

# The Discovery of a Second Lunar Calendar on Rongorongo Tablet C (Mamari)

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Fig 1. Tablet C 'Mamari'<sup>1</sup>

## Abstract

The author identifies a second lunar calendar on Rongorongo Tablet C, also known as the Mamari Tablet.

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<sup>1</sup> <sup>1</sup> 'Tablet C "Mamari"', *The Rongorongo Corpus: Digital Archive*, Rongorongo.org [http://kohaumotu.org/rongorongo\\_org/repro/ca.html](http://kohaumotu.org/rongorongo_org/repro/ca.html) [accessed 4 April 2026].

# 1. Introduction

Rongorongo remains one of the few undeciphered scripts of the world. Traditional approaches have focused on visual symbolism, narrative interpretation, or speculative linguistics. With the exception of the identification of what is believed to be a lunar calendar on Mamari Tablet C in 1958 by Thomas Barthel<sup>2</sup>, progress of decipherment has been sparse.

## 2. Statement of Artificial Intelligence (AI) Use

While AI was occasionally consulted for historical research, to finesse the presentation of this paper and for publishing assistance, any interpretive outputs were treated as non-binding suggestions. The author's final analysis and conclusions are as demonstrated below and AI was not used in the pattern recognition aspects or conclusions of this paper.

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<sup>2</sup> T. S. Barthel, *Grundlagen zur Entzifferung der Osterinselschrift* (Hamburg: Cram, de Gruyter & Co., 1958)

### 3. Analysis and discussion

#### Discovery of the second lunar calendar, step by step

The discovery of the second lunar calendar was made using the following steps.

The transcription of the recto of Tablet C by Barthel<sup>3</sup> is reproduced at Annexure A. The image of the recto was loaded into Microsoft Paint (Paint) and the author proceeded to cut and paste using Paint's copy tool. Paint is a simple program but at least it does not hallucinate like AI.

The first step undertaken was to take all the glyphs after the 3<sup>rd</sup> glyph on line 9 and move them down a considerable distance to allow for later work. Next, several delimiters and delimiter sequences were noticed and used to construct the chart as seen at Annexure B. This is not new work by the author but largely a reconstruction of Barthel's<sup>4</sup> lunar calendar.

The structure of the lunar calendar is a recurring delimiter glyph sequence followed by a series of mostly moon inspired glyphs, crescent shaped and full moon shaped. At the end of each delimiter sequence is a composite glyph (with one exception) with a line coming out from the preceding glyph and down to a fish, much like a fishing line hauling up a newly caught fish. Up until the full moon (first 4 sequences) the fish is pointing upwards and downwards thereafter. The fish pointing upwards aligns with the waxing of the moon and the fish pointing downwards with the waning.

The summation of moon-shaped glyphs across the eight sequences yields a total of 31 ( $2+6+4+4+5+3+5+2=31$ ) moon shaped glyphs (moon nights). The glyphs following the 3<sup>rd</sup> delimiter sequence might be 3 moons or 4 but that question will be addressed later. It suffices to say that this is essentially the lunar calendar identified by Barthel.

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<sup>3</sup> T. S. Barthel, 'Mamari Tablet (Text C) Recto Line 6-9', *Wikimedia Commons*, [https://commons.wikimedia.org/wiki/File:Barthel\\_Ca.png](https://commons.wikimedia.org/wiki/File:Barthel_Ca.png) [accessed 4 April 2026]

<sup>4</sup> Barthel, *Grundlagen*; see also 'Mamari Tablet (Text C) Recto Line 6-9', *Wikimedia Commons*

There remain 6 lines of glyphs, most of which include peculiar ‘poles’ of 3 diamonds, some with nodules attached either side. These glyphs may represent a numerical or counting system; however, the underlying structure of that system is not yet understood. For the purposes of this paper, the stack of diamonds will be referred to as a staff and the nodules as buds. The number of diamonds in a staff varies but staves are always vertical poles.

Looking through the glyphs and disregarding the ‘numbers’ the author noticed a repeating sequence of glyphs and the staff & bud glyphs appeared to follow these in exactly the same way as the moon crescents followed the delimiter sequences in the previously identified lunar calendar (A). Following the pattern of Lunar Calendar A, the author respaced the glyphs as shown in Annexure C (latter half of Mamari Tablet recto). As readers will note, there is again a pattern consisting of a delimiter glyph sequence followed by some glyphs largely consisting of mixed staves with buds or no buds. This block has been titled ‘Lunar Calendar B’. The delimiter sequence generally has 5 glyphs and ends with a character that looks like a hooded anthropomorphic figure.

The next step was to take all of block B and move it next to Lunar Calendar A (the calendar identified by Barthel). Note that it has been aligned one row down. The eighth delimiter sequence for Lunar Calendar A has now been moved down to create more room for Delimiter sequence 7. The two aligned calendars are now shown at Annexure E.

As can be seen, there is a common sequence of 6,4,4,5,3,5 then 2. This pattern is true for both the sequence of nights in Lunar Calendar A and the sequence of buds in Lunar Calendar B, subject to the following..

In each delimiter sequence the furry staff connected to or next to what appears to be a 4 pronged turtle appears to be the primary delimiter but it disappears after sequence 5 and only the second glyph (the second glyph in the delimiter sequence) appears in sequences 6a, 6b and 6c. This suggests that the first glyph is acting as a chapter whereas the second glyph denotes a subsection of a chapter.

In Lunar Calendar B, sequence 6, there is therefore:

1. A secondary delimiter with **2** staves of 3 diamonds (sequence 6a) then
2. A secondary delimiter with **2** staves of three diamonds (sequence 6b) then
3. A secondary delimiter with **1** staff of 4 diamonds (sequence 6c)

To reinforce the above, all the buds on glyphs 6a, 6b and 6c add up to 5 which matches the sequence of 5 nights in the Lunar Calendar A cycle (7<sup>th</sup> sequence).

An argument could be made that the two sequences do not in fact match because one has 5 nights in one sequence and {2,2,1} nights in the other. That is a perfectly reasonable argument to make. In rebuttal the author contends that the 5 nights divided into 3 parcels represents the allocation of time (nights) to a particular task, or as having some feature peculiar to the purpose of Lunar Calendar B but that is not relevant to the purpose of Lunar Calendar A. It is further submitted that the truncated delimiter sequence for the {2,2,1} nights indicates a segmenting of a period of time and that the truncated delimiter sequence communicates a commonality between the 5 nights divided into 3 parcels.

The common sequences of the two calendars are unlikely<sup>5</sup> to have arisen by chance, particularly given that they occur on the same side of the same tablet and share a comparable structural format. The sequences appear to be aligned with one another, and on this basis the second sequence of delimiters is interpreted as representing a related calendrical structure (henceforth referred to as Lunar Calendar B). The term “lunar” is used provisionally. If, for example, Lunar Calendar B reflects an agricultural cycle, the buds may represent days rather than nights. In any case, it appears to follow the same underlying structural pattern as Lunar Calendar A.

It is noted that the buds appear on either side of the glyphs so this may represent mornings and afternoons but this is conjecture.

Looking at the two sets of data and assuming that Lunar Calendar B is based on the same lunar calendar used by the Rapanui, the total buds add up to 29 which is just short of the visible lunar cycle of 29.53 days. In view of this, a Rapanui lunar calendar of 29 days seems more plausible than a calendar of 31 days. The question is what do the extra two days in Lunar Calendar A represent?

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<sup>5</sup> A simple illustrative model may be considered: if segment lengths are assumed to fall within a range of six possible values, then the number of possible ordered sequences of length seven would be 6<sup>7</sup> (279,936). Under such a simplified assumption, the probability of reproducing an identical ordered sequence by chance would be low. This is not intended as a formal statistical analysis, but as an indication of the relative rarity of the observed correspondence.

What follows is merely conjecture, not proof of anything, but it is theorised that the Rapanui had a 29 day calendar with an extra day added every second month. This would give a 29.5 day cycle which is just short of the real moon cycle length. In Lunar Calendar A there are two seated figures back to back next to the turtle in the final sequence of glyphs. It is suggested that the back to back characters may represent 'alternating'. Some support for this theory can be found in the 5<sup>th</sup> sequence of Lunar Calendar A. In most of the sequences, the third delimiter sequence glyph is some kind of bird facing to the right. However immediately following the full moon the glyph faces to the left and thereafter reverts back to the right. It suggests that a change of some kind has occurred.

Guy<sup>6</sup> compared the calendars obtained by Thomson (1889), Englert (1948) and Metraux (1940). One variance in the calendars is that Englerts calendar has 7 nights starting after the 6 night numbered sequence and ending with the full moon glyph in Lunar Calendar A. However, Thomson and Metraux identify an extra night thus giving 8 nights not 7.

Each of the authors identifies 2 nights before the six night numbered sequence but these are the darkened nights when the moon is in earth's shadow. They do not appear in Lunar Calendar B and may serve another purpose.

From the perspective of an observer, it does not make sense to start counting moons until one can see a moon or at least part of a crescent. It is difficult to count something that has not appeared yet. It is no surprise then, that the first six visible moons are numbered 1-6 by the Rapanui and this is agreed in each of the calendars. It also makes adjusting the cycle to match up with the observed moons much simpler if one waits until the moon is dark and then starts the next observing cycle when the first sign of a new crescent is observed.

The above assertion aligns with the structure of the Lunar Calendar B. It starts on day 1 (Kokore Tahī) and according to the number of buds has a 29 day cycle. It is possible that the glyphs preceding Lunar Calendar A or in the final delimiter sequence of Lunar Calendar A (or both) may contain instructions for adding a night every second month.

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<sup>6</sup> Jacques B. M. Guy, 'On the Lunar Calendar of Tablet Mamari', *Journal de la Société des Océanistes*, 91.2 (1990), 135-49 (pp. 140-42).

## **A structurally similar sequence**

A considerable number of glyphs preceding the Lunar Calendar A block exist and these were examined to look for delimiting sequences.

The result 'The Preceding Glyphs Pattern' can be found at Annexure F.

A short recurring delimiter sequence (predominantly two glyphs) is observed elsewhere on the recto; however, unlike the two lunar calendars, the author sees nothing calendrical in that structure.

It is noted that the sequence of a turtle followed by back to back seated figures (boxed in red) is identical to that found in the glyphs in Lunar Calendar A, sequence 8. Put another way that sequence including the back to back characters is found close before the first 2 moons in Lunar Calendar A and immediately before the final 2 moons in Lunar Calendar A.

## **4. Conclusions**

The sequences identified in the latter half of the recto of Tablet C have a similar structure as Lunar Calendar A and the pattern of buds in these sequences exactly matches the pattern of nights in Lunar Calendar A. Therefore it is concluded that these sequences form a second lunar calendar. Lunar Calendar A has sequences involving moons and fish whereas Lunar Calendar B has 'buds' and the first 6 buds are attached to what appear to be plant glyphs which is suggestive of an agricultural purpose. It is therefore probable that Lunar Calendar B is an agricultural calendar.

The alignment of the 4 bud sequence (sequence 2 in Lunar Calendar B) with the series of moon glyphs in Lunar Calendar A (sequence 3) adds weight to the assertion that the third glyph which is crescent shaped but furry, represents a moon night, thus giving 4 nights for this sequence in total. The same logic applies for the sequence ending with the full moon (4 nights) giving a total of 8 nights following the six night numbered nights and ending with the full moon.

The 29 total buds suggest that the Rapanui Calendar was 29 nights long, commencing on the first sighting of the new moon. The addition of a day every 2 lunar cycles would more neatly allow the Rapanui to align their calendar with the actual visual lunar cycle however it is not obvious how that extra half day would be accounted for in Lunar Calendar B. There are a range of possible explanations including that after 29 days the Rapanui just waited until they saw the new moon and then started again from there. Then again, the alternating back to back glyphs suggest that an extra night was added every two lunar cycles.

Finally a sequence of glyphs with a similar structure to the two calendars is identified in the first 5 lines of the recto side of tablet C but no alignment with the lunar calendars is noted.

## **5. Author Note**

Peter Berrett is an independent researcher.

## 6. Annexures

### Annexure A Tablet C (Mamari) Recto

Line

[illegible]

**Annexure B - Reordered Tablet C (Recto)**




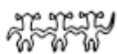


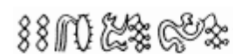
[illegible]

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Annexure C - Lunar Calendar B

Lunar Calendar B

புதுவெள்ளம்	சுழல்
புதுவெள்ளம்	சுழல்
புதுவெள்ளம்	சுழல் சூன்
புதுவெள்ளம்	சுழல் சூன்
புதுவெள்ளம்	சூன்
புது	சூன்
புது	சூன்
புது	சூன்
புதுவெள்ளம்	சூன்

புதுவெள்ளம் (புதுவெள்ளம்) புதுவெள்ளம்

புதுவெள்ளம் (புதுவெள்ளம்) புதுவெள்ளம்  
 புதுவெள்ளம் (புதுவெள்ளம்) புதுவெள்ளம்

[illegible]

### Alternating night?

[illegible]

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𐎢𐏁  
 𐎵𐎲𐎠𐏃𐎫𐎺𐎠  
 𐎢𐏁𐎤𐎴𐎧𐎪𐎠𐏃𐎫𐎺𐎠

# Annexure E - Numbering of the two lunar calendars

Lunar calendar A				Lunar Calendar B			
ቀንዳ)ጥቅም	ሀ( ጥ	2		ጥቅም)ጥቅም	ጥቅም	6	
ቀንዳ)	(((	6		ጥቅም)ጥቅም	ጥቅም	4	
ቀንዳ)ጥቅም	(ጥቅም	4		ጥቅም)ጥቅም	ጥቅም ጥቅም	4	
ቀንዳ)ጥቅም	ሀ(ጥቅም	4		ጥቅም)ጥቅም	ጥቅም ጥቅም	5	
ቀንዳ)ጥቅም	((	5		ጥቅም)ጥቅም	ጥቅም	3	
ቀንዳ)ጥቅም	((	3		ጥቅም)ጥቅም	ጥቅም	1	
ቀንዳ)ጥቅም	((	5		ጥቅም)ጥቅም	ጥቅም	2	
ቀንዳ)ጥቅም	((	2		ጥቅም)ጥቅም	ጥቅም	2	
Total nights = 31				Total buds = 29			

### Annexure F - Reordered preceding glyphs (First 5 lines of Tablet C)

[illegible]

အထွေထွေအကျဉ်းချုပ်

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ਖਾਯ	ਘ
ਖਾਯ	ਙ
ਖਾਯ	ਚ
ਖਾਯ	ਛ
ਖਾਯ	ਜ
ਖਾਯ	ਘ
ਖਾਯ	ਙ

[illegible]

## 7. References

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