

## INNOVATIVE DEFENCE MANAGEMENT BY TIPU SULTAN

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### ABSTRACT

*Tipu Sultan had strongly resisted the British colonialism and never submitted himself to the paramount of foreign powers. Tipu had displayed sound martial qualities and brought about structural and operational changes in military administration. Tipu endeavored likewise to create a disciplined army in the European manner, recruiting mercenaries of diverse origins. Tipu Sultan continued his determined resistance to British colonialism and equipped his army with modern arms and ammunitions during 1797-1798. The real strength of Tipu's fire-arms was his rockets and missiles, which had created a lot of fear psychosis in the enemy's camp. Tipu had developed modern ship building industry and built a good number of ships by using the local resources. Tipu had achieved remarkable progress in building a modern army, manufacturing modern weapons and giving economic development priority among other forward-looking measures. Tipu was far ahead of other Indian rulers in the development of strong and stable defense system against European colonial forces.*

**KEYWORDS:** *British Colonialism and Never Submitted Himself, European Manner, Recruiting Mercenaries*

### INTRODUCTION

#### Preamble

Tipu Sultan had strongly resisted the British colonialism and never submitted himself to the paramount of foreign powers. He had accorded high priority for the improvement of military power and protection of the interest of Mysore state. He had faced the toughest challenge from the swiftness, smartness, strategy and discipline of the well equipped and well led European army. He was guided by the patriotic fervor and sense of nationalism and strengthened the defense system in the 18th century. He fought with the fierceness of a tiger and the tenacity of a statesman to protect the dignity and sovereignty of India. He was far ahead of his times and built a strong defense system in Mysore state. Tipu Sultan was most feared in the British administration in India since he was considered as a formidable threat to them. Haider Ali was a great warrior, who consolidated the power and expanded the Mysore state in South India. He also proved his military as well as diplomatic superiority over the fellow rulers like Nizam and the Marathas. He also inflicted defeats after defeats upon the British forces on the basis of superior military power, tactics and effectiveness. Tipu Sultan sustained the adventurism of his father and modernized the army on the basis of international cooperation and support. The innovative defence management and development endeavors of Tipu Sultan are primarily examined in this article on the basis of

qualitative research methodology.

### **Military Initiatives**

Tipu had sent ambassadors to Constantinople to seek military assistance and technicians to equip his army against the British and other local adversaries in 1785. Tipu Sultan was fully aware of the true intentions of the European colonial forces that were bent upon crushing the independence of Indian rulers. Tipu had never encouraged any kind of internal conflicts.

It is obvious from the historical documents that Tipu's novel fleet was developed since 1787. Tipu Sultan had modernized the administration and introduced structural changes in defense management. Tipu Sultan did retain a number of Frenchmen as officers in his army, however, particularly as technical experts for use in artillery and fortification design (Bristow, 1792).<sup>1</sup>

He had set a new Marine Board consisting of 'Mir Yuminus' (Marine Lords) in 1796. He developed Mangalore, Bhatkal, Coondapur and Tadadi as important naval centers. Marshall described Tipu's army as 'the most potent and professionalized Indian army of the century' (Marshall, 2003).<sup>2</sup>

Tipu had managed the defense system on the basis of sound ethical considerations. The Decrees of 1783, 1785 and 1787 carried the instruction to his militia: "Looting a conquered enemy enriches a few, impoverishes the nation and dishonors the entire army. Wars must be linked to battlefields. Do not carry them to innocent civilians. Honor their women, respect their religion, and protect their children and the infirm". Tipu had approached the 'Darogha' at Muscat on January 12, 1786 to dispatch expert shipbuilders to the Mysore state and established naval centres.

### **Military Ethics**

Tipu's code of 'Law and Conduct' of 1787 stated: "To quarrel with our subjects is to go to war with ourselves. They are our shield and our buckles; and it is they who furnish us with all things. Reserve the hostile strength of our empire exclusively for its foreign enemies". Tipu had the zeal for making innovations and improvements in the management of defense. He had reorganized the armed forces and established the Board of Admiralty. He had built up a strong navy and adopted the guerilla warfare tactics. He had displayed sound martial qualities and brought about structural and operational changes in military administration.

Tippoo is the only prince who has persevered in disciplining and arranging his army after a regular plan. In this respect he is perfectly unprejudiced and ready to adopt any change which may serve for the improvement of his troops (Macleod, 1794).<sup>3</sup> The same source testified to Tipu's successful retention of the western standards of discipline and deployment of fire arms by the infantry, elements that had been introduced in the Mysore army by Haider. He had succeeded in obtaining the services of French artisans and workmen from the French emperor (Buchanan, 1807).<sup>4</sup> Tipu would have contributed immensely for the defence and development of Mysore state had the British not intervened.

<sup>1</sup> . Bristow, James (1792) Narrative of the Sufferings of James Bristow, London, UK.

<sup>2</sup> . Marshall, P.J (2003) The Eighteenth Century in India History: Evolution or Revolution? Oxford, London, UK, p.11.

<sup>3</sup> . Macleod, William (1794) Of Tippoo's Military Force in October, p.101.

<sup>4</sup> . Buchanan, Francis (1807) A Journey from Madras through the Countries of Mysore, Canara and Malabar, vol.I, 171; vol.II, 16-19.

## Marine Establishment

In proportion as the Sultan might have been able to realize his alarming plan of marine establishment, we should as a measure of necessary precaution, have been compelled to augment, at a heavy expense, our naval force in India, for the purpose of duly watching his armaments, and of keeping them in constant check. This evil at least, was averted by the issue of the war of 1799 (Kirikpatrik, 1811).<sup>5</sup> Tipu had built about 20 battle ships and 20 large frigates with utmost care and responsibility.

The British were fully aware of the systematic and powerful defense system developed by Tipu Sultan. Tipu's sustainable resistance and defence development activities were unmatched against British authorities in the 18<sup>th</sup> century India. Tipu not only reorganized his army administration, but also laid down its code in 1782. The technical terms or words of command were changed into Persian or Turkish languages from French (Kirmani, 1958).<sup>6</sup>

The *waqa 'i'-i Manazil-i Rum*, the report that the Secretary (Munshi) of the mission, 'Abdu'l Qadir, sent from Basra, dated 9 January 1787, is full of commercial information, with detailed statements of the prices of various goods available at Musqat, Bushire and Basra, the major ports of call for the mission's fleet (Hasan, 1968).<sup>7</sup> The *Waqa'i*' also contains detailed reports of the effort to sell the products carried by the mission during the regime of Tipu Sultan. His embassy to Turkey aimed at promoting trade across the Arabian Sea, both through the Gulf and the Red Sea. The commercial relations with Turkey did not prosper according to the wishes of Tipu, but it paved the way for the establishment of cordial relations between India and Turkey. He tried to obtain coal from the Ottoman Empire to promote industrial progress of his state. He desired that from Jeddah or Musqat, both 'silkworms and those who culture them' should be brought over to Mysore to promote sericulture (Kirikpatrick, 1811).<sup>8</sup> He wanted to have artisans from Turkey who could make clocks, glass, chinaware and mirrors which had great demand in Indian market. He sent a mission to France to import skilled workers and arsenals in 1785.

Tipu Sultan continued his determined resistance to British colonialism and equipped his army with modern arms and ammunitions during 1797-1798. Tipu had never given any rest to his sword and he fought against several forces simultaneously. Tipu was shrewd enough to adopt the matching tactics against his adversaries. Tipu's conception of the Nation-State, the responsibilities of the government to the people, the elimination of feudalistic intermediaries, his attempt to build up a standard system of laws and his creation of a civil service, were modern ideas, out of tune with his times and therefore unacceptable to those around him (Fernandes, 1969).<sup>9</sup>

## Arms and Ammunitions

Tipu had ushered in a new era of political and economic modernization based on human values. Tipu had maintained the factories at Seringapatam, Mysore to manufacture swords and fire weapons. Tipu had attached more importance to fire-arms, some of which were produced in his own capital. It was a famous center for the production of firearms and swords. There were forts at Madhugiri, Chanarayadurg, Heggulwadi, Devarayadurg and other places where

<sup>5</sup>. Kirikpatrik, William (1811) Select Letters of Tipu Sultan to various public functionaries including his principal Military Commandors, Governors of Forts and Provinces, Diplomatic and Commercial Agents, LXVII-XCII, London, p.414.

<sup>6</sup>. Kirmani, Mir Hussain Ali Khan (1958) Eng. Tr. Col. W.Miles, History of Tipu Sultan, Calcutta, p.14.

<sup>7</sup> Hasan, Mohibbul (1968) *Waqai-i-Manazil-i-Rum*, Asia Publishing House, New York, U.S.A, p.377.

<sup>8</sup>. Kirpatrick, William (1811) Select Letters of Tippoo Sultan, London, UK, Letter No.200, p.186

<sup>9</sup>. Fernandes, Praxy (1969) Storm over Srirangapatam, Bombay, p.76.

Tipu had manufactured arms and armor. The cannons manufactured in the royal workshops of Tipu covered a very long range and had better aim even compared to those of the British regiments (Khan, 1971).<sup>10</sup> Seringapatam was the center of production of firearms and swords. The fort at Seringapatam had a workshop for the production of arms and ammunitions.

The cannons manufactured in the royal workshops of Tipu covered a very long range and had better aim even compared to those of the British regiments (Khan, 1971).<sup>11</sup> The museums in United Kingdom, France, Italy, America and India have preserved the arsenals of Tipu Sultan. Tipu had innovative genius and engineering skill of production of arsenals and laid emphasis on the innovation and improvement of quality of fire arms. Mahmood Khan refers to the remarks made by Col. Kirikpatrick about the manufacturing of arsenals during Tipu.

When Tipu succeeded his father, he did not try to replace the navy destroyed by the English. He was more interested in men – of – war, both large and small, but these were only meant to protect merchant ships from the attacks of pirates and were not in a position, either from the point of view of numbers or equipment, to make a stand against the English navy. It was because of these that the Mysore navy played a very inglorious role in the third Anglo-Mysore war and the English occupied Tipu's Malabar possessions. The Tipu's fleet was mainly for protection against the pirates (Hasan, 1971).<sup>12</sup> Tipu had solicited the help of Portuguese to develop the navy and promote trade relations between Mysore state and Portuguese.

These (royal) workshops were divided between the eleven armour is for making and finishing small arms. His gun makers were capable of making locks and interior mechanisms, knew the value of anti-friction devices such as rollers and links and waterproof pans, etc and were familiar with the modern European fashion which they copied (Wingington, 1984).<sup>13</sup>

### **Pioneer of Rocket Technology**

It might even be claimed that, with these rockets, Tipu has also left his mark on modern war-fare, for the Bangalore Torpedo, used during World War II was a development of Tipu's missiles (Buddle, 1984).<sup>14</sup> The English did not consider Tipu to be an unworthy the foe till the last. On the contrary, they regarded his qualities of leadership as equal to their own. Tipu's army was beyond comparison superior to those of the Nizam or Mahrattas (Guha, 1985).<sup>15</sup> The fire – arms of Tipu Sultan were a great source of revenue to the state. The real strength of Tipu's fire-arms was his rockets and missiles, which had created a lot of fear psychosis in the enemy's camp.

The 'Tiger of Mysore' posed one of the strongest military challenges ever faced by the British in the sub-continent, ultimately laying down his life fighting them. Hyder Ali developed the first prototypes of sturdier explosives-filled rockets. His innovation was further fine-tuned by his son Tipu who planned, designed and crafted cylindrical iron tubes that would allow for greater compression of the filled gunpowder and consequently, greater range. Tipu,

<sup>10</sup>. Khan, Mahmood (1971) *Sahif-e-Tipu Sultan*, Delhi, p.570.

<sup>11</sup>. Khan, Mahmood (1971) *Sahif-e-Tipu Sultan*, op.cit. p.570.

<sup>12</sup>. Hasan, Mohibul (1971) *History of Tipu Sultan*, Calcutta, p.390.

<sup>13</sup>. Wingington, Robin (1984) *the Seringapatam Matchlock*, Sultan Annual Journal, Tipu Sultan Research Institute and Museum, vol.2, pp.34.36.

<sup>14</sup>. Buddle, Anne (1984) *The Mark of Tipu Sultan*, *Journal of the Tipu Sultan Research Institute and Museum*; Mysore, p.13.

<sup>15</sup>. Guha, Nikhiles (1985) *Pre-British State System in South India, Mysore, 1761-1799*, Ratna Prakashan, Calcutta, India, p.82.

then fastened them to swords or bamboo poles to provide stability, that would, in turn, lead to better accuracy. Thus, the predecessor of the modern rocket was born. It had a greater range, better accuracy and a far-more destructive bang than any other rocket in use, making it the best in the world at that time. The British were terribly afraid of the modern military rockets developed by Tipu. APJ Abdul Kalam was fascinated by Srirangapatna's historic connection with modern missiles. All the rockets in the world today can be traced to those used during the wars in Mysore," says aerospace scientist (Roddam Narasimha, 1985).<sup>16</sup>

*Fathul Mujahidin*, meaning the 'Triumph of the Warriors' was a military manual of Tipu Sultan. It was published in Persian language which is a brief, but comprehensive treatise on military science and the art of warfare. The manual contains on introductory elements of warfare, the second chapter deals with bibliomancy of the regularized weights and measures, the third chapter provides comprehensive discourse on military strategy and methods of warfare, the fourth chapter amplifies the importance of faithfulness and loyalty of the military force, the fifth chapter enumerates the conditions for military service and professional rules, the sixth chapter delineates the functions of the troop of Rocketeers and the Naval Force, the seven chapter present the methods of various military exercises and eighth chapter consists of exercises and parades. The manual had very few parallels at the time of its production. The Sultan retained the ultimate supervision and command of the army in his own hands. There was strict discipline in the army. The manual stands as an enduring monument to the memory of Tipu Sultan (Husine, 1986).<sup>17</sup> Tipu had built a strong army based on systematic principles and practices. Tipu framed new rules and methods for the artillery, arrangement of the army and attacking the enemy.

Tipu had appointed *Meer Yumns* (board members) and *Meer Buhrs* (members of naval force) to manage marine establishment. He had made arrangements to construct the ships for both military and trade purposes. He had selected the officials with care for better navy management. Forts were also maintained systematically. The men required for the service of the fleet were being mustered before Sultan and duly sworn, to be dispatched to their respective destinations, as fast as they were entertained. The accounts of the expenditure of the ships and crew, and of whatever related thereto, were to be carefully and minutely kept by the authorities (Rajkumar, 1993).<sup>18</sup>

Tipu had beaten back all his enemies in all sorts of warfare. The pitched battles, fort warfare, surprise attacks and even in the use of heavy artillery; he had adopted matching tactics against them and paid them back in their own coin. Therefore the British worked out an altogether new plan to fight Tipu (Naqvi, 1993).<sup>19</sup> Mysore under Tipu Sultan was known for considerable production of military stores, camp equipage and arsenal for his army. Tipu believed in the principle of self-sufficiency in all respects. This was followed not only in the production of iron and steel, but also in the manufacture of swords. Tipu's sword symbolized the spirit of resistance against the aggressors of freedom and

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<sup>16</sup>. Narasimha, Roddam (1985) Rockets in Mysore and Britain, 1750-1850 A.D, Inaugural Address, Centre for History and Philosophy of Science, Indian Institute of World Culture, Bangalore, April 02, [www.nal.res.in](http://www.nal.res.in)

<sup>17</sup>. Husine, Mir Mahmood (1986) Fathul Mujahidin: A Military Manual of Tipu Sultan, In. B.Muddachari (Ed), Souvenir, Seminar on National Integration with Special Reference to Tipu Sultan, University of Mysore, Karnataka, India, pp.19-23.

<sup>18</sup>. Rajkumar (1993) Naval Adventures of Tipu Sultan, In B.Sheik Ali (Ed), Tipu Sultan: A Great Martyr, Prasaranga, Bangalore University, Karnataka, India, pp.155-173.

<sup>19</sup>. Naqvi, Sadiq (1993) Warcraft of Tipu Sultan, In. B.Shaik Ali (Ed) Tipu Sultan A Great Martyr, Prasaranga, Bangalore University, Karnataka, India, p.215.

independence. Mysore under Tipu Sultan was almost self-sufficient in iron and steel which went into swords and other weapons (Devaraj, 1993).<sup>20</sup>

Tipu Sultan had greater contempt for the British than his father. He had already proved his mettle in the war and well understood the situation he found himself placed in. Subscribing to his father's views and firm in his own convictions Tipu Sultan continued the war despite his grief. By the military prowess and skill in war exhibited by him he showed to the British that he was unconquerable by them. He strengthened his military potential by importing French arms and establishing factories for manufacturing arms indigenously to grapple with the British in future encounters which seemed inevitable sooner or later. Lord Cornwallis treated Tipu Sultan as British enemy number one. Notwithstanding the very difficult situation he was placed in by the Treaty of Seringapatam and his depleted resources, he strengthened his navy and to meet the British arms and war strategy he sought alliance of the revolutionary France (Gupta, 1993).<sup>21</sup>

Tipu endeavored likewise to create a disciplined army in the European manner, recruiting mercenaries of diverse origins. But the advance of the armies of the Company left him no time to bring his plans to fruition. In any case, his control over the diverse regions that constituted his Kingdom was probably too weak to give him a chance to succeed. India at the end of the eighteenth century was not ripe for a Meiji. The Sultan of Mysore was the only one who attempted to fight European mercantilism with its own weapons (Markovits, 2002)<sup>22</sup>

Haider Ali was fully aware of the importance of navy since the European colonial forces were basically seafaring nations. Haider Ali had possessed a naval fleet, good ports and ship building yards on the western coast. Tipu Sultan had studied the naval systems of Portuguese, the Dutch, the French and the English extensively. He utilized the services of the best professionals from these countries to build a sound naval organization in Mysore State. Tipu Sultan had acquired a variety of ships, developed Marine Department and equipped the navy.

Tipu Sultan is regarded as a pioneer in the use of solid fuel rocket technology or missiles for military use. He had used the technique of mass attacks with rocket brigades on infantry formations. Tipu had recruited about 200 rocket men who were trained to launch their rockets at an angle calculated from the diameter of the cylinder and the distance to the target. The wheeled rocket launchers were almost simultaneously used in war. The rockets had a range of about 1,000 yards. The British had recovered about 600 launchers, 700 serviceable rockets and 9,000 empty rockets after the martyrdom of Tipu. They also developed a military rocket research and development program in Mysore state.

Tipu's engagement with modern technology is well acknowledged in contemporary accounts of the British army men. Like the Tiger toy, the name of Tipu revokes another object, the Rocket. In difficult hilly terrains in particular, where maneuvering heavy artillery was difficult, Tipu's rockets caused havoc among the British troops both physically and psychologically. Tipu's rockets were not merely used as incendiary; they could also carry a pay load of destruction

<sup>20</sup> . Devaraj, D.V (1993) The Sword of Tipu Sultan, In. B.Shaik Ali (Ed) Tipu Sultan A Great Martyr, Prasaraanga, Bangalore University, Karnataka, India, pp.278-284.

<sup>21</sup> . Gupta, Hiralal (1993) Indifagible Resistance of Tipu Sultan to British Aggressions and his Martyrdom – A Dimensional Critique, In B.Sheik Ali (Ed), Tipu Sultan: A Great Martyr , Prasaraanga, Bangalore University, Karnataka, India, pp.146-148.

<sup>22</sup> . Markovits, Claude (2002) A History of Modern India 1480-1950, Wimbledon Publishing Co. London, pp-246-250.

(Ghosh, 2002).<sup>23</sup> The rocket technological development undertaken by Tipu Sultan had invited the attention of the world in 18<sup>th</sup> century.

What really worried the British was less that Tipu was a Muslim fanatic, something strange and alien, but that he was known as a modernizing technocrat who used the weapons of the West against their inventors (Dalrymple, 2005).<sup>24</sup> The military officers were called as *Sipahdar*, *Risaldars*, *Jowkdars*, *Jamadars* and *Daffadars*. The regular soldiers received their horses from the government while others received an allowance from the government (Gazanffar, 2007).<sup>25</sup>

Tipu's extensive laws for organization of a navy in the modern system with harbors, naval board, ship buildings etc were much ahead of his time. He desired to to organize a powerful navy to counteract the European activities in India. His armory manufactured the super quality brass guns which were superior to the European items (Kurup, 2010).<sup>26</sup>

The development of musket and artillery technology was arguably the most important military factor associated with the governance of Tipu Sultan. Tipu took personal interest in the production of muskets, rockets, shipwrights and field artillery. The revolutionary technique of boring out the barrels of brass and iron field guns developed by the Dutch found its way to the armoury workshops at Srirangapatnam. The development of rocket technology including flares to enable operations at night was a special feature of his military force. The use of rockets was a potent weapon in terrifying enemy cavalry and elephants and disrupting set piece military formations. The rocket units were highly mobile when transported by camels. Mysore's military machine successfully defended and enlarged the state for fifty years (Chancellor, 2010).<sup>27</sup>

It might even be claimed that with these rockets. Tipu has also left his mark on modern war-fare, for the Bangalore Torpedo, used during World War II, was a development of Tipu's missiles (Buddle, 2014).<sup>28</sup> Tipu Sultan had manufactured fire arms and rockets of high quality which had threatened his enemies including the British. Most of the Tipu's lethal weapons and fire arms are found in the collection of Salar Jung Museum, Hyderabad.

Tipu had developed modern ship building industry and built a good number of ships by using the local resources. Mangalore was known for building strong and durable ships. He had about 10,000 men for manning a variety of ships. He had also manufactured about 40 war ships and developed sound navy system which facilitated better connectivity between Mysore state and rest of the world. The arms and ammunitions were on par in quality with those of the colonials.

Tipu Sultan had developed modern war technology and organized Rocket Artillery Brigade for the first time before independence in India. Tipu Sultan expanded use of rockets making critical innovations in the rocket themselves and the military logistics of their use. He deployed as many as 1200 troops in his army to operate rocket launchers who were skilled in operating the weapons. The rockets deployed by Tipu Sultan during the battle of Pollilur were much more

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<sup>23</sup>. Ghosh, Amitabha (2002) *Rockets of the Tiger: Tipu Sultan*, In. Aniruddha Ray (Ed) *Tipu Sultan and His Age – A Collection of Seminar Papers*, The Asiatic Society, Kolkatta, pp.166-179.

<sup>24</sup>. Dalrymple, W (2005) *An essay in imperial villainmaking*, The Guardian, May 23

<sup>25</sup>. Gazanffar, Mehmood Banglari Ahmad (2007) *Sahifa-e-Tipu Sultan*, Sang-e-Meel Publications, Lahore, Pakistan

<sup>26</sup>. Kurup, K.K.N (2010) *Tipu Sultan – A Ruler Ahead of His Time*, In. R.Gopal (Ed) *Tipu Sultan: The Tiger of Mysore*, Directorate of Archaeology and Museums, Mysore, p.95.

<sup>27</sup>. Chancellor, Nigel (2010) *Tipu Sultan, Mysore State and the Early Modern World*, In. R.Gopal (Ed) *Tipu Sultan : The Tiger of Mysore*, Directorate of Archaeology and Museums, Mysore, pp.18-32.

<sup>28</sup>. Buddle, Anne (2014) *The Mark of Tipu Sultan*: in *Journal of the Tipu Sultan Research Institute and Museum*, Mysore, p.13.

advanced from those the British East India Company had ever seen. Tipu had also built a strong navy to counter the designs of the British (Samdani, 2016).<sup>29</sup> Tipu Sultan had built up a different administrative system which was accountable to deliver justice to masses. He was first Indian ruler who combined eastern and western administrative systems.

Tipu's regular army which consisted of one lakh eighty thousand soldiers beside one lakh sixty two irregulars and the fort guards was divided into *Kushun*. A *Kushun* consisted of five thousand soldiers (Rahim, 2016).<sup>30</sup> Tipu had achieved remarkable progress in building a modern army, manufacturing modern weapons and giving economic development priority among other forward-looking measures (Habib, 2017).<sup>31</sup>

## CONCLUSIONS

Tipu Sultan is regarded as the first freedom fighter of India for his fierce battles against the British, who tried to conquer the territories under the sultan's rule. He fought several wars against the British and tried his best to defend his kingdom from falling into the hands of the British East India Company. Tipu Sultan had gained an upper hand over the British and other adversaries in the production of arms and armors. He had produced good numbers of firearms to ensure the balance of military power. Tipu had laid emphasis on the innovation, production and improvement of quality of fire arms. A large number of matchlock and flintlock guns were also produced by him. Mr. Wigington, the Curator of arms and armor museum, Stratford, U.K. had done an extensive research on Tipu's military power.

Tipu had the courage and capacity to fight against the British force on the basis of the well organized defense system. He also played a crucial role in the development of Mysore state as a model welfare state. Tipu was a people friendly ruler. He completed the projects left behind by his father, built roads, bridges, public buildings, ports, etc. and also made numerous military innovations in the use of rocketry in wars. The British Army's National Army Museum ranked Tipu Sultan among the greatest enemy commanders the British Army ever faced. Through his determined efforts, he built a formidable military force that inflicted serious damages to the British forces.

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<sup>29</sup>. Samdani, Shakeel (2016) Tipu Sultan: The Great Warrior and Ruler of India, Muslim Mirror, May 04, [www.muslimmirror.com](http://www.muslimmirror.com)

<sup>30</sup>. Rahim, Mohammad Abdul (2016) *Hamlat-e-Hydri*, Urdu, Tr. Shaik Ahmed Ali, Translation (Princeton University Press, Oxford University, Oct 2016, p.205.

<sup>31</sup>. Habib, Irfan (2017) To celebrate anti-colonial struggle, celebrate Tipu Sultan, Interview, Financial Express, New Delhi, India, October 29, [www.financialexpress.com](http://www.financialexpress.com)

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