

Rajyog: Long Live the Capital

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ABSTRACT-Patna has always been one of the most important cities through the timeline of India. Through its evolution, the city has gone through several transitions and phases of architecture and planning. The settlement evolved on the bank of the river Ganges around the confluence of the Ganges, the Sone and the Gandak rivers. Through its evolution, the rivers changed their courses. Various rulers ruled or attacked the ancient city effectively changing it. This paper talks about the history, architectural, planning and social aspects of the city Patliputra throughout its evolution. Getting references from the writings of Xuan Zang and Fa Xian along with the Arthashastra by Chanakya and Indika by Megasthenese, this paper reflects the storyline of the city once called Palibothra and is now known as Patna. One of the largest cities of the ancient times, Pataliputra experienced its highest esteem during the Mauryan Empire. The remains of the Ashokan 80 Pillared Hall and The Arogyavihara are still present at Kumhrar in Patna. This paper focuses on the planning and construction of the city in accordance with the natural and social features in and around it. Pataliputra was once the capital of the huge kingdoms. Through ages, it developed and transformed into the present city of Patna. The paper is revolving around the history, architectural, planning and social aspects of city Patliputra.

Keywords: - Patliputra, Capital City, Ganga, Mauryan Empire.

1. Introduction

We humans, since ages have been searching, identifying, studying, analysing and trying to understand the remains of past civilizations. We perform such activities in order to understand the architecture and planning of those settlements, to ultimately know everything about the civilization.

Humans through their evolution had some basic needs for their survival. The most obvious of them are Food, Clothing and Shelter. Humans utilized these elements to create settlements and ultimately evolve into societies. The main components of a society are Culture, Tradition, Form of governance, Geographical location, social organization etc. The component which clarifies the image of a society is the Architecture. With the passage of time, people, culture and every other thing fades away. Architectural evidence remain for long period of time in the form of ruins eroded up to different extents. Using these remains, the present generations can understand and learn all aspects of the past to lead the society to a better future.

While talking about human settlements in India, we come across various phases of development and urbanization. Human settlements in India originated from the Indus-Saraswati Phase. There were urban centres like Harappa, Lothal,

Kalibangan and many more. Later the subcontinent had the Gangetic Phase. This phase had the biggest urban centre of its time in the Gangetic planes: The City of *Pataliputra*.

Patna is the capital city of the Indian state of Bihar. It has a rich history buried underneath the foundations of the present-day city. The city has been extraordinarily important through its timeline. *Pataliputra* was once the capital city of one of the largest empires in the subcontinent. Today it is the capital of one of the most densely populated state. The architecture and planning of the city were at their best at the zenith of Mauryan Empire. *Patna* lies at the southern bank of the river *Ganges* near the confluence of the rivers *Ganges* and *Sone*. The land in and around the city is very fertile. The river helps in the inland waterways' transportation and navigation.

Pataliputra has always been one of the most important urban centres of the central-north-eastern part of the subcontinent. The texts of travellers from China and Greece and Indian intellectuals reveal the evidence about the massiveness and esteem of the city. The city evolved and developed near the confluence of rivers which flooded every year and played characters of changing courses. Evolution of a civilization in such a location was very difficult. Benefits overruled the hazards and humankind

witnessed such a settlement. The forthcoming text will present the architecture and planning and social aspects which went hand in hand with the planning of the city. Also, some mythical and traditional aspects will be discussed in the paper ahead. Much of the information is based upon texts by Chinese travelers *Xuen-Xang (HiuenTsang)* and *Fa-Xian (Fa-Hien)*. Facts and figures are referred from texts of Greek ambassador to *Chandragupta Maurya's* court, *Megasthenese*. Also, references have been taken from '*Arthashastra*' by *Kautilya*.

2. Methodology

Personal site visits were carried out and observations were studied carefully. Various literatures were referred like texts of various Chinese travelers like Xuan Xang and Fa Xian, The book *Indika* by *Megasthenese*, *Arthashastra* by *Kautilya* and many other articles and research Journals. The study of remains of The Mauryan 80 Pillared Hall and the *Dhanwantari's Arogyavihara* at *Kumhrar* in *Patna* is carried out. Site visits and studies are used to create an apparent storyline of the city's existence.

However, we couldn't find out the exact details and layouts of most part of the city and its fortifications. The excavations and research work carried out by authorities is very limited.

3. Historical background

The ancient city of *Pataliputra* was located near the confluence of the river *Sone* and the *Ganges*. In ancient times the river *Sone* had a course parallel to that of the *Ganges* for some distance before merging in the *Ganges*. The long stretch of land between the rivers provided very suitable location for the city to flourish. This site for the city was most probably chosen by *Udayin Bhadra*, the son of *Ajatasatru*. He shifted the capital of *Magadh* from *Rajagriha* to *Pataliputra*. Before the selection of the location as the capital *Pataliputra*, the place was a significant village named *Pataligram*. The village has a number of mythical stories behind its origin and naming. The earliest mention of the place can be found in the *Ramayana*. In *Ramayana*, it is depicted as a place named *Kausambi* with poetical name *Kusumapur* (the city of flowers). *Kalidas* in his writings has called the place with the name *Puspapur*. However, there are some myths about the name of the city. '*Patali*' is a species of Rice and '*Putra*' means son, so perhaps the name was derived from the plant's name. According to

another belief, it was named after '*Patali*', the son of *Raja Sudarshana*. According to *Brahmananda*, *Kusumapur* was built by King *Udasi*, the grandfather of *Nanda* or *Maha Padma* also known as *Maha Bali*. According to some traditional beliefs, the ancient location of the site was at *Phulwari*. *Phulwari* is known to be of same significance as *Kusumapur* (McCrindle J. W.). Through the time, The *Ganges* changed its course and the settlement shifted to *Phulwari*. It has the same location as present-day *Patna*. This fact is supported by the texts of Chinese traveller *Xuan-Xang* and *Fa-Xian*.

During the reign of *Saisunaga*, King *Kalasoka* and *Nanda* kings the city was still the capital of *Magadh*. The *Mauryan* Empire rose around 323 BCE. Under the reign of King *Chandragupta Maurya*, the city became the capital of one of the largest territories in the Indian history. The city was at its full prosperity probably in the *Shunga* and *Gupta* period. The importance of the city fluctuated in this course of time. During the *Pala* period, the city of *Pataliputra* nearly lost its importance. The city again saw a rise during the time of *Sher Shah Suri* in the sixteenth century. According to *Mahaparinibbana-Sutta*, during his final journey from *Nalanda* to *Kushinara*, the *Buddha* reached *Pataligrama* on the south of the *Ganges*. In the *avasathagara* of *Pataligrama*, he met two *Brahmana* ministers of King *Ajatasatru* named *Sunidha* and *Vassakara*. They were in the process of constructing a fort there to win over the *Vajjis* (Gupta, 2019).

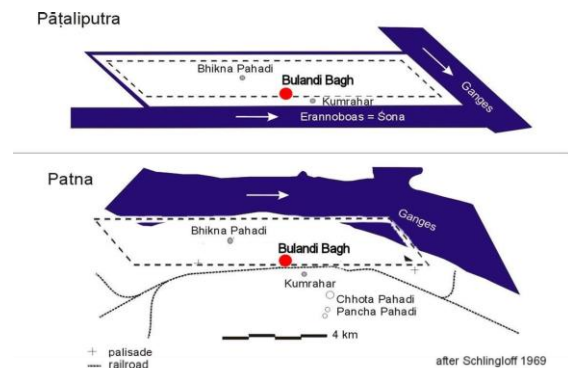


Fig 1: Illustration of expected location of Pataliputra (Schlingloff, 1969)

Pataliputra was situated on the important water and land routes, leading to several important cities of India. A road connected *Pataliputra* with *Mathura* in the west and the port city of *Tamluk (Bengal)* in the east during the *Mauryan* period. *Megasthenes* refers to a royal road which ran from

somewhere near the river Indus to *Palibothra*. The distance between *Palibothra* and the mouth of the River *Ganga* was 638 miles. It matches with *Megasthenes's* estimate of 5000 stadia. Another main road of the city was connected with *Allahabad* and *Benaras* for trade purpose. During the *Mauryan* period, the next road connected *Pataliputra* with *Punjab* and *Delhi*. The Greeks of *Balkh* attacked on *Pataliputra* in 175 AD through this road. The *Yugapurana* states that there was a long road which connected *Pataliputra* through the western part of India. The Greeks under the leadership of *Dimitra* reached *Pataliputra* through the road and captured all the road systems (Kotla).

The city was perhaps divided into several wards. Streets played very important role in connecting these wards and for communications between the inhabitants of different wards. *Megasthenese* gives a description of a procession which he himself saw parading the streets of *Pataliputra*. There were many elephants in the processions during their festivals. They were in the form of train like carriages which were highly decorated with gold and silver. There were numerous carriages drawn by horses and oxen. Then followed a body of attendants dressed very well, holding containers of gold, large basins and goblets tables, cups and containers of Indian copper. They were highly decorated with precious stones like Emerald. Garments were well embroidered, and the fibres used were combined with Gold. Wild animals like buffaloes, panthers, lions, and a variety of birds of variegated plumage were also there.

It is very difficult to estimate the exact population of the city. *Megasthenese* mentioned that the population of the city was around 4 lakhs. Later *Xuan-Xang*, who visited the city in 756 A.D, mentioned to find the city in a ruined state with nearly one thousand houses (Watters). Hundreds of Stupas, Brahmanical temples and monasteries were all in ruined condition. There were few houses present in the North. The Chinese records of 756 AD mentioned that during the time embankment of the *Ganges* or the *Sone* failed. This may be the cause of destruction of the city (Abel Remusat).

4. Architecture and planning

According to *Kautilya* (Chanakya, 300 BCE) , for better understanding of town planning of any city there are few points that are needed to be considered. Some of them are: -

1. Arrangement of different spaces and division of spaces for their proper functioning without interfering in other's functioning.
2. Transportation facilities both inside the city and outside it.
3. Safe, hygienic, sanitary and comfortable housing for meeting requirements of all communities.
4. Other services like schools, gardens, hospitals etc.
5. Adequate water supply and sewage disposal services.

Megasthenese in his book '*Indika*' has described a lot about architecture and planning of *Pataliputra*. It had an area of 42 square kilometres and a population of 4, 00,000 in 300 BCE. It was the "greatest city on earth in its heydays". *Chandragupta Maurya* is known to have very good relations with the Greeks. *Megasthenese* in his writings has addressed the city with the name *Palibothra*. *Buddhist* texts also tell about the importance of this city even before it reached its zenith. It played a very important role in crossing the river while going to *Sravasti* or *Kasi*. *Jaina* literature has also provided a number of references about this city. According to it, the first *Jaina sangiti* (council) was held in this city during the reign of *Chandragupta Maurya*. Their famous teacher *Sthulabhadra* was born and brought up in *Pataliputra* (Megasthenese).

Megasthenese depicts about the division of population into the following seven categories:

1. The first are the philosophers but are the smallest in number.
2. Then comes the husbandmen, the major constituent of the population and mostly the common people.
3. Herdsmen and the hunters
4. The traders and the vendors, this category also includes the people working as labourer.
5. The fighters or the soldiers.
6. The overseers, who were assigned the duty to observe things going on in the kingdom and secretly report to the king.
7. The council members and family members of the king.

Different officers in the state were assigned for various types of works like trade, army, taxes etc. Some worked to measure out land boundaries. Some worked out the path and characteristics of rivers. There was a different group of officers to

look after the network of canals. Few of them were appointed to look after law and order in the state. Some officers were especially appointed to collect taxes from different sections of the society like carpenters, blacksmiths etc. Few officers were assigned the work of construction of roads and other public buildings and spaces (Megasthenese).

Several communities or tribes flourished in the subcontinent especially in the Gangetic plains. 'Modogalingae' resided on a large island in the river Ganga. The 'Andarae' were known to be a more powerful community. They had the control of numerous villages and around thirty towns defended by walls and towers constructed in and around them. Megasthenese talks about many more tribes and their defence strength. The empire we are interested in is the Prasi. They are known to be more powerful and have much more glory than every other people in the subcontinent. They had their capital as 'Palibothra' which was a very large and wealthy city. Their king is known to have a standing army of 600,000 foot-soldiers, 30,000 cavalry, and 9,000 elephants.

The texts of Megasthenese reflects that the Palace of Chandragupta Maurya was very magnificent. Its splendour excelled that of Palaces of Susa and Ecbatana. There are mentions of the city in the Therigatha, the collection of poems by Elder Buddhist Nuns (Megasthenese).

The Chinese traveller Fa-Xian visited India in the 5th century AD. In his pilgrimage texts, he mentions a massive city located at the meeting point of the river Ganges and the river Sone (Erannoboas). According to him, the city was fortified with fortification wall made of wood. The city was well prospering, and he could not find any major damage causing factor. However, the damaging factors might have been working back then (Remusat A.). Another Chinese traveller Xuan-Xang visited the country in the 7th century. According to him there was no such majestic city but only ruins. Perhaps the Ganges or the Sone changed its course causing embankment failure and creating havoc on the city. Xuan-Xang in his texts mentioned that instead of finding a splendid metropolis, he found heaps of ruins. There was an insignificant village consisting of two hundred to three hundred poorly built houses (Watters). The ruins which the traveller talks about presently lie underneath the city of Patna.

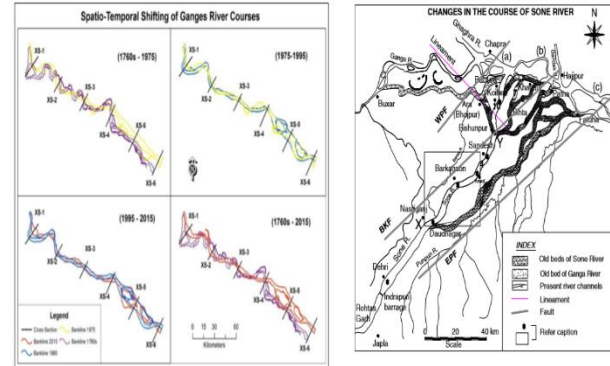


Fig 2: River width of different cross sections
Fig 3: Changes in the course of Sone river in 1760s to 2015 (Nusrat Jahan Ety, 2017)
river (Sudarsan Sahu, 2014)

From figure: - 2 it is observed that, over a time of two centuries, the course of rivers can change up to a huge extent. This can be inferred from the course of the Ganges in 1760s to 2015. This may cause a city located on its bank to get completely destroyed.

According to Megasthenese, the major cause behind the fortification of the city was defence against robbers, natural calamities, wild animals etc. However, there may be other reasons also behind the fortification, like restricting the entry of people in the city. There was a system of identification of citizens of the city.(Megasthenese).

A Palisade surrounded the city. The Palisade is known to have loopholes in it meant for the archers to hide and shoot arrows at the approaching threat. Loopholes prevented them from getting injured or easily spotted. A ditch (can be considered as moat) ran all around the city. It served mainly two purposes: defence and receiving the sewage of the city. The ditch was 600 feet in breadth and 60 feet in depth. The ditch was connected to the water supply from the Sone River. It had sufficient water in it and was navigable.

The fortification around the city had openings in it. The openings functioned as gates. There were 64 gates in the fortification wall. The walls were crowned with 570 beautiful towers. These towers were placed at nearly 220 feet from each other. Both the walls and towers are known to have loopholes for archers to shoot their darts. The placement of these towers was made such that bow men from each tower could shoot up to half the

distance to the next tower. This led to the complete protection of the palisade. There was perhaps a system of identification cards for the people of the city. There was a main gate of the city. The main Gate was protected by an armed contingent known as the *Kiledar*. People at the main gate, needed to show their identification cards. They were granted entry in the city only after successful identification (Megasthenese).

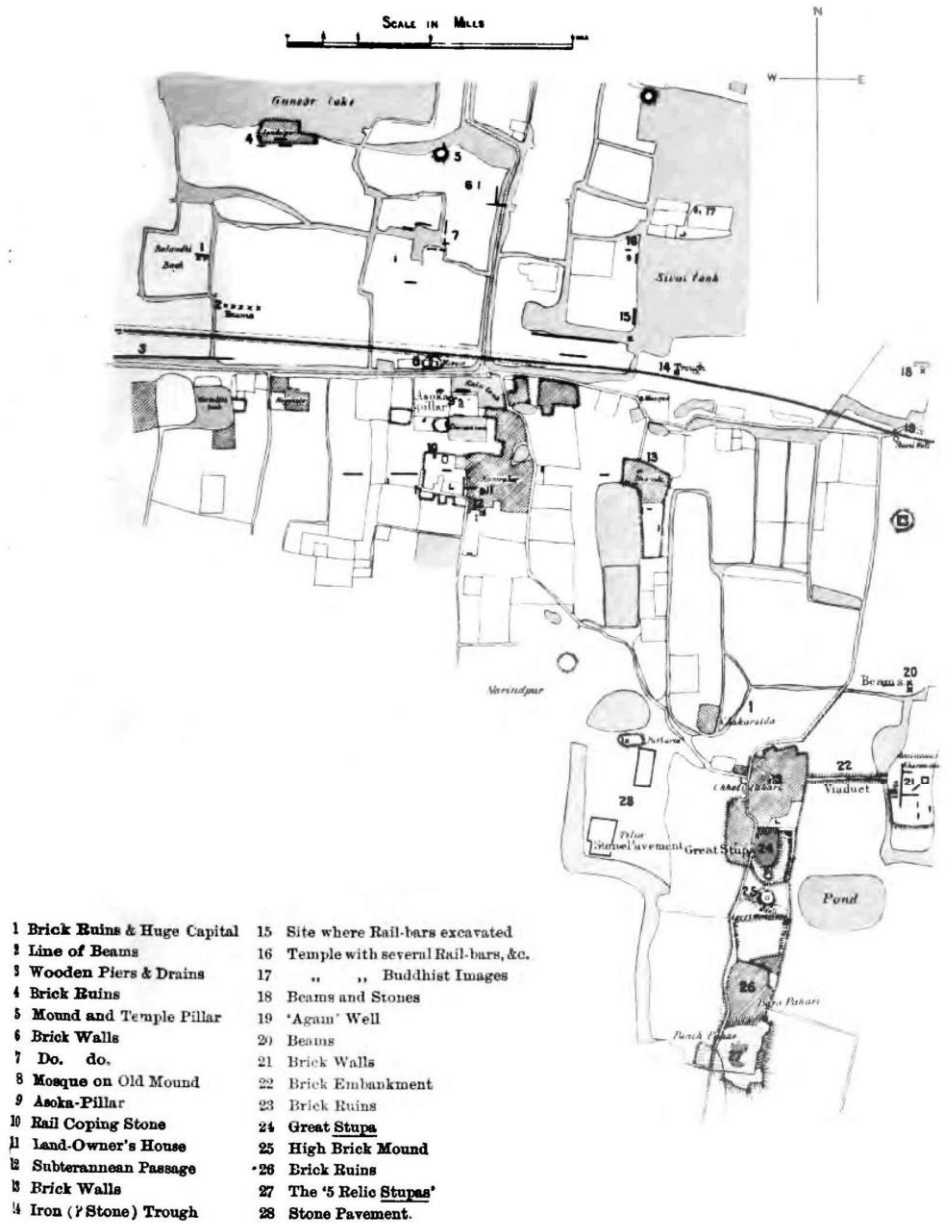
“*Arthashastra*” written by *Chanakya*, reveals much about the social and architectural organization of the city. *Chanakya*, in his writings, has mentioned different ways of construction of forts. He wrote about the methods of constructing forts at the time of danger. According to him, the forts also had ditches around them. There were gates over the ditches. A Chinese officer visited India during 222-280 AD. He wrote about a fortified city which was watered by a network of canals. The river *Ganga* flew beneath the city. His texts also provide references to Palaces in the city (*Shamasas*). The palaces had gilded pillars. Pillars were adorned with golden vines all over them along with silver birds. All the palaces and public spaces had inscriptions and ornamentations sculptured in relief. Important buildings had huge parks and fishponds. The sites were landscaped with a variety of trees and shrubs. The carvings and the sculptures which ornamented the windows of the places were very much attractive. The royal palaces consisted of a large number of bedrooms. These bedrooms were secretly connected with roads for emergency exit. The palaces had all types of spaces in it. They had grain storerooms for storage of food grains and Guest houses for hosting guests. The city also had a public building called the Pleasure Hall. The hall was meant for the people from all class to meet and relax at the place (Chanakya, 300 BCE).

The *Arthashastra* has always been one of the most reliable text for understanding the city of *Pataliputra*. In the text, the term ‘*Vastu*’ is used for built and designed spaces like houses, fields, gardens, lakes, tanks etc (*Shamasas*). *Chanakya* describes methods of construction of houses. The roof of the houses were fastened to the transverse beam with Iron bolts. The beam was known as ‘*Setu*’. Most of these facts are supported by the archaeological evidence. The houses were constructed in conformity to the stability of the *Setu* (Chanakya, 300 BCE).

There was a system of governance which perhaps made a set of rules and regulations for construction of houses. Perhaps there was a body similar to present day Municipal Corporation to look after these issues. According to *Chanakya*, the foundations of the house called ‘*Padebandah*’ were to be laid at a specific distance from some of the surrounding elements. Foundation was to be constructed at a distance of 2 *aratnis* or 3 *padas* from the well of the neighbouring house. All permanent houses were required to have elements like dunghill (*avaskara*) water course (*bhrama*) and a well (*udapanam*). There were temporary structures meant for the confinement of women for around ten days. They were not bound to have the elements mentioned earlier. From each house a watercourse of sufficient slope was constructed. It was at a distance of 3 *padas* or 1 *artanis* from the neighbouring site. Water either flew from it in a continuous line or fell from it into the drain. There was a provision of having an apartment for bipeds and quadrupeds. It was supposed to be at a distance of an *artani* from the wall of a house. Elements like fire-place (*agnishtham*), water butt (*udanjaram*), a corn-mill (*rochanim*) and a mortar (*kuttiaim*) were also present. The city was known to have a cremation place known as *Smasanamupagantumiva*. The intermediate distance between two houses was required to be 3 *padas* or 4 *padas*. The houses had roofs with either a distance of 4 *anguls* between them or one roof covered the other (Chanakya, 300 BCE).

The front door of houses was one ‘*kishku*’ in width. Doors had single or double fold. However, there were no impediments present inside the houses for opening of either the single or double folds of the door. There are single as well as multi-storied houses. The climate of *Pataliputra* was perhaps similar to that we have today in *Patna*: Composite type. People understood the effects of climatic features. The house forms were based on the comfort level. The upper storey of the houses was provided with small and high windows. If another house was obstructed by the window, it must be closed. The houses were to be constructed in any manner the owners liked but it must not harm others in any form. The area received good amount of rainfall and also had wind blowing at a considerable speed. The roofs were covered with thick mats heavy enough that the wind can’t blow them off, ultimately making the composite roof very strong (Chanakya, 300 BCE).

Actual Position of the Ruins.



L. A. WADDELL.

Fig 4: Actual position of the ruins (Waddell, 1903, p. 29).

The citizens were not allowed to have doors or windows of their houses opening towards the king's road or a high way. We find many similarities between the dwellings in *Pataliputra* and *Harappan* civilization. Sometimes a pit, step, watercourse, ladder, dung-hill or any other part of house was placed inappropriately. It caused damage to surroundings or obstructed enjoyment of people. For such cases, the owner of the house was punished as per rules. The water-course or gutter was offered free passage of water. There was a system of having a kitchen room in many houses. It's not very surprising to observe that even today we have systems and conventions similar to those in the city of Ancient *Pataliputra*.

5. Present Status of the demarcated area

Excavation works were carried out by the Archaeological Survey of India only at the demarcated area. Most of the space in the city has been populated and people have constructed buildings. It is impossible to carry out excavations at several places in the city. Even it is known that native people of *Patna* used some materials from the ruins for construction works.

During 1892-99, L.A.Waddell carried out exploration and excavations at various places in *Patna*. Those places included *Bulandibagh*, *Chhoti Pahari*, *Tulsimandi*, *Maharajganj* to the north-east of *Kumrahar*. Also at *Rampur*, *Bahadurpur* and *Prithipur* in the south of *Patna* (Waddell, 1895). At *Bulandibagh*, *Tulsimandi* and *Maharajganj*, Waddell brought to light remains of wooden beams and wooden drains. Beams were of about 18" to 20" in diameter arranged in a double row. He also discovered a colossal capital in Corinthian style. He found a broken Asokan pillar at northeastern corner of *Kumrahar*. In 1897-98, P.C. Mukherji also took up excavations at *Lohanipur* in *Patna*. He came across a ditch extending to 76 m from east to west. He also found punch marked coins, coins of *Chandragupta II* and fragments of polished pillars (Mukherjee, 1898).

Again in 1926-27, the site of *Bulandibagh* was selected for archaeological excavation in order to determine the nature of wooden palisades (ASI, ASI-AR 1926-27, 1927). Here, the palisade of about 250 feet in length running in east-west direction was exposed. Two rows of upright pillars 12 feet in height were placed at a distance of 14 feet 6 inches from one another above the floor. The space between the pillars was paved with wooden sleepers and their ends were

socketed with upright pillars. In 1935, a similar structure was found at *Gosainkhand*, 800 m to the east of *Bulandibagh* (ASI, ASI-AR 1935-36, 1936). The excavations reveals the remains of the famous *Mauryan* 80-Pillared hall. The remains of the *Mauryan* hall were discovered at *kumrahar* in the excavations carried out in 1912-1915 under David Brainard Spooner. He found traces of only 72 pillars. Further in 1951-1955, another phase of excavations were carried out under A. S. Altekar and *Shri Vijaykant Mishra*. These excavations revealed the remains of 8 more pillars of the hall and 4 pillars perhaps of the porch or entrance. The four later discovered pillars were of porch. So the hall is considered as 80 pillared hall only (A. S. Altekar, 1959). The arrangement of pillars were such that there were parallel rows of 10 pillars oriented along East-West direction and 8 pillars along North-South direction. The entrance to the hall was located on the south side. The pillars were placed at regular distance of nearly 4.57 meters. The pillars were made out of Sandstone. The sandstone was quarried from *Chunar* in *Mirzapur* district of present day *Uttar Pradesh*.

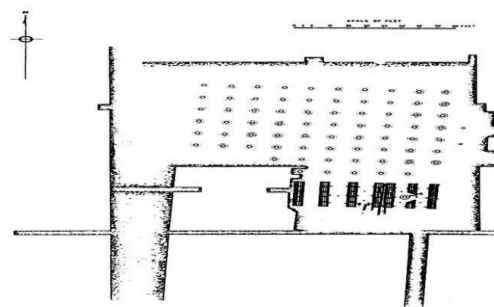


Fig 5: Plan of the *Mauryan* 80 pillared Hall (Spooner D. B., 1912-1913).
Fig 6: Expected plan of the *Arogyavihara* Hall (Spooner D. B., 1912-1913).
At *kumrahar* (Spooner D. B., 1912-1913) .

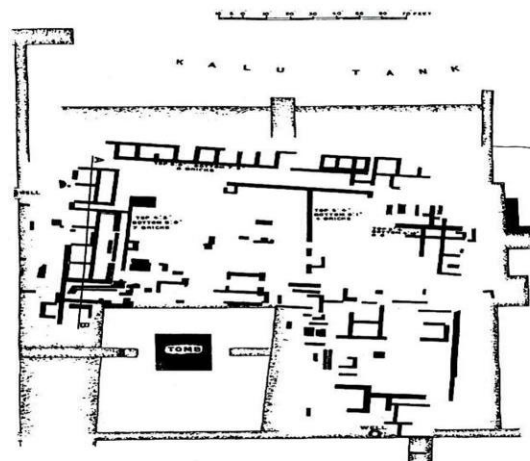




Fig 7: Only remaining pillar of the hall, kept for display at the Kumhrar Park in Patna, the pillar is 6th one from the 3rd row



Fig 8: Wooden platforms just south of the hall, thought to have supported a staircase to the canal (Spooner D. B., 1912-1913).

The pillars were monolithic. They had the typical lustrous shine common in the *Mauryan* Period similar to those found on the gilded pillars of the *Mauryan* palaces. Each pillar had a height of around 9.75 meters out of which 2.74 meters was found to be buried below. The pillars were fixed on square wooden basements. The floor and the roof of the hall were made of wood (A. S. Altekar, 1959). The excavations did not lead to any discovery of wall on the sides of the hall. Perhaps the hall was more like an open pavilion. The major building material at that time was timber. This can be inferred from the hall and the palisade around the city. The ceiling of the hall was also wooden, but it had a covering of brick work and lime plaster. The remains of seven platforms were found near the entrance. The platforms were made of Sal wood. The platforms were basically a support system for a broad wooden staircase of about 30 steps. The staircase descended to a canal like water body connected to the river *Erranoboas* or *Sone*. The canal was 13.10 meter broad and 3.04 meter deep. The seven platforms were under the water of this

canal in the *Mauryan* period. The staircase was used by the visitors who came to the hall by water-based transits (Lala Aditya Narain, 1956). The canal played an important role in transportation of Sandstone for monolithic pillars from the quarry site at *Chunar* along the river *Ganga*. There are many beliefs about the purpose of the hall. The hall might be an Audience Hall or Pleasure Hall. The most acceptable stand is that it was a Conference Hall meant for the third *Buddhist* council. The council was held at *Pataliputra* in 3rd century BC while the ruler was *Ashoka*. It was proposed by the excavators that the hall was destroyed sometime around the early *Sunga* period. This contradicts Spooner's claim of its destruction during late *Gupta* period (Spooner D. B., 1915).

As mentioned, the wood found in excavations was *sal* wood. Due to ageing, the general appearance of the material is not like Sal. It is almost dirty grey in colour now. When split apart, a shade of greyish-brown colour is noticeable in the inner portion of the wood. The wood is free from any attack by insects or fungus. However, the exposed portions show the effect of weathering due to natural causes. The wood probably came from logs but neither from pith nor from periphery. Also, there are no traces of heartwood or sapwood. The chemical and structural properties of the wood was found a lot different than the *sal* wood. Such changes are not only caused due to weathering and ageing. It gives us some idea of the knowledge of the *Mauryan* people regarding the use and properties of timber even according to modern standards. The good state of palisade which remained buried underground for over 20 centuries reflects that all the timber was provided with some preservative treatment (Tripathi, The *Mudraraksasa* of Visakhadatta, 1971).



Fig 9: *Mauryan* remains of wooden palisade at *Bulandi Bagh* site of *Pataliputra* (Spooner D. B., 1912-1913).



Fig 10: Mauryan ruins of 80 pillared hall at Kumrahar site of Pataliputra (ASIEC, 1912).

The excavations in various sites in the city revealed various facts. It unearthed a system of underground wooden drainage system. At *Bulandibagh*, a portion of the drainage was found which was 40 feet in length and crossed the palisade normally. The drainage was 10 feet below the floor level of the palisade and ultimately 32 feet below the present surface level of *Bulandibagh*. We find references to the structure of the drain. The drain was formed of two lines of wooden posts. Posts were ten feet in height. They were framed together by wooden pieces about 8 feet 3 inches in length and 3 feet 6 inches in breadth. To keep the side and bottom planks in position there were stout wooden battens. Battens were each fixed to the posts with two heavy iron nails, about 2 feet long. The joints of the planks were made water-tight with strips of iron, 3 inches wide and fixed with small iron nails to the planks (A. S. Altekar, 1959) (Lala Aditya Narain, 1956).

The water was supplied to the city mainly by channels. However there are also references to wells in the city. A well which was found was 5 feet in diameter and was constructed using special kind of bricks. It was also imperative to construct tanks for water supply to the city. At few locations, gardens were laid around the side of the tanks. In the city, there were findings of the stone foundation of an old terrace. Tanks of

dimpled water very clear like a mirror. The water of the tank was referred as 'The Holy Water'. The water course or gutter offered free passage of water.



Fig 11: Replication of ruins of Aryogyavihara at Kumhrar Park.

The city had all kinds of spaces and buildings. The *Ashoka's* jail was surrounded by high walls and a lofty tower at each corner. The prison had only one gate serving as both entry and exit. The jail also has separate space for carrying out death sentences. Literary texts as well as archaeological reports furnish details regarding roads connecting different cities and about the thoroughfares of the city. The city also had spaces like hospitals and dispensaries which functioned for the treatment of ailing people. These hospitals were generally maintained by the rich philanthropists of the city. These hospitals also might have received assistance from the local public of the city. Perhaps it was mainly for the monastic order. *Fa-Xian* has noted that there were two monasteries at *Pataliputra* in 410 AD. One of which was the '*Aryogyavihara*' of the *Vaidya Dhanwantari*. The remains of the *Aryogyavihara* were found, much below the surface at *Kumhrar* in *Patna*. Presently we can find a replication of the ruins on the ground surface at *Kumhrar* Park. It consists of brick works clearly illustrating the built spaces of the *Aryogyavihara* (McCrinkle J., 1877).

CONCLUSION

The article revolves around the history, architectural, planning and social aspects of the ancient city of *Pataliputra*. It was the capital of the largest empire of the Indian subcontinent, The *Mauryan* Empire. The city was an element of interest for travellers and intellectuals from all around the world. The most important ones being *Meghasthenese*, the Greek ambassador to *Chandragupta Maurya's* court, Chinese travelers *Xuan-Xang (Huien Tsang)* and *Fa Xian (Fa Hian)*, and *Chanakya*. It was located at the confluence of the *Ganges* and the *Sone*. The city was fortified with wooden palisade which had 570 towers and 64 gates. Also a ditch ran around the palisade

water-fed by the *Sone* River. It was used for both navigation and sewage receiving. Planning of the city was based on *vastu shashtra*. There were certain laws made by the administration. The houses had different types of spaces and components whose position were fixed by the law. Even house construction methods were prescribed by the administration. There was punishment for those violating those laws. Palaces were built with stones and timber. They had high ornamentation using gold and silver and the palaces were very magnificent. Archaeological surveys show the presence of an 80 pillared hall and a hospital cum monastery named *Dhanvantari's Aryogyavihara*. Though the remains of the city lie underneath the present-day city of *Patna* but many excavations were not possible to be carried out. Also, materials found in the remains was used by the local people for construction purposes. The river *Sone* has always been notorious in changing courses. The city was perhaps destroyed by the change of course of the river *Sone* or the *Ganges*. This fact is supported as *Fa Hien* found a magnificent city while after nearly two centuries *Xuan-Xang* found nothing but ruins. The location of the city in the fertile Gangetic planes at such confluence gave it a boost and turned it into one of the most important urban centres of *Indian* History.

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