L2/26-020

The North African History Society (SHNA)

Introduction of the Libyc Script into the Unicode Standard

November 20, 2025

What's the SHNA?

Preamble

"The millennia-old contribution of North Africa is not adequately acknowledged in African, Mediterranean, and global history. Therefore, this association will work around a set of values centred on sharing and scientific exchanges concerning the overall history of North Africa."

Who are we?

The North African History Society or Société d'Histoire Nord-Africaine (SHNA) is a French association governed by the law of July 1, 1901, and the decree of August 16, 1901, published on Tuesday, December 13, 2022, in the JOAFE. It was announced to the public on January 12, 2023, during Yennar, the North African agricultural calendar. The society is composed of a circle of enthusiasts interested in the history, archaeology, geography, and anthropology of North Africa.

What is our goal?

The aim of this association is to promote North African history, particularly by working towards the establishment of a museographic space dedicated to the millennia-old history of North Africa, from prehistory to the present day. The association will implement various means of action, including exhibitions, conferences, the publication of scientific works, and books.

Visit our website for more information.

Abstract

Over the last decades, Libycology researchers and experts have been using Tifinagh and Neo-Tifinagh characters along with custom fonts and images to represent the Libyc characters in their documents, which is not the most optimal way in transcribing inscriptions.

To enable a more scalable and unified manner in writing such characters, we apply for the integration of the Libyc script into the Unicode standard. We believe this would contribute to the emergence of contemporary digital tools that will drive new approaches in studying the ancient Berber languages.

The required properties to digitalize the script uniformly, are enumerated in this document, along with a list of characters, inclusive of all the known Libyc alphabets.

Keywords: Libycology, Libyc script, Unicode standard, Digitalization

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Introduction

« *While paleo linguists are rediscovering and reconstructing dead languages that date back to prehistory and comparing the languages that evolved from them, we still do not know how to read Libyco-berber. There has been great interest in Punic or Greek, but not in Libyco-berber, and this disinterest is quite old. Neither Herodotus, Pliny, nor Strabo bothered to make any comments on this language, a language whose geographical distribution extends from the Western Nile to Nubia in the East, to the Canary Islands in the West, and from the Mediterranean to the Sahel. As for Sallust, he barely noted that the Numidians spoke a language different from that of the Phoenicians.* »

Malika Hachid, Les premiers Berbères : entre Méditerranée, Tassili et Nil, 2001.

For more than two millennia, the Libyc script has represented one of the oldest and most enduring writing traditions of North Africa. Despite its vast geographical distribution—from the Atlantic to western Egypt, and from the Mediterranean to the Sahel—the script has long remained marginal in global academic and digital standards. While ancient systems such as Phoenician, Punic, Greek, or Egyptian hieroglyphs have benefited from extensive documentation and early standardization, Libyc has often been overlooked, scattered across local corpora and reliant on non-standardized typographic solutions.

In recent decades, a renewed scientific interest has emerged within Libycology, archaeology, and historical linguistics. More than 1,500 inscriptions are now documented across the Maghreb and the Sahara, revealing a writing tradition of remarkable internal coherence despite its chronological and regional diversity. This corpus constitutes one of the most ancient testimonies of Berber linguistic history and offers essential insights into Numidian society, Saharan cultures, and the wider Amazigh world.

Yet the absence of the Libyc script from the Unicode Standard remains a significant barrier for both scholarship and digital preservation. Researchers must rely on Neo-Tifinagh characters, custom fonts, images, or ad-hoc encodings that undermine interoperability, reproducibility, computational analysis, and long-term conservation. Standardizing the Libyc script in Unicode would enable the creation of consistent digital corpora, searchable databases, and computational tools for linguistic comparison, epigraphic modeling, and archaeological analysis.

This document therefore proposes the integration of the Libyc script into Unicode through a comprehensive and scientifically grounded approach: a full inventory of attested Libyc glyphs, their phonetic values when known, their directional behaviors, their orientation rules, and the necessary disunification from the modern Unicode Tifinagh block. This proposal is submitted by the North African History Society (SHNA), as part of the Libyca Project, with the aim of ensuring that this ancient writing system receives the digital visibility and academic recognition it deserves.

Statement of Request

This proposal formally requests the disunification of the Libyc script from the Unicode Tifinagh block. The Libyc script predates Tifinagh by more than a millennium, includes multiple ancient alphabets rather than a single modern tradition, and relies heavily on orientation-dependent forms that cannot be represented by the existing Unicode Tifinagh codepoints. A full justification is provided in Chapter II.

Terminology: Defining the Libyc script

"Libyco-Berber" is generic term used among experts to refer to a script with geometric formal characteristics used in North Africa as far back as one can trace, and for at least 2,500 years, from the Atlantic to western Egypt, including the Canary Islands off the coast of Morocco, and from the Mediterranean to the sub-Saharan Sahel.
This script was used by populations commonly called "Berbers" in a geographical area that the Greeks called "Libya", Herodotus designated by "Libyan"[1], all the populations living in the southern shores of the Mediterranean Sea (*Casajus 2012, Drouin 2013*).
Currently, the term "Libyco-Berber" refers to both the ancient Libyc alphabets and all variants derived from the ancient Libyan writing, from undetermined intermediate periods, including the traditional Tuareg Tifinagh, and the contemporary Neo-Tifinagh alphabets (*Drouin 2013, Ghaki 2014*).
Thus, it is important to clearly distinguish between the three currently known scripts:

Libyc: This term refers to the characters of the alphabet discovered since the reading of the bilingual stele of Dougga (will be detailed below, in the first chapter of this document), it includes, all the ancient Berber alphabets, notably the Saharan alphabets that would later evolve into the Tuareg Tifinagh.

Tifinagh: This is a word, the endogenous term that the Tuareg use to designate all the characters of their writing. This expression is part of the Tuareg language lexicon.

Neo-Tifinagh: It designate the modern Tifinagh alphabets that have been modified due to the addition of vowels and new consonants replacing those that were eliminated for convenience.

The Neo-Tifinagh symbols, as well as the majority of the traditional Tifinagh symbols, already exist in Unicode as part of the *Tifinagh* script; this document therefore covers the ***Libyc*** script and its introduction into the Unicode standard.

Clarification on the "23 Classical Libyco-Berber Letters"

Although Classical authors such as Fulgentius of Ruspe mention a system of "23 Libyco-Berber letters", this figure reflects only a limited historical snapshot of a specific alphabetic tradition (the Eastern/Numidian variant). It does not represent the full graphic complexity of the Libyc script as attested in archaeological and epigraphic evidence.

Modern Libycology recognizes multiple ancient alphabets (Eastern, Western, Saharan, Southern/Canarian), hundreds of distinct graphic units, orientation-dependent forms, reversible shapes, and regionally specialized variants. Many Libyc glyphs change their phonetic value depending on rotation or position, and these variations are integral to the structure of the script.

For these reasons, the present Unicode proposal does not treat the "23 classical letters" as the fundamental inventory of the Libyc script. Instead, it encodes all attested Libyc glyphs required for the accurate transcription, analysis, and digital preservation of the corpus.
The table of the "23 classical letters" included later in this document is provided exclusively to meet Unicode comparative expectations regarding historical references, Semitic influence, and potential relationships with modern Tifinagh characters.

[1] Derived from the Egyptian "Lebu", this term designated a vast confederation of tribes that occupied North Africa in the archaic period (*Belkadi 2006*).

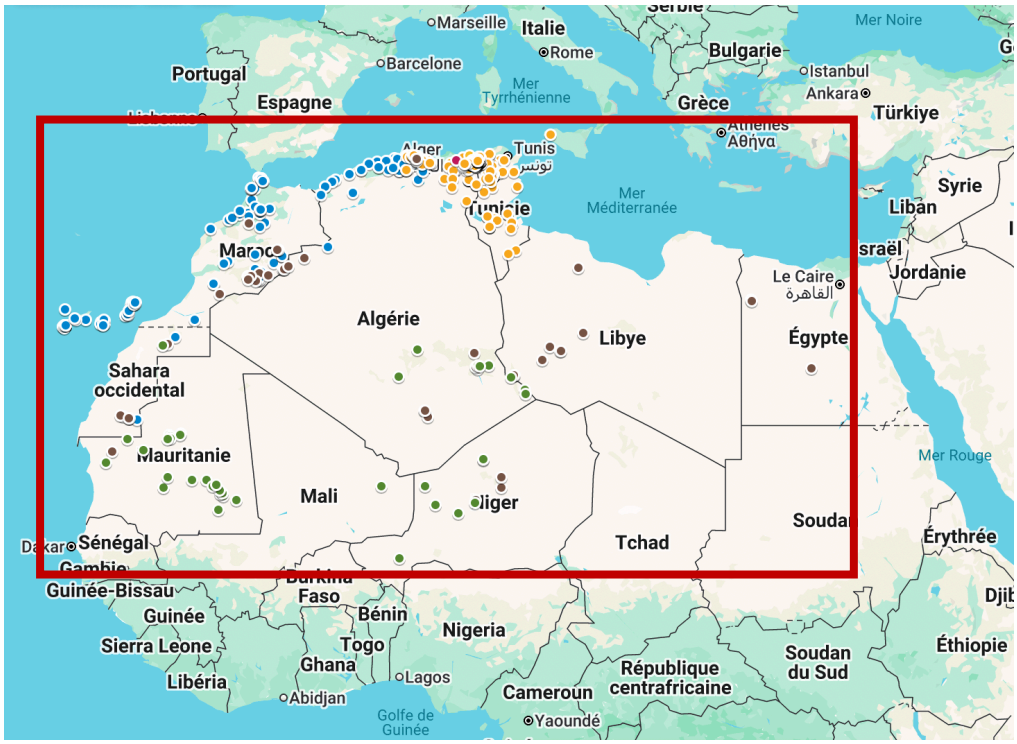
Chapter I: The Libyc script

Brief historical overview

Since antiquity, the ancient Berbers have had their own writing system, called Libyc, it includes multiple alphabets (refer to section *Evolution of the Libyc script*), one form of these alphabet has been preserved to this day under the name Tifinagh.

Tifinagh is still used today by the Tuaregs, as well as Neo-Tifinagh, which is now widely used by Berbers across North Africa. The geographical area covered by these inscriptions extends from the Canary Islands to Egypt and from the Mediterranean to the Sahel.

To date, over 1500 Libyc inscriptions have been discovered. Most of these inscriptions are funerary, with the majority originating from the ancient Kingdom of Numidia, hence the old name given to this script by French colonizers, "*Numidic*". It is also referred to as the official Numidian alphabet.



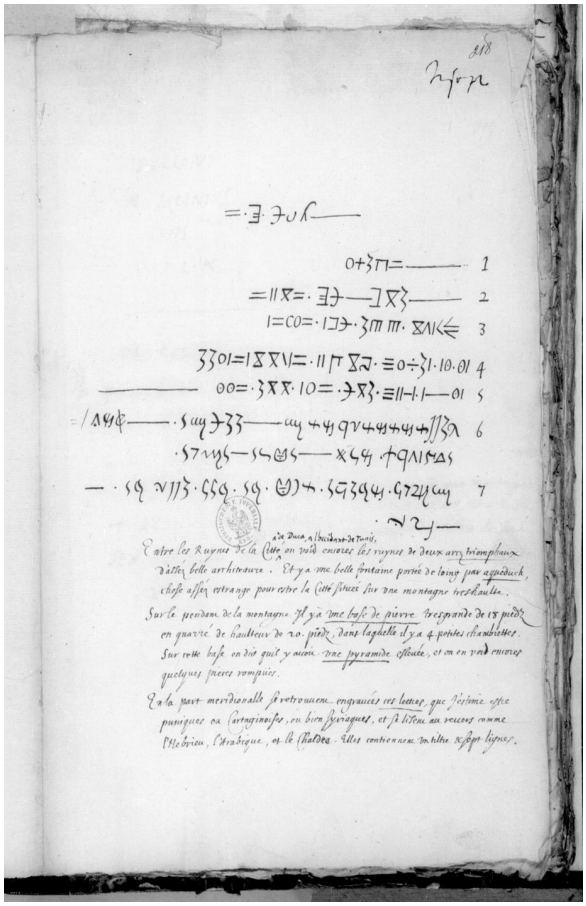
Libyca-Project's Libyc inscriptions distribution map.

The earliest mention of this script in a foreign language date back to the 5th century, where Bishop Fulgence of Ruspe provides valuable information: according to him, the Libyc script consists of 23 characters[2].

[2] No list of symbols was provided in the mention. The author is probably referring to the official Numidian alphabet as it remains the most spread variation in the romanized regions of North Africa.

Then, Libyc re-emerged in the scientific scene in the 17th century, more precisely in 1631, when Thomas d'Arcos discovered the famous bilingual Libyco-Punic bilingual inscription on the mausoleum of Dougga in Tunisia. He sent a copy to his compatriot Nicolas-Claude Fabri de Peiresc, the discoverer of the Orion Nebula, who attempted to decipher it but without success, two centuries later, in 1842, the British consul in Tunis, Thomas Reade, had the inscription removed from the monument, causing significant damage. The inscription is now on display at the British Museum.

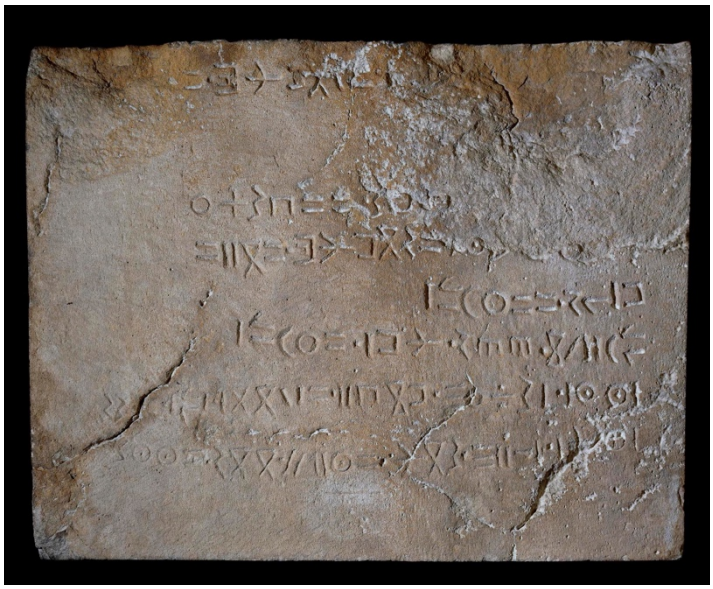
Below are the images related to these events:



Source gallica.bnf.fr / Bibliothèque nationale de France. Département des Manuscrits. Latin 8957

Transcription of the Inscription from the Mausoleum of Atban in Dougga by Thomas d'Arcos in his Correspondence to Nicolas-Claude Fabri de Peiresc in 1631.

Source : https://gallica.bnf.fr/ark:/12148/btv1b9066768t



RIL N°1, Libyco-Berber Inscription from the Mausoleum of Atban in Dougga, Removed from the Monument by British Consul Thomas Reade, currently at the British Museum.
Source : https://www.britishmuseum.org/collection/object/W_1852-0305-1

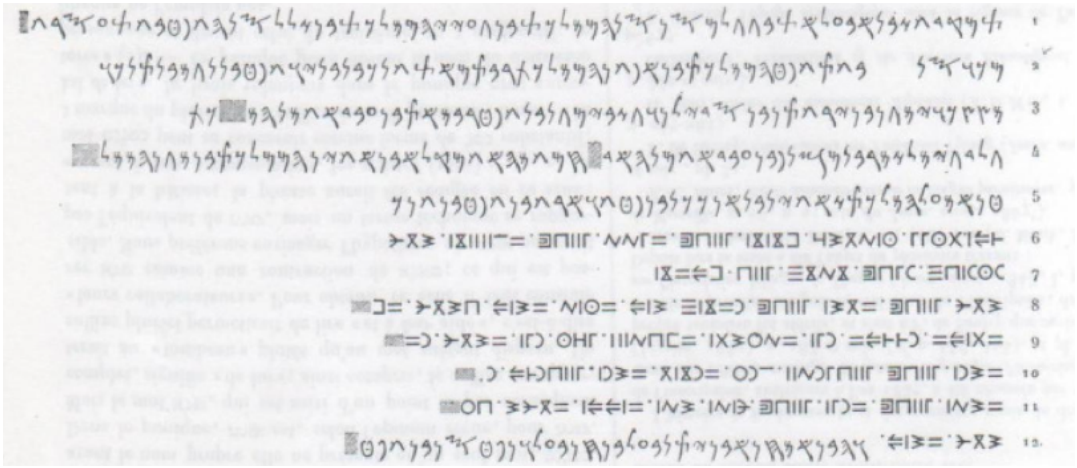
The Libyc alphabets

At least three different alphabets were traditionally distinguished:

The Eastern alphabet

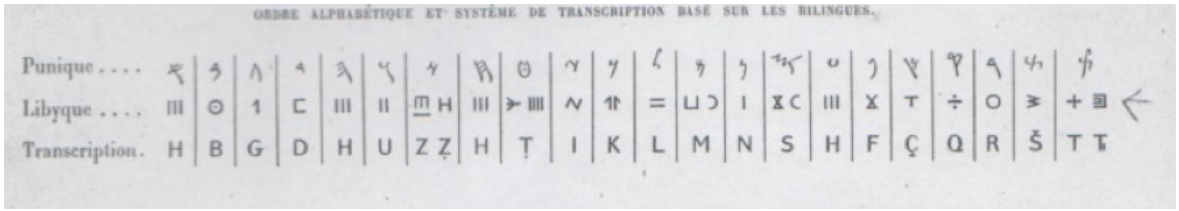
Also known as the Numidian official alphabet or Numidic. It was the variation used under the reign of the Numidian king Micipsa. This alphabet is contemporaneous to the Punic alphabet that was utilized by the Numidians in parallel of the Libyc.

This alphabet has been decoded thanks to the Libyco-Punic bilingual inscription of Dougga mausoleum dedicated to the Numidian king Masinissa, the inscription contains the date the monument was erected, the 10th year of the reign of king Micipsa, son of Masinissa, 138 BCE, which makes this alphabet the only one that can be precisely dated.



Libyco-Punic bilingual inscription of Dougga RIL n°2 ,p 3

The Eastern variation is widely documented, notably on *Chabot*'s RIL (1941) on which he compared every symbol to its equivalent in both Punic and Latin alphabets



RIL, appendix XVII

In addition to its official usage, it can also be found in funerary inscription.

Eastern inscriptions abound especially in west Tunisia and eastern Algeria, but they can also be found elsewhere.

The Western alphabet

This is the most primitive form of the Libyc script and remains partly undeciphered as of today, it appears to have been exclusively funerary, its transcription is problematic, as the bilingual inscriptions are limited, short, and are sometimes incomplete.

The Western alphabet can be found west of Constantine, in Kabylia, Oran, and northern Morocco.

The Saharan alphabet
Also called ancient Tifinagh, it is the most recent variation of the script, it is also the best known as it evolved later into the Tifinagh used today by the Tuaregs. This alphabet was used in the Sahara but some of its symbols can also be found in the northern area.

This classification above is however simplistic and not definitive, as the geographical distribution of the alphabets overlaps widely, and it is likely that their boundaries may have varied over time (*Chaker 2002*). A large number of characters are common to all the verities but a character can have a different pronunciation from an alphabet to another. Moreover, there are varieties that do not quite fit into any one of the three alphabets mentioned above: The Canary Islands alphabet bore a close resemblance to the Eastern alphabet but contains symbols that belong to other Libyc alphabets.
A recent study shows It may originate from a peripheral alphabet called the Southern alphabet[3] (*Mora 2021*). This variety covers the area of the ancient African Roman limes (Fossatum Africae) until southern Morocco, its signs are found in ancient Tingitana, on the Algerian, Tunisian and Libyan border.
Dating the spread of the script to the Canary Islands, cannot be precisely established due to the lack of dates in the corpus, and also the lack of archaeological evidence, the most credible dating places its arrival to the time the islands were settled by North African populations, between the 2nd and 3rd centuries AD.

It is safe to conclude saying there must necessarily have existed, in ancient times as today, as many alphabetic varieties as Berber dialectal varieties (*Chaker 2002*).

Dating the symbols

The dating of this script is subject to debate, with researchers providing a wide range from the 2nd-3rd century BCE to the end of the 2nd millennium BCE. *Hachid (2001)*, a historian and prehistory specialist, advocates for an older origin of the Libyc script, placing its emergence between 1500 and 1000 BCE.
The only historical evidence that can be retained regarding the dating is the Libyco-Punic inscription of Dougga discovered in 1904 (refer to section *The Libyc alphabets The Eastern alphabet*), it mentions the 10th year of the reign of king Micipsa, i.e., 138 BCE.

Origin of the symbols

Just like its dating, which is difficult to establish, there are many hypotheses regarding the origin of the Libyc script. These differing opinions can be classified into four categories: proponents of a Semitic origin (Phoenician, Punic, South Arabian, Proto-Sinaitic, Egyptian hieroglyphs), proponents of a local origin, those advocating a middle position, and those suggesting an unknown origin. As noted by *Chaker, Hachidi,* and *Aït Ali Yahia*, "one cannot exclude the existence of an embryonic form of pre-alphabetic writing, derived from a limited stock of ideograms later converted into alphabetic signs. This does not exclude a Phoenician influence on Libyc as the Berbers might have engaged in the re-functionalization of an old stock of pre-existing signs, transforming them into a national alphabet."

[3] Could also be called Limes Libyan, Southern Libyan (as opposed to Eastern and Western Libyan), Steppe or Pre-Saharan as opposed to Saharan, which is surely more recent.

Evolution of the Libyc script

The Libyc script did not disappear at the end of antiquity; it has been preserved thanks to the Tuaregs, Berbers of the Sahara and Sahel, who have never lost the use of the script, perpetuating it from generation to generation for nearly two millennia, almost without interruption and without major alteration.
The Tuareg Tifinagh script is related to Libyc through the Saharan alphabet which evolved but did not undergo major transformations. Several properties have been maintained over time, the most notable being the inscriptions format[4], the final vocal sign and the writing directions (refer to sections *Writing directions & orientation of the glyphs* and *Vowels/vocalization*).

As *Chaker (2002)* mentions, the current Tuareg situation is likely comparable to what must have characterized the entire Berber domain throughout all epochs: the absence of an instituted linguistic norm implies the absence of a graphic norm and variability of the alphabet parallel to dialectological variability (These variations are primarily explained by adaptation to the phonetic and/or phonological peculiarities of different Berber dialects).

Comparative table of the classical Libyco-Berber letters

The following table summarizes the classical Libyco-Berber letters as attested in the main epigraphic corpora, including their Eastern and Western variants, the Latin transliteration used in the Dougga bilingual, and visual similarities with characters from other ancient scripts (Punic, Old Phoenician, South Arabian, Iberian, Etruscan). These similarities do not imply genealogical relationships; they are shown only for comparative purposes, as requested by the Unicode Script Encoding Working Group. Only four Libyc letters share both form and phonetic value with Punic or Old Phoenician characters.

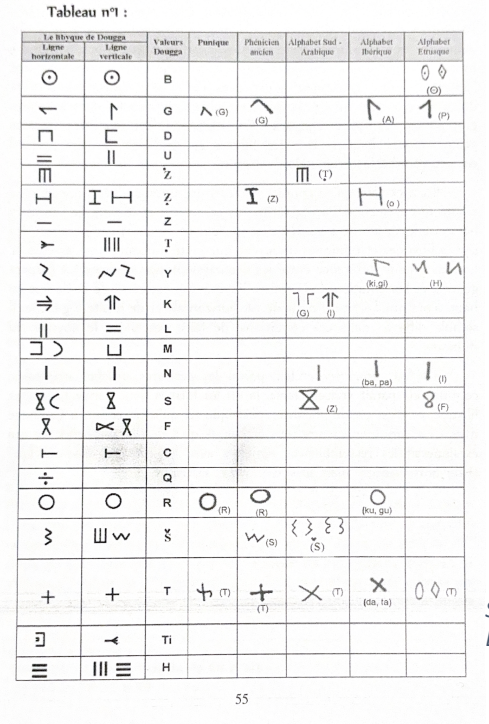


Tableau n°I :

Le libyque de Dougga		Valeurs Dougga	Punique	Phénicien ancien	Alphabet Sud - Arabique	Alphabet Ibérique	Alphabet Etrusque
Ligne horizontale	Ligne verticale						
⊙	⊙	B					(O)
⌐	⌐	G	(G)	(G)		(A)	(P)
⊓	⊏	D					
≡	‖	U					
⋔		Z			(I)		
⊢	⊢	Ẓ		(Z)		(o)	
—	—	Z					
⊱	⫴	Ṭ					
≀	≀	Y				(ki, gi)	(H)
⇛	⇑	K			(G) (I)		
‖	=	L					
⊐)	⊔	M					
∣	∣	N			∣	(bə, pə)	(I)
⧖	⧖	S			(Z)		(F)
⧖	⋈	F					
⊢	⊢	C					
÷		Q					
○	○	R	(R)	(R)		(ku, gu)	
≀	⩢	Š		(S)	(Š)		
+	+	T	(T)	(T)	(T)	(də, tə)	(T)
⊐	⊣	Ti					
≡	⩢ ≡	H					

55

This comparative table is provided exclusively to meet the requirements of the Script Encoding Working Group. It does not define the full Libyc inventory, which contains hundreds of attested glyphs, but serves as a historical reference for evaluating potential correspondences and confirming the need for disunification.

Source: adapted from Samia Aït Ali Yahia, Les stèles à inscriptions libyques de la Berbèrie Centrale (Algérie). Écriture ancienne des Amazighes, Table 1, p. 55.

[4] Tuaregs use Tifinagh only for short texts: letters to relatives, graffiti on trees, rocks, or daily utensils. Libyc was also used for short inscriptions, mostly funerary inscriptions on stones.

Chapter II: Encoding the Libyc Script

Purpose

This proposal aims to encode the ancient Libyc script as an independent Unicode script, fully disunified from the modern Tifinagh block.

The purpose behind encoding the Libyc script is to transcript and then conduct studies on the Libyc corpus using the latest computation science technologies such, statistical models and AI. this requires to be done in a unified script among all the community to avoid having each expert creating its own fonts or images that are never re-usable and cannot be exploited efficiently in any computer science model.
A work to create a *digital corpus of the Libyc inscriptions* could be undertaken with the standardized symbols, similarly to was done through the DiCoNab project[5].
This would require the script having all the properties described below in this document.

New approaches to study the corpus would then emerge to help providing a better comprehension of the ancient Berber script and the languages it transcribes.
It could lead to answer the questions of the dating, the origin and the way the script was spread around the North African area, from Egypt to the Canary Islands.

Disunification with the Unicode Tifinagh script

It is important to understand that unlike the Unicode Tifinagh script, the Unicode Libyc script, is not meant to transcript spoken languages among millions of people, thus it doesn't require to be practical (such as handling the bi-consonants, vowels, contextual shaping, etc.) In the other hand, it is important to be as exhaustive as possible in term of symbols and writing directions to cover the known corpus to the fullest extent.

In addition to the fact that the scripts will have different purposes, it is inaccurate to have the Libyc set of characters under a script called Tifinagh; as mentioned in sections *Terminology: Defining the Libyc script and The Libyc alphabet*s, the Libyc includes multiple alphabets that precedented Tifinagh, this one being the evolution of one of these alphabets. Thus, the appellation Tifinagh doesn't apply to the ancient Libyc characters.
An accurate inclusion relationship that matches the common definitions, would be to have the Libyc as the parent script and the Tifinagh as a sub-group, the reciprocal is undeniably false.

This argument, led us to the conclusion that the scripts could be disunified and have a dedicated Unicode script for the Libyc alphabet symbols.

Never the less, it is preferable to have Libyc symbols graphically close to Tifinagh, as they remain related and share multiple graphical properties. The design could be inspired from Unicode's Tifinagh glyphs that look similar to Libyc symbols (see the *Unicode Technical Note 59 - Representing Tifinagh in Unicode, page 3 and 4*).

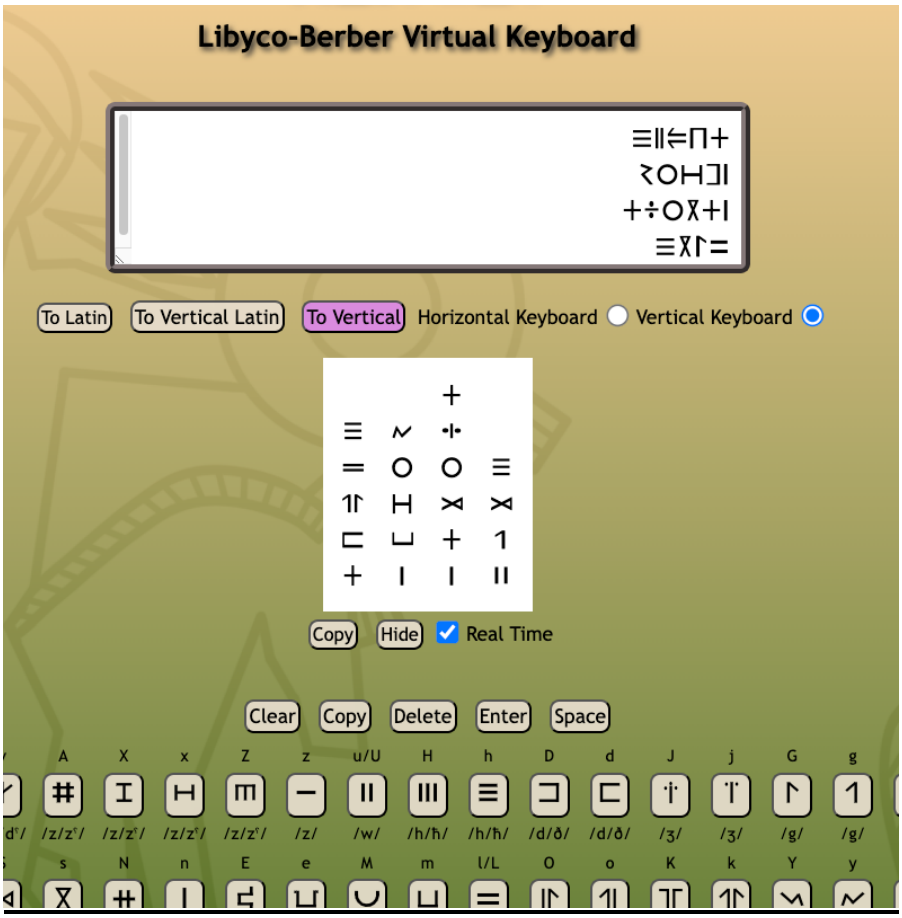
[5] The Digital Corpus of Nabataean and Nabataean inscriptions, see https://diconab.huma-num.fr/

Tools and keyboards

Libyca-Project virtual keyboard

The tool has been designed by the *SHNA* as part of *Libyca-project* to facilitate the transcription and composition of the Libyc alphabets in both horizontal and vertical orientations. It caters primarily to academic scholars and independent researchers engaged in the study of Libyc inscriptions.
The keyboard interface is based on two Latin fonts that encompass a standardized depiction of symbols found in Libyc inscriptions, though the list is not exhaustive and thus cannot be reused.

The tool allows writing Libyc in both the horizontal (right-to-left) and vertical (bottom-to-top). Vertical writing is managed using a custom algorithm to rotate the input.
With the help of the virtual keyboard and the real-time function, it is possible to obtain the desired vertical output (when the desired orientations are available within the fonts).



The keyboard and its complete documentation can be found at libyca-project/keyboard.

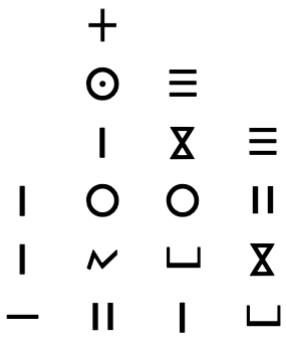
With standardized Unicode glyphs, enhancements could be made to the tool to handle all the writing directions with all the possible orientations without carrying multiple custom fonts (refer to sections *Writing directions & orientation of the glyphs)*.

Properties of the Libyc script

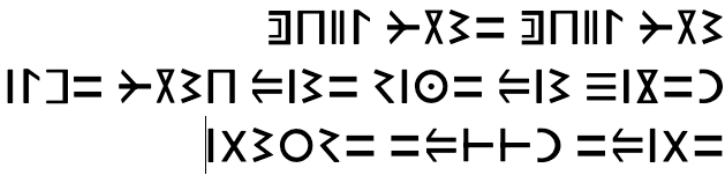
Design of the glyphs

Despite the diversity of the glyphs a cross a vast territory and over almost 3 millennia, a unicity is observed in the design *(Drouin 2013),* Libyc symbols are inscribed in a very geometric manner using basic shapes like circles, squares, straight lines and dots. This is probably due to the fact that Libyc was mostly written on hard surfaces such as rock, stone and wood *(Casajus 2012, 2013).*

Whether writing vertically or horizontally, the characters should have a centred baseline:



Vertical (bottom-to-top)



Horizontal (right-to-left)

The dot is the only character that can be placed at center, top or bottom when writing horizontally:

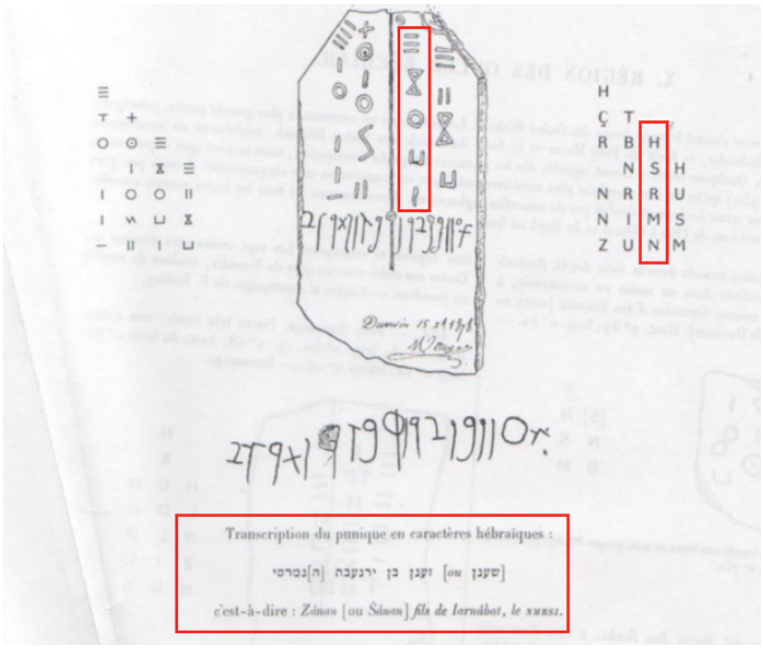
The other exception is the *LIBYC_YAZ*[6] (single horizontal bar), it is placed on top when writing horizontally:

[6] *Refer to the Glyphs description table.*

Vowels/vocalization

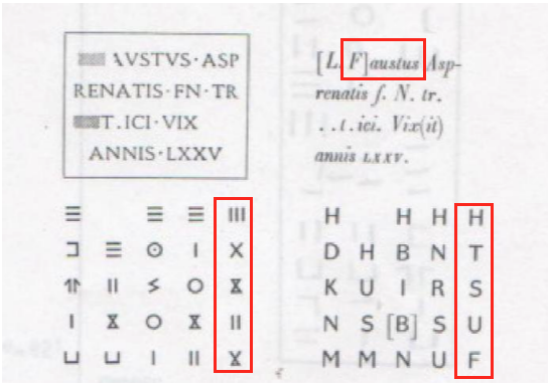
Libyc alphabets are almost exclusively consonantal alphabets, In Libyc writing, the length of a consonantal phoneme is not noted, neither by gemination (doubling the letter) nor by the addition of a diacritical mark as in the Arabic script *(Drouin 2013)*.

Libyc alphabets have mainly one vocalic sign represented by three parallel bars ≡ usually noted as H, it is used at the end of a word to indicate the presence of a vowel (*Casajus 2013*). It may occasionally take the value of */a/, /u/, or /i/* in that same position[7] :



RIL n°451, p101

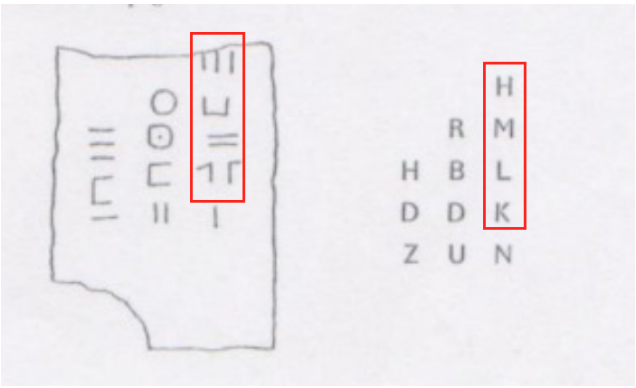
In this bilingual inscription above, the symbol ≡ (H) in the sequence NMRSH would take the value /i/ to correspond to the Punic sequence that corresponds to the same word (NMRSI), which ends with a *yod*, thus /y/ or /i/.



RIL n°85, p23

7 Saharian Libyc and then Tuareg Tifinagh inherited this property, the vocalic sign is represented by a point and is called Taraqmt or Taghrit.

In this inscription, the symbol ≡ (H) in the sequence FUSTH would take the value /u/ to correspond to the Latin sequence corresponding to the same word (FAUSTUS).



RIL n°642, p141

In this inscription, the symbol ≡ (H) in the sequence KLMH would take the value /a/ to correspond to the name of the ancient city of Kalama (modern-day Guelma in Algeria).

The symbol ≡ can transcribe the consonantal values /h/, /ħ/ *(Chabot 1941),* or even the velar /ɣ/ in addition to its vocalic function at the end of a sequence (*Chaker 1988, 2002, 2013*).

In Saharan alphabets and later in Tuareg Tifinagh, the dot has the same vocal function as the symbol ≡.

Phonetic values

As of today, not all the Libyc alphabets have been decoded due to the lack of bilingual inscriptions and the large geographical spread of the corpus.
The most known alphabet being the Eastern variation (the official Numidian alphabet, refer to section *The Libyc alphabets*).

In the *glyphs description table*, phonetic values have been defined based on research papers; however, they may occasionally be absent or inaccurate. Each symbol is associated with the commonly linked phonetic value. The mention *Unknown* is used to indicate an uncertain or absent pronunciation.

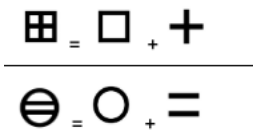
Bi/tri-consonants

It is believed that some symbols are in reality bi-consonants (or even tri-consonants), but the available documentation doesn't emphasize much on that point and doesn't allow to define how ancient Berbers may have built bi-consonants, even in modern Tuareg Tifinagh, the usage of bi-consonants requires advanced skills for both writer and reader *(Drouin 2013)*. Each symbol is studied as a unitary glyph in the academic documentation.

In the other hand, some symbols might look like bi-consonants, but the known pronunciation is uncorrelated with the 2 consonants that might constitute the bi-consonant.

Thus, it is hard to classify which are really bi/ tri-consonants and which are not.
To illustrate, the below glyphs are most likely bi-consonants (classified as *Unknown* in the *glyphs description table*):

First symbol is probably pronounced /rt/ which is the combination of the pronunciation of the 2 consonants /r/ + /t/. Second one is /wr/, the combination of /w/ + /r/:



The below is also known to be a bi-consonant in Tuareg Tifinagh, however in Libyc variations prior to the Saharan alphabet, it is most likely incorrect to read /nk/ (/n/ + /k/):

For most of the remaining cases, the pronunciation cannot be obtained by combining any of the unitary symbols that may constitute the final symbol.

For these reasons, bi-consonants are not desired/required for the Libyc script.

Punctuation and digits

The dot is the only punctuation sign in Libyc *(Chabot 1941)* and it is part of the symbols (refer to section *Design of the glyphs* for more information about this symbol). In many inscriptions, the dot is used to separate the sequences.

Horizontal (right-to-left)

Vertical (bottom-to-top)

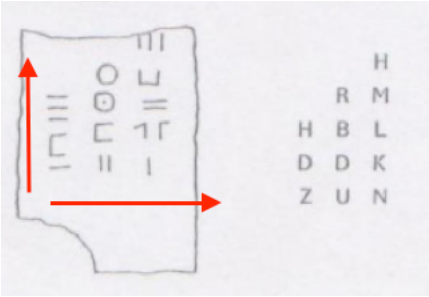
Regarding digits, there are no known Libyc symbols to note digits. Latin digits can be found on some bilingual funerary steles, but only on the Latin part of the inscription.

Writing directions & orientation of the glyphs

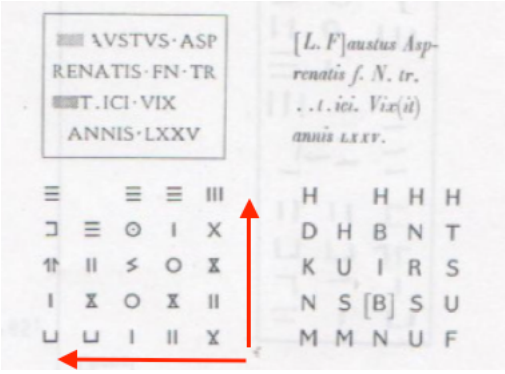
Writing directions

Vertical writing

Libyc is generally written vertically, most commonly from bottom-to-top with a left-to-right progression. Nevertheless, variations are attested in the corpus, including bottom-to-top with a right-to-left progression, and rare cases of boustrophedon or mixed-direction layouts. The same analogy applies when writing from top-to-bottom (even though top-to-bottom inscriptions are much rarer in the known corpus), where the text may also progress either left-to-right or right-to-left depending on the inscription.



Bottom-to-top moving horizontally from left-to-right [RIL n°642, p141]

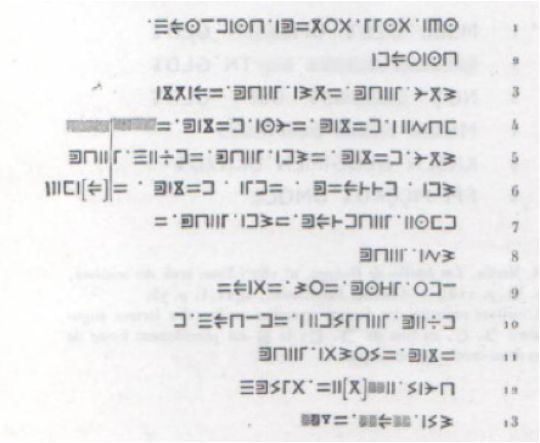


Bottom-to-top moving horizontally from right-to-left [RIL n°85, p23]

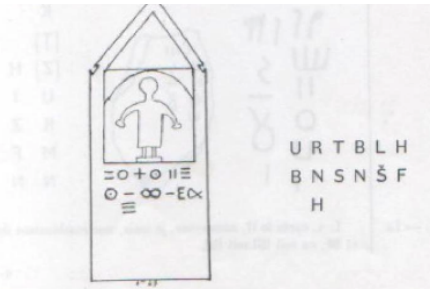
The most commonly attested vertical orientation in Libyc inscriptions is bottom-to-top, although other orientations also exist, including bottom-to-top with right-to-left progression, top-to-bottom layouts, and rare boustrophedon arrangements.

Horizontal writing

Libyc can also be written horizontally[8], from right-to-left or left-to-right, or in boustrophedon[9]. Boustrophedon would be achieved by combining right-to-left and left-to-right directions.



Right- to-left. RIL n°3, p5



Left-to-right. RIL n°275, p66

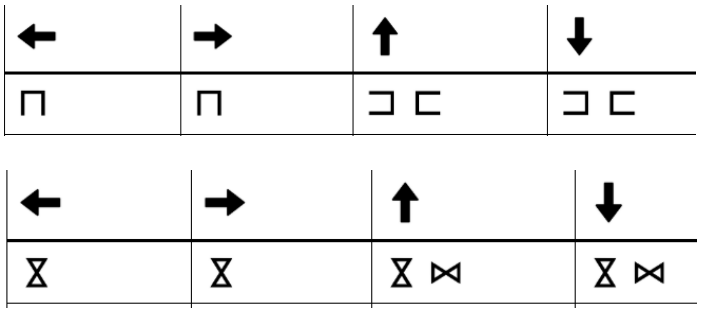
The default horizontal writing direction would be right-to-left, analogous to the Punic alphabet, which was contemporaneously utilized by the Numidians, this will be a nod to the Dougga Libyco-Punic bilingual inscription that helped to decode most of Libyc phonetic values.

Orientation of the glyphs

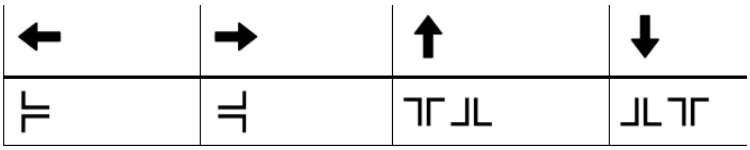
In the Libyc script, a symbol can have the same orientation in both horizontal and vertical writing (without requiring any rotation/mirroring), but it can also have multiple orientations in a single writing direction, especially in vertical writing;
the vertical representation(s) of a symbol can be the same as one or both the left-to-right and right-to-left representations but also a rotation/mirroring of one or both of them.
Thus, vertical and horizontal writing directions are uncorrelated, a vertical text is not systematically obtained by a simple 90° rotation of a left-to-right (or right-to-left) text.

[8] The horizontal direction is likely inspired by Punic and Latin scripts, as observed in bilingual inscriptions (Casajus 2012, Drouin 2013, Mora 2021).
[9] The direction of the writing changes when moving to the next line.

See below examples illustrating two symbols that have only one representation in both left-to-right and right-to-left, but 2 possible orientations when writing vertically, including the left-to-right/right-to-left orientations themselves:

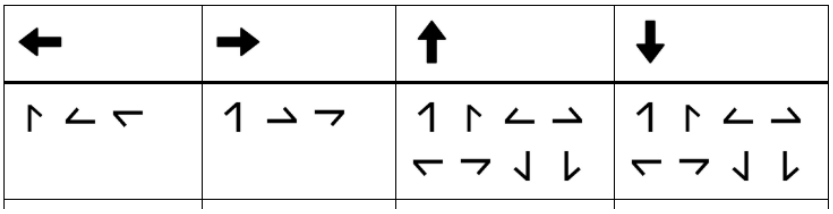


Similarly, a top-to-bottom text is not systematically obtained by mirroring a bottom-to-top text. In fact, some symbols share the same top-to-bottom and bottom-to-top possible orientations :



This makes it possible to have more than 4 orientations in a single direction for a single symbol, it is possible to have up to 8 possible orientations in vertical writing directions, and up to 3 in horizontal writing directions.

The post complex occurrence is the *LIBYC_YAG* that is attested in 3 different orientations when writing from left-to-right and right-to-left and 8 orientations when writing vertically :



Also related to orientations, symbols that change phonetically when rotated 90° can be encountered. As an example, the below symbol can transcribe the sounds /z/ or /ʃ/ depending on its orientation, the right one is / ʃ /, the left one is /z/ (writing is from left-to-right in this example) :

The below symbol can transcribe the sounds /m/ or /s/ depending on its orientation, the right one is /m/, the left one is /s/ (writing is from left-to-right in this example) :

All the possible orientations for each symbol, in all the writing directions are enumerated in the most exhaustive manner in *the directional glyphs table*.

Libyc glyphs tables

As of today, there's no documentation that references exhaustively all the glyphs of each Libyc alphabet. The most complete references, which were mainly used to build the glyphs tables are the *RIL* from *Chabot* (1941) and *Stèle à inscriptions libyques de la Berbèrie Centrale (Algérie), Écriture ancienne des Amazighes* from *Aït Ali Yahia* (2020). Research papers and other digital resources were used, such as the Libyco-Berber Inscriptions Online Database and the Libyca-Project's Libyc inscriptions distribution map.

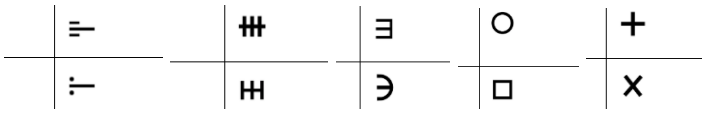
Glyphs description table

The goal of this table is to describe the glyphs and provide their properties such us the suggested name[10] and the phonetic value[11].

The table shows one possible right-to-left orientation for each glyph, in fact, to keep it clear, only one common orientation was retained on that table, even though few symbols have many possible orientations in the right-to-left direction alone, those orientations will be detailed on the *directional glyphs table*.

It has been decided not to group the symbols that share the same basic shape and phonetic value. Often, those are variations of the same symbol, this is to emphasize that no variation must be considered as redundant and excluded, in fact, having these varieties could help to solve many classification matters (to which alphabet a symbol/inscription most likely belongs).

See below examples to illustrate that point: these symbols are described in different rows as they are considered as variations (right-to-left):



Examples (mostly from the *RIL*) can be found in the last column of the table. Multiple references were provided for some glyphs to show their various possible orientations (mainly bottom-to-top, as it's the most represented writing direction in the corpus).

The glyphs table is arranged following the Punic alphabetical order, based on their phonetic values, glyphs lacking phonetic values (having the mention *Unknown)* are placed at the end of the table.

In total, there are **80 distinct glyphs** (without considering orientations), inclusive of all variations (Eastern, Western, Saharan and Southern/Canary Island).

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[10] The basic template for the names is LIBYC_{description}, description can be the common phonetic value, or a reference to an inscription of the RIL that contains the symbol. LIBYC can occasionally be replaced by the common name of the variation on which the glyph appears the most (such as NUMIDIC, WESTERN, CANARIAN, etc.) This naming convention is a personal choice and should not be considered a reference.

[11] Phonetic values may occasionally be absent or inaccurate.

Proposed name	Symbols	Phonetic value	Examples
LIBYC_YAB		/b/	RIL n°2 ,p 3
LIBYC_YAB_1		/b/	RIL n°200 ,p 50 RIL n°206 ,p 51
SAHARAN_YAB		/b/	See Appendix I
LIBYC_YAG		/g/	RIL n°1 ,p2 RIL n°661 ,p146 RIL n°831 ,p180 RIL n°867 ,p189
LIBYC_YAG_1		/g/	RIL n°2 ,p 3 RIL n°117, p30 RIL n°592 ,p130
LIBYC_YAD		/d/ð/	RIL n°2 ,p 3 RIL n°122 ,p32 RIL n°123 ,p32
LIBYC_YAH		/h/ħ/ɣ/	RIL n°2 ,p 3 RIL n°121 ,p31 RIL n°124 ,p32
SAHARAN_YAH		/h/	See Appendix I
LIBYC_YAW		/w/	RIL n°2 ,p 3 RIL n°122 ,p32
SAHARAN_YAW		/w/	See Appendix I
LIBYC_YAZ		/z/zˤ/	RIL n°2 ,p 3 RIL n°825 ,p79 RIL n°836 ,p82
LIBYC_YAZ_1		/z/zˤ/	RIL n°193, p48 RIL n°646, p142
LIBYC_YAZZ		/z/zˤ/	RIL n°3 ,p5 RIL n°21, p10
NUMIDIC_YAZZ		/z/zˤ/	RIL n°2 ,p 3 RIL n°3 ,p5
SAHARAN_YAZZ		/zˤ/	RIL n°69 ,p19 RIL n°865 ,p189
SAHARAN_YAZZ_1		/zˤ/	See Appendix I
SAHARAN_YAX		/ħ/x/	See Appendix I
NUMIDIC_YATT		/tˤ/dˤ/	RIL n°1 ,p2 RIL n°2 ,p 3

			RIL n°3 ,p5
NUMIDIC_YATT_2		/tˤ/dˤ/	RIL n°2 ,p 3
LIBYC_YATT		/tˤ/dˤ/	RIL n°817 ,p171 RIL n°838 ,p182 RIL n°839 ,p182
LIBYC_YATT_1		/tˤ/dˤ/	RIL n°291 p67 RIL n°460 ,p103 RIL n°524, p116 RIL n853° ,p186
LIBYC_YAY		/j/	RIL n°1 ,p2 RIL n°2 ,p 3 RIL n°180 ,p45 RIL n°185 ,p46
LIBYC_YAY_1		/j/	RIL n°27 ,p11 RIL n°39 ,p13 RIL n°44 ,p14 RIL n°390 ,p87
CANARIAN_YAY		/j/	See appendix X See Appendix XIX
SAHARAN_YAY		/j/	See Appendix I
SAHARAN_YAY_1		/j/	See Appendix I
LIBYC_YAK		/k/	RIL n°1 ,p2 RIL n°2 ,p 3
LIBYC_YAK_1		/k/	RIL n°74 ,p21 RIL n°83 ,p22 RIL n°535 ,p118
LIBYC_YAK_2		/k/	RIL n°43 ,p14 See appendix XI See appendix XVI
LIBYC_YAK_3		/k/	See appendix XVI
CANARIAN_YAK		/k/	See appendix VIII See appendix IX See appendix XIII
CANARIAN_YAK_2		/k/	See appendix XVII See appendix XV
SAHARAN_YAK		/k/	See Appendix I
LIBYC_YAL		/l/	RIL n°2 ,p 3 RIL n°6 ,p6 RIL n°14 ,p8

LIBYC_YAM		/m/	RIL n°2 ,p 3 RIL n°402 ,p89 RIL n°449 ,p100
LIBYC_YAM_1		/m/	RIL n°17 ,p9 RIL n°999 ,p216 RIL n°1008 ,p218
LIBYC_YAM_2		/m/	RIL n°400 ,p89 RIL n°534 ,p159 RIL n°996 ,p216 RIL n°1090 ,p223
LIBYC_YAN		/n/	RIL n°2 ,p 3 RIL n°250 ,p61 RIL n°642 ,p141
LIBYC_YAS_1		/s/	RIL n°2 ,p 3 RIL n°20 ,p9 RIL n°290 ,p69
LIBYC_YAS_2		/s/	RIL n°86 ,p23 RIL n°275 ,p66 RIL n°338 ,p77
NUMIDIC_YAS		/s/	RIL n°2 ,p 3
CANARIAN_YAS		/s/	See appendix XVI See appendix XVIII
LIBYC_YAS_3		/s/ or /b/	See appendix V
LIBYC_YAS_4		/s/ or /b/	RIL n°276 ,p66 RIL n°740, p160
LIBYC_YAS_5		/s/ or /b/	RIL n°115, p30
LIBYC_YAS_6		/s/ or /b/	RIL n°331, p 76
LIBYC_YAF		/f/	RIL n°2 ,p 3 RIL n°144 ,p37 RIL n°406 ,p92
LIBYC_YAF_1		/f/	RIL n°98 ,p26 RIL n°275 ,p66 RIL n°285 ,p68
CANARIAN_YAF		/f/	See appendix XVI
CANARIAN_YAF_1		/f/	See Appendix V See Appendix VI See Appendix VIII

SAHARAN_YAF		/f/	See Appendix I
LIBYC_YASS		/sˤ/	RIL n°2 ,p 3 RIL n°209, p52 RIL n°424 ,p94 RIL n°876 ,p191
LIBYC_YAQ		/q/ɣ/	RIL n°1 ,p2 RIL n°2 ,p 3 RIL n°853, p186
LIBYC_YAQ_1		/q/ɣ/	RIL n°14 ,p8
SAHARAN_YAQ		/q/ɣ/	See Appendix I
LIBYC_YAR		/r/	RIL n°2 ,p 3 RIL n°236 ,p58
LIBYC_YAR_1		/r/	RIL n°73 ,p22 RIL n°546 ,p120
LIBYC_YAC		/ʃ/	RIL n°2 ,p 3 RIL n°19 ,p9 RIL n°887, p194 RIL n°1123 ,p240
LIBYC_YAC_1		/ʃ/	RIL n°79 ,p22 RIL n°275 ,p66 RIL n°285 ,p68
LIBYC_YAC_2		/ʃ/	RIL n°865 ,p189 RIL n°817, p177 RIL n°1122 ,p240
LIBYC_YAC_3		/ʃ/	See Appendix I See Appendix X
CANARIAN_YAC		/ʃ/	See Appendix IX See Appendix X
CANARIAN_YAC_1		/ʃ/	See Appendix V See Appendix VII See Appendix VIII
LIBYC_YAT		/t/θ/	RIL n°17 ,p9
LIBYC_YAT_1		/t/θ/	RIL n°2 ,p 3 RIL n°185 ,p46
NUMIDIC_YAT		/t/θ/	RIL n°4 ,p5 RIL n°6 ,p6
LIBYC_DOT		Separator/vocal sign	RIL n°2 ,p 3 RIL n°4 ,p5 RIL n°132 ,p34 RIL n°369, p83

WESTERN_YAG		Unknown	See appendix XII
WESTERN_YAG_1		Unknown	RIL n°870 ,p190
WESTERN_NEKK		Unknown	RIL n°843 ,p184 RIL n°845 ,p184 RIL n°871 ,p190
CANARIAN_RT		Unknown	See Appendix V See Appendix VI See Appendix XIX
CANARIAN_RT_1		Unknown	See Appendix VII See appendix XI
CANARIAN_WR_1		Unknown	See Appendix XIX
CANARIAN_YAKK		Unknown	RIL n°67 ,p18 RIL n°69 ,p19 See appendix XIII
CANARIAN_YAKK_1		Unknown	See appendix XI See appendix XIII
LIBYC_CHEVRON		unknown	RIL n°829, p180 RIL n°839 ,p182 RIL n°867 ,p189 RIL n°881 ,p193
LIBYC_RIL2		Unknown	RIL n°2 ,p 3 RIL n°309 ,p72
LIBYC_RIL311		Unknown	RIL n°311 ,p73 See appendix III See Appendix IV
LIBYC_RIL740		Unknown	RIL n°740, p160

Directional glyphs table

Some Libyc glyphs classified as “Unknown” may correspond to unresolved biconsonantal forms (see UTN59 for comparison).

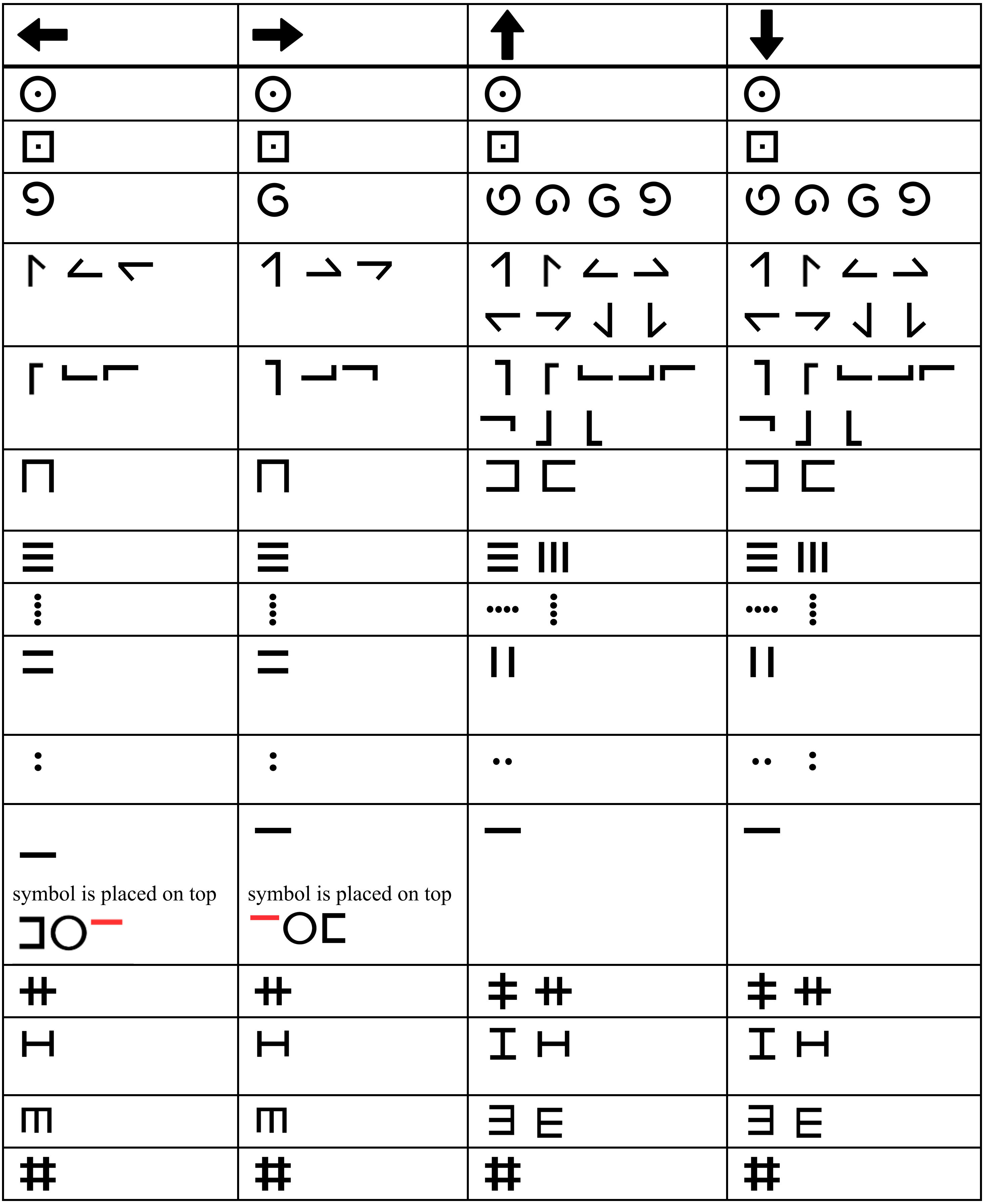
Directional glyphs table

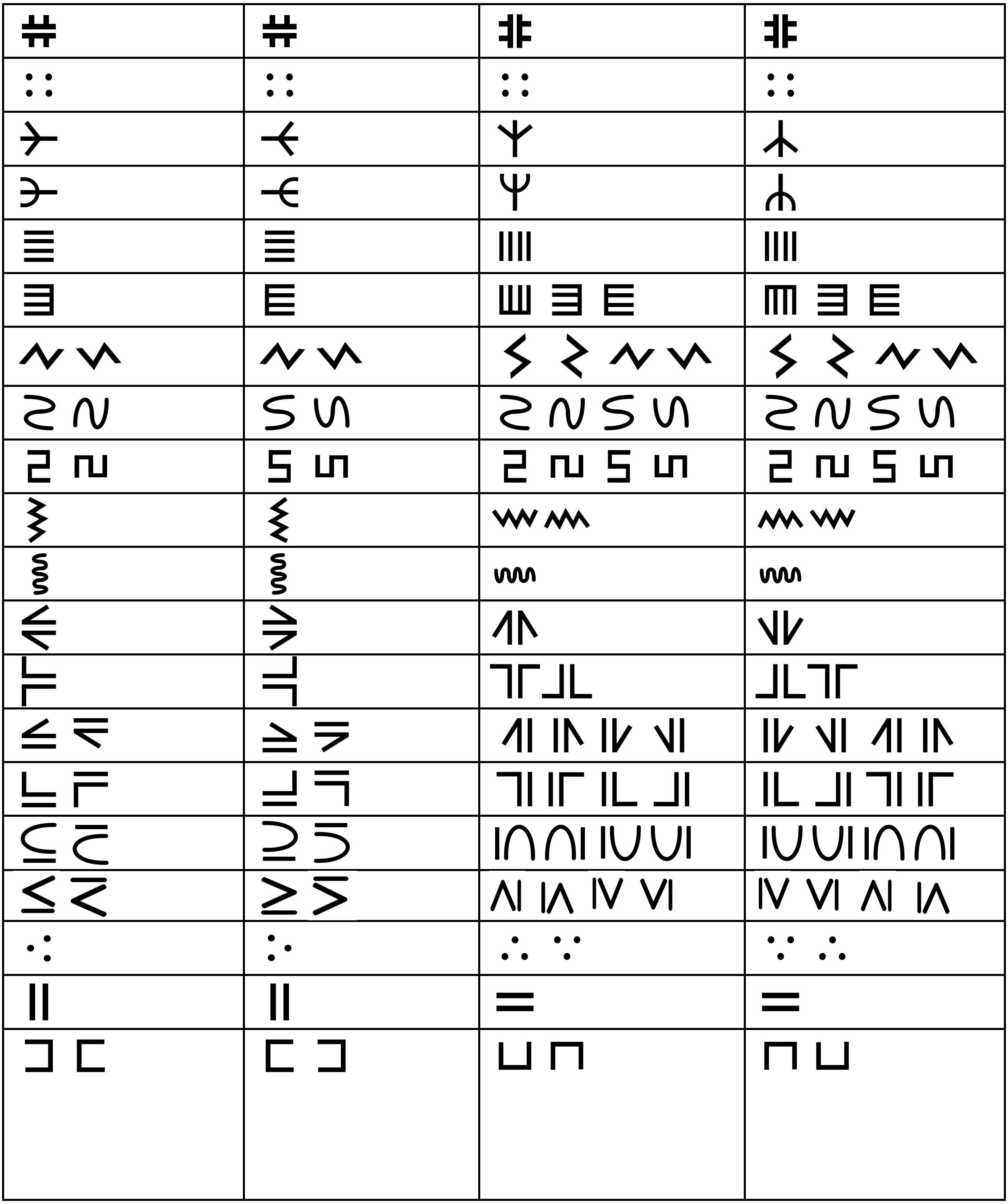
This table shows all the orientations for each glyph: right-to-left, left-to-right, then bottom-to-top and top-to-bottom.
Unlike the glyphs description table, it includes all possible orientations for each glyph in every writing direction.

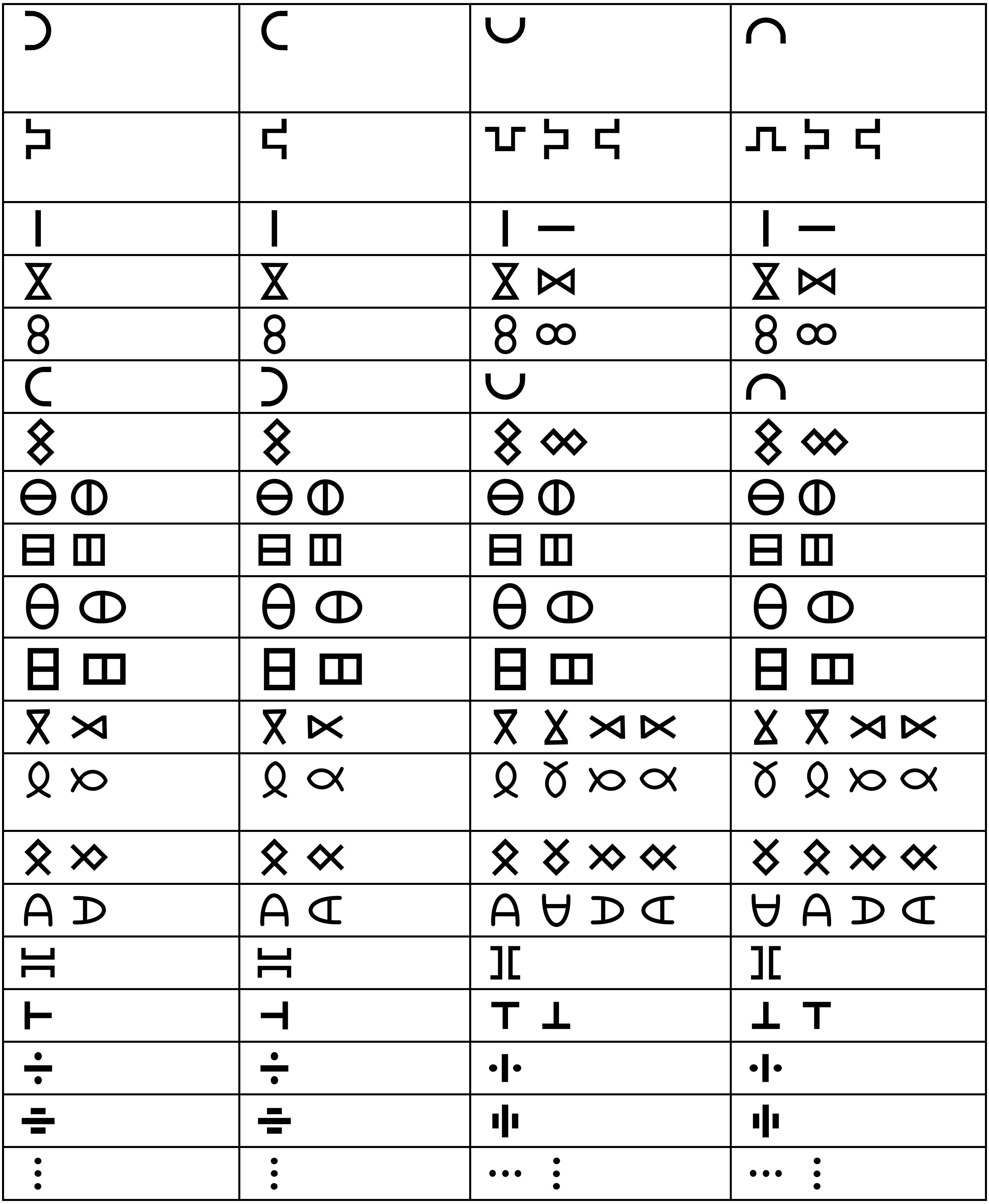
The glyphs are arranged in the same order as in the *glyphs description table*.

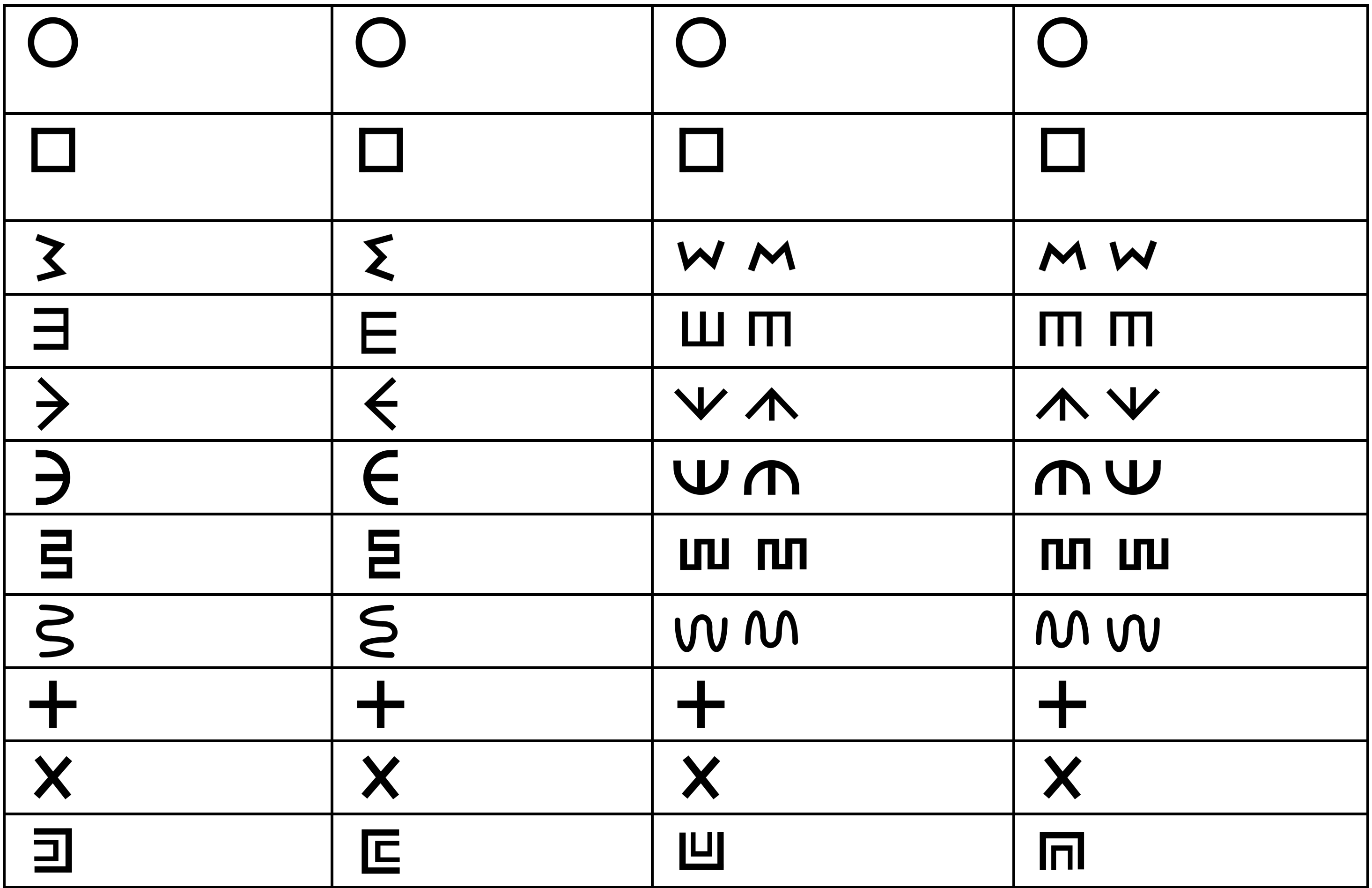
Please refer to the section *Writing directions & orientation of the glyphs* for more details about Libyc directional properties.

Some glyphs do not exist in all writing directions (especially the top-to-bottom direction, which is rare in the corpus), leading to speculative orientations for those glyphs. These were established logically, following patterns observed in similar symbols.

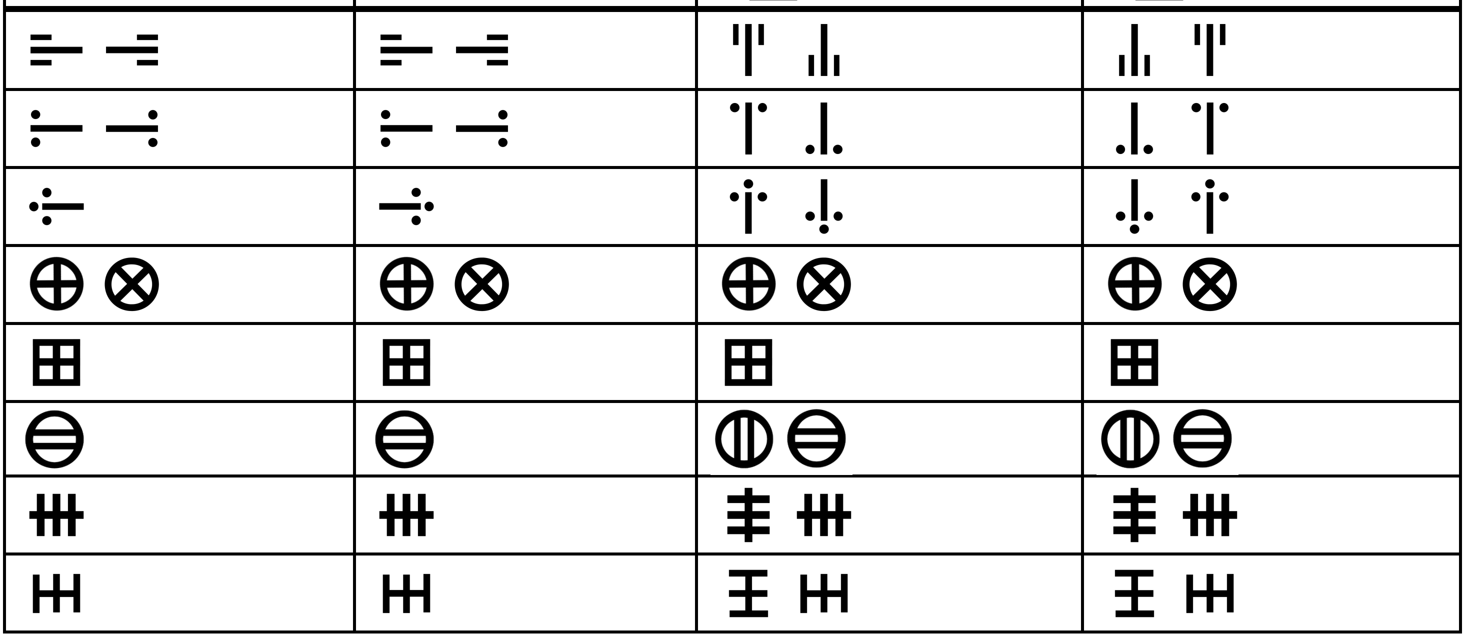

symbol is placed on top
symbol is placed on top

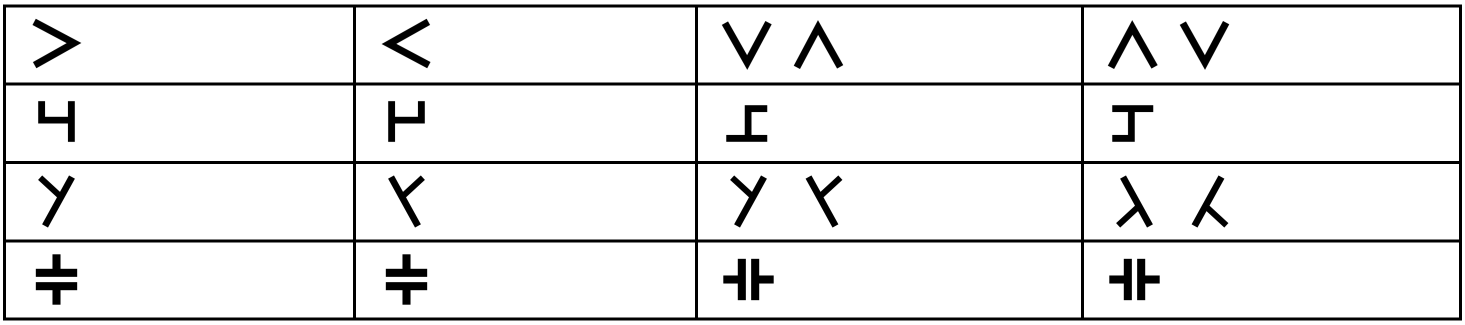




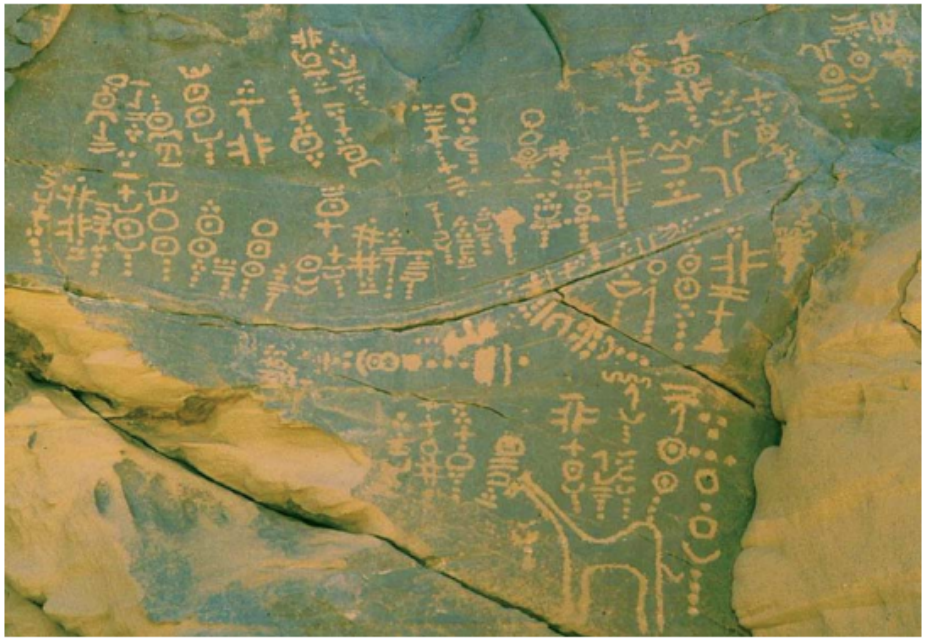


The dot can be placed on top, center or bottom.	The dot can be placed on top, center or bottom.	The dot can be placed on center only	The dot can be placed on center only

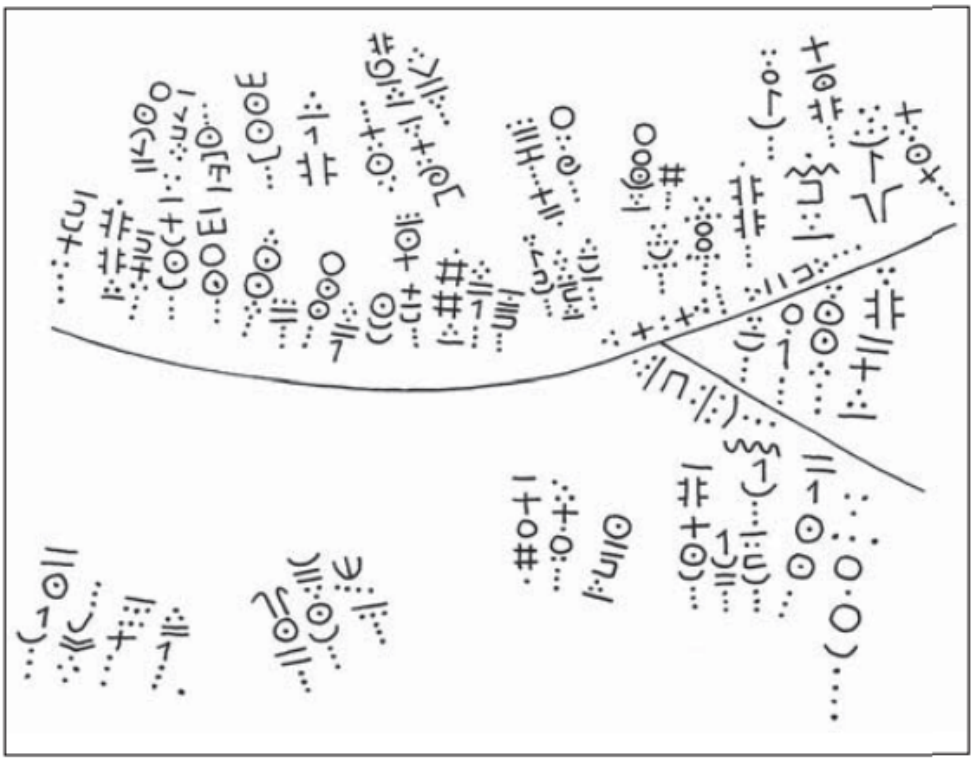




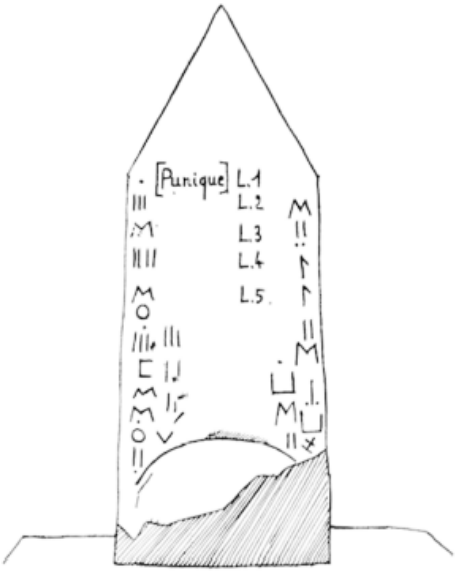
Appendix I



Appendix II

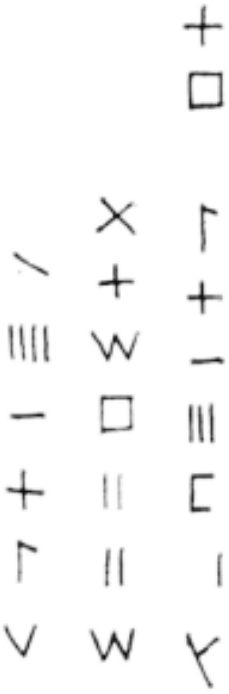


The Libyco-Berber inscriptions of Aourdaoum



Libyco-punique inscription of Lixus

Appendix III



Libyco-Berber inscription from Tetouan region, Morocco

Appendix IV

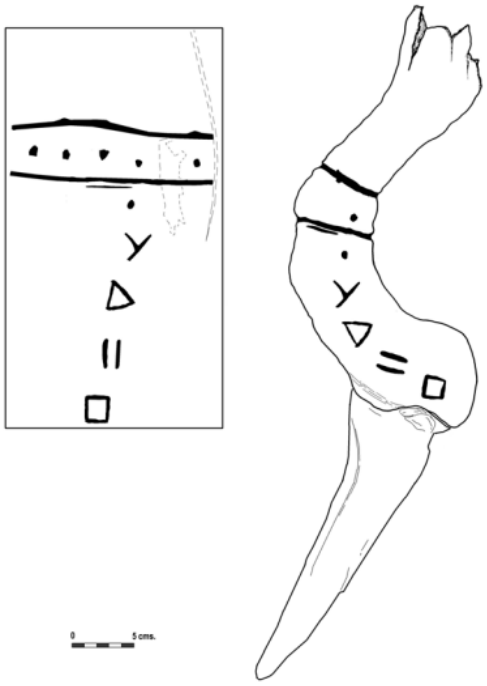
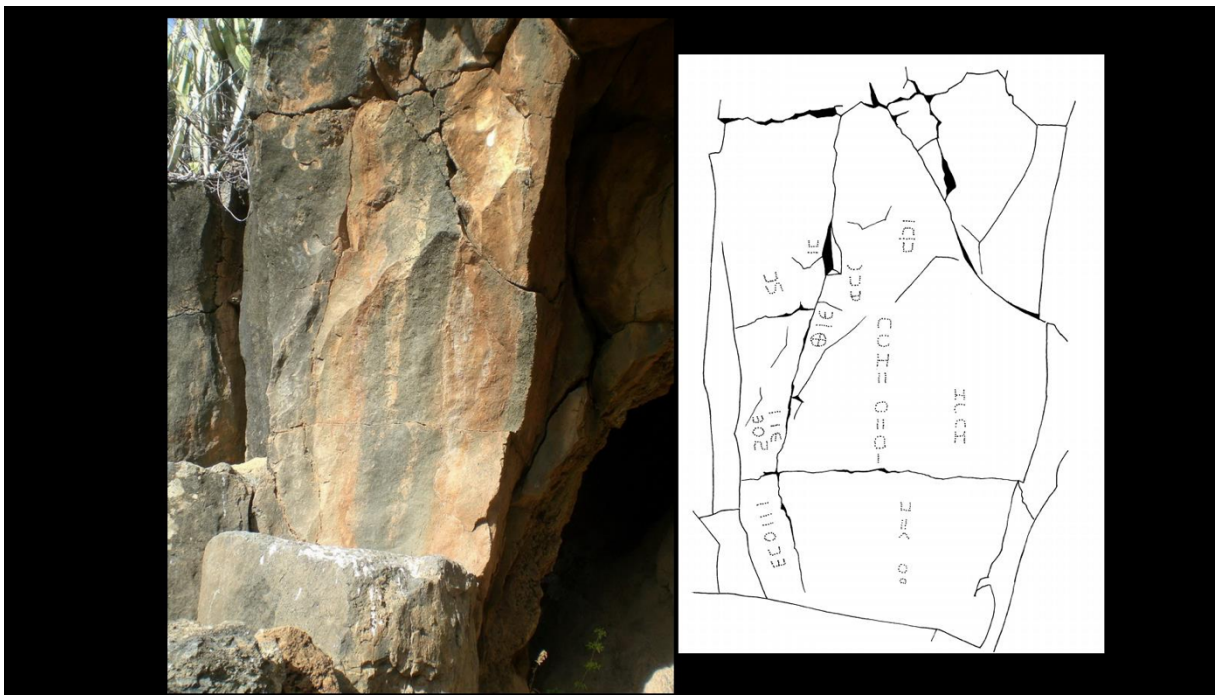


Figura 4. Pieza de madera con inscripción líbico-beréber, procedente de las Cuevas de Herrera González, muy

[Libyco-Berber Inscription on wood of las Cuevas de Herrera Gonzalez - Canaria Islands]

Appendix V

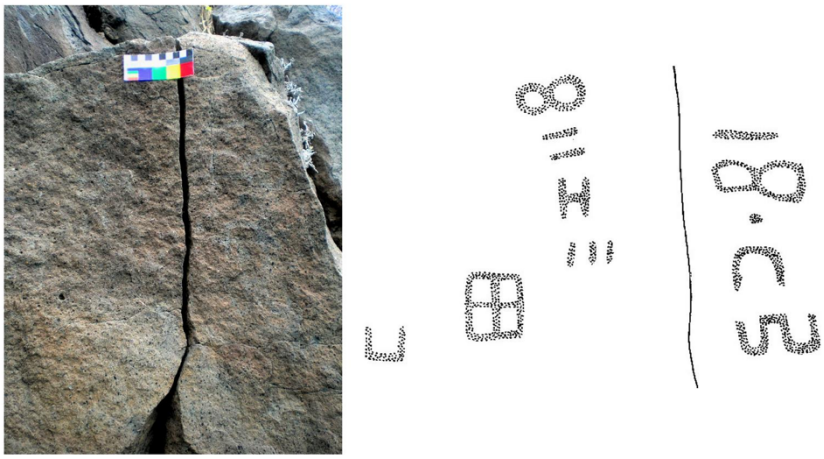


Libyco-Berber inscriptions of La Cueva de Don Gabino - Canaria Islands

Appendix VI

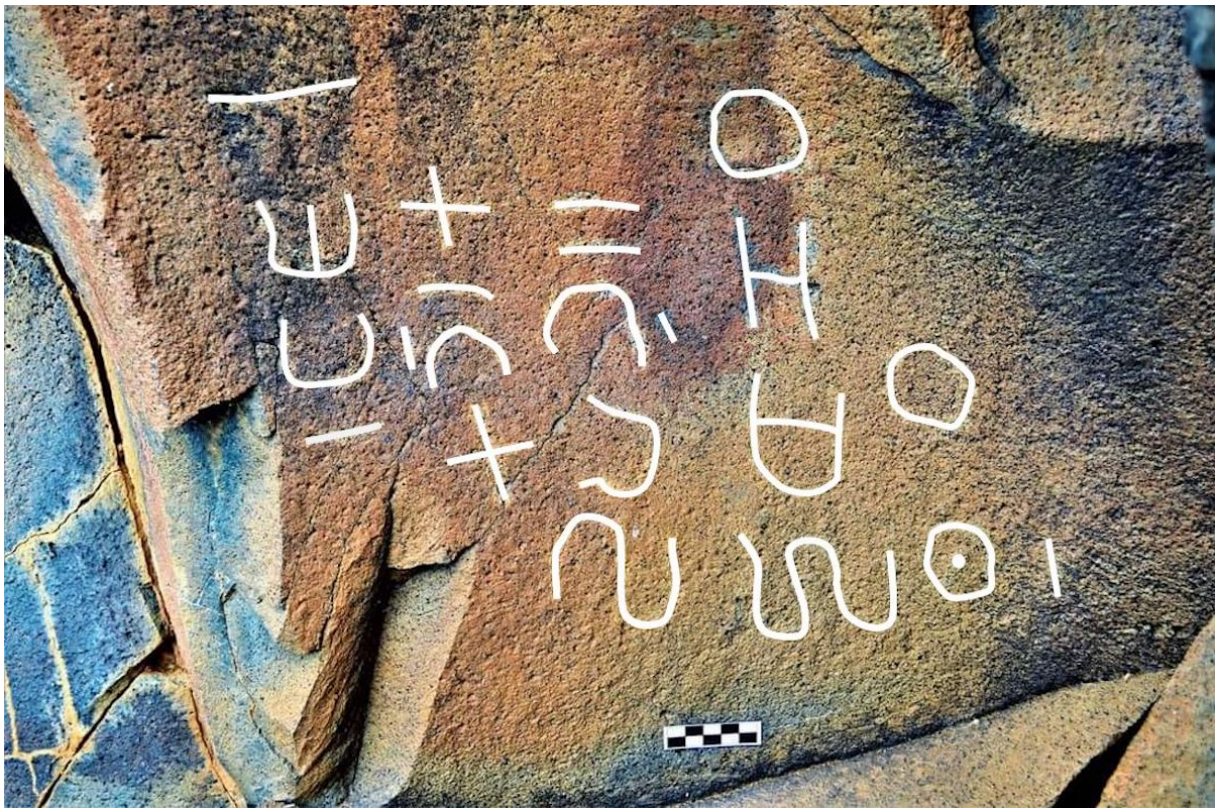
Libyco-Berber Inscriptions of La Caleta N°1

Appendix VII



Libyco-Berber inscription of La Caleta N°3

Appendix VIII

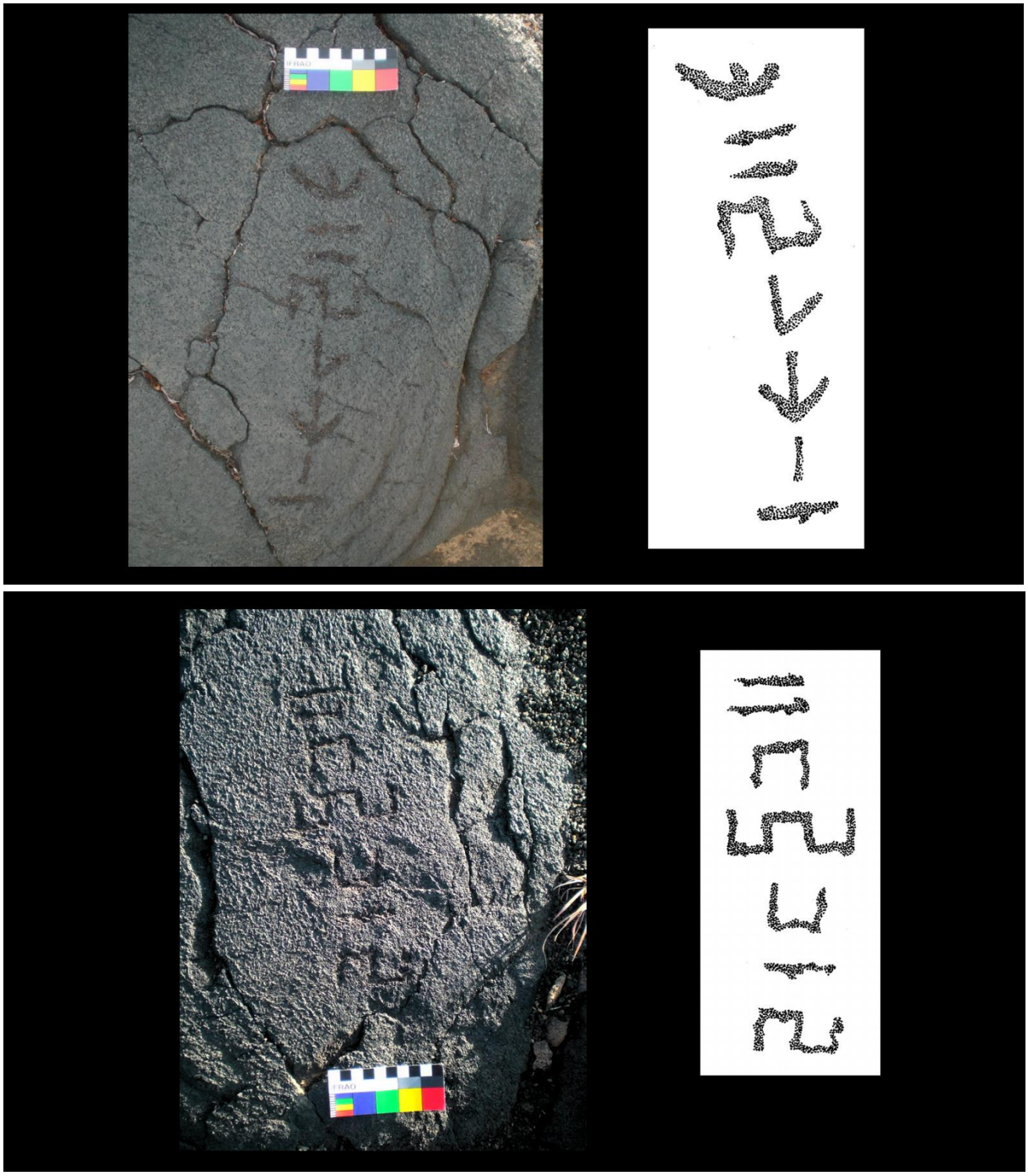


Libyco-Berber de Hoyo Blanco

Appendix IX

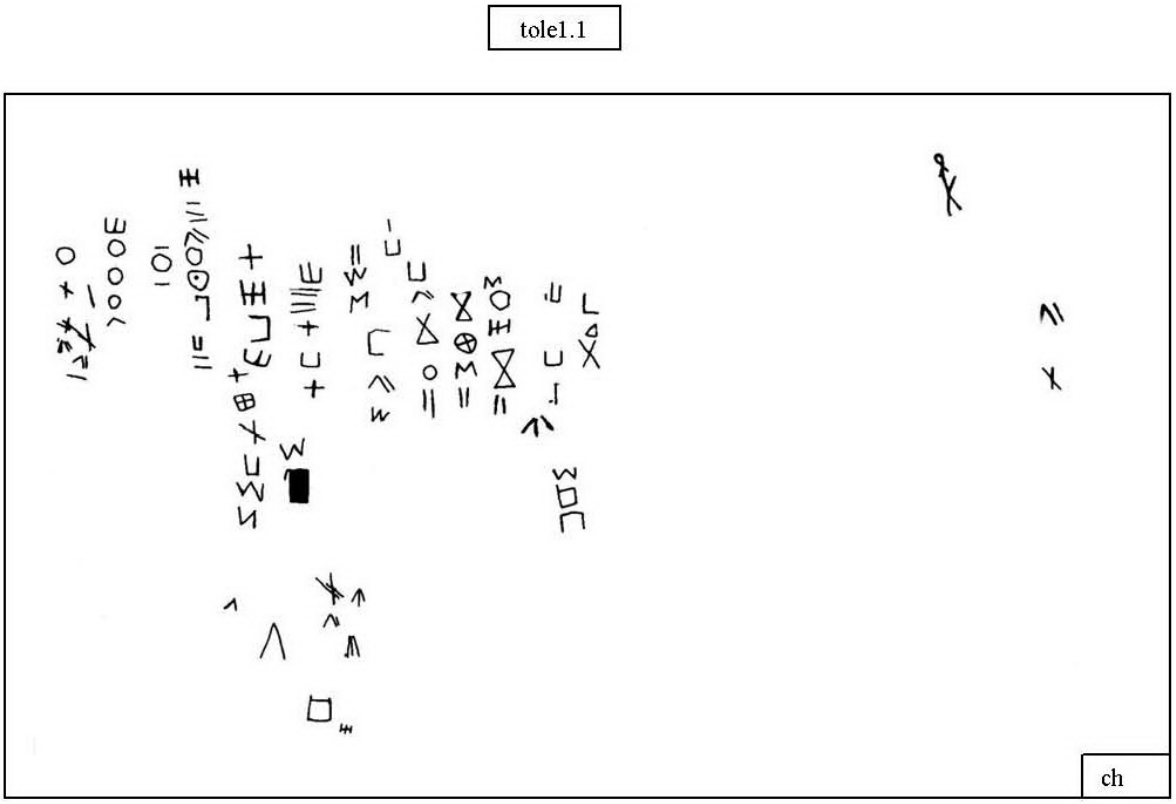
Libyco-Berber Inscriptions of Los Letreros (Julan) N°1

Appendix X



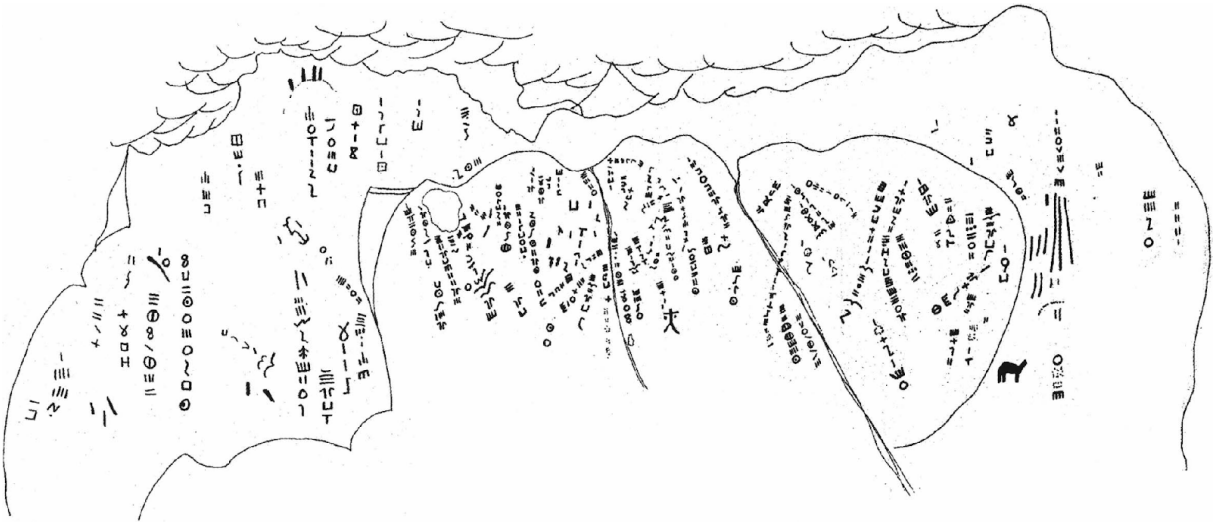
Libyco-Berber inscriptions of Los Signos (La Restinga)

Appendix XI



Libyco-Berber inscription of Hoya Toledo

Appendix XII

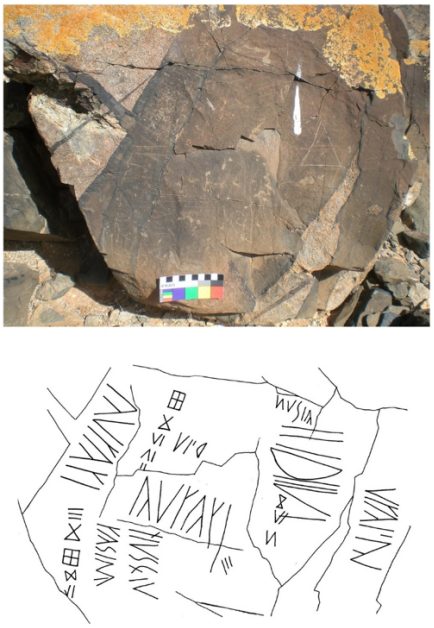


Libyc inscriptions of the cave of Ifigha,

Appendix XIII

Libyco-Berber Inscriptions of Balos

Appendix XIV

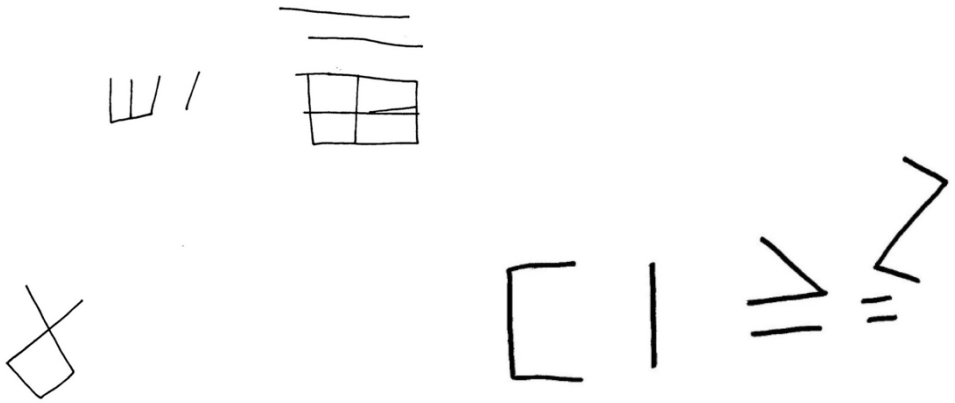


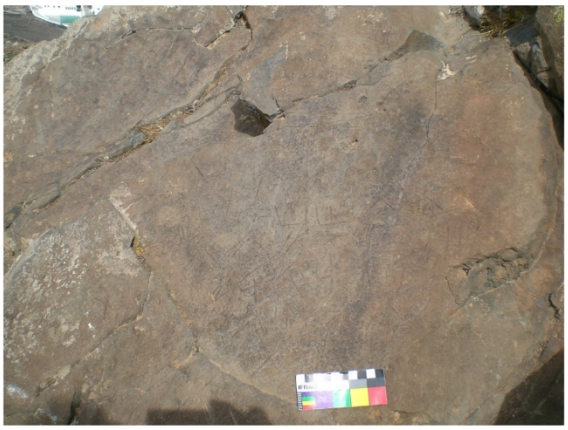
Libyco-Latin inscription of Morretes de Tierra Mala

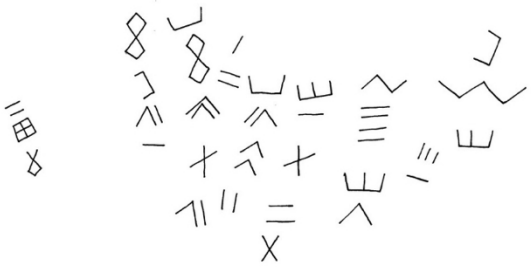
Appendix XV

[Libyco-Latin Inscriptions del Morro de Montaña Blanca]

Appendix XVI

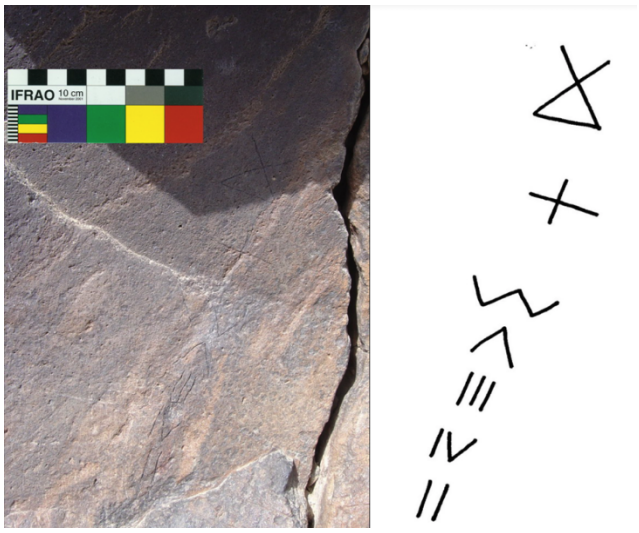






Libyco-Berber inscriptions of Femès

Appendix XVII



Libyco-Berber inscriptions of Peña de Juan del Hierro

Appendix XVIII

Cueva Paloma (Lanzarote). Texto líbico-beréber

Libyco-Berber inscriptions of La Cueva Paloma

Appendix XIX

a	|	3 (además de otros 2 que aparecen al margen de otro signo)
b	||	5
c	|||	1
d	—	15
e	=	2
f	○	12
g	◎	3
h	⊖	2
i	⊖	2
j	⊖	2
k	+	3
l	∪ ∩	11 / 3
m	⊏ ⊐	2 / 1
n	H H	3 / 1
o	∩ ∩	2 / 3
p	⊔	3
q	∩	1
r	A	4
s	⊕	
t	⊢⊢	
v	T	
w	⊕	

Libyc inscriptions of La Canadia, El Hierro

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