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| RESEARCH ARTICLE

The Influence of the Material used for Writing on the Transformation of the Sinhala Letters in Sri Lanka

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| ABSTRACT
It is important to look into the factors that have influenced the change of the Sinhala script through archeological and historical research. In the past, the Sinhala alphabet was composed of letters that had the shape of Asoka Brahmi script and some independently generated letters. The earliest Brahmi alphabet in Sri Lanka has evolved gradually up to now. Various factors were influenced when the Brahmi script transformed into the Sinhala alphabet. Among them, technological, political, environmental, socio-cultural, economic, and legal factors are the foremost. At present, Sri Lanka has also entered into the global economy and simultaneously, the attention has been focused on handling the language efficiently in a simple manner. In the process of evolving from the inscriptions to the computer in the present, the Sinhala script has achieved the status of being handled easily and simply with beautifully shaped letters, and further development can be expected with future technological achievements. Moreover, the number of letters has changed from time to time depending on the respective alphabet. When considering the Brahmi script that has developed in such a manner, some letters can be seen as gradually developed from their early shape, while some letters do not have any similarities with their present shape. Letters have acquired an angular shape when written on clay pots and in inscriptions, semi-circular shapes on metal plates, semi-circular and cursive shapes on Ola leaf, and a more circular shape when used in printing presses and computers.

| KEYWORDS

Sinhala letters; Environmental factors; Writing material; Evolution

| ARTICLE INFORMATION

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1. Introduction

Brahmi letters with angular shapes can be seen in early times in Sri Lanka. Ashoka Premathilaka points out that the writing material used for writing has affected the evolution of these letters to their present form. He further mentioned that the writing, which was initially used for inscriptions, then moved on to ola leaf books and the printing press, followed by various technological accessories, have directly influenced the changes that occurred in the Sinhalese script (Premathilaka, 2019). According to Karunasena Hettiarachchi, when considering the medium of writing used for writing letters, they wrote initially around caves, then on polished walls in the time when Sigiri graffiti was written. Later on, Ola leaf, and in later ages with printing and computers, the impact of technology has contributed vastly to the evaluation of letters (Hettiarachchi, 2019). Accordingly, opinion has been raised claiming that the material used for writing may have affected the nature of the letters, and Paranavitana, who presented the Vallipuram gold plate, pointed out that although the Brahmi letters have been used, they bear a different nature because of the material used for writing (Paranavitana, 1983, p. 80).

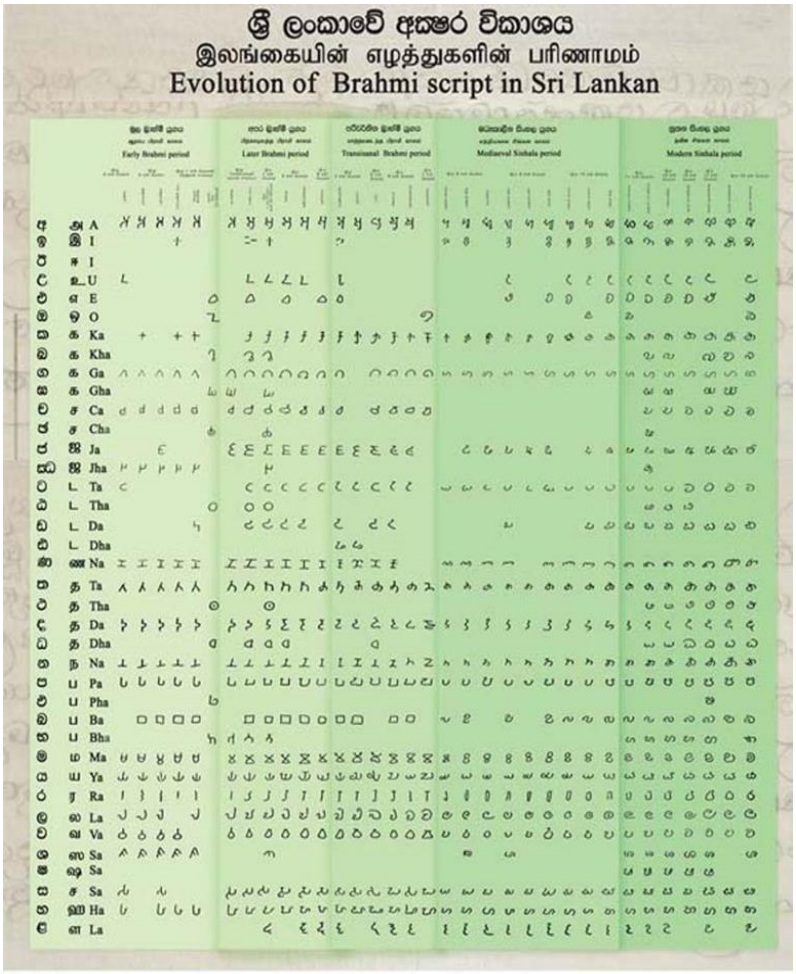

Figure 1: Evolution of Sinhala writing (Source: http://www.archaeology.gov.lk/web/images/stories/gallery/alphabet/Alphabet.jpg)

2. Research problem and research methods

The factors that have influenced the change of Sinhala script can be identified, and depending on them, the change that could occur in the future can also be forecasted. The main objective of this research is to explore the influence of the writing material on changing the shape of letters through archaeological and historical factors.

The research method is to analyze what are the factors that have affected the transforming Sinhala letters based on primary data resources, which include interviews done with intellectuals mastered in the relevant subject, and secondary data resources, which include information in books and journals, inscriptions, and research papers.

3. Data analysis

Intellectuals and archaeologists have conducted many pieces of research regarding the evolution of the Sinhalese script. Paranavithana points out that there have been opinions raised by some that the writing material has influenced the change in the shape of letters (Paranavitana, 1983, p. 80)

3.1. Writing letters on clay pots

S. Deraniyagala states that potsherds with Brahmi script, which belong to the 6th century BC, were found by the archaeological excavations conducted near the Mahapali alms hall in the inner city of Anuradhapura (Deraniyagala, 1990, pp. 1-23). As pointed out by Piyatissa Senanayake, there are Brahmi letters that can be read and interpreted and non-Brahmi symbols that were used in the proto-historic period that were written on clay pots that dated back to the 6th century BC, found at the archaeological excavations done at the inner city of Anuradhapura (Senanayake, 2018) . As pointed out by Tissa Bandara, some documents that have used clay as the medium of writing can be found in several archaeological sites in Sri Lanka, and they are written on bricks and clay pots as well as on pieces of clay pots. Symbols similar to Brahmi letters written on clay pots, which have been found during archaeological excavations done in the inner city of Anuradhapura, have led the history of writing in Sri Lanka to a new way (Bandara, 2018, p. xxvii).

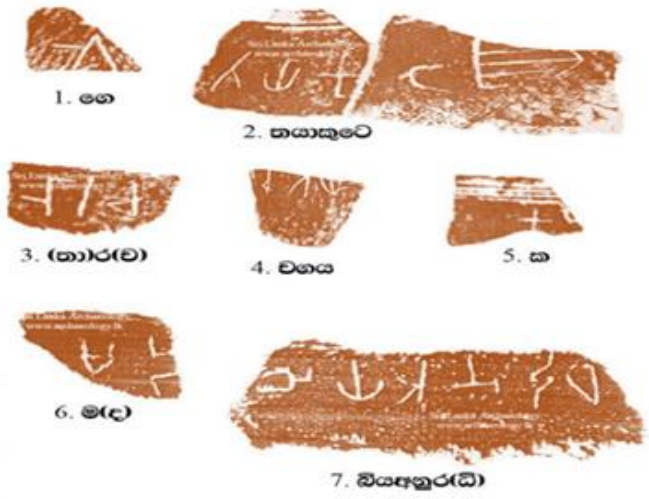

Figure 2: Potsherds found during excavations at Salgahawatta, the inner city of Anuradhapura in 1988 (Biya Anuradhi) - (Source: Sinhala.archaeology.lk/දකුණු-ආසියානික-ඉතිහාසය-හ/)

3.2. Writing inscriptions

Brahmi inscriptions, which are written near the drip made to prevent the leaking of water into caves, are short and are limited to 4 to 75 letters (Lagamuwa, 2009, p. 18). Inscriptions written on prepared or unprepared rock surfaces at places like Thonigala, Mihintale and Sithulpawwa are called rock inscriptions, and they carry more details than that were depicted by cave inscriptions. Inscriptions that are written on prepared stone slabs that can be seen at Wewelketiya, Mihintale, and Jethavanarama are called slab inscriptions (Amarawansha, 1959, p. 7). Pillar inscriptions are inscriptions that are written on one or more sides of a stone post (Bandara, 2018, pp. xxiv-xxv).

Brahmi letters used in inscriptions in early ages in Sri Lanka bear an angular shape, and short vowels are used instead of long vowels. Moreover, the same letter with different shapes can be seen even in the same inscription (Arangala, 1992, p. 14) Gunasekara expressing his views on Vaharala inscriptions that came into existence in the same era, pointed out that these inscriptions clearly show the changes that occur in the alphabet. Gunasekara pointed out that the addition of a short horizontal line called 'the head' on top of the vertical lines can be clearly identified in these inscriptions; they further stated that the lower end of the vertical lines has extended, and sometimes the extended line has bent towards the left side (Gunasekara, 1996).

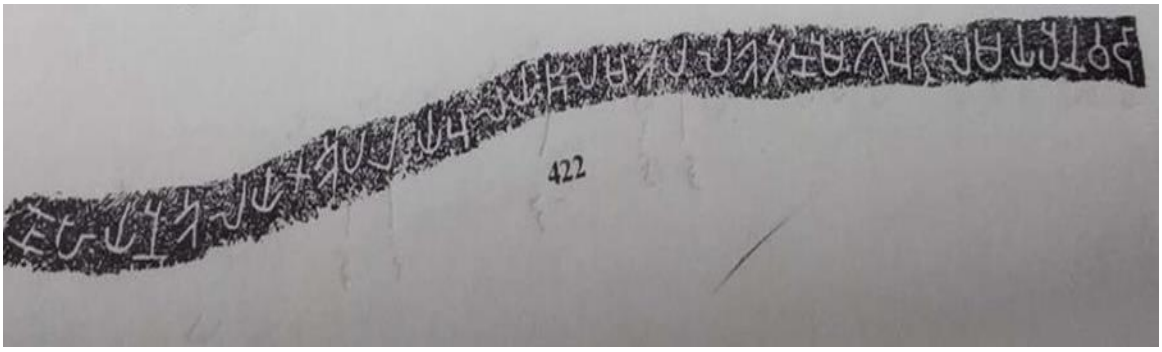

Figure 3: Rajagala inscription of 3rd century BC (Source: (Paranavitana, 1970, p. XLII))

3.3. Writing on metal plates

The Vallipuram gold plates are written with Brahmi letters but have a strange shape due to the material used for writing (Paranavitana, 1983, p. 80). Ariya Lagamuwa points out that metal plates were also used for writing in Sri Lanka since the 3rd century BC. (Lagamuwa, 2006). Lankage discusses that the medium of writing has affected Brahmi letters to become the nature of Sinhalese letters, and this can be understood by comparing the Vallipuram gold plates by King Wasabha with Periyankulam inscription and

other inscriptions. He further pointed out that more round shape letters can be written on a gold plate than writing on a rock (Lankage, 1996, p. 80).

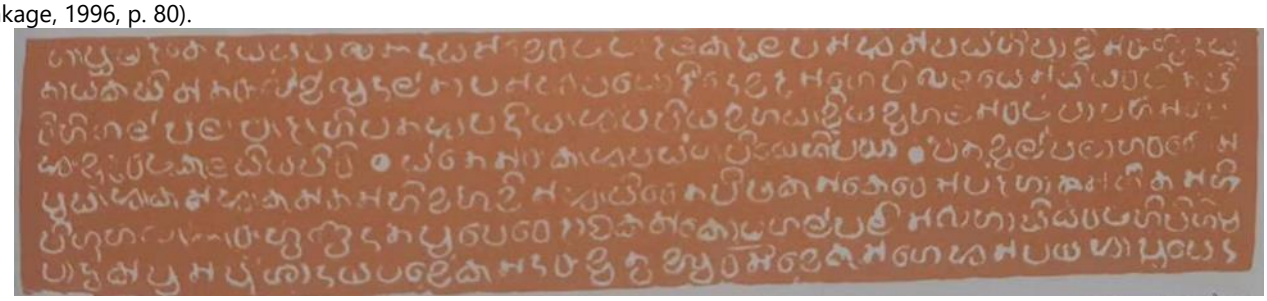

Figure 4: Panakaduwa Copper plates (Coperahewa, 2018, p. 27).

3.4. Letters written on Ola leaf books

There are letters written on the surface of Ola leaves, and this material is significant among other materials used for writing in the history of Sinhalese writing (Coperahewa, 2018, p. 39). The next trend in changing Brahmi letters to Sinhalese letters can be seen since the 6th century AD, and with writing on Ola leaf, the letters became circular or cursive in shape (Gunawardana, 1997). According to Namal Kodithuwakku, "In a way, inscription by King Nishshanka Malla reveals that there were Ola leaf books. When writing on Ola leaf, you can't write straight. Letters became curvy. That also helped in the evolution of letters. This impact can be seen in the 9th, 10th and 11th centuries AD, that is, the latter part of the Anuradhapura era and the Polonnaruwa era (Kodithuwakku, 2019). In Lagamuwa's 2018 study, it can be assumed that letters on Ola leaf have evolved in the shape of cursive letters in the same way or even faster than the letters on inscriptions evolved. He explains the skill of writing on palm leaves is a result of constant practice. The skilled scriber trains students by getting them to write and re-write on top of the 'Guru akura' (teacher's letters) written by him. This type of writing is usually a form of engraving (Lagamuwa, 2006, p. 125).

Figure 5: Ola leaf book (Source: Webpage - https://sinhala.archaeology.lk/ලක්දිව-පැරණි-ම-පුස්කොළ-පොo/)

3.5. Printing press and computer

According to Asoka Prematthilaka, "Also, the recent change of letters has been greatly affected by the introduction of printing. When writing on Ola leaf, conjunct letters were used. However, when looking at printing, it is very easy to write letters separately. In the early Dutch period, the term Balakatan refers to government announcements. At that time, there was Catholic literature written by persons like Fr. Gonsalves. Books such as prayer books and Bible were printed with conjunct letters, which were used in Ola leaf books. They are not in use anymore (Prematthilaka, 2019).

The shape of Sinhala letters has changed due to the requirement of printers and the technological developments that occurred in the twentieth century. Technological accessories such as the typewriter and the computer have influenced the further changes in the Sinhala letters in the twentieth century, and at present, as well as the computer, the mobile phone is affecting the shape of Sinhala letters (Coperahewa, 2018, p. 29).

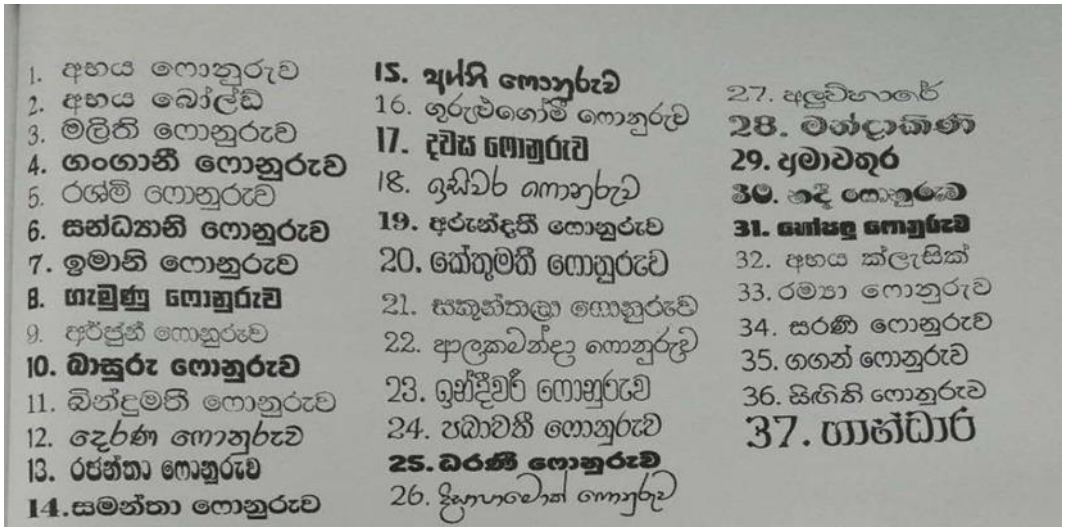

Figure 6: Isiwara computer fonts created by Pushpananda (Coperahewa, 2018, p. 143).

4. Research outcomes and findings

Ancient Brahmi script in Sri Lanka has gradually developed. In this regard, when considering technology, it has been revealed by researchers that the material used for writing, as well as the tools used for writing, plays a major role. For instance, it was affirmed that more rounded-shaped letters could be written when writing on a gold plate rather than writing on a rock.

It has been revealed that the factor of the material used for writing has also affected the Sinhala alphabet to be developed into a beautiful script with circular-shaped letters in the world after passing several eras, starting with angular shapes in the past. Brahmi letters in Sri Lankan inscriptions in the early ages had short vowels instead of long vowels. From inscriptions, the writing material changed into polished walls in the Sigiriya period and to Ola leaves, and the technological transformations that occurred with the printing press and the computers in later ages have also influenced the evolution of the script.

Table 1: Summarized chart on the shape of letters based on the material it was written

The material used for writing	Shape of letters
Clay pots	Angular
Inscriptions	Angular
Metal plates	Semicircular
Ola leaf	Semicircular and cursive
Printing press and computer	Circular

5. Conclusion

The objective of this research is to study the factors that have influenced the change of the Sinhala script through archeological and historical research. Sinhala script, which has a history of about 2600 years, has gained its present status after passing many alphabets that have written evidence. It has been revealed that the factor of the material used for writing has also affected the Sinhala alphabet to be developed into a beautiful script with circular-shaped letters in the world after passing several eras, starting with angular shapes in the past. From inscriptions, the writing material changed into polished walls in the Sigiriya period and to Ola leaves, and the technological transformations that occurred with the printing press and the computers in later ages have also influenced the evolution of the script.

When evolving from the inscriptions to the modern computer, the Sinhala letters have acquired a beautiful appearance with ease of handling and simplicity. The shape of letters has changed from an angular shape in clay pots and inscriptions, a semicircular shape in metal plates, and semicircular and cursive shapes in Ola leaf, and to a more circular shape in printing press and computers. Especially the material of writing may vary further with the technological revolution that could take place in the future, and with the change in the writing material, the shape of the script may change further.

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