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Source: *Ethnohistory*, Vol. 45, No. 3 (Summer, 1998), pp. 409-438

Published by: [Duke University Press](#)

Stable URL: <http://www.jstor.org/stable/483319>

Accessed: 08/02/2011 00:25

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From Knots to Narratives: Reconstructing the Art of Historical Record Keeping in the Andes from Spanish Transcriptions of Inka *Khipus*

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Abstract. Based on a close examination of Spanish translations and transcriptions of “readings” of Inka *khipus* (knotted-string recording devices) by native “knot-keepers/makers” during the sixteenth century, I make suggestions about the types of information that appear to have been recorded. While memory played an important role in the construction of full narrative renderings of the *khipus*, the transcriptions nonetheless suggest that the *khipu* signifiers contained a high level of syntactic and semantic information. It is argued, therefore, that the *khipu* recording system may have more closely approximated a form of writing than has heretofore been supposed.

The record-keeping system of the Inka empire has been the subject of a considerable amount of interest on the part of Andean scholars since the beginning of this century.¹ The system, a combination of recording techniques and interpretive knowledge, was based on the manipulation of knotted-string devices called—in the Quechua language spoken by the Inkas—*khipus* (literally, “knots”). *Khipus* were composed of a variable number of “pendant strings,” made of spun, plied, and often dyed cotton and/or camelid fibers that were attached to thicker “primary cords.” Various types and numbers of knots were tied into the pendant strings, usually in clusters at different levels, or tiers, as measured from the point of attachment of the pendant strings to the primary cord. In many cases, knots were accorded numerical values based on their position on the strings and expressed in the decimal system that was used by the Inkas for recording quantitative data (see Ascher and Ascher 1981; Locke 1923; Urton 1997).

Descriptions of the *khipu* contained in documents written at the time of the Spanish conquest (beginning in 1532) and the subsequent two or

three decades reveal that the Inkas used *kipus* to record quantitative data (e.g., censuses and tribute records) as well as songs, genealogies, and other narrative forms containing historical information.² To date, students of the *kipus* have been successful in interpreting the code of the *kipus* only insofar as the quantitative accounts contained in them are concerned (see Ascher and Ascher 1981). However, it is not an exaggeration nor, I think, does it diminish the accomplishments of past and recent students of the *kipus*, to say that we are as far today from knowing how to identify and read a narrative *kipu* as we were at the beginning of the century.³

While there is evidence for the continued use of *kipus* in the Andes into colonial times in such contexts as confessionals (Harrison 1992: 27) and even by present-day Andean herders for maintaining accounts of live-stock (e.g., Mackey 1970; Ruiz Estrada 1990; Soto Flores 1950–1), nevertheless, the replacement of *kipus* by documents written in Spanish as the official means of record keeping was virtually complete by the 1590s. In addition, the types of information recorded on *kipus* from the beginning of the seventeenth century appear to have represented a radically transformed and highly simplified version of the record-keeping capacities of these devices in pre-Hispanic times. It is possible that one consequence of the attenuation of the types of information recorded on *kipus* beginning in early colonial times would have been the loss of the technical skills and interpretive traditions required to record and retrieve complex narratives from these devices. Therefore, learning to interpret—if not actually to read—the five hundred to six hundred remaining Inka *kipus* in museums and private collections around the world represents the only available means of recuperating the pre-Hispanic Andean voices, historical accounts, and perspectives on the world recorded in this remarkable device.

My objective here is to reconstruct certain essential features of the record-keeping system of the *kipus* as a device for recording narratives in Inka times. I also identify and elaborate on fundamental changes that I think occurred in the recording techniques and information systems of the *kipus* under Spanish influence. These early colonial transformations of the *kipu* record-keeping system include the virtual elimination of fully grammatical—that is, subject/object/verb—narrative constructions in favor of attenuated, non-narrative clauses composed primarily of nouns and numbers, and the elimination of an entire corpus of native classificatory terms denoting actions required of subjects in the Inka tribute system (ethnocategories of objects were retained). Finally, I discuss the direct attack made by Spaniards on the veracity of the *kipu* accounts, as well as on the knowledge, reliability, and legitimacy of the *kipukamayus* (“knot-makers”), the native officials who were responsible for recording and interpreting

information on the *kipus*. This attack was of fundamental historical and political importance as it reverberated through, and severely undermined, the traditions of knowledge and authority on which the record-keeping system of the *kipus* in the pre-Hispanic Andean world were based.

As will soon become apparent, I have strong reservations concerning the commonly held view that the *kipus* represented a kind of mnemonic record-keeping system; that is, that the notations registered on these devices represented only the barest skeleton of information—in some form that adherents of this view have never specified clearly—from which the *kipu*-maker would construct from memory a full narrative rendering. The idea that the *kipus* represented such an idiosyncratic, private (i.e., individual memory-based) system of notation such that an accurate interpretation of any particular *kipu* could be given only by the individual who made it, is a notion largely derived either from prejudicial views of this device given in the accounts of *kipus* left by Spanish chroniclers or from a superficial acquaintance with the remaining *kipus* (which display a high degree of uniformity in their construction) and the Spanish transcriptions that were made from native readings of *kipu* accounts in colonial times (see below).

It is important to note that neither the Spaniards who portrayed the *kipu* recording system in this manner nor the modern commentators who have repeated this view have stated clearly what these mnemonic units may have consisted of (e.g., phonograms? logograms? ideograms?) or how their rendering may have differed from the practice of reading any of the logographic, syllabic, or even alphabetic scripts with which we are familiar. In general, there has been a profound lack of specificity and even a tendency towards mystification concerning the relationships among such factors as knowledge and memory, orality and literacy, and signifier and signified in discussions of the Inka *kipus*. I do not doubt that memory, as well as creative, individualistic verbal constructions played central roles in the discursive rendering, or reporting, of the information encoded on a *kipu*. Rather, my argument concerns the nature of the signifiers that were recorded on the *kipu* strings and the degree to which the significance of the recorded units was shared among the class of *kipu*-readers.

While I am not prepared to suggest what class of units of signification (e.g., logographic, ideographic, or even phonetic) may have been recorded on the *kipus*, I believe that the *kipu* recording system more closely approximated a form of writing than is usually considered to have been the case.⁴ As a rationale for this position on the non-idiosyncratic (i.e., shared), readable character of the *kipus*, I offer the following argument from an earlier study:

The questions that we should consider in rethinking the nature of the *kipu* as a recording device are the following. If the Inka empire was indeed a state, and therefore was run by some form of bureaucracy, as it surely was (see Julien 1988; Murra 1982; Zuidema 1982), how could order and continuity have been achieved and maintained over time in the absence of a form of communication based on shared values and meanings that linked people in positions of authority at all levels of society? What kind of society—much less a state—could afford the luxury of a recording system that was grounded in the individual, or family, control of and access to state records, whether statistical or historical? And finally, if *kipus* were indeed unique, idiosyncratic objects, why did the people who made them confine themselves to the use of such a limited and redundant set of recording techniques, producing such a narrow range of structural variations?

Unless we can provide convincing answers to the above questions which leave intact the view of *kipus* as idiosyncratic objects in both their construction and interpretation, I suggest that we begin to consider an alternative view. The view that I find most satisfying and stimulating for future work is one that attributes the undecipherability of the *kipus* to our own as yet incomplete understanding of Inka intentions and meanings as they represented them in these objects. (Urton 1994: 294)

The materials I drew on for this study are documents, primarily from the Archivo General de Indias, in Seville, Spain, containing transcriptions of *kipu* accounts that were produced on the basis of the reading of *kipus* by *kipukamayusqs* during early colonial times (1532–85). What is principally at issue is the nature of the relationship between the information that was recorded on a *kipu* and the information that appears in the Spanish transcription of the reading of that *kipu*. The Spanish transcriptions were purportedly the products of what a *kipukamayuq* said was on a *kipu*, as translated from the *kipukamayuq*'s native language by a bilingual (e.g., Quechua/Spanish, Aymara/Spanish) interpreter (or *lengua*) and as recorded by a Spanish scribe. The central problem in using these Spanish transcriptions as a source for reconstructing the nature and types of information that may have actually been recorded on the *kipus* is the fact that the transcriptions are the end products of three stages of interpretation—that is, from the *kipukamayuq*'s reading, through the interpreter's translation, to the scribe's transcription.

I would argue that the only component we can approach critically and with any degree of confidence is that involving the translation of the native reading of the *kipu* text. Here, we are concerned with what Hardman-

de-Bautista has called the “translation tradition”—that is, the translation of native (especially Quechua and Aymara) commentaries into Spanish in early colonial times. This translation tradition emerged early in the Andes as colonial administrators began producing a body of written documents (in Spanish) from the testimony of native informants. As Hardman-de-Bautista (1982: 153) has noted, “This [translation] tradition was quickly and dogmatically established, by mutual, if unspoken, agreement from both sides, such that certain items in one language (both words and grammatical forms) were translated by specific items in the other, such that . . . for most people involved in this translation tradition, the correlative expressions were believed to be exactly equivalent expressions.”

The methodological problems raised here concern both the identification of correlative words, phrases, and grammatical constructions that make up the translation tradition, and the question of whether or not the information recorded on a khipu constituted a reasonably complete and widely readable version—as opposed to essentially idiosyncratic, mnemonic notations—of the rendering given by a khipukamayuq. If there was a close correspondence between the essential components of a narration and the information recorded, then study of the khipu transcriptions has the potential to provide a new strategy for investigating khipu narratives. Later in this article, for instance, I discuss the relationship between khipu transcriptions and the Andean translation tradition as it concerns a certain type of syntactical and semantic information—that is, data-source marking—that may have been recorded on khipus.

Most khipu transcriptions explicitly identified as such and available to us today primarily represent tribute records.⁵ Thus, in my attempt here to reconstruct the recording techniques, information system, and grammatical constructions central to the production of historical khipus, I have worked from transcriptions of tribute records and extrapolated from these the elements and principles of Inka record keeping that would, in all probability, have applied as well to record-keeping practices used in historical khipus. However, it should be noted that the information available from tribute khipus is not altogether of a statistical nature; several transcriptions also contain explicit references to historical events (see below).

In order to better understand the art of reading historical khipus, I begin with an overview of some of the more straightforward procedures involved in interpreting khipu tribute records.

How Were the Khipu Tribute Accounts Read?

The most detailed account we have, in 1998, of the process of reading or interpreting a tribute account from a khipu by a khipukamayuq is found in

a document written in La Plata (present-day Sucre, Bolivia), on 10 October 1578. The document, which concerns the liquidation of assets of Alonso de Montemayor, the defunct *encomendero* of Sacaca, involves litigation between the heirs of Montemayor and the Indians of the *repartimiento* of Sacaca. The litigation had to do with the nature and the amount of tribute (*tasa*) given to Montemayor by the Indians of Sacaca between 1548 and 1551. The records of tribute produced on behalf of the people of Sacaca were a set of khipus in the care of two *caciques* of Sacaca, Fernando Achacata (seventy years of age) and Luis Comba (ninety years of age); a third khipukamayuq, Pedro Horuro, is mentioned in a separate proceeding. The explanations of the khipus given by Achacata and Comba, probably in Aymara (Izko 1992: 48, n.1), were translated into Spanish by the court interpreter, Hernando Alverado, and recorded in the document by a Spanish scribe.

At the beginning of the proceedings, the khipukamayuqs were asked to display their records.⁶ The scribe recorded the following observations, impressions, and interpretations:

. . . then they gave a demonstration . . . of some bundles of wool cords some white and others of other colors with certain knots each of the said don fernando achacata and don luis held his handful [of knotted cords] in which they said were kept the account of what, [in] the said four years [i.e., 1548–51], was given to the said *encomendero* and to his *mayordomos* [agents] in silver, coca, maize, *chuño* [freeze-dried potatoes], cloth and livestock and other things such as the amount which they made from selling the items in the years specified. . . . The said *quipos* appear to be of one tenor [*tenor*] that of the said don fernando achacata with that of the said don luis.”⁷ [AGI 1579: 55v]

The exact relationship between the khipus kept by the two khipukamayuqs is unclear in the document. That is, we do not know if they recorded the same information—one therefore serving as a check on the other—or if each khipukamayuq recorded only a part of the complete tribute account. The one clue we have is the scribe’s remarkable and rather surprising assessment that the quipos appeared to be of one tenor (“kind, sort”). Was this evaluation based on the scribe’s close scrutiny of the information recorded on the two khipus (which seems unlikely, as the proceedings were just getting underway), or was he merely remarking on how similar the khipus were in their appearance? Unfortunately, this question must remain unanswered for the moment.⁸

As the proceeding in La Plata continued, the Spaniards asked for a demonstration of how the khipus were read:

. . . and then they were asked to demonstrate by means of the said *quipos* what they gave to the said don Alonso [de Montemayor] and to others in his name during the first year of the four which they said they had [records of]. Taking their *quipos* in their hands they said they gave him the following and placing some stones on the ground by means of which they performed their accounting [calculation] together with the *quipos* they said the following. . . .⁹ [AGI 1579: 55v]

The combined manipulation of knotted strings and stones mentioned in this passage probably represents a variation on a common Andean tradition of accounting (see references cited in Wassén 1990 [1931]). For the Aymara-speaking regions of present-day southern Peru and Bolivia, the accounting tradition utilizing *kipus* (or, in Bolivian Aymara parlance, *chinos*) and stones is attested to in the early seventeenth century Aymara dictionary of Ludovico Bertonio (1984 [1612]; see Platt 1987 for a thorough study of these accounting procedures and their relationship to Aymara political ideology and organization). Relevant entries from Bertonio (1984 [1612]) are given below.

1. References to accounting procedures using knotted strings:
 - “To count by knots”: *Chinona haccutha*.
 - *Chino*: “The record which they show by knots of what was given . . .”
 - *Vrcoña*: “A cord from which they suspend other strings . . . like the *quipo* of the record keepers, or those who make confessions.”
2. References to accounting procedures using stones:
 - “To count by means of small stones”: *Calana, apanocatha, iranocatha, saraatha, vel inocatha*.
 - “Stone counter with which to count what is owed”. *Cchaara*.
 - “[To count] what has been paid”: *Hanko*.
 - “To count with these [small stones]”: *Iranocatha, Apanocatha*
 - *Cchaara*: “Small stones for counting what is owed of the tax, or other things.”
 - *Haccutha*: “To count, enumerate.”
 - *Haccuthapitha*: “To add up the parts, to sum it all up.”
 - *Inocatha*: “To count with stones.”
 - *Iranocatha*: “To place on the ground . . .”

A comparison of the information from Bertonio concerning Aymara accounting practices and the above statement of the actions of the two *kipukamayusqs* from Sacaca as they began the process of reading their *kipus* suggests that the combined manipulation of knotted strings and

stones represented common procedures for interpreting tribute accounts recorded on khipus. Similar practices involving the combination of reading khipus and manipulating stones and/or maize kernels are reported for Quechua-speaking regions of the former Inka empire by Martín de Murúa (1922 [1590]) and Garcilaso de la Vega, *El Inca* (1959 [1609]). The question here is, what, if anything, is the relevance of the account from Sacaca for our attempt to understand the procedures for recording narratives on khipus? In order to address this question, we must examine what the scribe reports, as he moves through the detailed description of the reading of the khipu, concerning the nature and types of information the khipukamayuqs were interpreting.

Below I outline the three categories of information employed by the khipukamayuqs in reading their khipus and in “making their calculations” (*haciendo su cuenta*) with the stones:

1. When the khipukamayuqs are asked a question concerning the quantity of a particular item given as tribute, the scribe generally records their response using a formula that suggests that the answer, or *quenta*, was arrived at by a calculation based on manipulating *the khipus and the stones*. For example, “They were asked how many arrobas [25 lb. measures] of feed they gave . . . and taking their quipos in their hands and by means of the said stones they said . . .” (fue les preguntado que tantas arrobas de cebo dieron . . . E a mando sus quipos en los m[an]os E por los dchas piedras dixeron . . .) (AGI 1579: 56). As the document proceeds, this formula becomes abbreviated to the point that the reference to manipulating the stones is replaced by the phrase *haciendo su quenta* (“doing the calculation”). This same phrase appears in the above quotation as the initial explanation given by the scribe to explain what the khipukamayuqs did with the stones. For example, “They were asked how many loads of maize they gave . . . and where they delivered them and taking the said *quipos* in their hands and doing their calculations [i.e., with the stones] they said . . .” (fue les preguntado que tantas cargas de mayz dieron . . . y donde lo entregaron y tomando los dchos quipos en sus m[an]os y haciendo sus quantas dixeron . . .) (AGI 1579: 58). By the end of the document, only the quantity of the first tribute item reported in each year—which was always specie (*plata*, “silver”)—is explicitly said to have been arrived at by both consulting the khipu and manipulating the stones.

2. In answer to a question concerning the price or value of an item given as tribute, the khipukamayuqs appear to have read the price from one khipu or, more likely, from one string on one or both of the khipus. Such information is never said to have been arrived at by manipulating the stones. For example, “They were asked about the price for how much

the said sheep [llamas] were sold . . . and by means of a *quipo* which they showed they said that *each* sheep brought 10 pesos . . .” (Fue preguntados a como valian y se vendieron . . . los dchos carneros . . . y por un quipo que mostraron dixeron que a diez p[es]os corriente cada carnero . . .) (AGI 1579: 56).

“They were asked for how much the said blankets were sold . . . and by means of the said *quipo* where they have the record of the said prices they said that *each* blanket was sold at six pesos of silver . . .” (Fueles preguntados a como se vendian los dchas freçadas . . . E por el dcho quipo donde tienen la rrazon de los dchos precios dixeron se vendia cada freçada a seis pessos de la plata corriente . . .) (AGI 1579: 59).

3. And finally, as is shown in the two quotations above, the khipu (or khipu string) that documented the “account” (*razon*) of the price of a particular tribute item recorded unit prices—that is, the value of “each” (*cada*) unit—not the aggregate total price of all the units of that particular item. In other words, the khipukamayuqs are never said to have multiplied the unit price of an item by the number of units of that item to arrive at a statement of the total value of the tribute in question.

From the above observations, we can now identify the main operations carried out by the khipukamayuqs in reading their accounts of the tribute given to Alonso de Montemayor. What we find, for the most part, is that the khipukamayuqs were reporting the following kinds of information from the sources indicated:

<i>Type of Information</i>	<i>Source(s) of the Information</i>
A. Identification of tribute items	A. Khipus
B. Quantity of each item	B. Khipus and the stones
C. Unit price, or value of each item	C. One khipu/one khipu string

A particularly interesting question raised by the above summary is Why did the khipukamayuqs resort to the stones in order to calculate the amount or quantity of a particular tribute item? That is, if there is one thing that past studies have convinced us of concerning the record-keeping capacities of the khipus it is their facility to record numbers. Why then was it apparently necessary, in order to report a tribute item composed of such small quantities as “20 blankets,” for the khipukamayuqs both to consult their khipus and to manipulate a set of stones? It is important to note here that the stones were used only to calculate the quantity of an item; if, for instance, stones were used to calculate the price of an item, we could argue (since price was a concept attached to value only after the conquest, following the introduction of currency into the Andes) that the use of calculating stones might have emerged during the colonial period in

association with the development of a money economy. This clearly was not the case.

The key to answering the above question lies, paradoxically, in a well-known characteristic of the khipus, which is that they were not calculating devices (Ascher and Ascher 1981: 93–94). This answer is paradoxical because, as we will see below, in order to answer the question of why the khipukamayusqs had to combine a reading of their khipus with the manipulation of stones in order to report the quantity of a tribute item, we have to conclude that the khipu contained information necessary for making calculations but was not used to perform the calculations (the stones served this purpose).

To solve this dilemma we need to outline a few basic related observations in order to arrive at the conclusion alluded to above. First, the khipu is very good for recording numbers; therefore, the khipukamayusqs ought to have been able to easily record the information “20 blankets.” Second, it appears from this khipu transcription and from the scribe’s commentaries that in order to render a simple item like “20 blankets,” the khipukamayusqs had to both consult their khipus and manipulate a set of stones. Third, if we rule out the possibility that the stones had to be manipulated in order to identify a tribute item (e.g., “blanket”), then we must conclude that manipulating the stones was required in order to read the number “20.”

The crux of the problem, then, is this: How can we resolve the apparent contradiction or disjunction between the first and third observations above? If the khipus only provided the information “blanket,” how could manipulating a set of stones result in a reading of the term “blanket” to mean “20 blankets”? The only satisfactory answer is that the khipu must have not only contained the term “blanket,” but must also have identified some numerical value that served as a power, or multiplier, to be used in calculating the quantity of blankets in question. There also needs to have been a known or fixed value by which the multiplier indicated on the khipu was multiplied in order to arrive at the number of units (i.e., the quantity) of that particular tribute item. For illustrative purposes, let us assume that this fixed value was *four*. In this case, if the khipu gave the information “blanket: 5,” then the stones could have been used as an abacus to multiply the indicated value *five* by the fixed value *four* in order to read the statement as “20 blankets.”

Thus, the conclusion we arrive at concerning the nature of the types of information relating to the quantity of tribute items recorded on the khipus kept by the two caciques of Sacaca is that they recorded (1) nouns, which identified tribute items, and (2) numbers, which were used in cal-

culating by means of the stones the total number of units of each item. While this may be a satisfactory explanation for how the quantity of tribute items was calculated in early colonial times, it does not answer the more perplexing question of why these quantitative data were recorded in such a way. That is, if the *kipukamayuks* could record “blanket: 5,” why couldn’t (or didn’t) they simply record the final number, “blankets: 20,” (*five times four*)—which they could have arrived at (and later did) by performing the calculations with *kipus* and stones?

The best answer at present is one that takes into account possible social and political considerations in recording tribute obligations. For instance, the number *four*, which I have suggested above served as the standard multiplier, could have represented a four-part sociopolitical division, a form of organization that was common throughout the Inka empire. In such a notation, each part of the four-part division would have been responsible for giving its share—that is, “blanket: 5”—of the total amount of the tribute item. Thus, the *kipu* would have recorded the apportionment of a tribute obligation among a number of allied sociopolitical entities.¹⁰ The understood multiplicand—in this case *tawa* (“four”)—would have had its basis in a well-known, shared knowledge of the political organization of the group rather than in some arbitrary arithmetic value such as the abstract number *four*.

Two points should be stressed at this juncture. First, the explanation suggested above (i.e., that the stones provided the multiplicand for a value on the *kipu* string) is not intended to preclude the possibility that the arithmetic operation performed could have been division, with one number (e.g., that on the *kipu*) representing the dividend and the other (e.g., the stones) representing the divisor. Since multiplication and division are conceived of as reciprocal operations in Quechua arithmetic (see Urton 1997: 157–58), there is no reason that one should preclude the other; my focus here on multiplication is meant to be illustrative. And second, the example of multiplication used above is, obviously, not complex mathematics. Any halfway numerate person ought to have been able to perform this multiplication in his/her head. However, it is important to note that most of the numbers reported in the Sacaca document are, in fact, well below one hundred and therefore ought to have been easy to calculate by mental arithmetic. Perhaps the elaborate manipulations of *kipus* and stones performed by the *kipukamayuks* in Sacaca represented, as Tristan Platt has suggested (personal communication, 1997), ritualized “authorizing” gestures performed as much (if not more) to impress the Spanish authorities involved in the proceedings as to actually calculate the values reported.

There are three important implications of the above observations and conclusions for this study of the *kipus*. First, with regard to those *kipus* containing statistical data (e.g., tribute accounts), we may have to assume that some of these numbers won't "add up." That is, that some of the numbers recorded on *kipu* strings may have been multipliers that were to be used in combination with a calculating device like the stones to arrive at the exact quantity. Second, the multiplicand, that is, the unrecorded power by which the recorded number was multiplied, constituted a standard value used by the *kipukamayusqs*. Such standard values would have represented important elements in the interpretive traditions shared by all *kipukamayusqs*, and as such, they would have had wider ideological and cosmological significance in the culture. This would certainly have been true of the number suggested above as the standard multiplicand in the Sacaca *kipu* reading—the number *four*.¹¹ And third, the procedures for multiplication described above may have important implications in the attempt to reconstruct the methods of recording historical narratives using *kipus*.

For example, it is possible that phonetic, syntactic, or semantic values recorded on a *kipu* would have been modified by standard values or properties applied to them by the *kipukamayusqs*. Thus, the manipulation of stones with respect to recorded versus understood numerical values could have had a parallel in narrative constructions on such topics as dynastic chronologies, genealogical distance from a stated ancestor, or the relations over time among a set of hierarchically related social groups, many of which bear number names—for example, *pachaqa*, "100," and *waranqa*, "1,000." Such properties would have been shared in other domains of Inka culture, as in the example of the sociopolitical implications of *tawa* ("four") as a multiplicand. As shared properties, these ideological, structural, and narrative values ought to be documented in the literature of Inka society, culture, and language, available to us in the surviving Spanish chronicles, documents, dictionaries, and grammars.¹² This point recapitulates a suggestion made earlier by Platt (1986: 256): "I suspect that Inka formal models of the imperial organization will be found to be inseparable from the nature of the mathematical and census techniques employed to control and direct demographic resources in a context of increasing specialization in productive activities."

The next task is to examine in greater detail some of the other grammatical elements and classificatory features that appear to have been used in recording Inka tribute on *kipus* and, in turn, to consider what these suggest concerning the recording techniques and grammatical construc-

tions that may have been available for recording historical narratives on khipus in pre-Hispanic times.

From Inka Labor Service to Spanish Taxation, or: What Happened to the Verbs?

As a basis for analyzing the capacity of the Inka khipus for recording narratives, we turn to two excerpts from tribute accounts retained on khipus. The first of these accounts refers to the tribute owed to the Inka in pre-conquest times (i.e., before 1532) by the people of Yacha and Chupaychu in the Huallaga valley in what is now central Peru.¹³ The second account is a tribute list from the year 1558 that details the tribute owed by the natives of Huanca to their Spanish overlords.¹⁴ Anyone familiar with the literature on this topic will know that these two khipu accounts have been the subjects of several previous studies (e.g., Espinoza Soriano, 1971-2; Murra 1975 [1973], 1982, 1987; Pärssinen 1992; and Pease 1990). Thus, while we begin by moving over well-traveled territory, my use of these two accounts and the implications I draw from the comparison of them will differ markedly from these earlier works.

The first khipu transcription presented below (Murra 1987: 55-56)¹⁵ includes selected passages or lines—each of which appears to be the translation by a khipukamayuc of the information on a different string of a khipu—from the account of the tribute owed to the Inka by the people of Yacha and Chupaychu prior to the Spanish conquest:

- In addition they gave 400 Indians to plant the fields in Cuzco so that the people might eat and make their offerings to the church.
- In addition [they gave] 50 Indians as servants [*yanaconas*] for Guayna Cava, and in continuation.
- In addition [they gave Indians] to guard the body of Topa Ynga Yupanque.
- In addition [they gave] 20 Indians to guard the body of Guayna Capac after his death.
- In addition [they gave] 20 Indians for making feathers.
- In addition [they gave] 60 Indians to collect honey.
- In addition they gave 60 Indians in order to grow coca, which they delivered to Cuzco and to the storehouses of Guanuco and sometimes they delivered 200 sacks and at other times 40.
- In addition they gave 500 Indians to go to war with the person of the Inca and to carry the hammocks going to Quito and to other places.

The second account (Pärssinen 1992: 34–35)¹⁶ contains selected items from the transcription of an account of the tribute given by the natives of Xauxa to their Spanish overlord in 1558:

- In addition we gave him in gold and silver in Caxamarca in gold 596 pesos [and] in silver we gave another sum of 596 pesos.
- In addition we gave him 4 horse blankets.
- In addition we gave him 40 sheep [llamas].
- In addition we gave him 149 *fanegas* [approximately 1.5 bushels] of maize.
- In addition we gave him [of] bowls and jugs 2983 vessels.
- In addition we gave him 2386 pheasants.

As Murra has pointed out (1975 [1973]; 1982), the comparison of tribute accounts like these provides clear evidence of a fundamental change that occurred in the nature of tribute from Inkaic to Spanish colonial times. That is, the pre-Hispanic tribute system (represented in the first account above) demanded that local people perform labor service for the state; the Inkas did not, however, require the payment of goods by their subjects. The colonial tribute system (represented in the second account) demanded the payment of money and other objects of value from the natives' own resources. This change in the nature of tributation is clearly evidenced in the *kipu* accounts cited above. What is of greater interest in relation to our study of the history of native record keeping in the Andes, however, is the evidence of an equally radical transformation that occurred in the recording techniques, information systems, and grammatical constructions of *kipus* in the transition from the Inkaic to the Spanish tribute system.

In order to record Inka tribute by means of a *kipu* (or any other recording system), one would need, in addition to an array of nouns and numbers, a rich vocabulary of verbs denoting various types of labor service that were to be performed for the state—for example, to make, take, guard, plant, carry. In contrast, to record a Spanish tribute list one would need an equally large array of representations of nouns and numbers, but essentially only one verb: “to give.” With regard to the recording of Inka tribute, consider the entry: “[They gave] in addition 20 Indians to guard the body of Guayna Capac after his death.” I contend that understanding or interpreting this tribute item would have required units of information answering the following questions: (1) What kind of service (since labor service was the presumed form of all Inka tribute) is required? Answer: guard a body; (2) Whose body? Answer: Guayna Capac's; (3) When? Answer: after he dies; (4) Who is to do this (Indians? Yanaconas?)? Answer: Indians; (5) How many Indians? Answer: twenty.

From the above bits of information, one could construct the statement: “20 Indians to guard the body of Guayna Capac after his death.” Without an explicit notation on the khipu string providing an answer to each of the above questions, one could not reliably interpret the tribute item in question. This is not to suggest that the answer to question (5) might not have been arrived at by a combination of reading and calculation similar to that discussed earlier in regard to the tribute item “20 blankets,” nor is it to suggest that there may not have been a more elaborate, perhaps memory-based narration that could have been constructed on the basis of the elemental units of information identified above. The point is that some level or form of information regarding each one of the five questions would have to have been recorded on the khipu string(s) identifying the tribute service in question.

The only alternative to the above conclusion is to suppose that the khipukamayuqs may have simply assigned a full narrative/interpretive value to a given string configuration; for instance, a green cotton string with a notation of 20 would mean “20 Indians to guard the body of the present king when he dies.” However, a record-keeping system of this type would have required an extremely large and idiosyncratic array of such narrative formulations just to record a tribute list.

To think that the Inkas would, or could, have constructed a myriad of full, idiosyncratic statements and then assigned each to a unique string configuration—that is, in terms of variations in material, color, number, and spinning, plying, and knotting directionality—seems unreasonable on several grounds. First, because it comes close to mystifying the memory capacity of the khipukamayuqs, given the almost infinite variety of such constructions that are actually found on the remaining khipus (see Ascher and Ascher 1978; Urton 1994). One never finds just a “green cotton string with a notation of 20” on a khipu; rather, what one finds are far more complex and subtle arrangements, such as, for example, an *S*-spun, *Z*-plied, green cotton string with two single *S*- or *Z*-knots (see Urton 1994 for a discussion of variations in knotting directionality in the khipus). Second, if the khipukamayuqs could have remembered so many different specific combinations of string configurations and narrative statements, they would not have needed a device like a khipu in order to remember them, since such a one-for-one system of recording would, by definition, have had no generative capacities; that is, if a khipukamayuq ever forgot a message, he could never recover or generate it from the string configuration. And third, such an interpretation seems to me to underrate Inka intelligence, creativity, and adaptability, all of which are clearly evident in other areas of Inka culture, including astronomy, calendrics, weaving, and stonework-

ing. Since the khipus were very complex and sophisticated in terms of their capacity to store information, one would have to posit a fairly low level of imagination and ingenuity on the part of the khipukamayuqs to think that they were not able to recognize, or would have had no interest in investigating and fully utilizing, such a device in a generative way—rather than in simple one-for-one memory routines.

The above characterization of what would have been required in order to record Inka tribute on a khipu differs markedly from the situation found in the entries cited earlier from the Spanish tribute list. For instance, consider the representative entry: “In addition we gave him 2386 partridges.” Since all of the items in the Spanish tribute list (other than the historical entries in this khipu, which I discuss below) refer to items given to Pizarro, the verb “to give,” and the identity of Pizarro as the recipient of the tribute, need only have been recorded once (perhaps on the primary cord) in the knotted record. It would have then been necessary on the pendant strings only to register the name of an object and a number in order to have a relatively complete account of the tribute item in question. Such a record could have been registered, therefore, in the form of a noun (tribute item) and adjective (number) mnemonic notation—that is, it need not have taken the form of a complex, narrative expression on the khipu in order for the khipukamayuq to have constructed his statement.

Such simplified, primarily mnemonic constructions may have been characteristic of a certain class of khipus in both pre- and post-conquest times. Records of the goods, livestock, and so on belonging to individuals or corporate groups—like *ayllus*—may well have taken this form. A good example of this type, or class, of khipus is found in a publication by Mercedes del Río, which contains a khipu transcription from 1572 of the inventory of possessions for the last will and testament of don Garcia Mamani, a *cacique* from Tapacará. Included among the items listed on the khipu was a specified number of camelids, whose count the scribe could not verify because (he noted) it was recorded on another khipu in the possession of don Garcia’s herder (del Río 1990: 107–8).

It is also important to point out that the difference between the recording of Inka and Spanish tribute was not absolute, for we do find entries in the Spanish tribute accounts that not only constitute full narrative statements, but which also contain historical information (this no doubt would have been true as well of confessional khipus; see Harrison 1992). I discuss examples of a few such entries from a tribute khipu after a more detailed analysis of the incorporation of verbs in khipu transcriptions.

In his analyses of the organization of information in the khipu tribute accounts, Murra (1975 [1973], 1982) identified what he referred to

as “ethnocategories.” These were types and groupings of objects in the Andean world that were organized and recorded in the *kipus* according to native Andean values and principles of classification. My point in introducing the topic of ethnocategories is to suggest that this concept is also useful in exploring another aspect of the *kipu* records from pre-Hispanic times: the use of a number of verbs denoting types of labor service performed in the Inka tribute system.¹⁷ These verbs and their combinations, variations, and modifications—especially of tense and number, as well as such common (Quechua) motion-implying suffixes as *-mu* (movement towards the speaker) and *-pu* (movement away from the speaker)—for specifying the requirements of different tribute demands would have also served as building blocks in the recording of historical narratives by means of the *kipus*.

Study of the Spanish transcription of the full Inka tribute list recounted from the *kipu* by the lords of Yacha and Chupaychu reveals the use of the following verbs, defining different ethnocategories of service (see Table 1).

One especially interesting feature of this *kipu* transcription is the large number of narrative constructions combining certain activities with the verb *llevar*, “to deliver, or carry.” These include:

- A. *sacar* (“to take”): “. . . the gold that they took they delivered to Cuzco . . .”
- B. *guardar* (“to guard”): “. . . In addition [they gave Indians] to guard the fields . . . and they delivered the maize to Cuzco . . .”
- C. *sembrar* (“to plant”): “. . . [they gave] Indians in order to plant hot peppers which they delivered to Cuzco . . .”
- D. *hacer* (“to make, do”): “. . . [they gave] Indians to make [i.e., to produce] the coca, which they delivered to Cuzco . . .”

Such constructions suggest that the recording system of the *kipus* was capable of registering two different forms of action (i.e., verbs) on the same string. This capacity and the requirement for it is further suggested by the fact that each of the verbs combined with *llevar* in the passages cited above also appears in the tribute list alone, or in combination with another verb (see above).

Thus, the *kipukamayuq* would have been denied the expedient mnemonic construction whereby a reference to any one of these activities—that is, *sacar*, *guardar*, *sembrar*, and *hacer*—automatically entailed the action verb *llevar*, to deliver. On the other hand, the verb *llevar* does not appear to have signified an independent kind of activity or form of service. That is, the act of delivering is in almost all cases preceded by verbs denoting

Table 1. Ethnocategories of Service in the Inka Tribute Account

Form of Service	Object(s) of the Activity
1. <i>hacer</i> (to make, do)	<i>paredes</i> (walls) <i>plumas</i> (feathers) <i>tinturas y colores</i> (tints and dyes) <i>sal</i> (salt) <i>coca</i> <i>suelas</i> (sandals) <i>platos y escudillas</i> (plates and bowls) <i>ollas</i> (bowls) <i>ropa</i> (clothing)
2. <i>sacar</i> (to take)	<i>oro y plata</i> (gold and silver) <i>miel</i> (honey)
3. <i>guardar</i> (to guard)	<i>cueros</i> (bodies [of deceased kings]) <i>armas</i> (arms, weapons) <i>ovejas</i> (sheep) <i>chacaras</i> (fields, crops) <i>Indias</i> (Indian women [i.e., the king's women]) Chachapoyas/Quito <i>tambos</i> (way stations) <i>chacaras</i> (fields, crops)
4. <i>sembrar</i> (to plant) + <i>comer</i> (to eat)	<i>aji</i> ("hot peppers")
5. <i>tomar</i> (to take; e.g., hunt)	<i>venados</i> (deer)
6. <i>andar</i> (to walk)/ <i>ir</i> (to go)	<i>con el Ynga</i> (with the Inca) <i>a Quito</i> (to Quito)
7. <i>sacar</i> (to take) <i>guardar</i> (to guard) <i>sembrar</i> (to plant) + <i>llevar</i> (to deliver) <i>hacer</i> (to make, do)	<i>a Cuzco/Guanuco</i>

various items of production, which are then carried to the Inka capital city of Cuzco or to a state installation.

This discussion is important in understanding the capacity of the *khipu* to denote the temporal relationship between events, which is the basic requirement for establishing a relative chronology. This is seen most clearly in the example of the ethnocategory of service: "production + delivering." In this formulation, one event or activity precedes, and is the necessary pre-condition for, another event or type of activity. In short, this is the syntactical framework that would be needed for narratives detailing relationships of cause and effect, or to identify causality in mythical/historical narrations.

That the khipus must have had this capacity is further suggested in several of the historical entries in the Spanish tribute list submitted by a man named Guacrapaucar, one of the lords of Xauxa, in 1558. These historical notations are included in the same khipu discussed earlier from which I selected representative non-narrative entries (see the discussion of this khipu transcription in Espinoza Soriano 1971–2; Murra 1982; Pärssinen 1992). One narrative entry in this khipu transcription, representing the information recorded on one khipu string (#109), reads as follows: “Later don Diego went to Xauxa after the *Marques* [Pizarro] died and he plundered the houses saying that we were helping the *Marques* and he sent for Diego Hernandez so that he would come there and when he arrived [Diego and] Peralbarez y Tordo killed Diego Hernandez” (AGI 1558: 6).¹⁸ This construction—with its twelve verbs or verb phrases and complex arrangement of some seven historical events recorded in relative chronological order—may call into question the validity of my claim that the notation was probably registered in written rather than mnemonic form on the khipu string. But, again, when we look at the various specific types of action recorded in the transcription, it seems unlikely that the khipu string would have registered only the nouns and not the complex connective tissue of verb constructions that linked the nouns into a narrative explaining the actions, charting the movements, and modifying the states of being of the various persons mentioned.

The most profound and most obvious implication of these observations on grammatical constructions and ethnocategories of service in the khipu transcriptions is that the record-keeping system of the khipus included verbs, the basic grammatical units necessary for denoting specific actions and states of being and for the construction of predicate phrases. The incorporation of such units in a system of record keeping may be said to represent the essential distinction between a system of mnemonic notations—in which the narration (or story line) is constructed by an interpreter who supplies the action words linking the persons, places, and events being recorded—and a system of writing.¹⁹ Given the complexity of the information and grammatical constructions that appear from the Spanish transcriptions to have been registered on the khipus, it would be disingenuous to refer to the recording of information on the khipus and its subsequent interpretation as anything short of writing and reading.

With the change in the nature of the tribute system following the Spanish conquest, the complex record-keeping capabilities of the khipus would have been, to say the least, dramatically underutilized. Recording Spanish tribute on an Inka khipu would have been a bit like keeping a Maserati in the garage for driving to the corner grocery store. However, the Spaniards, many of whom were ever ready to underestimate native

Andean accomplishments and capabilities, were generally content to characterize the record-keeping system of the *kipus*, based on the task that they themselves had set for it, as a mnemonic device useful for recording only nouns and numbers (e.g., Cieza de León 1986 [1553]: 30–31; Cobo 1979 [1653]: 253–54). Unfortunately, such a misrepresentation continues to live on in caricatures of *kipus* in much of the current literature (e.g., Goody 1977: 66, 94; and Crump 1990: 42, 63–64).

How to Tell the Truth in a Khipu

We do not know what degree of embellishment and circumlocution may have been performed by the individuals who served as the interpreter and scribe in the rendering of the *kipu* by the *kipukamayus* from Yacha and Chupaychu in 1551.²⁰ Uncertainty cautions against overinterpreting the meager evidence available in the Spanish transcription with respect to specific grammatical elements that may have been recorded on the *kipus*. Nevertheless, I want to briefly consider the verb tenses and forms found in the Spanish transcription of this *kipu*; these include the infinitive, the imperfect indicative (singular and plural), the imperfect subjunctive (singular and plural), and the past participle.

We should consider the possible significance of the use of certain verb tenses—especially the imperfect—for grammatical elements used commonly in Quechua and Aymara storytelling that may have been employed by the *kipukamayus* in reading their *kipus* and which may, therefore, have been recorded on the *kipus* themselves. I am referring here to what Hardman has called—in reference to the Jaki language family, which includes Aymara—“data-source marking” (1986; see also, for Quechua, Howard-Malverde 1990; Weber 1986). The central point is that both Quechua and Aymara regularly and prescriptively employ sets of verb tenses and evidentiary suffixes to indicate the source of the speaker’s information. The general categories of sources of information include (a) personal knowledge, (b) knowledge through language, and (c) nonpersonal knowledge. The indication of knowledge through language is generally not used for traditional tales or ancient history except when the information comes from a live source, including books or written material (Hardman 1986: 120); the latter could have included *kipu* accounts in pre-Hispanic and early colonial times. The more common or appropriate form of data-source marking for traditional tales and ancient history in both Aymara and Quechua is the indication of nonpersonal knowledge (ibid.: 120; Howard-Malverde 1990: 75–76).

The important point in this discussion for our purposes is how, in

the translation tradition (discussed earlier), data-source marking through the use of suffixes and verb tenses in native Andean languages came to be translated into Spanish, given the fact that Spanish itself did not (and does not) possess grammatical features for making such distinctions. For Aymara, Hardman notes that the Spanish pluperfect tense was co-opted as the nonpersonal knowledge marker—that is, as the data-source marker for traditional tales and ancient history (1986: 133–34). The Aymara data-source marker for knowledge through language, which, I have suggested, may have been used for information gained from *kipu* accounts (i.e., from *kipukamayuqs*' readings of those accounts), came to be translated by the imperfect indicative (*ibid.*: 134). For Quechua, Howard-Malverde notes that the preterite pluperfect and the nonpersonal knowledge data-source marker are used for traditional narratives concerning events not personally witnessed by the speaker. The imperfect tense is used to translate both everyday and traditional types of discourse (1990: 75–76).

Thus, to the degree that the Spanish transcription of the reading of the Inka tribute account by the two *kipukamayuqs* from Yacha and Chupaychu makes use of the imperfect tense, we may suspect, first, that the interpreter was using this tense to translate a statement by a *kipukamayuq* that contained data-source markers for knowledge through language and/or nonpersonal knowledge, and second, that the *kipu* itself may have contained information indicating these data-source marking suffixes. While we have not yet identified elements of *kipu* construction that may have been used to distinguish categories of data-source marking, it must also be noted that we have not yet taken such formulations and grammatical constructions into serious consideration in investigating structural features of the *kipus*. What is essential to recognize in attempting to reconstruct grammatical elements that may have been employed in the recording of historical information in the *kipus* is the obligatory character of identifying the source of one's information in Quechua and Aymara. As Hardman has noted for Aymara: "No discourse or narration is free from the obligation of data-source marking, not even written materials" (1986: 130). Furthermore, "the judgment of the character of an individual rests in part . . . on data-source use. . . . The matter is not one of truth or falsity, but of misuse; not one of morality, but of accuracy. By misuse, the misuser is seen as trying to put something over on the listener" (*ibid.*: 135).

In fact, in both Aymara and Quechua, statements about the past cannot even be conceived of without an appropriate specification of the source of the information. Given the status of data-source marking, we would expect that signs representing one or another of these sets of suffix groupings and verb tenses would have been recorded on *kipus* containing historical

narratives, as well as on khipu strings of tribute accounts that included historical information.

From Misuse to Falsity

This brings us to the heart of the question concerning the veracity of khipukamayuqs and their accounts as viewed by natives and Spaniards. That there existed, by the end of the sixteenth century, strikingly different views on these matters is evident from the following two quotations. The first comes from Alonso Yanxi, who was himself a khipukamayuq from Sacaca: “They appoint as *quipo*-keepers in the said *repartimientos* the most credible Indians that there are in them [the *repartimientos*] by reason of which the said *quipos* were trustworthy and for this reason there is no fraud in them [the *quipos*] nor are there any lies . . .”²¹ (AGI 1579: 409v).

The second excerpt is from the *Política Indiana*, by Juan de Solórzano y Pereyra (1972 [1736]: 308–9): “I would not venture to give any or such great faith and authority to the *quipos*, because I have heard it said . . . that the manner of making and explaining them is very uncertain, deceitful and convoluted; and furthermore, I don’t know how it can be affirmed that the quipo-keepers are selected with the authority of the general public for this post. . . . When all is said and done, they are Indians, whose faith vacillates, and thus also, they will equivocate in the explication they give of their *quipos*.”²²

It is important to note that these two assessments of khipus and khipukamayuqs were made in connection with the process of fact-finding and legal proceedings surrounding the litigation between the caciques of Sacaca and the heirs of Alonso de Montemayor that took place in Sucre, Bolivia, in the 1570s. This is the same setting in which the khipu transcription with which we began this study—involving the reading of khipus and the manipulation of stones—was made. Alonso Yanxi, cited above, was a witness for the caciques, khipukamayuqs, and the people of Sacaca in those proceedings. Solórzano y Pereyra’s comments were made specifically in regard to the Indians’ claims that they had paid excessive tribute over the four years (1548–51) prior to the death of Alonso de Montemayor.²³ Solórzano y Pereyra’s statement echoes those of other Spaniards—especially descendants and/or partisans of the heirs of Alonso de Montemayor—who were contesting the claims of the overpayment of tribute by the Indians of Sacaca.²⁴

It should be obvious that the confrontation represented in the two quotations cited above is not just about how much tribute the Indians of

Sacaca actually paid to Alonso de Montemayor from 1548 to 1551. Rather, what is ultimately at issue here is a question of power: Who keeps the records and therefore controls information in a colonial setting? In the strife-ridden, highly antagonistic world of the colonial Andes, characterized from the beginning by the domination of natives, the Spaniards could not allow the authority of native records and record keepers to stand for long. In this case, the final solution was to deny the natives their voice—a voice which depended on the complex process of transmission of information from the *kipu* reading through the translation to the final transcription. The Spaniards broke this chain of communication in a variety of ways, from insisting on the use of their own interpreters (or *lenguas*)²⁵ to calling into question the veracity of the *kipu* records and the reliability, authority, and legitimacy of the *kipukamayuqs*. It was only a short step from these interventions to the declaration of *kipus* to be objects of idolatry, and the subsequent ordering of their destruction in the 1580s (Ascher and Ascher 1981: 157; Vargas Ugarte 1959). In this way, the *kipu* became mute.

Conclusion

What I have attempted to establish through the close reading and analysis of transcriptions of several *kipus* is the capacity of these devices for encoding historical and other narratives in the form of complex grammatical constructions. I have made a number of specific suggestions as to the forms such constructions may have taken based on the words and grammatical constructions found in Spanish transcriptions of *kipus*, which are products of the translation tradition that emerged in the Andes in early colonial times. It is hoped that, in time, more *kipu* transcriptions will become available from the stores of Spanish documents that remain in Seville and elsewhere. If we are so fortunate as to uncover more of these documents, we can continue our attempt to decipher the Andean voices speaking through their colonial lords. In this way, we can become more precise in our effort to reconstruct—or imagine—the nature of the relationship between the structures, meanings, and intentions of the phrases that were being spoken and the construction of the bundles of knotted strings that were held in the hands of the speakers.

If the ideas on the readability of the *kipus* put forth in this article are borne out by future research, then we will need to reappraise the significance of these objects for Andean studies; rather than viewing them merely as archaeological artifacts (although they are certainly that, as well), or

worse, as a defective form of communication, a dead end on the road to alphabetic writing (see Gelb 1965 [1952]: 4; and Goody 1989: 66, 94), we can begin to approach khipus as ethnohistorical documents.

Still, much work remains to be done before we can hope to give a positive answer to the critical question posed earlier by Murra (1990 [1975]: 10): “Is it too much to expect that in the future we will dare compare the many archaeological *khipu*, now imprisoned in museums worldwide, with the kind of historical records [i.e., Spanish documents] analyzed here?”

Notes

I would like to express my appreciation to the following people and institutions for their support and encouragement of my research on this topic: Tom Abercrombie and Catherine Julien for their help during my research in the Archivo General de Indias, in Seville, in 1993; John V. Murra for a stimulating afternoon of conversation relating to khipus during the early period of work on this article; Richard Bielfeldt, Clemency Coggins, Julia Meyerson, Tristan Platt, Frank Salomon, and Tom Zuidema, all of whom read, made helpful comments, and raised critical questions on earlier drafts; and three anonymous reviewers for *Ethnohistory* whose comments and questions helped improve the article. I alone, of course, am responsible for any errors or moments of poor reasoning that remain. I want to express my gratitude to the National Endowment for the Humanities Summer Stipend program for funds to support my research in the Archivo General de Indias, Seville, Spain, in July 1993. Finally, I am profoundly thankful to the National Science Foundation for a research grant and the Social Science Research Council for a postdoctoral fellowship, which allowed me to pursue research on Quechua ethnomathematics and khipus in Bolivia in 1993–94; it was during that time that I was able to complete this article.

- 1 Some of the major descriptive and analytical works on the khipus to date include Ascher and Ascher 1969, 1975, 1978, and 1981; Radicati de Primeglio 1979; Mackey 1970; and the collection of new and previously published works assembled in Mackey et al. 1990.
- 2 See, e.g., Cieza de León 1986 [1553]: 30–31; Cobo 1979 [1653]: 253–54; Calancha 1974 [1639]: 204–8; Garcilaso de la Vega 1966 [1609]: 330; and Murúa 1946, book 3, chap. 25.
- 3 This broad claim echoes a similar assessment made twenty-five years ago by Ascher and Ascher (1969: 533; see also 1981: 78). During the intervening period, however, the Aschers have produced a number of seminal works (esp. 1981) that, while not teaching us how to identify and read narrative khipus, have laid the groundwork for an understanding of the logical structures embedded in the khipus that should serve as the starting point for future studies. Pärssinen has recently (1992: 26–51) attempted to reconstruct some of the procedures that might have been followed to record tribute accounts on khipus (see note 13).
- 4 The position stated here goes further than that taken by Ascher and Ascher in arguing that the Inkas possessed in the khipus a system of writing. The latter argue that like scribes of other ancient civilizations, the khipukamayusqs

- utilized (a) a general recording system, (b) a bureaucratically based system of political arithmetic, and (c) a limited system of writing based on cues from a shared informational model within Inka culture (1981: 78). My reasons for going beyond the position adopted by the Aschers—which will be evident from a reading of the text—may derive partially from the difference between working with the archaeological khipus (as the Aschers do) and working with Spanish transcriptions of khipus (as I do here).
- 5 The principal exception concerns the description of the *ceque* system of Cuzco. This complex system of organizing sacred places, sociopolitical groupings, and their relations, as well as the organization of the ritual calendar (with precise specifications of sacrifices to be performed) in and around the Inka capital city of Cuzco, was recorded on a khipu, a transcription of which is found in the chronicle of Cobo (1979 [1653]; see Zuidema 1989).
 - 6 All quotations from the proceedings in La Plata are cited from the Archivo General de Indias (AGI.), *Justicia* 653, No. 2 (1579), “El cacique principal e Yndios del Pueblo de Sacaca con los herederos de Dn Alonso de Montemayor, sobre demasia de Tributos del Tiempo que tubo dhos Yndios en Encomienda” (in 4 *piezas*).
 - 7 . . . luego hizieron demostracion . . . de unos manojos de cordeles de lana unos blancos y otros de otros colores con ciertos nudos cada uno de los dhos don fernando achacata y don luis su manajo en que dixeron tener la quenta de ? los dhos quatro años an ? lo an dado al dcho su encomendero y a sus mayordomos en plata coca mayz chuño rropa E ganado E otras cosas como el valor que en aquellos dhos años tubieron todas las cosas se vendian. . . . Los quales dhos quipos parece ser de un tenor el que tenia el dcho don f[ernand]o achacara con el que tenia el dcho don Luis.
 - 8 Frank Salomon has noted the present-day use of paired khipus (of, as yet, undetermined significance) on certain ceremonial occasions in the community of Tupicocha in central Peru (personal communication, 1997).
 - 9 E luego les fue pedido que muestren por los dhos quipos lo que dieron al dcho don Alonso E a otras personas en su nombre El primer año de los quatro que dizen que tubieron E tomando sus quipos en las manos dixeron aver le dado lo sigui[ent]e y puestas unas piedras en el suelo por las quales fueron haciendo su quenta juntamente con los quipos dixeron lo sigui[ent]e.
 - 10 For a particularly lucid and persuasive discussion of the role of apportionment in Inka political organization and tribute assessment see Julien 1988. It is important to note that Inka tribute, which was levied in the form of labor service, was assigned to different social groups (e.g., *ayllus* and *pachaqas*) equitably. This did not always mean that it was assigned equally among such groups (I thank Tristan Platt for stressing the importance of this point to me).
 - 11 For discussions of four-part political organizations in the Inka empire see Bouysse-Cassagne 1978; Platt 1986; Urton 1990; and Zuidema 1964.
 - 12 With particular reference to possible manifestations of such shared structural and organizational properties in the khipus themselves, Ascher and Ascher have noted that, “given the wide range in sets of quipus, it is tempting to say that some people [i.e., khipukamayuqs] worked in the arena of the ayllu, the smallest traditional organizational unit, whereas others were attached to the administration of larger units within the organization of the Inca state” (1981: 73).

- 13 This document is contained in AGI, *Justicia* 397, No. 2, Ro. 2, pieza 2 (1551): 166–68. See also Murra 1987 and 1982: 240–46.
- 14 AGI, *Lima* 205, No. 16. For discussions of this and related documents see Espinoza Soriano 1971–2; Murra 1975 [1973], 1982; and Pärssinen 1992: 34–41.
- 15
- Más daba cuatrocientos indios para sembrar chacaras en el Cuzco para que comiese la gente y hacer su camarico.
 - Más [indios] para yanaconas de Guaynacava ciento cincuenta indios a la continua.
 - Más para guarda del cuerpo de Topa ynga Yupangue . . .
 - Más para la guarda del cuerpo de Guancava después de muerto veinte indios.
 - Más para hacer plumas ciento veinte indios.
 - Más para sacar miel sesenta indios . . .
 - Más daban sesenta indios para hacer la coca la cual coca llevaban al Cuzco y a los depósitos de Guanuco y unas veces llevaban doscientos costales y otras cuarenta . . .
 - Más daban para ir con la persona del ynga a la guerra y para las hamacas quinientos indios e iban a Quito o a otras partes . . .
- 16
- Más le dimos en oro y plata en Caxamarca en oro 596 pesos en plata le dimos otros tantos que son 596 pesos . . .
 - Más le dimos cuatro mantas de caballo . . .
 - Más le dimos cuarenta carneros . . .
 - Más le dimos 149 hanegas de maíz . . .
 - Más le dimos ollas e cántaros 2983 vasijas . . .
 - Más le dimos de perdices 2386
- 17 Murra also noted a few ethnocategories of service in his study of this khipu transcription (1982: 242–45). However, his primary interest here and elsewhere (esp. Murra 1975 [1973]) has been the analysis of ethnocategories of objects in the tribute accounts (see Pease 1990).
- 18 Después fue don diego a xauxa después que fue muerto el marquez y nos rancheo las casas diciendo que ayudabamos al marquez y enbio a di[eg]lo herandez para que [e]studiese allí y luego vino peralvarez y tordo y ay mataron a di[eg]lo herandez.
- 19 Pärssinen has made one of the few serious attempts to theorize how the Inkas might have registered on khipus the information recorded in Spanish transcriptions of tribute accounts (1992: 31–43). However, the implications of his work for our purposes are ultimately limited because his reconstruction only takes account of the recording of nouns and adjectives (esp. colors and numbers); that is, he does not discuss how the khipukamayus might have handled the rich inventories of verbs recorded in these transcriptions.
- 20 See note 10. The principal informants in this proceeding were the cacique principal Paucora Guaman and the two caciques Querin and Xulca Condor.
- 21 Nombran por quipocamayos en los dichos repartimientos los yndios de más crédito que ay en ellos por rrazon de que los dichos quipos sean como son verdaderos e no aya fraude en ellos ni mentira alguna.

- 22 Yo no me atreveré á dár tal, y tan grande fé y autoridad á estos Quipos, porque he oído decir . . . que es muy incierta, faláz, é intricada la forma de hacerlos, y de explicarlos; y tambien no sé que se pueda afirmar que los Quipocamayos se elijan con autoridad pública para este ministerio . . . Quando aún faltára todo esto, son Indios, cuya fé vacila, y asi tambien vacilará la explicacion que dieron remitida a sus Quipos.
- 23 The *Política Indiana* (1972 [1736]) of Juan de Solórzano y Pereyra was completed, with notes and illustrations, by Francisco Ramiro Valenzuela (see Abecia Baldivieso 1988: 63). I am grateful to Tom Abercrombie for bringing the references to khipus in the *Política Indiana* to my attention.
- 24 For example, the reliability and impartiality of the khipukamayuqs in this proceeding are specifically called into question by the heirs of Alonso de Montemayor in AGI, *Justicia* 653, No. 2, pieza 3 (1579): 27v.
- 25 For a further discussion of this process see Howard-Malverde 1990: 56–58.

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 1558 Memoria de los indios que yo don Jerónimo Guacrapaucar di al marquez don Francisco Pizarro desde que salio de Caxamarca. *Lima* 205, no. 16 [1558].
 1579 El cacique principal e Yndios del Pueblo de Sacaca con los herederos de Dn Alonso de Montemayor, sobre demasia de Tributos del Tiempo que tubo dhos Yndios en Encomienda (in 4 piezas). *Justicia* 653, no. 2 [1579].
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