KHIPU DECIPHERMENT

by

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<u>Introduction to the Problem of Khipu Decipherment</u>

In earlier studies, I and others have described and analyzed the principal physical properties of the Inka knotted-string recording device, the khipu (or <u>quipu</u>, "knot;" Ascher and Ascher, 1997 ; Chirinos, 2010; Urton, 2003, 2017; Figure 1). These studies have included analyses of string materials, cord structures, and colors, in addition to close consideration of the principal modes of manipulating those various elements, such as the directionality of spin/ply, attachments, knotting; color use and patterning, and other construction features of khipus.
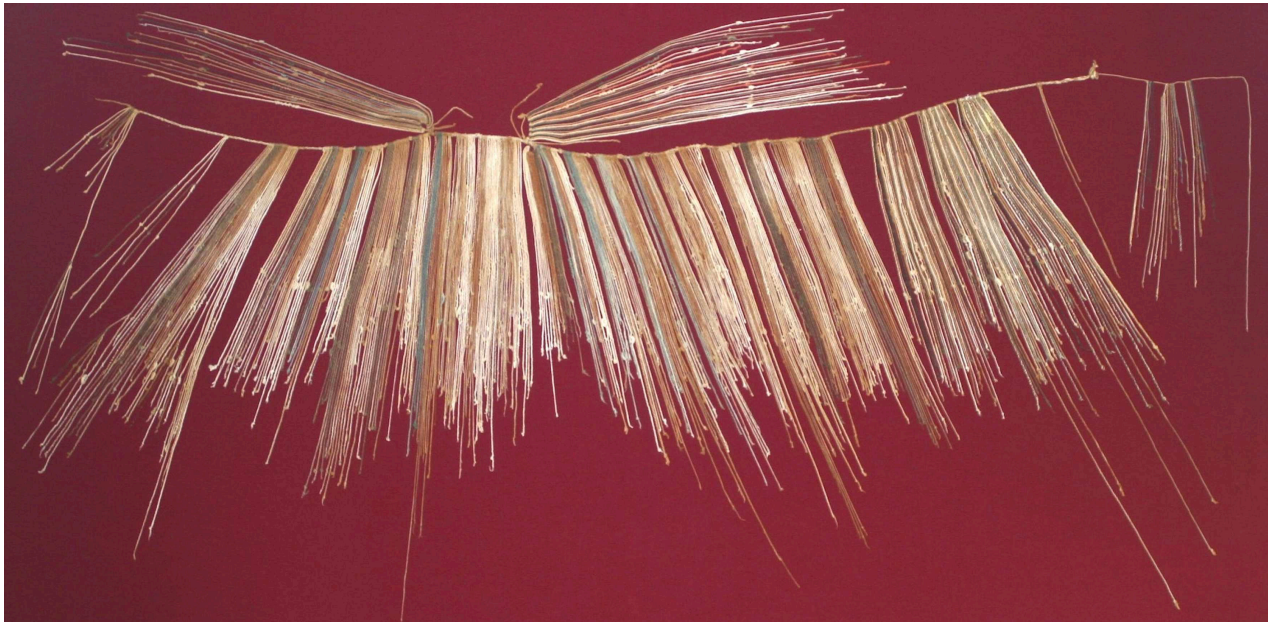

Figure 1 - Inka Khipu (Centro Mallqui, Leymebamba, Peru; INC-LDC-108/LC1-497)

Concerning the latter, it has been established that a critical feature of the production and manipulation of the strings of khipus was the repeated recourse to binarism (right vs. left, S vs. Z, up vs. down, etc.; Urton, 2003; Clindaniel, 2018). These properties and processes were all under

the purview of the khipukamayuqs, the Inka administrative officials, in their production of state records.

It has long been presumed that these are the core features that constitute the elements of coded information in the khipus (Urton, nd). Therefore, if any "deciphering" of the khipus is to take place, it will presumably be in terms of the translation into some target language (e.g., Spanish, English, etc.) of these features. In short, while researchers over the past century have succeeded in analyzing and interpreting the major structural and numerical properties of the khipus (Locke, 1923; Ascher and Ascher, 1997; Urton, 2003, 2017), what remains to be accomplished is determining whether or not these knotted-string and colorful accounts can be deciphered and, if so, how that might be accomplished.

In this paper, I will take up the question of the major challenges I think we face in deciphering the Inka khipus and what prospects I see for the success (or not) of these efforts. It will be helpful initially to consider the nature and meaning of the act and process of decipherment.

The Meaning of "Decipherment"

By "decipherment," I mean the act and process of decoding a set of notations and/or a script to the degree that one can accurately, verifiably and repeatedly render the encoded information into a spoken or written "translation" -- that is, so that one can speak and/or read the coded message(s) in some target language. Although we commonly think of decipherment as an esoteric act performed on some (often) ancient, coded script or recording system, it is important to recognize that this is, in fact, a mundane activity -- one that we perform daily.

For instance, when I type the following line of text: "I am typing this text," a reader's ability to understand, interpret and speak what I have just typed, in order to report the significance and meaning of this line of text to another person, is an act of decipherment. You, the reader, are now deciphering this text -- that is, if you indeed know the English language and are able to "decipher" from the notations I am typing by means of my computer keyboard an intelligible, interpretable message. It is in this generalized sense that decipherment is an on-going, daily process that most literate people engage in for much of our lives.

My question here then, again, is: Are the Inka khipus susceptible of being deciphered in the manner just described? My provisional answer to this question, up-front, is: I doubt it, at least not in the way in which I just defined and described the ordinary, everyday process of decipherment -- i.e., decoding from some previously untranslated text the equivalent of a spoken narrative. Explaining my answer will require that we examine closely what kind of system of communication I think the khipu notations represent and, therefore, precisely what kind of challenges I think the decipherment of the khipus would entail.

Before moving to my current thinking on the question of khipu decipherment, I must make a diversion to discuss briefly claims I made about this matter in an article published over 25 years ago (see Urton, 1998). In that article, entitled, "From Knots to Narratives: Reconstructing the Art of Historical Record Keeping in the Andes from Spanish Transcriptions of Inka Khipus," I argued that before the time of the Spanish conquest of the Inka Empire, beginning in 1532, at least a portion of Inka khipu records were probably characterized by the recording of information in a rather fulsome, if not complete, script-like system of recording. That is, that the khipu notational system was, at least in part, composed of fully grammatical, narrative-type information. This

would (supposedly) have been in a manner similar to other ancient and modern writing systems -- i.e., with the full panoply of nouns, verbs, etc., and the full grammatical entailments of subjects, objects, and other components of grammar. It was, I argued in that article, due to the domination and systematic suppression of the Inka recordkeepers -- the khipukamayuqs ("knot-keepers/makers/animators;" Figure 2) -- by Spanish colonial officials, as well as what was a major

Figure 2 - Khipukamayuq with assistant reading a khipu, with text reading: "letter and knot [quipo recording] of the Inka" (Murúa, 1591:124)

transformation in the types of information that was recorded from before to after the Spanish conquest of the Inka Empire (especially in terms of a radical change in the nature of tribute) that transformed this supposed "original" script-like recording system into a significantly less than fully grammatical system of notations. This change, I argued, led over time to a reduction of the

previously fully readable (hence, ultimately, potentially decipherable) writing system into one that lacked full legibility in the post-conquest, Colonial khipu recording tradition.

I will not discuss that earlier article in any detail here. The arguments that I made there, and then, had their own logic and merits. I leave it to the interested reader to evaluate the arguments made therein as he/she desires. Perhaps the arguments there were correct; I don't wish to reject or argue against them explicitly now. However, after a quarter of a century of further working with and thinking about the Inka khipus, I no longer think I can support those arguments. It is, therefore, in this revisionist spirit -- i.e., of having had many more years to reflect on these matters -- that I now offer the arguments below, in which I cast doubt on the full decipherability of even the pre-conquest khipus, at least in terms of our ability today to produce fully grammatical, syntax-rich, readable, text-like narrative renderings directly from the khipu notations.

I have already discussed, in a provisional way, certain aspects of my current views concerning the non-fully grammatical nature of khipu recording in two previous book-length studies (Urton, 2017 and nd.). In this paper, I will explain what kind of notational system I think the pre-conquest khipus represented, what encoding features appear to have existed in terms of their grammaticality before the time of the Spanish conquest and the effects of European colonialism, and whether or not and to what degree I think we might be able -- even partially -- to decipher those messages today.

The Language(s) of Encipherment

Two initial notes of clarification are required here. One concerns the possible language(s) of any coded information in the khipus; and the other concerns what circumstances might have caused Andean peoples to feel the need to invent a decipherable system of coding information in some durable medium.

The question of the "readability," and thus the potential decipherability today, of the khipus seems to me to rest in the first place on what we know about the communication system(s) of any one of the three languages that are the best candidates for any grammatical messages encoded in the khipus. The three relevant languages are:

1) Puquina: the language that was commonly spoken around Lake Titicaca (which is said in the Spanish chronicles to have been the original homeland of the Inkas), located to the south of the Inka capital city of Cuzco, which linguists have argued was the original language spoken by the Inkas before their arrival in Cuzco and even (as a "secret language") during their occupation of the valley of Cuzco;

2) Aymara: the probable language spoken in Cuzco, especially by Wari residents in the Cuzco region (the Wari having preceded the Inkas as the dominant ethnic/political group in the region; Bauer and Covey, 2002), at the time the Inkas arrived in Cuzco from the south and the language which the Inkas adopted for local communication soon after their arrival in Cuzco; and

3) Quechua: the language which the Inkas adopted after their expansion out of the Cuzco region toward the northwest (in the direction of Chinchaysuyu), in the highlands above present-day Lima (i.e., the region of the original home of the proto-Quechua language); this was the language which served as their administrative lingua franca throughout the short life of the empire (on these linguistic matters, see Cerrón-Palomino, 2008; and Torero, 2002)

Presumably, any fully grammatical messages encoded in the khipus would be in one or another of these three languages. The question then becomes: What do we know about narrative modes, styles and renderings in any one of these three languages <u>before the intervention of Europeans</u> (Spaniards) into the Andean world?

The central point regarding the above is that, since no known system of "readable" writing was invented in the Andes before the arrival of literate Europeans,[1] and since any written texts or vocabularies in any one of the above three languages that we do have were written under the oversight and influence, if not in the language, of the conquerors -- i.e., Spanish -- we have no indigenous, pre-conquest "guiding texts" in any one of the three languages mentioned above as a basis for determining the proper reading of fully grammatical messages that might be encoded in that language in the khipus.

The nearest thing we have to such a guiding text is the so-called <u>Huarochirí Manuscript</u> (Salomon and Urioste, 1991). This is a text written in the Quechua language near the beginning of the 17th century in the central highlands of Peru, with oversight and probable contributions from a local Franciscan curate and priest (Francisco de Avila); this occurred long after the introduction of the Spanish language into the Andes. Thus, the <u>Huarochirí Manuscript</u> is the best potential "reading guide" we have to any fully grammatical, narrative messages in the khipus that may have been encoded in Quechua. However, the fact that the authors of this text would have been at least moderately influenced by Spanish grammar, narrative styles, and other such semantic conventions -- as well as being at the time under colonial domination -- means that I, at least, am dubious of the use of this text as a guide to reading any potential pre-conquest Quechua texts encoded in the khipus. It may indeed be helpful, at some stage in our efforts at

decipherment, but I doubt that it represents anything approaching an authentic, full-blown pre-Spanish conquest rendering of an indigenous khipu-encoded narrative.

Why Did the Inka Need a Recording/Writing System?

The second matter for consideration in this discussion concerns the administrative, political and intellectual contexts in which the need for a system of recording information, in some standardized, durable form, would have been needed by the Inkas. From an abundance of evidence provided by the Spaniards beginning in the early years following their conquest and occupation of Tawantinsuyu ("the four parts intimately united," the Inka's name for their empire), the information retained in the khipus represented the communicative life-blood of administrative officials and the indigenous intelligentsia in what was the largest state of the Pre-Columbian Americas. It should be noted that the Inkas inherited much of their state apparatus, including the use of khipu-like knotted-string recording devices, from their predecessors in the valley of Cuzco, the Wari (see Urton, 2014).

As I have argued previously (Urton, 1984), since the khipus represented the principal form of recordkeeping in the Inka state, we must presume that there would have been a need for a high degree of standardization of records (e.g., census data, information on labor demands for state projects and the militia, resources stored in state storehouses, etc.) within the Inka state administration. In my view, one cannot imagine a state-level society in which each recordkeeper invented and deployed his[2] own, individual, unique system of recording information --i.e., one that could not be reviewed, checked and surveilled by other (especially higher-level) state recordkeepers. Thus, the khipukamayuqs were the primary administrators and recordkeepers at

all levels of Inka state administration, from the court officials in Cuzco down to provincial- and potentially even local-level authorities.

I would note here that the need for standardization across the Inka administration, at least in the later stages of the life of the empire, argues for the likelihood that the primary language that was used in any grammatical messages encoded in the khipus would most likely have been in Quechua, the shared, lingua franca of Inka state administration at the time of the Spanish conquest.

The above concerns and considerations are offered as two of the major issues that should be taken account of in our effort here to determine whether or not the khipus may be decipherable and what the nature -- linguistic, grammatical, political -- of any principles and projections for decipherment of the khipus need to take account of.

A Hypothesis for the Encoding and Decipherment of Khipus

As for what kind of recording system may be represented in the khipus, and, therefore, what particular challenges we may face in our efforts at decipherment, we also need to consider how any coded information in the khipus might be constituted, or composed. For instance, might those message have been -- and might they still be (i.e., in the surviving ca. 1,050 extant samples in museums) -- composed in a manner similar to the kind of text the reader is reading here, and now? In my view, I see no reason to suppose that the Inkas (or the Wari, before them) would have conceived of the need for recording information in extensive, narrative form, as the reader is reading here. The system I am currently using to produce this text -- both the letters on this page and the narrative, linear mode of representing my thoughts on this page of paper -- was passed

down from centuries, actually millennia, of the development of writing and narration in the ancient Near East and the eastern Mediterranean, practices and processes which were subsequently adopted by the societies of western Europe. As far as I am aware, the Wari and Inka knew nothing of this; nothing like this form of recorded, linear, narrative composition was in their intellectual DNA nor in their developed systems of symbolizing and signing from pre-Wari and pre-Inka times.

What we know both the Wari and Inka had in their inherited technologies of production and communication were well-developed traditions of working with cotton and camelid fibers to craft exceedingly complex fabric-based cloths of various shapes, sizes and degrees of complexity. These production traditions carried very complex, usually dyed, multi-colored designs that were woven, stitched or otherwise constructed (e.g., such as the tapestry tucapu designs) in those fabrics (see Stone-Miller, 1992). These things they knew, and performed, exceedingly well. Therefore, as these societies became increasingly more complex, leading to the emergence of state-level societies -- which the Wari and Inka undoubtedly represented -- there would have been an increasing need to record information. The question to consider, then, is: How would they have met this need?

I begin by assuming that they would not -- certainly not necessarily -- have conceived of a narrative-based manner of recording -- that is, that they would have conceived of producing prose-like narratives about what was going on in their societies. What they needed to know and retain, for managing their states, were numerous, fact-based pieces of information, such as: How many people live here and over there? How many households are people divided into? Who was the head of each household? How old were the inhabitants of each household? What kind and

what quantities of goods -- crops, clothing, animals, etc. -- was each household capable of producing? How many males were of the appropriate age for military service? How many people were available to provide labor in the Inka system of tribute labor? Who showed up for a labor event, and who was absent? Who was responsible for the different sections of an irrigation canal? Who owned and used this piece of land and what were its boundaries? And finally, how did these values and identities change over time?

The latter question is the substance and essence of historical chronicles. However, such chronicles need not have been "written" down (or out) as historical narratives. It would have been sufficient to maintain local archives that provided detailed accounts of these matters from one year to the next. Such archives of khipu accounts have been retrieved, archaeologically, at such Peruvian sites as Limatambo (Díaz, 2008), and at Puruchuco and Lake of the Condors (Urton, nd.). A comparison of the information retained in such archives over the course of years would have provided the information for what we might term historical chronicles -- not narrative histories, but annotations of historical continuities and changes.

All of the information prompted by the questions raised above could have been accounted for by a system of knotting strings in a hierarchical, decimal-based system of numeration coupled with identities signified by certain combinations of material, binary construction techniques, and color. Such a system would have been perfectly adequate for recording all of the information that was needed by state administrators. A grammatically more complex system of constructing/signing narratives -- explaining all of these things in a fully-grammatical, narrative form -- would have been superfluous, as their identities, quantities and even histories (i.e., last year's quantities compared to those enumerated this year) could be efficiently recorded and

represented for all time on strings, knots, numbers and colors -- and all of this information could be retained, for comparative/historical purposes, in khipu archives.

If the Wari or Inkas wanted to tell stories, they could narrate them, orally; however, there would have been no reason, certainly not for state recordkeeping purposes, of recording narrative information in the knotted records. After all, even in our own, modern-day states, administrative records are kept primarily in account books and other such formal instruments (e.g., tax receipts, census figures, licensing forms, etc.), not in novelistic-like narrative renderings! The latter is a part of our own literary and historical traditions, with roots that go all the way back to Homer and Herodotus. However, we have no reason to assume that such narrative-producing individuals, or the technologies and semantic/grammatical/intellectual traditions that produced and sustained them, ever existed in the ancient central Andes. Perhaps they did, but we have no basis on which to presume that these ancient South American societies developed in a parallel way to those of the ancient Near East, Western Europe, China and even central America -- places where narrative histories were developed and persisted for millennia.

On the other hand, as Andean societies continued through time, from their Wari and Inka beginnings, and as the tradition and technology of recording became increasingly more complex, and as archives of records built up over time, some clever individual might well have hit on the idea of using this technology to record graphical (i.e., string, knot, color) configurations that could be assigned semantic values that could underlie narrative constructions. The latter, however, was not necessary nor inevitable. What was necessary were the notations of identities, quantities, and different structural properties characterizing these matters, discussed above, as they existed across the landscape of Tawantinsuyu over time.

I suggest that the Wari and Inka khipus developed over time in a straight-forward manner, such as that described above (i.e., before the preceding paragraph). In that case, then, both Wari and Inka records would have been "about" identities, numbers (quantities), and structures. Our efforts at decipherment, then, should be aimed at charting, comparing, and analyzing representations of these classes and types of identities, quantities and structures in the knotted-string records.

I suggest that the best keys, or guides, for learning how to interpret and translate these values, quantities, structures and identities are those that were recorded in the earliest Spanish chronicles, which described what the Spaniards encountered soon after their conquest of Tawantinsuyu. These documents recount for us what the Spaniards observed and heard about concerning the structure and organization of Inkaic society, in the court in Cuzco, and in the myriad villages in the countryside. These Spanish written accounts detail such forms of organization as: dualism (hanan/upper vs. hurin/lower), triadic hierarchies (collana, payan, callao), quadripartition (e.g., the four suyus of Tawantinsuyu), decimal organization, and highly complex local and imperial ayllu (kin group) organizations. These (and perhaps other) principles, structures and values should be the principal elements at the heart of the information encoded in the Inka (and probably Wari) knotted-string records. I have produced translations of numerous such khipu recordings in a previous publication (Urton, 2017).

Summary and Conclusion

The suggestions for the contents of the Inka khipus outlined above represent my current views on what is recorded in the khipus -- that is, what was recorded on them both in the pre-

Spanish conquest era and in early colonial times. I think that it is these structural, quantitative, hierarchical notations that constitute the substance of information encoded and recorded on the surviving khipus that exist in museum collections around the world today. Deciphering this information can provide us with the knowledge and understanding of what the Inkas knew, thought, and recorded about <u>their</u> world -- seen from their eyes, from their points of view -- before the arrival of Europeans. In short, discerning the structure and contents of these notations represent our only means of seeking an understanding of this ancient American civilization that is not a product of the minds, attitudes and morals of the sixteenth century European invaders of the central Andes.

Therefore, while the challenges of deciphering the khipus are indeed daunting, the potential benefits and contributions to comparative world history make the effort well worth undertaking.

Notes

1) In all cases that I am aware of, at least in the early sources, khipu keepers are identified as male (but see Salomon's account of what was apparently one female cord reader, in 18th century Peru; 2004:122-5). Female khipu keepers likely were common in pre-conquest times, however, just as what appears to have been an entire, parallel hierarchy of female officials (e.g., female equivalents of <u>kurakas</u>) seems to have been systematically disregarded by Spanish administrators (see Silverblatt, 1987), the same lack of attention from the almost exclusively male colonial officials might explain why we hear nothing of female khipu keepers.

2) But see Szeminski's argument for a possible system of Inka writing, principally known only from what is now Bolivia (Szeminski, 2019).

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