CHAPTER - II

HISTORICAL DEVELOPMENT AND GROWTH OF CERAMIC INDUSTRY IN INDIA
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The economic history of pre-dynastic periods through the ages in the world shows that except the ceramic industry, probably there was no other industry which has been of great importance to human civilization right from the human generation to the modern times. Inspite of non availability of chronological and authentic documents on the subject, efforts have been made in this chapter to put up the development of this industry in logical order as far as possible on the basis of evidences available.

Though much is not known about the growth of this craft, yet some evidence give rise to the concept that the ceramic art and craft did not die in India, but remained alive as a village craft since the beginning of human race. The historical development and growth of this industry in India have been traced out from the known historic period which starts with Buddhism.

Growth Period From 600 B.C. to 325 B.C. :

Historians believe that during this period Buddhism and Jainism took birth on the Indian soil. Several references of art and crafts practices at this time have been found in the Buddhist and Jain texts. Eighteen handicrafts had been referred in Jatakas which made a specific mention of the potters. The pottery was traced to be a dignified craft of that time. Villages had certain crafts. “We have mention of villages of potters.” From instances of Jatakas, it is evident that ceramic craft was not only practiced as a hereditary craft but pottery was also traded by princes as a potter with caravan. The architectural ruins of the time also have some instances of bricks which were unburnt and sun-dried. The oldest stupa found up to date is the ruin at Piprawa on Nepal frontier. It was built in bricks and contains an unbearing the inscription of the Sakya period. Kausambi became the center of
Buddhism. Bricks facing ramparts of sixth century B.C. have been found at Kausambi. It shows that the burnt bricks were used in construction of large houses and Mathas during Buddhist period. At Hastanapur a soak pit was excavated which relates to the period about 400 B.C. It was made of superimposed terra-cotta jars and rings. The evidence also depicts that the ceramic craft was practiced in cities as well as in villages. The ceramic craft formed the important part of the industrial economy of the time.

Awara on Chambal river in Madhya Pradesh was in connection with Roman world as indicated by the presence of the fragments of Roman pottery. Terra-cottas with secular themes have been excavated from many city sites. For instance, a terra-cotta from Rajghat depicts spots which were favourite pastime of Nagarakas and royal class viz. Kukutayudha, Elephant circus and Manasta (wrestling). The Gosthis and cultural meetings of Nagarakas and Nayikas are portrayed on a terra-cotta from Kausambi. Besides these secular terracottas, there were large number of unrefined terra-cottas which were devoid of artistic quality and as such they could hardly cater to the aesthetic sensibility of the sophisticated people.

**Growth Period from 325 B.C. to 1200 A.D.**

The articles of this period show the Persian influence with blue and cobalt blue colours and designs. It is most probably due to trade relations with Persia and Mesopotamia. Another cause is that Alexander, the Great, invaded India in 326–325 B.C. It brought Hellenistic and Islamic cultural influence to India. The Persian Blue Art in India on ceramic products must have been the result of this historic invasion. It was known as Blue Art on the ceramic products because of the reason that the blue glaze prepared out of Cobalt and Copper was applied in the form of painting or glaze.

Kauñsika, popularly known as Chanakya, was the prime minister of Chandra Gupta Maurya (321-298 B.C.), the founder of historical Indian
empire. The authentic text of the time, Kautilya’s Arthashashtra contains references with regard to village pottery. A tax on pottery was treated to be at par with Agricultural Tax. Ceramic craft of the period did remain limited to village pottery as hand and wheel made, but it could flourish as an art of sculpture and statue making of clay or pottery body. “Crudely made terra-cotta couples found from various sites such as Taxila, Basara Bhita, Chandraketugarh, Nagarjanakonda, etc. suggested extra-sensuous purpose. There is no dearth of technical skill in these places as is evident from finds of artistic images.

An example of this art is illustrated by W. E. Cox here. “The Lokpal is interesting form. It represents a guardian of one of the quarters of the Buddhist heaven. This figure was originated in Civatic worship of India and spread to Tibet, Turkistan, China and Japan.” These figures also prove that the ceramic products were taken to China, Tibet and Japan by the Buddhist monks from India. Indian ceramic art crossed the borders beyond the roof of the world during Buddhist period. Since India was a seat of Buddhism (618-906 A.D.), Buddhism came strongly to Nanking in 522 – 227 A.D. by sea, the strait of Malacca. The art which represented religion, was not much influenced by that of Gandhara, but rather than that of Maurya dynasty. Some beautiful terra-cotta figurines have been found at Tamluk of Tamralipti in Bengal belonging to the period of 200 B.C. One of them is Panchachuda Goddess and her partner in a plaque. An amorous couple (100-B.C. 100-A.D., in plaque) has been showing the period which is excavated at Ahichhatra in terra-cotta. Another amorous couple in terra-cotta (Now in Mathura Museum, Mathura ) shows the artistic features of the period second and first century B.C.

Chandraketugarh (Bengal) terra-cotta plaques representing orgiastic group, an erotic group and many more other motifs have been found which
go to prove that the ceramic craft of the time was fine. These plaques must have been displayed in drawing rooms by the community. Some terra-cotta plaques belonging to the period 200 – 300 A.D. have been traced at Kausambi and at Awara on Chambal river in Mansaur district of Madhya Pradesh. Several other plaques and terra-cottas have been found belonging to fifth century (Gupta period) which are the artistic remnants. A terra-cotta plate depicting a man astride a female centaur in Shiva temple at Ahichchatra and another terra-cotta head of Shiva at this place have been showing the cherished art and craft of ceramics. A terra-cotta figure of Buddha in meditation (Dhyandudra) and an offering bearer from Mirpukhas (Sind) of Gupta period is unique example.

The glaze and decoration in different colours have probably been influenced by Persian designs and compositions which have been found in the remnants of palaces, fortresses and temples of fifth to eleventh century A.D. These are found dispersed over the Gwalior, Delhi, Chitore and Ujjain. The glazed carvings on the bricks are probably silica alkaline, excessively thin, very adherent and translucent. They are often coloured with bright dark and pale blue, green, violet, brown or orange. During the course of time, Persian style must have spread over Indian states. In excavations of Gaur, a seat of Mohammadan kings of Bengal, specimen of glazed tiles after the persian style are found. In eighth century, when much of the lower Indus territory came within the sphere of influence of Caliphas of Baghdad, being dominated by the Arab invaders, among other crafts, these intruders introduced into this region, the glazed tiles decoration imported from Bablelonian cities and which is still a living art in Multan and other places in its vicinity.
Growth Period from 1200 A.D. to 1850 A.D.:

The second and much later event occurred in first half of twelfth century, the Ghaznevities from Afganistan administered their possessions in Punjab. But all were destroyed by the princes of Ghor in the same century. In this instance, there are definite records as recesses of old Punjab capital and relics of ancient bricks. The most famous brick works and architectural structures of Qutab mosque built by Qutb-din-Aibak (1195-1210 A.D.), mosque at Ajmer known as Ahai-din-ka-Jhompara (1205 A.D.), Fatehpur Sikri and Agra fort (1556-1605 A.D.) are evidences of ceramic art and craft. Some glazed ceramic products have been found in Punjab. These are supposed to be dated the period of Changiz Khan (1206–1227 A.D.) when he invaded India. Some of his army men known to pot making, settled in Pubjab and started glazed pot making as their cottage art. The ornamentation and beauty of the colouring products give them the above dates.

Timur or Tamurlang (1336–1405 A.D.), when he was sixty, sacked Delhi in 1398 which is a historic invasion. It is interesting to know that the Blue Pottery in Persian designs and colours were brought in India by a band of soldiers of Tamurlang. Some of them did not go back to their home land and preferred to settle in Multan (now in Pakistan) and near Delhi. Hyderabad (Sind) owes the art of Glazed pottery to some China men who were induced by one of the Amirs to settle in district and it was from them the Kishigars of Hyderabad claim their descent. Now-a-days, Khurja is the seat of modern ceramic industry in India. The origin of this ceramic art and science of Khurja goes back to 600 years when some of the potters’ families shifted from Delhi to Khurja during the reign of Mohammad Tuglak. They took up making red pottery first. In the course of time, they started to manufacture tiles and minarets with blue glaze. They are still producing blue colour glazed ceramic articles such as flower vases, pitchers, fruit dishes,
bowls etc. The Mugal pottery manufacturing came in India as a result of historic invasions. Later on, one family of these potters shifted to Rampur, Uttar Pradesh where this art is in dying stage.

The blue pottery articles of Khurja are having the base of ordinary red plastic clays, covered with a white engob of white burning china clay. Painting on these articles is mostly done in cobalt blue and copper green. As such these articles are known as blue pottery. It is historical fact that Indian handicrafts were at its climax during Mugal Empire. But it is a matter of chance that the attention of British barbarians was not attracted by Indian ceramic art and craft. This might be because of the reasons that ceramic industry of Staffordshire was already flourishing with modern methods of production and producing cheap and sophisticated articles for home consumption and decorations. Another cause might be lack of taste for Indian ceramic products of the time. Any way this art could escape the monstrous eyes of the British rule and could remain alive at Khurja, Chunar, Nizamabad (U.P.) and Hyderabad in Sind and Multan (now in Pakistan).

Among the various types of ceramic products made in India, during the period of study, a mention may be made of black and silver pottery of Arjungarh in north-west province (now in Pakistan), the painted pottery of Kotah (in Punjab) and Amroha in Rajasthan. The colour earthen wares of an old and primitive type wares manufacturing continued for a very long time at places like Khurja, Chunar, Nizamabad etc. But products of theses centres could differ in many respects. At Chunar, till recently, the wares were baked by potters from the local Alluvial soil of Gangetic deposits, working entirely at their cottages. Merchants could collect the articles from them and give coating of opaque coloured glaze in second firing. Mostly Chunar ceramic products are toys and decorative articles of earthen wares.
Nizamabad products differ from the other two types as it was a purely terra-cotta. Black clay used by the potters at low temperature firing gives shining surface without glaze. These decorative articles were generally engraved on the surface and filled with amalgam of mercury with tin or lead oxide. On firing the carved portion gives shining like enamel colour. Mr. George Bird Wood wrote about the artistic pottery of India – “Truest to the nature in the directness and simplicity of its form and their adaptation to use and purest in art of all its homely and sumptuary handicrafts, is pottery of India.”

Growth of Modern Ceramic Industry in India (1850 to 1947):

The term modernization in all the ages was used to designate every revolt against accepted traditions. Modernisation in industrial development sense means the refinement and technological advancement of arts and crafts of the time. In this way ceramic development in India is taken to be a revolt against the use of red burning clay and ordinary clays for the manufacture of ceramic products. Till middle of the nineteenth century, ceramic industry remained the art of traditional potters but was not practiced by the ceramists as a science of ceramics. The wares were made of river deposits which were naturally impure and unsuitable for high temperature ceramic articles. The discovery of China clay deposits in Rajmahal Hills in Bihar helped the growth of ceramic industry in our country. The first fine earthen wares were produced commercially by Dr. D. C. Majumder in his factory at Gwalior which was established in 1858. It was the first Indian ceramic industry run on modern lines with the use of indigenous clay and other ceramic raw materials. Dr. D. C. Majumder was the pioneer for establishing a modern ceramic factory. He received training in ceramic science in Japan and Europe. After returning from the foreign countries, he started this revolutionary task in our country for the first time. Another first ceramic
factory in Eastern India was started in 1860 at Calcutta by Maharaja Kasim Bazar which is well known as Bengal Potteries now. This concern started production of earthen wares in 1860. In Western India, the first earthen ware factory was established at Thana. Messrs Burn and Co. also established a factory for the production of glazed and vitrified pottery at Raniganj in West Bengal in 1860. A new unit of fire bricks manufacturing was added in 1874 by this company. Later on several ceramic factories have been established in various states of India.

The Basel German Mission might be called the father of the ceramic industry in south India. In 1865 they started first roofing tiles factory in Mangalore and subsequently they multiplied their total number of works at seven locations in West Coast of Malabar.

Stoneware pipes in South India were first made at Always works in 1632. Subsequently Messrs Mysore Stoneware Pipes Ltd. came into the field. The entire requirement of South India was met by these three factories alone. Pickel jars and proof jars were made at Ranipet by Messrs E.I.D. Perry and Co. which was the first to install tunnel kiln in our country. Manufacture of high class ceramic goods in South India received fillip and inspiration following establishment of Government porcelain Factory at Bangalore in 1930 or so. Messrs Standard Pottery Works at Always embarked on the manufacture of sanitary wares such as pans, European closets and wash basins. Messrs Standard bricks and Tiles Co. Ltd. Yelahanka and Messrs Kolar Brick manufacturing Co. started their production before second world war. These all were in organized sector.

**Effect of second world war and inter-war period developments:**

Second world war proved to be a boon to ceramic industry for Uttar Pradesh in particular and for India in general. It gave great impetus to the ceramic industry in our country. It was because of the reasons that a ban was
imposed on the different metals which were used for the production of the metallic utensils. This is why, during second war, the production of ceramic products was geared up to fill up the gap created due to the shortage of metallic wares. To meet the demand of sanitary wares of war hospitals, Government of Uttar Pradesh started modern ceramic unit at Khurja in 1942, under the supervision of Professor H.N. Roy of Benaras Hindu University. When war was over in 1945, this centre was closed due to lack of demand for hospital wares. Government of Uttar Pradesh made a thoughtful consideration for the proper utilization of machinery and other capital goods of this centre. Consequently a separate scheme of common facility centre was brought into operation by the Directorate of Industries, Glass Technology Section, Kanpur, U.P., on a rented building in heart of Khurja city in 1946. Since then Khurja has been developed into a great industrial complex of ceramic industry.

Some of the organized units like the Messrs Standard Brick and Tile Co. Ltd., Yelahanka, Messrs Kolar Brick Manufacturing Co., Mysore, etc. turned to manufacture of other goods such as refractors, stone ware pipes, jars, porcelain and sanitary wares. Although fire bricks of South India were fairly satisfactory but were not upto the standard of heavy duty quality for steel plants and hence fire bricks were imported. During inter-war period (1939-45), the different branches of ceramic industry remained busy with the war work. The raw material needed for the manufacture and transportation of goods and coal supply were controlled for the prosecution of war. Therefore, it was not possible to manufacture the articles for consumption to the appreciable extent.

In 1945, war was over and production was switched over to the peace time work. Between war period the ceramists of India were aware of the fact that they will have to shift to meet peace time demand with great vigour and
energy as it has never ending scope in India with plenty of raw materials. Till then, ceramic industry in India was in infancy. Careful consideration and planning were necessary for improvement in production. Crockery items were not in tradition as was in Japan. Throughout the country, ordinary clay was fired at medium temperature (below 1050°C) and produce was in use. The ceramists and ceramic industrialists for the first time felt the need of porcelain which was replacement to metallic utensils and more economical, sophisticated and neat and clean. At that time in German porcelain articles were replacing metal ones in the kitchen due to metal shortage.

There was a good deal of electric development world being done in the country which created a big demand for the electric goods specially for insulators. Ceramic industry was thus considered to be a key industry for the economic development of the country. At that time there was no unit to manufacture high tension insulators in India. Not only India but every country of the world realised the economic importance of this key industry. Indian manufacturers could also realise the need of manufacturing refractories, heavy duty bricks, salt glazed pipes, sanitary wares, high and low tension insulators and other ceramic goods.

Till 1943, there were 12 ceramic factories in organised sector and none was in unorganized sector in our country. As compared with demand, the total production was low. In 1936-37 and 1937-38, India imported high class pottery ware to the extent of Rs. 46.5 and Rs. 39 lakhs, respectively. Bombay Government set up a demonstration centre at Bassin in district Thana in 1943 to train the potters in the art of glazed pottery.

Effects of Partition of India on Ceramic Industry:

Ceramic industry had a unique feature in its location for a long period of time under modernisation. Modern and organized ceramic factories like other industries of India were located at Calcutta, Gwalior, Bombay, Thana,
Delhi, Madras and Malabar coasts. At the time of partition all the organized factories and important sources of raw materials had been retained by India. The traditional centres e.g. Multan (Punjab) and Hyderabad (Sind) partitioned with Pakistan. But India did not suffer with loss of traditional artisans of this craft as Khurja, Chunar, Nizamabad, Morvi and Thana existed in India. As a result of partition, India was not adversely affected as was the case with Jute and Cotton textiles.

After independence of our country, Indian ceramic industry made significant progress. The industrial policy of 1948 provided freedom to this sector. The most significant development of ceramic industry was made by Uttar Pradesh. The common facility centre was opened at Khurja with objective to provide facilities of processed raw-materials. New technique of production was adopted by the traditional artisans in the manufacture of earthen wares and stone wares. For the first time, ceramic science was introduced amongst the traditional artisans of Khurja during this period.

**Current status of the industry:**

Ceramic Tiles are manufactured in both the large and small scale sectors with wide variance in type, size, quality and standard. The industry is capital intensive in nature. The installed capacity of ceramic tiles in India is estimated to be about 45 million sqm. This capacity is mostly concentrated in Gujarat, Haryana, Rajasthan, Tamil Nadu and Andhra Pradesh, where raw materials are available locally. The small scale sector has had an entirely different basis of direction of growth. It caters to a specific market. This is evident in the fact that the small scale production is confined to a small number of states and locations. At present, the Indian Ceramic Industry is worth Rs. 600 crore, with the unorganised sector accounting approx. 30%.

India accounts for less than 2% of world ceramic tile production (3 billion Sqm/year). In India per capita ceramic tiles consumption per year is
0.05 Sqm compared to 0.25 Sqm. In China. In European countries the per capita consumption of tile is almost 2.0 Sqm per year. Consumption of ceramic tiles in India is limited mainly to urban centres, primarily in the metros such as Bombay, Delhi, Ahmedabad, Calcutta, Madras and Bangalore etc. But the industry needs to reach the rural market, and so it has a long way to go.

Ceramic Tiles industry has grown more that 15% per annum over the last 3 years. There has been a significant growth in the Housing Sector during the past 2 years. This has resulted in increased demand for ceramic tiles. An Industrial Development Bank of India study had projected that the market for ceramic tiles will touch 280 million Sqm. by 2007-08. Ceramic tile demand should grow approx. @ 12% per annum during the coming years.

Factors responsible for increased demand of Ceramic Tile:

1. New construction to meet housing shortage
2. Renovation of old buildings
3. Increase in number of high rise buildings
4. Tourism/Hotel industry growth
5. Use of ceramic tiles as furnishing/construction material in the shops, show rooms, temples, nursing homes etc.

More and more customers are preferring ceramic tiles over mosaic tiles due to large variety and designs available in ceramic tiles. Granite and marble tiles are limited to a small segment of the market. Wall paper/Vinyl flooring are not competing products.

To meet the increasing demand, most of the companies in the organised sector are on an expansion spree. Demand equals supply now, but, in a few years, the industry may have a number of new players.
Raw materials:

China clay, Ball clay, Calcite, Feldspar and Quartz are the major raw materials and minerals used.

The mines producing most of the raw materials are located in Gujarat, Rajasthan, Tamil Nadu and Andhra Pradesh. Not surprisingly more than 50% of the capacity is situated in these three states.

The raw materials which are in short supply, such as Zircon, Quartz, Feldspar should not be permitted to be exported at all in the unprocessed form, at the cost of sacrificing productivity in the country. Because of persisting shortage, the industry should not be taxed to high customs duty. Duty on raw materials for ceramic industry should be reduced to a maximum of 10% - 15%.

Fuel and energy:

Energy is the single largest head of expenditure in the industry. All the steps in the manufacturing process involve good amount of energy consumption. As the green tiles have to heated in the kiln at a temperature of 1000°C to 1200°C to get the final product, maximum energy consumption takes place in the kiln. All the players in the industry use either LDO, Natural Gas, or LPG as a fuel in the kiln. In case Natural Gas or LPG is used as a fuel, the product quality is far superior and K.Cal/Kg of ceramic tile required is lowest.

Some of the companies in the industry use the single fast firing and double fast firing technology while other use conventional double firing. Single fast firing is more fuel efficient compared to double fast firing. Currently, energy cost almost accounts for 30% of the manufacturing cost.

Export market:

The world market of ceramic tile is estimated to be more that Rs. 55,000 crore, where the Italians are the leaders with a share of 24%,
followed by Spain, China and Brazil. The export market for the industry has opened up in recent time. India is exporting ceramic tiles worth Rs. 140 crore.

India has the potential to carve a niche for itself in the export market. Indian tiles are competitive to those produced by Italy and Spain. Indian firms are trying to dump tiles in the foreign market at the rate of $3.00/$3.50 per Sqm. against $6.5/$7 for Italian/Spanish tiles. The Indian Industry has to strengthen itself financially and technologically to be able to conform to an internationally acceptable product quality and pricing on a steady basis.
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