

To: Unicode Technical Committee
From: ICT Agency of Sri Lanka
Date: 2008-01-28
Subject: Archaic Sinhala Numerals

Subsequent to our letter of 3rd January, Mr. Harsha Wijayawardhana has undertaken a study of archaic Sinhala numerals, and has examined a number of source documents.

I annex the interim report prepared by him.

Accordingly, we plan to forward our recommendations on the encoding of archaic Sinhala numerals once this research is completed.

Sincerely,

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Archaic Sinhala Numerals

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Summary

Research was carried out into archaic Sinhala numerals. It was found that Sinhala had used a set of numerals which were known as 'lith lakunu' or astrological numbers prior to Arabic-Hindu numerals. Sinhala letters in the alphabet were also used for numbering. Although further research is required for a concrete proposal, the following short paper provides salient points which were discovered up-to-now.

Types of Sinhala Numerals

Although Brahmi Numerals may be used soon after the arrival of Buddhism, Sinhalaese had developed several unique ways of depicting numbers in their script as the language evolved into modern Sinhala. Dr. Paranvithana and Dr. Abaya Ariyasinha had independently found in their research that Sinhala had used numerals which closely resembled Brahmi numerals in the early days of Sinhala civilization. For evidence for the use of numerals similar to Brahmi, in the early days of Sinhala civilization, rock inscriptions of Dakkina vihara can be given where the late Dr. Paranavithana had discovered 17 slabs on which contained the ancient Sinhala symbols for 3, 4, 5, 6, 7, 8, 9, 40, 50, 70, 100 and 1000 which closely resembled brahmi numerals that were found in ancient India. In many rock inscriptions, Sinhalaese writers had written numbers such as dates in words therefore the majority of rock inscriptions are devoid of numerals. As mentioned previously, Sinhala had used different sets of symbols for numbers depending upon the purpose and some instances Sinhala letters were used for depiction of numbers especially for page numbering of Ola.

The results of research into archaic numerical are categorized into four main categories for easy reference:

1. According to Abraham Mendis Gunsekera and W. A De Silva, certain archaic numerals were used in Sri Lanka, which did not have a zero nor did have the zero place holder concept. According to Mendis Gunsekera in his internationally famous book, "A Comprehensive Grammar of Sinhalese Language", usage of these numerals ceased in the latter part of 1700 AD and the beginning of 1800 AD. According to W.A. De Silva in his 'Catalogue of Palm leaf manuscripts in the library of Colombo Museum', Volume I', these were called 'Lith Lakunu' or astrological numbers.
2. For numbering of Ola leaf pages of certain Ola leaf books, the Sinhala vowel-consonants were used. The majority of Buddhist canonical books which are in Pali

had followed the above tradition and this tradition continued up to the present day when compiling Ola leaf manuscripts, mainly on Buddhism;

3. In some of astrological, medicinal and 'Manthra' books, a special type of numbering had been used, which is known as 'Katapayadia' where Sinhala consonants are used for numbers and several consonants are associated with each number (this was specially used for writing years);

4. A modified version of 'Lith sankaya' or 'Lith lakunu' (ephmeris numbers in English) is used for writing and calculating horoscopes in the early 19th to 20th century and this numbering system has a zero as well as zero place holder concept though some of the symbols are Sinhala consonants and vowel modifiers; and these numbers were continuously used till the latter part of 20th century for writing horoscopes on Ola leaves (tradition of having horoscopes written on Ola leaf continued to the latter part of the 20th century). This modified version of Lith lakunu had been commonly used for page numbering of Ola leaf books during the Kandyan period.

The author examined several Palm leaf manuscripts from the Colombo Museum with Lith lakunu or Astrological numbers. The author up to now had not found the numerals mentioned by Abraham Mendis Gunsekera for page numbering of palm leaves though he had found strong evidence for an evolved version of Lith Lakunu or Astrological numbers which had a sign for zero and zero place holder concept. While the author recognizes the importance of encoding of Sinhala Archaic numerals, he is of the view that further research has to be carried out to determine which set of numerals to be encoded in UCS in the light of the discovery of zero and zero place holder concept in these astrological numbers which were definitely used in the later Kandian period (the majority of palm leaf manuscripts which have survived are from Kandian period)