



## ENHANCING DEFENSE STRATEGY THROUGH SHAPE –GEO - POLITICAL STAR SHAPED FORTRESS -WITH SPECIAL REFERENCE TO TIPU SULTAN'S FORTIFICATIONS

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### **Abstract**

*This paper addresses the issues behind the innovation of star shape in fort building. This French idea entered India through trade routes & settled in coastal region. With the change in battle styles & techniques, the older traditional method of round shaped forts were felt as susceptible & vulnerable. Star shaped forts became popular in Europe after the introduction of gun powder & cannons in battles during 15<sup>th</sup> & 16<sup>th</sup> centuries. A star-shaped fort based on the designs of famous defense engineers such as Vauban, Carillon was intended to control the prevent British access to it coastal region was employed by Tipusultan which consequated in the building of a fort in Manjarabad in Karnataka. Which featured strong defenses on its land side with included walls that were seven feet high and fourteen feet thick as well as an extensive glacis and dry moat around. Thus a star shaped fortress was a change over from a passive model of defense to an active one the patterns reflected a revival trend just like renaissance in Europe which ushered in a new era in literature & culture.*

**Key words:** Armory, Defense, Fortress, Star shape, Technological innovation

### **Introduction**

Fortifications are defense structures or buildings designed for the defense of territories in warfare, and also used to solidify rule in a region during peace time. From very early history to modern times, walls have been a necessity for cities to survive in an ever changing world of invasion and conquest. The term is derived from the Latin word *fortis* meaning strong. (Duffy, C. 1975).

Medieval-style fortifications were largely made obsolete by the arrival of cannons on the 14th century battlefield. Fortifications in the age of black powder evolved into much lower structures with greater use of ditches and earth ramparts

that would absorb and disperse the energy of cannon fire. Walls exposed to direct cannon fire were very vulnerable, so were sunk into ditches fronted by earth slopes. This placed a heavy emphasis on the geometry of the fortification to allow defensive cannonry interlocking fields of fire to cover all approaches to the lower and thus more vulnerable walls. ( Campbell, Richard Hamilton. Tippoo Sultan: The fall of Srirangapattana and the restoration of the Hindu raj)

In Indian context forts were indispensable ever since Vedic times. Some settlements in the Indus Valley Civilization were the first cities to be fortified. There were a sequential



transformation in building forts & its shape along with the changes in survival strategy for human habitation. With the technological innovation and march of human beings towards modernity forts also became contemporary with alterations in shape size & design. Modification from round shape to perpendicular shape to star shape to pentagonal shape, forts have come a long way. The forts which once housed all the inhabitants inside became an integral part of a human habitation emerging as a separate structural design encompassing complex patterns bastions, moats & culverts. Later they took the manufactories & armories & became an vital part of defense strategy. Kings took special interest in structuring forts as they felt the significance of forts was vital to their existence. The coastal areas became accessible to foreign powers & hence forts were built in an elevated expanse with all round visibility & vigilance. Across the world forts have been used as a very important tool of defense. There have been various theories regarding the origin of forts as a defense tool.

With the transformation in the battle styles & techniques, the older traditional method of round shaped forts were felt as susceptible & vulnerable. Star shaped forts became popular in Europe after the introduction of gun powder & cannons in battles during 15<sup>th</sup> & 16<sup>th</sup> centuries. As the traditional ring shaped forts became more vulnerable with the changed battle styles rulers felt the need of additional defensive fortification strategy. (Duffy, C. 1975)

### **The Vauban Style**

A star-shaped fort based on the designs of famous defense French engineers such as Vauban, Carillon was intended to control & prevent British access to its coastal region was employed by Tipusultan which consequated in the building of a fort in Manjarabad in Karnataka. This type of fortification featured strong defenses on its land side with integrated walls that were seven feet high and fourteen feet thick as well as an extensive glacis and dry moat around.

### **The Cost Factor**

The need to move out of traditional fort models was also necessitated by cost factor As such, they were often improvised from earlier defenses. The curtain walls which were chief characteristic of medieval times was torn down, and a deep ditch was dug in front of them.

The earth used from the excavation was piled behind the walls to create a solid structure. While purpose-built fortifications would often have a brick fascia because of the material's ability to absorb the shock of artillery fire, many improvised defenses cut costs by leaving this stage out and instead opted for more earth. Improvisation could also consist of lowering medieval round towers and infilling them with earth to strengthen the structures. (Habib Irfan- State and Diplomacy Under Tipu Sultan: Documents and Essays)

### **The Background**

**During** 18th-century the defense of a fort relied heavily on "bastions,"



angular projections from the walls that provided broad and stable platforms for the defenders and their strong weaponry. Bastions were placed at corners of a fortified enclosure and laid out so that the fire of the defenders could cover all parts of the building walls and adjacent bastions to prevent attackers from finding shelter or making a lodgment in the defenses. Full bastions consisted of two flanks or sides and two faces, which, with the side open to the fort, formed a pentagonal structure. The number and design of bastions varied according to the shape and size of the enclosure to be protected. Most forts had two to five, while fortified towns had as many as needed. A star-shaped fort based on the designs of Vauban, Carillon was intended to control the southern part of the lake and prevent British access to its waters. As a result, it featured strong defenses on its land side which included walls that were seven feet high and fourteen feet thick as well as extensive an extensive glacis and dry moat.

### **The Highlights of Star Shaped Fort**

In the traditional round & Perpendicular fort system walls were easily accessible to enemies besides defenders could not shoot at them from nearby walls as the fort building was round from bottom to top. The enemy forces could crash into the front gates effortlessly. This vulnerability & defenselessness made defenders to think innovatively & changing the shape of the fortress was the consequence of such a novel thinking in incorporation of a star shape. (Duffy, C. 1975)

### **The French Example**

Star shaped fort construction started in France & later spread to Italy & later to Europe. This new variety was envisaged as a cautious & vigilant step towards containing formidable enemies. The star fortress was a very flat structure. It could accommodate huge space inside for holding armory & manufactories. It composed of many triangular bastions, specifically designed to cover each other, and a ditch surrounding the whole fort building was an added defense strategy. In order to counteract the cannonballs, defensive walls were made subordinating lower and substantially thicker. To counteract the fact that lower walls were easier to climb, the ditch was widened so that attacking infantry was still exposed to fire from a higher elevation for a while, including enfilading fire from the bastions.

1. The outer side of the ditch was usually provided with a glacis to deflect cannonballs aimed at the lower part of the main wall. Star shaped forts had more discernible advantages.
2. They could be enhanced to create complex outer works & to further protect the main wall from artillery, and sometimes provide additional defensive positions.
3. They could be widened at stellar points. Star fortifications were further developed in the late fifteenth and early sixteenth centuries primarily in response to French battles.



4. Italian engineers were heavily in demand throughout Europe to help build the new fortifications. ( Duffy, C. -Siege Warfare: The Fortress in the Early Modern World 1494-1660 )
5. These forts were usually placed on hills because the cannons could be best utilized as the height of the fortress helped in sounding alerts , blowing trumpets, alarming the defense troupes , lighting the field guns ,throwing the arrows etc. (Habib, Irfan- State and Diplomacy Under Tipu Sultan: Documents and Essays)

The enemies' anticipation to crash into the gate or climb over the wall and overrun the defenders were very hard in this shaped fort. For the invading force, these fortifications proved quite difficult to overcome, and accordingly, this type of fortresses occupied a key position in warfare. Fort walls could be embedded into ditches cemented by mud / clay stone slopes so that they could not be destroyed by disparaging fires. The walls were topped by earthen banks to absorb and largely dissipated the energy in case of a fire break out or as an emergency exit gateway for fire. (Duffy, C. -Siege Warfare: The Fortress in the Early Modern World 1494-1660 )

### Shortcomings

Even though there were very strong point in moving over to Star shape there were several loopholes also.

1. Fortifications of this type continued to be effective only for a cannon employed battle.
2. Often widening and deepening the ditch outside the fort walls to create a more effective barrier to frontal assault became inevitability.
3. Regular vigil over interior motes & bastion was a huge requirement as the fortress even served as an armory.

### Conclusion

Thus a star shaped fortress was a change over from a passive model of defense to an active one the patterns reflected a revival trend just like renaissance in Europe which ushered in a new era in literature & culture. The consistency in incorporation of innovative ideas in fortification reflected his involvement in management of his military projects. His defensive architectural style also bears witness to the rationality of his thought processes and his constant preoccupation with aesthetics and the expression of the magnificence of royal power. The geopolitical role the fortress had to play in a high voltage battle with the mighty British was anticipated by him. Hence he chose the location with dexterity. The strategic significance of the location, its altitude, its surroundings .its boundary lines , its peripheral borders, Its precincts etc was prophesized by him which lead to its becoming one of the inaccessible forts surviving even today .

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