sun backed or kiln-burnt. Thus for instance, "At Ur in Mesopotamia the Early Dynastic graves are, apart from their contents, interesting architecturally, for they illustrate the use of stone of the dom, of corbelling and the barrel vault for the constructions of which stones, kiln fired bricks, as well as mud-bricks were used"².

Furthermore, the early Dynastic palace at Kish one of the earliest royal residence in Sumer and comparable to the Sin Temple VIII at Khafajah reveals the use of Planoconvex bricks. As Mallowan observes, "because of its architectural similarity to a great palace at Kish : Planoconvex bricks were the standard unit of construction in each case"³.

Bricks were also used in construction in Egypt from earliest times. In fact, the great pyramid of Giza, those of Kheops, Mykerinus and Khepren, could perhaps be built by constructing huge ramps of rubbles and mud bricks. As regards the pyramid of Mykerinus it has been imagined that four such ramps were built, "One starting from each corner against the undressed outer surface of casting stones. Each emerged at the top and each was extended by course as the pyramid rose. Up three of them the stones were dragged on sledges; the men

2 The Dawn of Civilisation, Edited by Stuart Piggott, London, 1961, pp. 93-94.

3 Ibid, p. 93.

descended by the fourth with sledges empty. Once the capstone was in place, the casting blocks would be smoothed progressively as the ramps were removed⁴. In this connection it may also be recalled that bricks were in necessity for the Aztecs of Mexico whose magnificent cities no doubt contained houses made of sundried bricks⁵. This obviously illustrates the almost universal necessity of bricks in ancient civilisations in different continents of the Old and the New World. Soustelle tells that the number of rooms of the Mexican house increased with the family's wealth; an average type of house had a kitchen, a room where the whole family were used to sleep, and a little domestic shrine; the bathroom(temazcalli) was always built separately. If it was possible, the number of rooms was increased; and there was a tendency to reserve one or more for women"⁶. As it appears, the walls of these houses were either white washed or painted or richly adorned with clothe or skin⁷. Even upto the middle of Fifteenth Century Chanchan, the Chimu Capital that covered an area of about eleven square miles had impressive compound walls of mud-bricks.

In India the use of baked bricks dates back to the great age of the Indus civilisation. The famous granary at Mahenjodaro as also the towers and buildings of the ancient citadel were built of burnt bricks in combination with wooden beams. The later after being decomposed, have left vacant square holes and

4 Ibid, p. 110.

5 Jacques Soustelle Daily Life of the Aztecs by Patrick O'Brian, Penguin, 1961, p. 131.

6 Ibid, pp. 131-132.

7 Ibid, p. 133.

grooves. There is evidence to show that the reinforcing timber could be at times 5" square. The exposed city has amply shown that the constructions were provided with ventilation and weep-holes when necessary. Furthermore, it may be assumed on obvious grounds that the kiln-burnt bricks were transported to the masons by means of ox-drawn wagons fitted on characteristic wheels. A comparable construction of a stupendous nature has been met with at Kausambi, the ancient Capital of Vatsas and their king Udayana. Dating from 500 B.C. the great ramparts of Kausambi makes one remember its much earlier counter-parts at Harappa. The ramparts of Kausambi consisted of a mud bank faced externally with a backward sloping baked brick wall which beside the eastern gate, still remains to a height of 154 courses. Near the base, the wall had begun to bulge and weep-holes had been cut through it to relieve the pressure. Within the defences were well built brick houses and a famous Buddhist monastery. The utilisation bricks, baked or unbaked, has been observed at the late Harappan site of Rupar that is situated in the vicinity of Chandigarh, Haryana. Excavitions done on the mound of Rupar have exposed construction of both burnt and unburnt bricks, the mud being used as mortar or the cementing agent⁸.

Somewhat comparable is the situation at Lothal describable as a miniature Mahenjodaro. The alluvial marshy lowland to which the mound of Lothal belongs is situated in Ahmedabad

8 Dr. H.D.Sankalia : Prehistory and Protohistory in India and Pakistan, University of Bombay, 1962, p. 157.

District of Gujrat though its proximity to Saurashtra is also significant in term of regional manifestation of the great civilisation of the Indus valley. What will be relevant here is a brief summing up of the result of the excavations at Lothal done by S.R.Rao. Sankalia recounts, "The Town was divided into six blocks, each built on an extensive mud-brick platform of a varying height. So far four streets two from north to south and two from east to west, with two sides lanes have emerged from the excavations. On one side of a street lies a row of 12 houses. Smaller houses on another street are believed to be shops, each with two or three rooms, with different diemensions, 365.76 Cm. X 274.32 Cm. (12ft. X 9ft.) to 243.84 Cm. X 182.88 Cm. (8ft. X 6ft.) a few larger houses measured 2,194.56 Cm. X 1,280.16 Cm. (72ft. X 42ft.). Some had verandahs in front, while others had a central court yard with rooms around. The houses of artisans like copper-smiths and lead-makers were small and made of mud bricks.

"The town had, as usual, a fine system of sanitation which included a public drain, internal drainage which was joined with the main road, bitumen paved bathrooms and lavatories with a soak-pit behind. A very elaborate drainage in a large house in the south block built over a terraced platform coupled with a separate well might have belonged to an important person, or might be a public house, since it over looks a large dockyard"⁹.

9 Ibid, p. 165.

A huge brick-lined enclosure at Lothal that has been described as a dockyard with its necessary 'inlet channel' and 'spill channel' is indeed one of the wonders of India's past. "Built with baked bricks its extent height is 426.72 Cm. (14ft.) but it might have been originally much higher. Since the river Sabarmati now flows at a distance of about two miles it appears to be possible that formerly, some 4,000 years ago, it flowed much nearer and at high tide, the water could be carried inwards through a specially built channel which excavation shows was cut into the bedrock and provided with brick walls to facilitate the navigation of small ships"¹⁰. Extensive structures of mud-bricks have also been exposed by digging at the protohistoric site of Gilund in the neighbourhood of Udaipur, Rajasthan. "Four structural sub-periods (or phases) within the chalcolithic have been noticed on the Western mound. Of these, a large enigmatic structure about 3,048 Cm. X 2,438.40 Cm. (100 ft. X 80 ft.) having four parallel north-south walls was joined at the southern end by an east-west wall. There are two more east-west walls parallel to the last, from which another group of three north-south walls emerged. These walls (13 ft. X 5 ft. X 4 in.) are made of mud-bricks, which are laid alternatively as headers, and stretchers and cemented with mud. The space between the parallel walls was filled with sand, while some of the inner and outer walls have been plastered with mud mixed with a little lime"¹¹.

10 Ibid, p. 166.

11 Ibid, p. 194.

In this connection it may be recalled that the Median Temple architecture of remote antiquity as discovered to the east of the Trigris also reveals the convention of laying mud-bricks at least to give the desired dimension to the sacred altar or for other purposes. Thus, the Fire Temple of Nush-I-Jan reveals the use of long mud-brick for vaulting the streets as well as components of the altar. The altar, of mud-brick, steps out in four stages at the top, to a height of 85 Cm. The fire bowl on the top is so shallow that it seems likely that the flame was rekindled before each ceremony.

(ii)

Broadly we can conclude that during the urban based civilisation brick was the only building material. It can easily be imagined that brick building was a very big industry in those civilisation including that of Indus Valley Civilisation. The Indus Valley Civilisation was succeeded by the Vedic Civilisation which was Pastoral. The picture of life of the Vedic Aryans that we get from the pages of Vedic Literature goes to show that in this civilisation the houses where Vedic people lived were huts and were constructed with the help of bamboo-poles, straw, mud or leaves of trees, Strangely the art of building cities and constructing houses with bricks were not pursued. The reason for this is difficult to find out.

It appears that the principal causes of the destruction of the Indus Valley Civilisation served a precaution to Indians against the use of unburnt bricks as a building material. Brick

burning necessitated the use of wood as a fuel. This demanded the nearby forest and consequently the adjoining areas of the city became susceptible to causes of desert making. We find the clay models of wild beasts like elephants, tigers, rhinoceroses in the ruins of Mahenjodaro. This clearly shows that dense forests existed near the city. The only fuel available to the people of the city was wood which was procured from the forest trees. Very large number of trees was thus cut down and burnt for making huge quantity of bricks required for building cities. Gradually this process led to deforestation - destruction of the forests. The process again brought about the advent of the desert. Today we find the Thar Desert existing at the place which extends from Sindh to Rajasthan.

The building materials used by the early Aryans were replaced by stones. In the Sixth Century B.C. when we find the definite proof of the existence of cities in India, we find that stones were used for construction purposes. In the Ramayana and the Mahabharata we find the description of palaces and cities but no material proof belonging to the age of the epics has been found. Therefore, nothing definite can be inferred with regard to actual nature of the cities and palaces. During this century we can also trace out the existence of Rajgriha, the Capital of Magadha, where Bimbisara and Ajatsatru ruled, which was protected by a cyclopean stone wall, the remains of which still exist in Rajgir (ancient Rajgriha).

The stone was replaced by timber during the Mauryan Rule. We learnt from Megasthenes, the great historian, that during the Mauryan period (3 to 2 Century B.C.), beautiful palaces which he had ever seen existed in the kingdom. He also said that Patuliputra was the most beautiful city of the world in his age. It was more beautiful than 'SUSA' and 'EKBATANA'. The palace of Patuliputra being best amongst the palaces of the then world was constructed of wood. The city of Patuliputra was protected by wooden walls surrounding it. It had wooden watch towers and a number of wooden gates too. Thus we find that wood was considered as the best building material during the period of Chandragupta Maurya.

Stone as building materials forced a come back and royal construction were made later on. A change took place in respect of the constructions of buildings in the days of Ashoka, the grandson of Chandragupta Maurya. The remains of Ashokan palaces have been unearthed near the modern city of Patna where ancient Patuliputra was situated. The palace was constructed with stones. The Ashokan pillars made of stones are great specimens of art. The Ashokan lions were also made of stones and are among the best figures of lion to be found in the world.

(iii)

After Mauryan period stones formed the general building materials used in India so far as the then city life was concerned. But in contrast to it, in villages the bamboos,

straws and mud continued to be the building materials for ages. During this period of history stones were gradually being replaced by bricks as building materials in different parts of India subsequent to the Mauryan period. Unfortunately very limited specimen of architectural finds of the Gupta period is available to us. But structures of post Gupta period offer us ample study materials. On the basis of which it can be claimed that in constructing palaces and city dwellings bricks formed the main building materials.

During Medieval period in India forts played a predominant role in the field of Political and Military History. These forts were, however, mostly constructed with stones like the Fort of Chunar, the Fort of Agra etc.

With the beginning of the modern period of Indian History which is marked by the rise of European Business houses dominating the political history of India, bricks as building material started gaining overwhelming popularity all over India. Kiln for baking bricks were being constructed in different provinces of India in increasing proportions. At present no big structure in India can be contemplated of being built without the help of bricks. And thus the use of bricks has become almost universal in the history of building construction and other engineering structures in India.

In the context of the above account let us now concentrate on the development of Brick Building Industry in the area under study.

To study the establishment and growth of a particular industry in a region, it is not enough to consider the availability of necessary raw materials and the possibility for getting other essential factors at hand. We are also to take into account and analyse in a scientific way the anthropological history, social and economic conditions and outlook of the leading people of the locality as well.

The area of our study consists of Uttarpara, Bhadrakali, Kotrung and Makhla. It covers 11.52 sq. km. (4.50 sq. miles) and is geographically situated at 22' - 40' north of latitude. The region is 3.2 mts. (10.5 ft.) above the sea level. It is situated in Serampore Sub-division. Formerly, it was included in the Zamindary of "Kishmat Md. Aminpur" and was in the district of 24-Parganas and under Baidyabati Police Station. In 1814 A.D. Baidyabati Police Station came under the jurisdiction of the district of Hooghly. Since then Uttarpara, Bhadrakali, Kotrung and Makhla have come under the administrative unit of Hooghly District¹². The region is bounded by Konnagar on the north, Bally on the south, the village of Rangunathpur on the west and the Ganges (Bhagirathi) on the east. The Municipalities of Uttarpara and Kotrung were founded in 1865 and 1869 respectively and were united in 1964. During the 17th and 18th centuries this region was very thinly populated and under woods. Most of the inhabitants were either low-caste Hindu or Muslims.

12 Administration of Hooghly District - George Toyanbee, Calcutta - 1888.

Piracy on the Ganges (Bhagirathi) River was the livelihood of many of them. The rest were either labourer or cultivators. Brahmins started settling in the area from the later part of the 17th century. A branch of the family of Sabarna Chowdhury first settled here and brought others to settle in the locality. Ratneshwar Roy of this Chowdhury family took the Zamindari right of the Uttarpara and neighbouring area from the Sheorafuli Raj family in exchange of Zamindari of Gatigram in 24-Parganas (at present North 24-Parganas) and started to live here as a Zamindar¹³. As a result the habitation grew up a little in Uttarpara area but Bhadrakali, Kotrung, and Makhla remained as sparsely populated as before.

A perusal of the history of the region reveals that inspite of favourable geographical location and environmental conditions which helped the laying the foundation of Brick Industry here, it did not grew up till the middle of the 19th century, mainly owing to the fact that the majority of the people of the area belonged to poor class and the brick-built houses were limited among the affluent sections of the higher caste people who fetched their requirement of bricks on their own initiative. Secondly, the then rich people and Zamindar class never cared for investing in industry as they had other easy way of making money. Thirdly, in the area the supply of labour hands was very scanty and the necessity of deploying such

13 Uttarpara Bibaran - Sri Abani Mohan Bandyopadhyay, p. 3, Published in 1920.

labour force on business footing was not adequate. Fourthly, the traditional living patterns of the so-called rich people made them to pursue a lazy life. They lacked the ability to foresee the great possibility of this industry in this region.

The famous G.T. Road was constructed through this region between 1804 and 1835. Uttarpara Railway Station on E.I. Railways was opened during the first part of 1906. The infrastructural facilities thus created attracted entrepreneurs to the region. The first brick field in this area was set up in Uttarpara. According to hearsay, Mr. Bull, the founder of Bull's kiln first started it. The reason for establishing the first kiln in this area remains obscure as no recorded history could be traced. However, it is gathered from local people that kiln might have been first constructed for supplying brick to ~~the~~ Railways for making culverts at different places on rails¹⁴.

In 1858, while arranging for the execution of the drainage works in the city of Calcutta, the Commissioner of Calcutta Corporation found the supply of sufficient quantity of bricks of proper quality to be so variable and precarious that the Corporation decided to acquire a piece of land and set up a brickfield of their own.

Thus Kotrung, 1½ miles north of Bali Canal, was selected as the most suitable site for the brick field. Its chief advantages were proximity to the town, the availability of good

14 From Interview with Rtn. Malay Mr. Banerjee, Secretary, Uttarpara-Kotrung Brick Field Association on 8.2.1982.

soil and facilities for water route. The land was acquired under Act VI of 1857, at a cost of over Rs.75,000 and brick making commenced on 1st January, 1858. Possession was shortly obtained for contiguous plot of high land for the erection of buildings and machinery, and a careful survey of the whole property enclosing 275 bighas, was made. The works at Kotrung were considerable comprising an engine-house, a boiler house, two machine sheds, a chimney of 83 feet high, a Soorki Mill house with drying sheds, two workshops, a bungalow for the engineer, and another for the Superintendent of Works, a bridge over the canal, barracks capable of lodging about 600 coolies, and a ship for carrying the bricks across the river. The buildings cost over Rs.55,000. Six thousand feet of tramways were also laid on the brick field for carrying mud, coal, etc., to the machines. The system consisted of 25 H.P. steam engine, soorki mills, brick machine a circular saw table, a self acting table, etc.

In 1861, the Commissioner valued their Kotrung property, inclusive of building and plant at about 2.25 lakhs of rupees. In 1874 when the drainage works of the city of Calcutta were almost completed decision was taken to sell the property and offer was sought for purchase. But no body came forward. After being unsuccessful in disposing the property, it was decided to lease it out.

In 1868 the brickfields were leased to Messrs, Burn & Co. who paid a royalty of 8 annas for every 1,000 bricks

10112

manufactured. In 1869, the burning of bricks by the new pattern of trench kiln, invented by Mr. Bull, was introduced and he was paid a royalty of 4 annas per 1,000 pucca bricks.

In 1882, the property was then leased out to Messrs. Mitchell and Co., who paid a monthly rent of Rs.750/- and was bound to supply bricks to the Corporation at a fixed rate. There after, this property was leased out to Messrs. Nilkamal Mitter and Sons, who took its possession in 1884. Subsequently lease was discarded in 1886 because the price offered by them was considered to be inadequate.

The settlement of accounts with last lease-holder took some time and the brick field remained idle during this period. In 1892, the offer to purchase the brickfields for Rs.85,000 being refused, it was leased again for five years at an annual rental of Rs.7,400 to Messrs. T. C. Mukherjee and Co., who subsequently obtained a new lease for ten years from 1st September, 1906 at the rate of Rs.10,600 per annum¹⁵.

Till 1916 late Bhutnath Mukherjee of M/s. T. C. Mukherjee & Co., continued to produce bricks in this area. On the expiry of contracts with M/s. T. C. Mukherjee and Co., the Corporation of Calcutta leased the brick fields to some people among them the name of late Kishori Mohan Banerjee is worth mentioning. At present there are 16 brick field in this area and some of these fields are still under the control of Banerjees.

15 Municipal Calcutta - Its Institution in their origin and growth: Compiled by S. N. Goode, p. 319. Edinburgh, 1916.

At Makhla the first brick fields came in 1880. Three local Bengali young men, named Annada Prasad Chatterjee, Rakhal Chandra Paul and Priya Nath Roy were the pioneers of brick industry in Makhla. Later other local people took interest in this business. In 1910 there were about 20 brick fields in Makhla region. In 1914, Jay Gobinda Pande, resident of other state, started a brick field here. Afterwards in 1915-16 some European business houses started brick making in this area. Of them the notables were Martin & Co., Burn & Co., Gillender & Co. and Bull & Co. After 1938 these European houses started to wind up slowly their fields. After 1940 there was no European business houses engaged in brick industry. After Second World war when the Joint Hindu Family system began to break up, the brick industry of this region slowly but gradually passed from the hands of local people to the people of other states. Now there are 39 brick fields here. The oldest of them was founded in 1880 by late Annada Prasad Chatterjee, the brand name of his brick was 'Daya'¹⁶.

16 From interview with Sri Sudhamay Chatterjee, Anchal Pradhan, Makhla Union Board on 9.1.1982.