

THE FIRST CATALOGUE OF FORGE-WELDED IRON CANNONS BY NEOGI

R. BALASUBRAMANIAM*

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The first catalogue of large iron cannons in India is due to Neogi. The pioneering studies of Neogi and his description of these massive iron objects have been reviewed in the article. The trail-blazing efforts of Neogi deserve wide appreciation. His insightful comments on the wonderful forge welded iron cannons of India are relevant even to this day.

Keywords: Iron cannons, Forge welding, Catalogue.

INTRODUCTION

Panchanan Neogi, in his landmark 1914 book, *Iron in Ancient India*, provided the first catalogue of some of the wonderful forge welded iron cannons of India. His aim was to follow in the footsteps of P.C. Ray, who collected a large amount of medical and medico-chemical Sanskrit literature bearing on the knowledge of ancient Indians on metals and their compounds in his well-known *History of Hindu Chemistry*². Considering the time period in which the book was published, it must be appreciated that Neogi was the first person to recognize the importance and significance of these wonderful pieces of Indian engineering skill and systematically catalogue them. His aim was to highlight the skill of the Indian blacksmiths and the evidences of their skill in fabricating large iron objects. In the present communication, the iron cannons described by Neogi will be set forth along with the lucid comments of Neogi.

LITERARY EVIDENCES

Neogi first pointed out that some forms of iron fire-weapons may have been known even in ancient times. He quoted that in the Black Yajurveda, I. 5,6,7 a remarkable kind of fire weapon by the name of *sūrmī* has been mentioned. This was interpreted as a 'burning iron barrel'. It has been described as

* Department of Materials and Metallurgical Engineering, Indian Institute of Technology, Kanpur
208 016, INDIA

having a long bore inside the barrel and with its help hundreds could be killed at a time. Neogi therefore concluded that the mention of an iron weapon in ancient Indian literature showed the high quality of civilization prevalent amongst the people. However, literary evidences do not provide firm support for the use of cannons during the period, but can only be taken as a hypothesis.

Neogi also suggested that some sort of fire-weapon was known during the epic age. He specifically referred to the frequent mention of 'śatāgni' (killer of hundreds), 'āgneya-astra' (fire-weapon), and 'nalikā-astra' (tube-weapon) in the epics and ancient Sanskrit literature. However, he agrees that guns and cannons and the use of gunpowder were unknown in India before the Moghul conquest. He mentions that, "guns were first employed by Babar in the first battle of Panipat in 1526 and were introduced in Southern India by the Portuguese. Recent research by Khan^{3,4} has clearly revealed that this may be incorrect and the use of gunpowder in military operations did not become common in India till the second half of the sixteenth century.

Guns and cannons, as well as the formula for manufacture of gunpowder, have been given in a Sanskrit work entitled *Śukranīti*, a compilation evidently of the sixteenth century¹. Neogi provided the original passages in *Śukranīti* (IV.7) which referred to cannons. Apart from this, *Śukranīti* provides the formulae for the manufacture of gunpowder (one being 5 part of nitre, 1 part of sulphur and 1 part of charcoal) and descriptions of shots and balls. Neogi noted that, "in *Śukranīti*, *ksudra-nalikā* stands for small guns or matchlocks and *brihan-nalikā* for big guns or cannon. The matchlock was 2½ cubits long with a longitudinal bore of the thickness of the middle finger and provided with two raised points in order to take aim. The gunpowder was ignited by means of a fuse, the fire being originated by percussion of powdered stone struck with a hammer. The matchlocks had wooden handles and were used by infantry and cavalry. The big guns were carried in carriages, had no wooden handles, and their range depended on the thickness of the metal-plate and bore, their length and size of balls." Neogi further states that, "these passages have misled many people ... into believing that guns and gunpowder were known to the ancient Hindus." He rightly concurred with the observations of other scholars that these were either spurious in the nature or of later interpolations.

In this regard, it is interesting to quote the views of Neogi: "I am afraid it cannot well be contended that the portions of Chapter IV (of *Śukranīti*) which give accounts of guns, cannons and gunpowder were mere later interpolations, as guns and cannons have been mentioned in many places *throughout the work*, suggesting the idea that the work was written, at any rate rewritten, after the introduction of guns and gunpowder in India. Besides mentioning guns and gunpowder, *Śukranīti* mentions *Yavanas* or *Mlecchas* living in 'North and Western' India, evidently referring to the Mussalmans. That the work could not have been written before the fourteenth century is borne out by the fact that it mentions zinc as one of the seven metals, while as a matter of fact only six metals were recognized up to the thirteenth century and zinc only found a place amongst the metals in *Madanpāla-Nighaṇṭu*, and other alchemical works of the fourteenth century and later."

Noegi pointed out that Tavernier gave the credit of discovering guns and gunpowder to the Ahoms of Assam. In narrating the result of Mir Jumla's expedition to Assam in 1663, Tavernier wrote⁵, "It is thought that these (the Ahoms) were the people that formerly invented gunpowder, which spread itself from Assam to Pegu and from Pegu to China, whence the invention has been attributed to the Chinese. However, certain it is that Mirgimola brought from thence several pieces of cannon which were all iron guns, and store of excellent powder, both made in the country. The powder is round and small like ours and of excellent quality." Neogi also provided Gait's point of view by stating that Mr. Gait in his *History of Assam*⁶, however, writes that there was no history or tradition in Assam to support Tavernier's assertions. Mr. Gait wrote, "The use of fire-arms by the Ahoms dates from the close of this war (war with the Mahomedans under Turbak and Hosain Khan in 1533, in which the Mahomedans were defeated and a great number of cannons and matchlocks were captured by the Ahoms). Up to this time their weapons had consisted of swords, spears and bows and arrows."⁶ Neogi summarized as "it is possible that some of these captured guns were recaptured by Mir Jumla from the Ahoms during his invasion of Assam later on, and hence Tavernier's assertion."

CATALOGUE OF IRON CANNONS

Noegi described some remarkable specimens of very big iron guns existing in different parts of India. He mentioned that, "guns were cast in brass or

made by welding pieces or rings of wrought iron. Later, guns were made from cast iron as well, but it is difficult to say precisely when iron guns were first cast. It seems that cast-iron guns were introduced into India by the Europeans in the eighteenth century.”

Neogi has described some notable forge-welded cannons in Dacca, Murshidabad, Cuttak, Bishnupur and Bijapur. Some of the descriptions of these cannons will be presented below because these are valuable sources of information. Moreover, available information should spur concerned scholars to take up the study of these cannons and understand their present condition.

(a) Dacca

Neogi quoted Rennel from his *Memoir of a Map of Hindoostan*⁷ in describing a gigantic wrought-iron gun that Rennel found at Dacca in the eighteenth century. Interestingly, Rennel comments that “there are the remains of a very strong fortress in it; and within these few years there was near it a cannon of extra-ordinary weight and dimensions: but it has since fallen into the river, together with the bank on which it rested.” Luckily, Rennel took measurements of the gun very carefully, which are given below:

Whole length	: 22 feet 10½ inches
Diameter at the breech	: 3' 3"
Diameter at 4 feet from the muzzle	: 2' 10"
Diameter of the muzzle	: 2' 2 1/8"
Diameter of the bore	: 1' 3 1/8"

Rennel further quoted that this massive cannon “was made of hammered iron; it being an immense tube formed of 14 bars, with rings of 2 or 3 inches wide driven over them, and hammered down into a smooth surface, so that its appearance was equal to that of the best executed pieced of brass ordnance, although its proportions were faulty. The gun contained 234,413 cubic inches of wrought iron and consequently weighed 64,814 pounds avoirdupois, or about the weight of eleven 32-pounders. Weight of an iron shot from the gun, 465 pounds.” Quoting from local sources, Rennel stated that the name of the cannon was *Kaley Khan*, and that a cannon bearing the same name was mentioned by the Venetian traveler Manucci in the list of big cannons possessed by the Mughals in the seventeenth century.⁸

Neogi also mentioned that “a smaller iron gun still exists at Dacca which was constructed at the same time as the bigger one. Mr. H.E. Stapleton took its measurements, the gun being 11 feet long and the diameter of its mouth 1 foot 7½ inches.”

Chattopadhyay ⁹ has recently identified a large forge welded canon in Dacca, which is standing in Osman Udhan (Osman Garden). The history of this canon is not clear. Local tradition mentions the name of this canon as *Bibi Mariyam*. It is important to conduct more research on this canon.

(b) Murshidabad

Neogi next described the large canon at Murshidabad (Fig. 1). “The great iron gun at Murshidabad, called *Jahankos'a* (‘Conqueror of the World’),

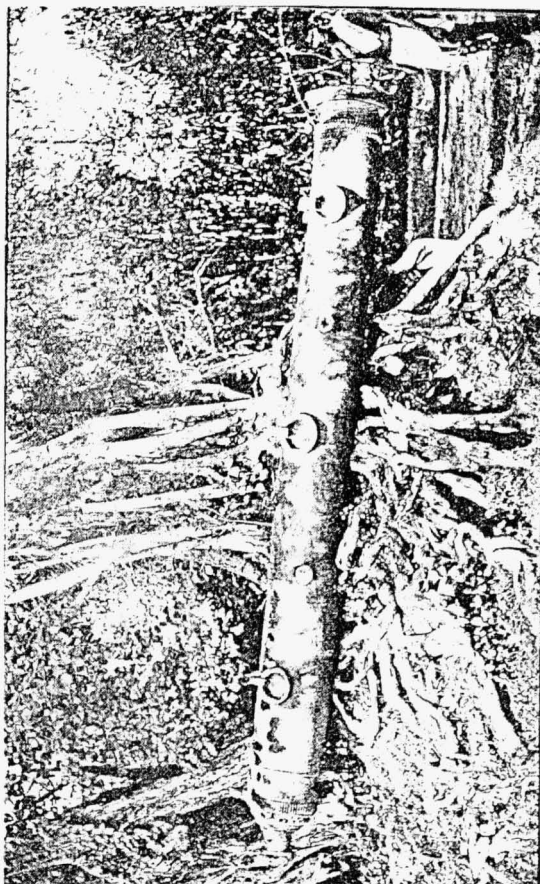


Fig. 1: Iron cannon at Murshidabad as first reported by Neogi ¹.

17 feet 6 inches in length and with a circumference of 5 feet 3 inches, is of great historical importance owing to the existence of nine inscribed brass plates on it. From the inscription it is ascertained that this gun was constructed in 1047 Hijira, Jamadinssani (October, 1637), during the reign of Emperor Shajahān (the then Subedar of Bengal being Islam Khan) at Jahangirnagar (Dacca) by chief mechanic Janardan under the supervision of Daroga Sher Mahammad and Inspector Harabullava Das ¹⁰.”

(c) Cuttak

Neogi referred to “another inscribed big gun was presented in 1891 by Captain Petley, being dug up at False Point, to the Asiatic Society of Bengal, in whose rooms it has been preserved.” This canon also need further research. Wilson ¹¹ read the date in the inscription as [1]584 Śaka era or 1662 AD, and commented that “the gun was captured form Aurungzeb’s General, Mir Jumla in 1662 by Svargadev Jayadhvaja Sinha, the then reigning Ahom Prince of Assam. From Assam it was carried away to Burma. It was taken by the English in the first Burmese war and on the completion of the light-house at False Point in 1838, seems to have been removed from the old fort at Cuttack and buried in the ground near the light-house to hold a flag staff.” This gun was also manufactured in the same way as the Dacca guns from wrought iron. Shastri, who examined the gun, mentioned “the gun is made in the old-fashioned method of welding together a number of large iron rings, three inches thick, with an opening in the middle with a diameter of three inches ¹².”

(d) Bishnupur

Neogi also pointed to the cannons at Bishnupur. “There are several old iron guns at Bishnupur in Bengal and several inscribed Assam guns of the sixteenth and seventeenth centuries have been described by Mr. Rakhaldas Banerji¹³. On one of these Assam guns there is a persian inscription ‘*taiyar shud*’ meaning ‘was manufactured’ in contrast with ‘*rekhta shud*’ or ‘was cast,’ the latter inscription occurring, according to Prof. Jadu Nath Sircar, on many other guns, presumably made of brass. This inscription unmistakably shows that the Assam guns were really made from wrought iron.” The massive canon at Bishnupur has been studied in detail and reported elsewhere ¹⁴.

Based on the description of the above guns from Bengal, Neogi arrived at two important conclusions. First, “in the sixteenth and seventeenth centuries, cannons were manufactured in India by welding pieces or rings of wrought iron. The manufacture of such massive cannons unmistakably showed that Indians lost none of their old marvelous metallurgical skill which could produce at one time a Delhi or a Dhar pillar. This fact also shows that the production of wrought iron in India during the sixteenth and seventeenth centuries still continued to be on a considerable scale.” Secondly, “It seems that the Dacca, Murshidabad and Bishnupur guns were all manufactured by Hindu mechanics and metallurgists under the orders of the Mahomedan rulers. It appears that the Hindus were skilled workers in iron in all ages and their remarkable skill was utilized by the Mahomedan rulers in the manufacture of wrought-iron guns which must be really regarded as specimens of Hindu art.”

(e) Bijapur

Neogi also provided information about a few other massive cannons located in other parts of India, apart from Bengal.

The first cannon described by him was the *Landa Kesab*. He writes, “on the south wall of the city of Bijapur there is still to be seen the celebrated *Landa Kesab* gun (Fig. 2). It is also made of circular iron rings shrunk on longitudinal iron bars and then welded together. Aurangzeb is credited to have removed the original points on which it turned in order to make it practically useless. It is 21 feet 7 inches long, diameter at the breech is 4 feet 4 inches, caliber 1 foot 7 inches, length of bore 18 feet 7 inches and the estimated weight 47 tons.”

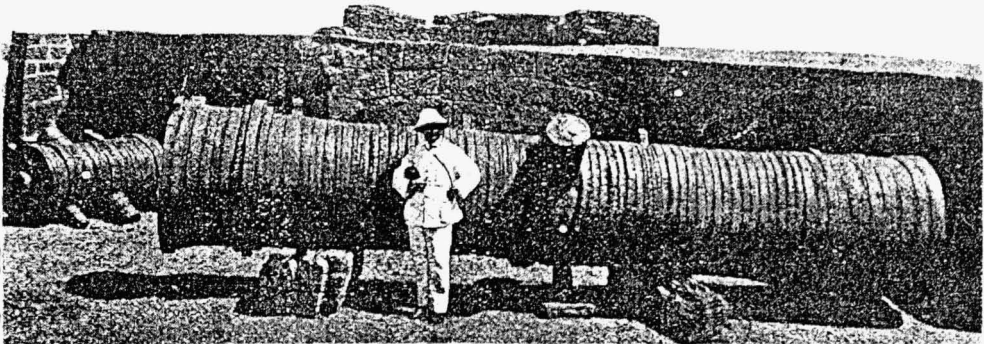


Fig. 2 : The *Landa Kasab* gun at Bijapur as reported by Neogi¹. This photograph was reproduced from *The Empress*, May issue, 1913, No.2, page 12.

The second cannon described by him was the cannon on top of the Haider Burj. He comments, "the long gun, named the *farflie*, which is said to have been raised on the huge tower known as the Haider Burj at Bijapur by means of an inclined plane over a mile long, should be of interest in this connection. This gun, too, was constructed of iron bars of square section and laid longitudinally along the bore, over which rings were slipped, one at a time, while the last was re-hot. As they cooled they shrank and bound the iron bars together. The gun near the breech was strengthened by the addition of a second layer. It is 30 feet 8 inches long and has a bore 1 foot in diameter."

(f) Gulbarga

"The long gun at Gulbarga (Fig. 3a) seems to have been made in a similar way, but it is worthy of notice that there is double row of iron rings, ten on each side. It was doubtless by means of these the gun was conveyed from point to point, for there is no evidence of any pivot or other arrangement by which it could be moved." A recent photograph of this wonderful cannon is provided in Fig. 3b. One of the significance of this cannon is that it still rests on the pivot and this provides valuable information about the actual operation of the cannon.

Deloche¹⁵ has reviewed the cannons in Bijapur and Gulbarga, apart from cannons found in other important forts of the Deccan (Golkonda, Bidar, Basava Kalyan and Parendu). He provides valuable information about how the cannons were mounted on the fort ramparts and manoeuvred during use. However, all these canons require careful study from a metallurgical perspective.

Neogi finally concluded his description of Indian cannons by pleading studies on these wonderful forge welded iron cannons needed to be taken up and the other cannons that were not reported by him be researched. Nearly a century on, this task does not seem to have been accomplished.

CONCLUSIONS

The first person to catalogue the large iron cannons in India was Neogi. The pioneering studies of Neogi and his description of these massive iron objects have been reviewed in the article. The trail-blazing efforts of Neogi deserve wide appreciation. His insightful comments on the wonderful forge welded iron canons of India are relevant even to this day.

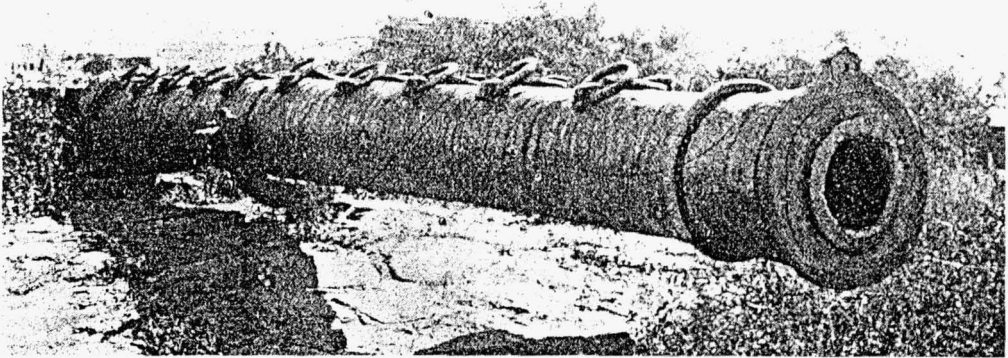


Fig. 3: (a) The iron cannon at Gulbarga as reported by Neogi

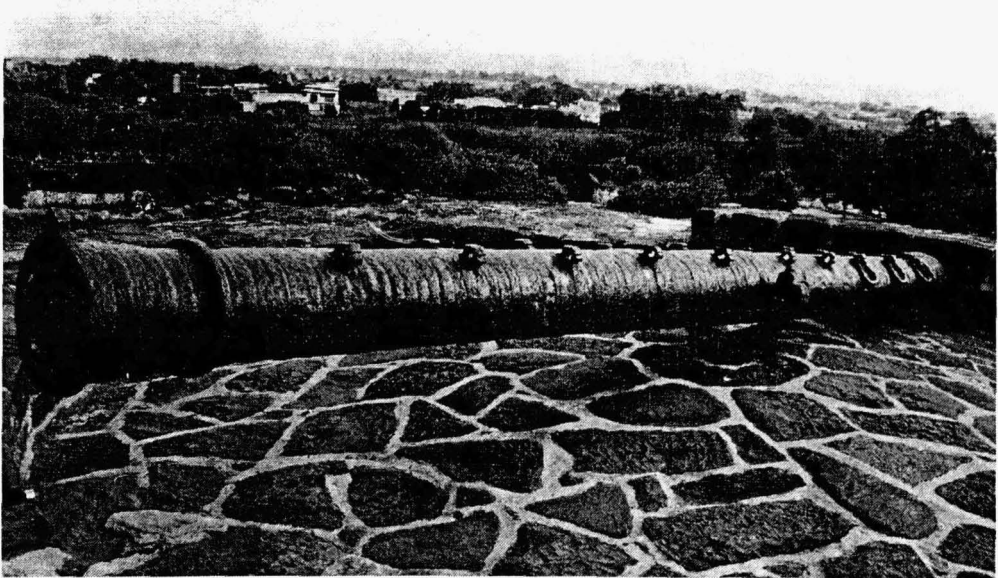


Fig. 3 (b) A recent picture of the Gulbarga Cannon (Photograph courtesy: Dr. S. Kalyanaraman).

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