

History of Architecture and Culture – 5

Lecture - 7

Industrial Revolution – 1

Industrial revolution actually began in Britain the 18th century. Industrial revolution changed the scenario of production lifestyle and architecture. Why it changed production why it changed lifestyle and why didn't eventually change architecture. Let us see step by step previously all goods and everything manufactured at home. They were very very small industries home based industries they were carpenter who doing things in their own homes. They were potter making pot in their own homes. They were weavers who were weaving sell and garments in their own homes. They were people who were crafting furniture and other thing in their own places.

This idea of people making products and goods in their own homes change dramatically to people manufacturing things in a factory set. People started mass producing in it. Instead of making one good at particular time peoples are making three goods threes of such product at same time. His speed of production increased drastically people use to take lot of time making things each and every single stuffs but people started doing in a very quick manner after industrial revolution. Previously all works use to be very laborious because everything need to be done by hand everything needs to be precise and there is not lot of people doing it. And people tends to take lot of time to do it which made the product all them expensive. When industrial revolution came in things became cheap because you are able to produce three goods produce at same time when you are able to produce one. So your production instead of producing one item able to produce three items which means when you are going to sell one item to be shared along three item. Which means they are giving the benefits of industrial revolution to end user.

Made the product cheaper and further easy to make product after industrial revolution because previously it require lot of hard work and laborer work by the craftsman the labors. And this became easy after industrial revolution what use to be done by hand. People started inventing machine for everything. For each and every crafting tool for each and every single handmade thing that used to happen they were machine develop for that. They were machine to do spinning of cotton making yarn. They were machine which could make yarn into textile. They were machine that could net fabric they were stared machines. They could pull loads started machine that could move thing motor power. They devised machine that could show seeds into the grounds. The design machine that could plow the feeds. They were made machines that could change way they lived.

Mass transportation was very very easy after the production of machines when all these was happening they were another very important thing happen that parallel. People started to move from rural area to urban areas. Mass migration people from rural area to urban areas. Because factory's offered jobs offered life in the cities People started to move from rural area to urban areas. But why did they really move from rural area to urban areas what happen to the rural area that is what we need to look at. Previously in Britain until the industrial revolution came into existences. 75% of people were agrarian people which means agriculture was the major source of income for more than 75% of British population. This was the source of livelihood slowly what happened during the farmer's free time.

They were not producing for the entire twelve month periods in a year. So which over months they got free or which over weeks they got free. They stared working parallel Para agricultural thing like weaving textile making and other sorts of cottage industries. So four or five farmers join together stared a cottage industry. They stared producing things on own they stared producing textiles quality textiles at a reasonable price.

Whatever the price they could get the textile good enough because whatever that they doing apart from agriculture. Whatever free time they get after agriculture their time investing to making textiles. So which means even if they get bare minimum profit it still profitable for them. This making an additional profit boosted the economy this act eventually pay the way for the country.

It actually prepared the country to the industrial revolution. Which further added to the economy boom of the country. But this was the major basic thing which started in the industrial revolution. So let us look at what happen to the cities parallelly when all the agricultural things were being done they were cottage industry are develop and people got free time invested some time in cottage industries economics boomed. When economics boomed they were lot of people who were having lot of money and they became wealthy. So after seeing the success of cottage industries people wanted to develop those cottage industries into further scale which means cottage industries were converted into small scale factory's and industries. And small scale factories tended to became large scale factories.

When five or ten farmers are able to join together to form a cottage industries. Fifty or hundred farmers together form a factory. That is all there in the mind set. So what happened is people started buildings industry and factories? Factories and industry building it's not an individual thing in itself. Because architectural factory is not an independent identity. Factory has culmination of lot of entity such as you need a places to store your raw materials you need a places to store finished goods. Before you dispatched out you need a place to store all the goods stock yard. You need a place for all the workers to stay. So the worker quarter came into the existence. Then they were the warehouses they were shelter houses they were lunch halls.

People need to certain enjoy relaxation halls. So this setup slowly started expanding and they were not just one or two factories they were large

number of factories came into existence. And most of the factories came into existence along river line and along sea ports. Because transportation was easy along the river people can transport finished goods. People can transport raw materials easily and if you are next to a port you can always ship it to the rest of the continent. So people started developing started industrial revolution along river just like civilization. So they were large amount of factory and industries coming people were building stock yards. Good stock workers quarter was there lot of workers were employed lot of employees. They were warehouses shelter house lunch halls being built.

Now there were large no of people who are working for the factories people need houses. So people apart from factories people also started built in houses and their work ethic was little awkward because they working for more than 14 to 16 hours per day minimum. So the health need to be taken care of they built hospitals and nursing homes. Their children wanted education so they built schools their children wanted higher education they built colleges. People wanted to buy things People wanted to own things shopping malls arcades markets. People wanted to invest money people wanted to transact the banks. Civics spaces started to develop. They were common spaces like roads pavement sidewalks parks and other places. This spaces to be maintain so there was a town hall which has civic body elected people who good actually maintain all these things. They were concert halls for entertainment library for gaining more knowledge office spaces so they were all kinds of building that started to develop the after industrial revolution. When they were only primarily agricultural environment and all the agricultural buildings were just mills and other stocks yards. People started building factory one typology of building called factory. Great many typology of building later hospitals schools college's banks offices concert halls music. They were wide range of building its one simple thing called industrial revolution.

So which is not simple after all.

Industrial Revolution II

This is the picture of mine coal mine were people used to mining coal. Coal is very important because coal is something which be used as fuel. And fuel was very important to create a fire. Fire is the basic for smelting iron making moving pens that is one of the most important things that particular period of time. So motors power was the most sort for thing so the people started mining coal deep under the ground. Coal mine was situated deep underground. So after getting the coal people transport the coal to above ground. How they do that previously they used to carry the coal which was very hard one person should carry only like small basket and often people got very tired of doing it. And it is very slow process. So then rails were built then tracks were laid then you put and you load cards with coal. Push the car you have one person pull big cart and it not exactly lifting which was pushing cart along rail which means you can push large amount of load and you actually carry. So one person could actually move large amount of coal when that given point of time.

Which means productivity increase manifold and people less tired after the work which mean they could extent their work hour. For more profit which meant again more profit the person who one in the process one in the industry. And again more coal was produced more economy generation. So everything started became everything started increase. So let see what happened else that point of time. The steam engine was invented railway affected social life enormously. Because the one typology factories created so many building. There is another typology called another invention called railways. And railways spend great many types of things because railways tacks to be laid. They made rails made engines coaches compartment and very required railway stations. And railway station need stock to be a water and another things.

We need rail way hotels because people travelling from long distance eat something's. Other toilet facilities and boarding lodging facilities clerk room station offices ticket counters goods yards goods booking counter parcel booking counter. It wants a great many number of spaces within railway station themselves. Railway station is one of the busiest spot of the industrial revolution. Urbanization of English population were speak between 1750 and 1830 in this six or seven decades. Population of major cities increased by more than fifty percent each decade. So which mean every past ten years population was going to become hundred fifty percent of what it is previous decay. So that was the rate of the growth of many cities like Manchester's like London and other cities.

The English population were able to mechanize very very early because of three important things. They had education they had modern work attitude they had modern thinking government. Education people need to be aware of what is going on the world people need to be aware of the invention that are being happen. People need to understand what can be done so. People need to be aware so education is one of the important things. Modern work attitude is something were previously the work attitude was every man work him for itself or he work for the king, so other do my work I sell my own products at some rate or is serve somebody get paid for it. This kind of thing completely change during the industrial revolution because modern work attitudes came.

Which means that I can go to place do work for morning to evening and get paid end of the week or end of the month. So I am not owner of own thing not going to serve actually. Actually work for something for which I getting paid which means I offer a service and I am gain paid in return. This was the modern work attitude which developed in Britain. So they were not owing the business. They neither own the business not they serve someone. They just made a living so this was work modern attitude which was develop in Britain. And also they had a modern government because in ancient days.

The kings rule the entire thing so the modern government means. They elected people from circle whom elected by people and these people well again do well for the public. So they were lot of things public were need to be taken care of city hall city administration. Public cleaning hygiene education lot of things that needs to be concerned with. So the modern government paved way for understanding all these requirements rather than simply becoming a rich or simply not caring for it or simply by extending the border of the country. They simply didn't do that they started developing country really different manner. This was the role of the modern government.

Let us take a look at quickly the different favorable condition when industrial revolution can happen you need modern work attitude you need education. First of all you need a product which you can sell and you need transportation means because the product to reach one place that is place of manufacture to the consumer. Because you need to transport roads you need a large market if you don't have a market there is no reason to mass produce in a thing. You need a modern government and most important of all you need a money to start anything. So out of these favorable condition so let see what all England had. England started modern work attitude yes England had education. England had lot of products that they manufacture because agriculture was one of main products that they manufacturing. After agriculture cotton textile and all other things which got from the secondary product of agriculture started developing. Next thing they wanted was transportation of the product. Transportation is something which they actually didn't have but realize that they need transportation so they started developing transportation. Large market yes they were large market potentially because people needs good one and most important thing was had money to buy things. Because people had lot of free time after agriculture and they started making cottage industry like I mentioned earlier.

So the cottage industry earn the extra money they were having the extra money which they invest on product in the factory produce. So and they have the modern government most importantly they were lot money flow in England that point of time. Because the rise of cottage industries.

Agricultural Revolution

Let us take a look at agriculture revolution because that is first think that change the whole way in which we look at industrial revolution. Drastic changes in the forming process itself. Forming process got spread out. People started sharing forms people started sharing resources and open field system they were people could use the resources in the machineries together. People they invented the crop rotation. Crop rotation was one of the important aspects to retain the soil nutrients and its cycle.

Because they use to put different type of crop in different parts of the year which means if rice grown from one between certain months and the rest are free you can put different crop which grown in particular month. Which made people are produce more than two crops in a one financial year and that is one additional advantage. Because people produce more crop no one and soil nutrient content was constantly recharge because if you keep producing only one kind of crop. Only one type of nutrient get absorbed all the other kind of nutrient get settled in the soil which is of no use actually. So different crops are absorbed and different kind of nutrient which means the soil is getting generated and there is balance maintain. So crop rotation is very important that was invented during in an agricultural revolution. So this is the concept which got revolution. Let see what made the revolution people invented machines which can do people works at very quick times.

So Jethro Tull one person who invented two important things. He made the seed drill and he made the horse hoe. Seed drill is a machine which drills hole in the ground and place the seed inside. So you don't have manually drill hole in place a seed inside. The machine automatically does it for you. So all you have to take a machine press it one side of

thing is done. So in this machine here you place the seeds in little container here. And it passes through this machine into this tube and there is a thing which make a hole first and then seed drop from this thing. Using this little thing over here people rotate it one certain batch of seeds fall through the ground. First this thing system here in which actually punch a hole in a ground and then seeds will dropped to this thing. So the seed drill and horse hoe change the whole way in which we form. So entire output of Britain increase three hundred half time.

And people started producing more productive forms and it had lesser workloads for the people who are working in it. Which mean there is a men require to work in the field lot of people in that agricultural area rural area who were jobless. Which meant they have to move city in such a jobs. So these people moved into city takes a job in the factory's and factory started developing. Then take look at textile revolution textile also have a variety of revolution because that was the one of the para agricultural industries. In 1733 the flying shuttle was different kind of loom which makes weaving faster that was developed.

In 1742 cotton mills were setup along Manchester and London. In 1764 James Hargreaves invented the spinning jenny which made weaving really faster and 1764 same year water frame was invented the power of water use to power the machines instead of doing it by hand. And 1790 steam powered mills steam powered cotton jenny was invented. In 1779 the Crompton's mule was invented by Crompton because it was machine that had both spinning jenny and the water frame built in the same machine. So Crompton mule was invented it's increased the productivity manifolds.

Let's take a look an effect on transportation people started in doing improvement to roads and bridges because there was one of primarily modes of transport from one city to another city. Roads Rivers carried the products. People started building canals because rivers always for if not available canal were built. Railroads were started to develop. Steam

powered wooden ships were in the process of manufacturing in the late 18th century. So that change people started doing marketing. People started transporting things one place to other relative from faster phase. Because otherwise month to travel one place to another which steam powered wooden ship people use can travel really fast. This put an end to ancient sailboats which lot of time Trans travel to one place to another.

In early 1800 John McAdam a person made a roadbed of large crushed stones in the bottom smooth layer of crushed stones. In the bottom layer is bigger stone the top layer have smooth stones. So when you travel along it stone being get settle and form almost a horizontal flat surface. So this McAdam road is still the basis for modern highways still even today. Sometime that was invented more than 250 years ago still the basis of most of our modern high ways. In 1807 Robert Fulton used steam power to create the first steamboat. In 1825 Stephenson used the steam engine to create a steam powered train. With this steam powered train the things change dramatically. In 1886 the German scientist Gottlieb Daimler built the first internal combustion engine. So with the internal combustion engine you can pour fuel into it. You can add fuel with engine that can produce energy of its own it was the part. In 1903 Wilbur and Orville Wright successfully flew their flying machines called Wright Flyer at Kitty Hawk North Carolina.

Things started developing basically from normal roads and bridges people started making steam boats people started making steam engines. Then internal combustion engine flying machines to modern airplanes. Everything started developing in 100 years.

Industrial revolution shift from the agricultural societies to modern industrial societies. The population relocated the availability of a greater variety of material goods were available for the people to they had wide variety of choices. Economic improvement in industrial societies. Greater prosperity and improved health for all citizen because people

were doing lot of faster things better things and people were sell it to better prices. Drastic dramatic population growth. And the very important thing is transition from muscle power to machine power. People started using depending on machine for lot of things that change the way people started making things.