

Homage to Robert Bruce Foote: The Founder of Prehistoric Archaeology in India

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Abstract

It is not an easy task to write about the life and works of the great personality Robert Bruce Foote, who is considered as the father of Indian prehistory. Information regarding his works is not also easily available either in hard copy or digitized copy. In spite of these problems, effort has been made to collect data from old documents in the Asiatic Society and from the few write up which were published in connection with celebrating hundred years and hundred fifty years of the discovery of first stone tool from India. It was the 30th of May, 1863 when Robert Bruce Foote discovered first chipped implement from the lateritic gravel at Pallavaram (erstwhile, Palaverum) in Madras. This discovery attracted him to more work as well as influenced others to work in the field of prehistory. These researches opened the door to look insight our prehistoric past. His long time period of research yielded many facts of geology as well as prehistory. Different theories have been developed regarding the stages of evolution of society and culture from prehistoric past to civilization. Present paper is an approach to highlight the details of his works as much as possible and its importance for further development of the discipline prehistory in India as well as abroad.

Key words: Robert Bruce Foote, prehistory, implements, geology, stratigraphy

Introduction

Robert Bruce Foote, who is considered as father of Indian prehistory was a British geologist. He was born in 1834. He joined Geological Survey of India as an Assistant geologist on September 28, 1858 at the age of 24, in the Geological department of the colonial Government and came to Madras (Chennai) to survey the geological formation of several parts of South India. His survey on Cuddapah and Kurnool system was continued for a long period of time till his retirement as a Senior Superintendent in 1891 at the age of 57. Foote was a Fellow of the Royal Anthropological Institute and was elected as a Fellow of Geological Society of London in 1867. In 1887 he became the Director of the Geological Survey. After retirement, he was employed as geologist in the states of Mysore and Baroda from 1891 to 1897. After that he settled at Yearand at Shevaroy hills in Salem district and carried out researches both on prehistory as well as geology. His entire life was devoted for the two areas of researches viz., geology and prehistory. Robert Bruce Foote laid down the foundation of prehistoric study and researches in India.

Discovery of first prehistoric stone implements

The prehistoric chipped implement was first discovered by R. B. Foote on 30th May, 1863 from a small gravel pit which was located a few hundred yards north of the cantonment at Palaveram, 10 miles S. W. of the city of Madras. It was a spear-head shaped Palaeolithic implement. The discovery was announced by Thomas Oldham, Director of the Geological Survey of the India in the meeting of the Asiatic Society of Bengal in 1864 and it was published in the proceedings of the Asiatic Society in 1865 (206). Foote's earlier discovery of prehistoric implements was published with the title "*On the Occurrence of Stone Implements in Lateritic Formations in Various Parts of the Madras and North Arcot Districts*" in Madras Journal of Literature and Science in 1866. This paper was republished in D. Sen and A. K. Ghosh edited book, "*Studies in Prehistory: the Robert Bruce Foote memorial Volume*" in 1966.

Further researches on prehistory and geology in South India

After the discovery of the first chipped implement from Madras in 1863, further search yielded two more implements. The shape of those tools was more perfect than earlier. Foote accompanied by Mr. King observed plant-bearing shale in the Attirampakkam nullah and found two oval shaped implements on a terrace in the bed of the stream. They also found several implements from the dry bed of the nullah. Since these implements were dislocated from the original deposition, so they tried to discover other *in situ* implements. The next day they discovered several well shaped quartzite implements *in situ*, which were embedded within numerous quartzite pebbles in the bed of the hard ferruginous lateritic conglomerate. These were embedded and adhered in the matrix and could only be separated by hammering. The *in-situ* implements were lying at depths below the surface, which varied from three to eight or ten feet (Foote, 1866). After the discovery of quartzite implement from the sites Palaveram and Attirampakkam nullah, they surveyed other places in Madras and North Arcot Districts. The findings came from lateritic conglomerate probably younger than the laterite, lateritic gravels and sands. The first implement was discovered from the lateritic gravel at Palaveram in a thin bed resting on the gneiss. The implements discovered from the Attirampakkam nullah from the beds of lateritic conglomerate, which were younger than typical laterite. The lateritic conglomerate bed, lying at higher level, yielded numerous stone tools identical in type with those found from the low-level conglomerate. The implements which are found from the sandy quartzite gravel beds from sites lying between the places of Stri-Permatoor and Conjeveram

were not in *in-situ* position.

The sections related to implement-bearing conglomerate found along the bank of Attirampakkam nullah and from various adjacent gullies were carefully noted by Foote. He discovered a hatchet shaped implement in *in situ* position from the sandy clay deposition. It may be mentioned that it was the first implement found *in-situ* by Mr. King from the bed of the lateritic conglomerate. A large hatchet shaped implement was found from the pebbly lateritic conglomerate. A large water-worn implement was discovered from plant bearing shales with kankar infiltration below the junction of the Kalingula gully with the main stream. A small excavation in the lateritic conglomerate yielded several small implements. These implements were extracted with a heavy pick-axe. A fine implement was unearthed from the side of the gully lying about half a mile east of Maleway village from the spot, which fell down in a tributary stream of Attirampakkam nullah. About a mile to the north-east of this gully some partly broken specimens were found from the high ground. These were weathered out from the lateritic rock and scattered over the surface, a few hundred yards to the north-west of the village Cunjalum. A high level spread of conglomerate near Goompalliam yielded implements which were largely made up of pebbles. According to Dr. Oldham and Mr. King these low-level beds were younger than typical laterite. R. B. Foote discovered well preserved implements from the hard glazed surfaced lateritic rocks lying at the northern end of the Red Hills area. Implements were extracted from solid rocks at and around Ingawarpolliam, Amerumbardoo, Maderapaucum, Cunnumbaucum, Boodoor and Caradepootoor. These sites presented deposition of typical laterite. Implements were also found from the bed of the pebbly laterite at Kircumbaddy in the Soornamookey valley.

Foote also mentioned about the geological section at the Kircumbaddy plain, which shows the succession of Gneiss, decayed gneiss (10 ft.) and laterite including a bed of pebbles (4 ft.) as observed by Mr. W. R. Robinson, Chief engineer of the Madras Railway. The implements observed by Mr. Robinson within the lateritic layer nearby, also was taken into consideration. The discovered implements from the excavation by Mr. Robinson were reanalyzed by Foote and concluded to be more similar with the findings from the Attirampakkam nullah section.

Mr. King found sandstones associated with the coarse conglomerate in the proximity of Sattavedu. Vegetal residues resembled some plant matters found in the shales of Stri Permatoor series. The series belong to the series of fossiliferous formations. Mr. King proposed this formation as Sattavedu conglomerate. It is of a great thickness and at considerable

expansion throughout the country. The depositions are exceedingly coarse, consists of thoroughly water-worn masses that range in size from tiny pebbles to masses with a yard or more in diameter. These masses were typically held together by coarse, dark-reddish, brown or purple ferruginous sandy cement.

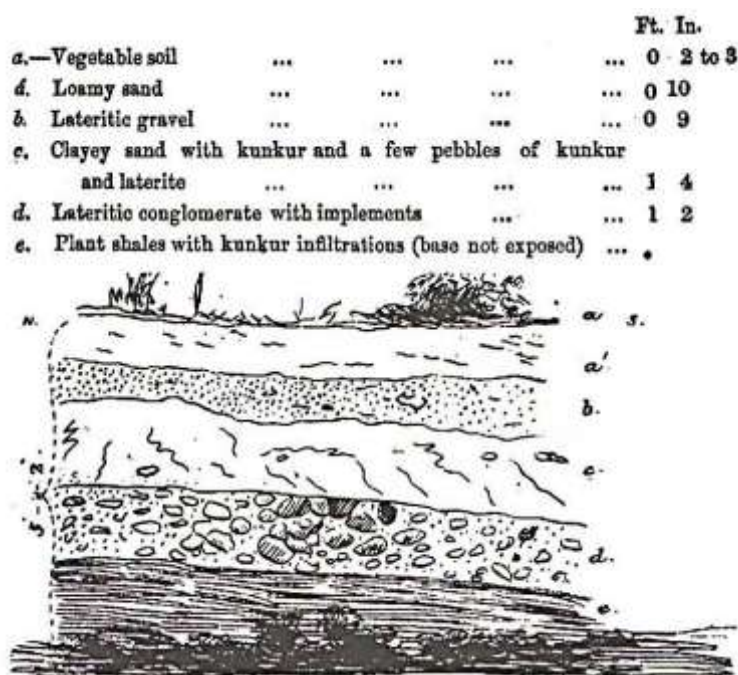


Figure 1: A nullah-bank section at Attirampakkam recorded by R. B. Foote in 1873 in his field diary, showing the stratigraphical position of the stratum yielding Paleolithic artifacts (After Paddayya and Deo, 2017, pp 18)

The pebbles contained in the compact laterite generally exhibit the characteristics of a true conglomerate. These pebbles were rounded and water-worn and exhibit all the characteristics of a *breccia*. The maximum thickness of laterite is less than 150 feet. The Cuddalore sandstones and grits are truly a part of the lateritic series as they appear to be both at Cuddalore and the Red hills near Madras. The cliff section on the south bank of the River Corteliar near Yermootapolliam, which is about two miles west on the south side of the ford where the Madras Nellore Road crosses the river, the lateritic bed was fully exposed with a height from 30 to 60 feet. The implementiferous laterite was 15 feet to 16 feet in thickness. Foote described the Indian stone tools, which he found similar to flint tools found in Europe. He opined that those from India, though crude in shapes, bear the same signs of an artificial

origin as the European ones. The difference between flint and quartzite depends on the greater coarseness of the latter's grain. Pebbles were rounded because they rolled in water and due to the friction in the current of a powerful stream the edges of the dislodged rocks were rounded and turned into pebbles. Implements were of different shape, such as, oval, discoid, pointed like spears, or generally wedge-shaped like hatchets. All these had common feature of having a cutting edge on one plane with respect to the axis of the implements. Four types of cutting edges were noticed by Foote. They are, with the edge surrounding the implement; two edges tapering to a point with a blunt base; clearly trimmed three sides and a sharp cutting edge.

Patination of the artifacts gave clues about the earlier or later occurrence of the stone tools in relative time scale. Outer surface of the stone changed in color due to chemical action. Sometimes it became darker in hue or fully bleached through a course of time. Such alteration of the colour of the stone implements is found at about twelfth to an eighth of an inch deep from the outer surface of the stone. Due to bleaching process the stone often became white with sugar loaf texture. The specimens that were discovered from the exposed surface were more worn than those that were discovered *in-situ* and embedded in the deposit. The composition of the matrix in which the stones were preserved has a significant impact on the color of the tools. The various quartzite tools found in the Madras and North Arcot districts' quaternary strata exhibit a wide range of forms. The implements were categorized in the three principal classes (Foote, 1866). These are Implements with one blunt or truncated end (Class I) which include Pointed weapons (Spear heads) and Wedge-shaped weapons (axes, hatchets); Implements with a cutting edge all around the margin (Class II) which include implements pointed at one or both ends, Oval or almond shaped implements, Discoidal implements; Flakes (Class III).

Foote also wrote the probable use of the artifacts. According to Foote some tools were used as wedges to split wood or dig earth. When the tool was attached to poles it became spear or dart. He said that the wedge-shaped implement resembles the stone weapons of the Celtic era which have broad cutting edge with chipped and polished surface. This tool was used as axe or wedge after hafting. Though there is no direct proof, perhaps wedges were used to make canopy. Mr. King discovered an artifact which measured 12 inches by 4 or 5 inches at Kircumbaddy. This was thought as ideal for such a function. When attached with a handle it could be used as an axe. When the cutting edge is placed transverse to the axis of the handle it may have been used as adzes.

In 1864, he discovered a ring stone which was published in the paper on the Palaeolithic implements in the Madras Journal of literature. In 1865, huge number of Celts was discovered from shrines, close to temples and foot of the sacred trees in Shevaroy hills in Salem district. This was the earliest finds of Neolithic remains from Madras. In the same year, there is a communication in the Asiatic Society regarding the discovery of a celt on a hill near Madras in Coorge. Few Neolithic Celts were found eleven miles South from Nellore. Highly polished deep grooves were discovered across a small hill of granite gneiss from south of Poolloygooda which much have been shaped for grinding the cutting edges of celts. In 1878 a half small celt was discovered from Arrizur in Trichinopoly district. In 1883, pot-sherds and ground tools at Patpad in Karnul district. Neolithic remains were obtained from “teri” in Tinnevalley in the same year. At the end of the 1884, the most promising findings of Neolithic settlements in the Bellary-Anantapur. Kapgal was the center for Celt manufacture which consists of great quantities of unfinished Celts and flakes. The stages of manufactures also have been found like chipping, picking, grinding and polishing. Grinding stones and corn-crushers also were found (Foote, 1887).

Foote’s publication entitled ‘On the Distribution of Stone Implements in Southern India’ published in Quarterly Journal of the Geological Society (QJGS) in 1868, distinctly reflected the idea of the inundation of the earlier lateritic sea of South India. This time the focus was more intensely on the geological associations. Attention was on the antiquity bearing deposits. The study of the artifacts was made on the basis of geographical allotment. According to him, maritime origin was the cause of the simultaneous deposition of coarser boulder-gravel, quartzite shingles and implementiferous littoral laterite in the interior. He calculates that towards the end of this time, an upliftment raised the ground by 500 to 600 feet. This was subsequently followed by two periods of fixation and depression during which the recent littoral alluvium was generated and the lateritic deposit was completely depleted by the activity of the river. Further upliftment brought up the ground again to its present level. He opined that the specific littoral upliftment might have influenced different parts of the coastal area. The lateritic deposition of the Western part of India may be contemporary to the implementiferous beds of Madras.

Researches in different parts of India

Foote was pioneer in the field of prehistory and Pleistocene geology of India. He made extensive study on the geographical distribution of artifacts, tool typology and technology of a large number of stone-age sites, which were discovered in various zones of peninsular India. In the time period of 1863 to 1904, Foote discovered 450 prehistoric sites in peninsular India. Out of these 42 sites belong to Palaeolithic culture, 252 to Neolithic and rest to the Iron Age, which represents the stages of human's progress from prehistoric period to civilization (Paddayya and Deo, 2017). He introduced Indian prehistory to England and read two papers on his discoveries. The first one was read before the Geological Society of London and the second in the International Prehistory Congress at Norwich in 1868 (Foote, 1869). A part of his collection was exhibited in the International Exhibition at Vienna in 1873 (Sen and Ghosh, 1966).

R. D. Oldham catalogued all of his contributions made till 1887, both in Geology and Prehistory. An extensive catalogue on Foote's contribution in Prehistory till 1916 was prepared by H.C. Dasgupta and published in the bibliography of Indian prehistoric writings. Before his death in 1912, Foote made a documentation of all the prehistoric artefacts collected by him. In 1913, H. H. Haydon, who was in charge of the Geological Survey of India at that time, discussed Foote's contributions as Geologist. Some of his collections were housed in the Indian museum and also a part of it in the British museum. The Madras Museum purchased his large collection of prehistoric implements in 1903. A special room was built for preserving those implements in the Art and Ethnological Section of the Madras Museum After his death, Madras Museum published the detailed catalogue in two volumes in 1916. These are i. *The Foote Collection of Indian Prehistoric and Protohistoric Antiquities. Notes on their Ages and Distribution* and ii. *The Foote Collection of Indian Prehistoric and Protohistoric Antiquities. Catalogue Raisonne*. In the former volume, he gave a detail account of his findings district-wise and site wise. The introduction part is long (48 pages) which is the "first textbook-like account of prehistoric India" (Paddayya and Deo, 2017).

Foote suggested that Indian Paleolithic was at par with Chello-Mousterian, the middle Palaeolithic stage of France. The excavation of Billa Surgam caves done by his son Henry Foote led to identify Upper Palaeolithic stage of Magdalenian affiliation in India. Foote had thrown light on the problem of hiatus which thought to lie between Paleolithic and Neolithic cultures of South India. It was after the hiatus theory of Europe, which the contemporary

archaeologists believed to have existed after the end of Pleistocene period. It was believed that Europe was depopulated during that time. The continent was repopulated only with Neolithic culture. With the discovery of microliths from the fossil sand dunes, this is locally known as Teris, at Tinnevely led to identify another culture, known as Mesolithic, which ultimately filled the gap between Palaeolithic and Neolithic cultures. Later on, Aiyappan studied the culture. Finally, Zeuner and Allchin made extensive study.

Foote had extensively contributed largely to the understanding of paleontological and stratigraphical researches in South India. He discovered a new species of Rhinoceros from the cotton soil of Belgaum. He described and named this fossil *R. deccanensis*. A number of prehistoric fauna and artifacts were discovered from the exploration and excavation at Billasurgam in Kurnool in 1864 and 1866 by R.B. Foote. These were later examined by Dr. Lydekker in 1866 (Sen and Ghosh, 1966). In another publication entitled “Notes on the Geology of Neighbourhood of Madras”, Record of the Geological Survey of India (RGSi) in 1870, he described the emergence of the trimmed artifacts in the lateritic deposits, described as the Conjeevaram deposits in the adjoining area of the Madras.

In 1873, Foote described stone implements found within the lateritic deposits and reiterated his earlier observations in and around Madras. In the same year he briefly wrote about the findings of two local sites, which yielded Neolithic implements and polished artifacts from the hill terraces near Bellary by William Fraser.

In 1876 Foote gave a detailed account of the origin of Palaeolithic artifacts discovered from the Malaprabha basin and along its tributary Benihala. The writing incorporated two more implementiferous beds near Tolanmatti near Kaladgi and in Manoli, about 8 miles away towards North-West of the village Tolur. In 1879, he wrote about the stone artifacts and numerous chert flakes made on various shades of raw materials, collected from the Northern Part of Madurai in the Pudukottu district of Tamilnadu. Between 1879 and 1880, he discovered the existence of artifacts within the lateritic bed at Ramapatam, located near Potelur and Gudlur. In 1883, he found plenty of chert flakes from the lateritic conglomerate at Shellugi near Bijapur, and also from an area near the Madura town.

In 1884, Foote discovered pottery and neolithic celt from east of Hyderabad. The site Bellary was revisited in 1885 and a discovered Neolithic settlements on the basis of pottery and

implements found from the ash-mounds. Foote described Neolithic settlement patterns of Bellary, Anantapur and Kurnool. It was published in 1887. Here he opined that south India did not have any copper age and there is overlap between Neolithic and iron age. His paper on “The Dharwar System, the chief auriferous rock series of South India” was published in 1888 and is an important milestone in Indian geology. He gave a detailed account of the Neolithic Ash-mound cultures of South India. This was further mentioned in the, “Catalogue of the Prehistoric Antiquities, Madras” (1901). Foote prepared a detailed catalogue on the prehistoric implements preserved in the Government Museum at Madras.

R. B. Foote continued his investigation for a long 43 years starting with the discovery of the first stone tools. His researches also include findings of Neolithic tools, sites and habitations, megalithic monuments and their interpretation with the help of contemporary cultures. Different types of pottery of different period of time were also incorporated in his study. He was the first person who used local existing cultural pattern to understand and reconstruct prehistoric cultures, long before the concept of ethno-archeology came. He was a geologist by profession but he studied prehistoric culture and life ways of prehistoric people from the Anthropological point of view.

Further researches inspired by Robert Bruce Foote’s work

Foote laid down the foundation of Indian prehistory and proto-history, which fascinated the archaeologists of America and Great Britain. This resulted in Yale-Cambridge expedition. This attracted prehistorian like Burkitt and Cammade to work on collection of prehistoric culture of India. Following Foote, Helmut de Terra, T.T. Patterson and Teilhard de Chardin to work in the regions of Siwalik hills, Narmada River valley and Madras. They were accompanied by two young scholars Dharani Sen from Kolkata and V. D. Krishnaswami from Madras. Later Foote’s work was carried out by H.D. Sankalia in the Deccan and Dharani Sen and Nirmal Kumar Bose in Eastern India and G. C. Mohaptra and his students in Siwalik regions. Bruce Foote also is considered as the father of South-Indian geology.

STONE IMPLEMENTS COLLECTED BY ROBERT BRUCE FOOTE

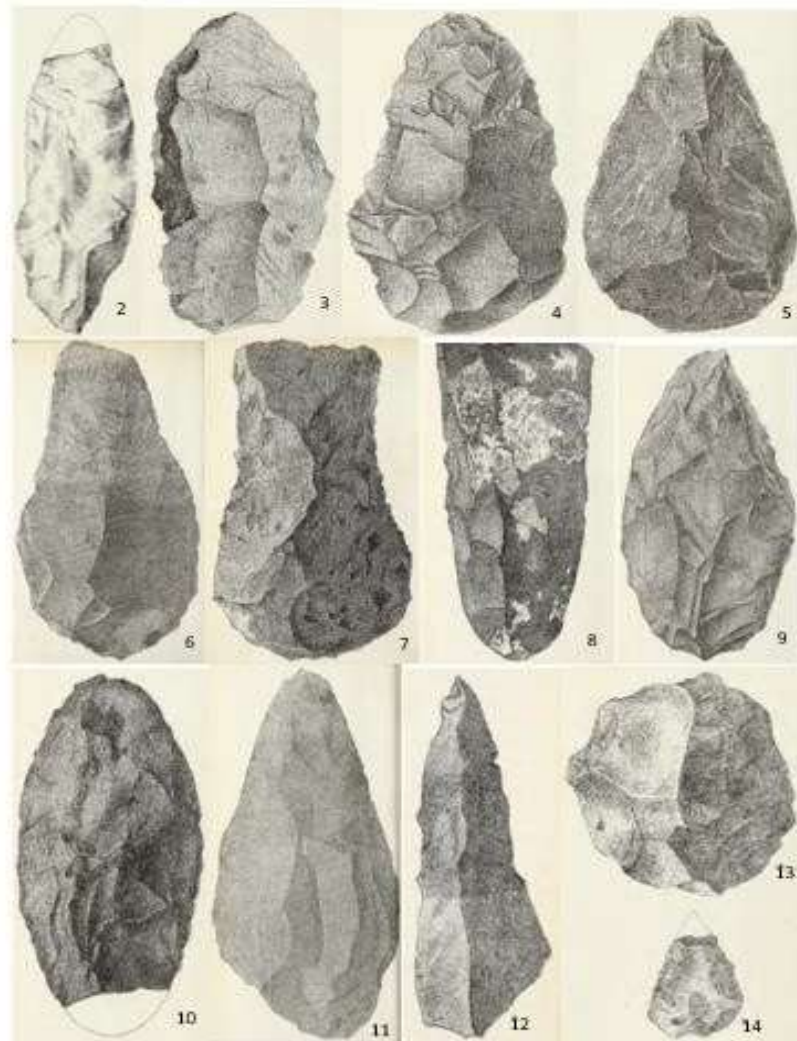


Fig. 2, 3, 4: Picks; Fig. 5: Oval shaped tools; Fig. 6: Truncated tool; Fig. 7, 8: Hachet or Axe
Fig. 9, 10: Tools with all around cutting edge; Fig. 11: Spear head; Fig. 12: Knife;
Fig. 13: Scraper; Fig. 14: Point

[Source: Foote, R. B. (1866). On the Occurrence of Stone Implements in Lateritic Formations in Various Parts of the Madras and North Arcot Districts, *Madras Journal of Literature and Science* 3rd.series. Part II, pp. 1- 35, with an appendix by William King, pp. 36-42.]

In 1963, in connection with the hundred years of the discovery of the first Palaeolithic tool in

India, A. Ghosh, then the Director General of the Archaeological Survey of India, wrote his editorial notes on the work of R. B. Foote in Ancient India. In Asian Perspectives A. P. Khatri wrote a paper on “A century of prehistoric researches in India” in 1962. In 1963, F. R. Allchin published his monograph “Neolithic Cattle-Keepers of South India” in which he paid homage to Foote's pioneering research in South India. In 1962. Allchin also published two papers on Foote's discoveries. A number of studies also were published in recent years about the life and works of Robert Bruce Foote by Chakrabarti (1979), Sundara (2004), Pappu (2008), Paddayya (2009).

Seminars and conferences were held in 2013 in connection with the completion of 150 years of Indian prehistory and the Foote's first discovery of stone tools. Different academic bodies and research institutes of Pune, Chennai, Bhopal, Bhubaneswar and Kolkata celebrated this remarkable event in Indian prehistory. It is to be mentioned that an international seminar was organized by the Asiatic Society entitled “A hundred and fifty years of prehistoric Archaeological Studies in India: Homage to Robert Bruce Foote” on March 31 and April 1, 2014, with the great effort of the General Secretary and Anthropological Secretary of the Asiatic Society. Stalwarts and experts from different institutes and organizations from India as well as from abroad were invited who delivered their valuable lectures on different aspects of prehistory. The papers were scripted in the Journal of The Asiatic Society, Vol. LVIII, Nos. 1 & 2 which was published in 2016 as a special volume on Robert Bruce Foot, the father of prehistoric Archeology of India. So, the contributions of Robert Bruce Foote in Indian prehistory are unparalleled and have immense contribution for further development of the discipline prehistory and archaeological anthropology as per the new nomenclature.

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