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THE ACCOUNTANT-HISTORIANS OF THE INCAS

Abstract: The quipu was the ingenious, knotted-string device utilized throughout the Incan empire for recording data within the decimal system. Although quipu experts have often been thought of as managerial or governmental accountants, the writings of the early chroniclers of Peru reveal that quipu specialists were more than accountants. Quipucamayocs were also the historians of the Incas.

Historians usually refer to the quipu as the mnemonic, mathematical, knotted-string device that was used throughout the Incan empire for the purpose of keeping careful accounts within the decimal system, even though no writing existed in that culture. Descriptions of the construction, function, and utilization of the quipu have appeared in the literature¹ and there has been interest in the quipu in terms of its possible role in the origin of the concept and practice of double entry bookkeeping.² But not much has been written about the individuals who were responsible for the preparation and the interpretation of the quipus: the quipucamayocs. This article describes the role and the world of these "accountants" of the Incas.

The Accountant-Quipucamayoc

At the outset, we should note that it is rather misleading to think of the quipucamayocs as accountants, as we use the term today. Accounting is generally a matter of recording transactions by means of a common denominator: money. But the Incan civilization had no money, and its vast quantities of gold and silver had no convertibility in our common-denominator sense. The empire's gold and silver were highly valued because they could be converted into beautiful objects for the rulers to use and to wear.³ Quipucamayocs recorded statistical quantities, not monetary equivalents, as do twentieth-century accountants.

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The Incan dynasty spanned an era of some four hundred years. The legendary Inca, Manco Capac—Son of the Sun—was the first of the dozen rulers of the empire which was greatly expanded under Pachacuti, Tupa Inca, and Huayna Capac (the ninth, tenth, and eleventh Incas). The expansion spread the empire north from Cuzco to the border of what is now Colombia and south to Santiago, Chile (about 2500 miles long) and involved approximately the hundred years before the Spanish conquest in 1533. At its greatest geographical extent, the empire comprised some 380,000 square miles, an area approximately equal to all of the Atlantic seaboard states combined.⁴ By the time Columbus arrived in the New World, the Incan civilization was already a functioning, far-flung, socialistic economy.

Raw data was necessary for the central planners' decision making, and among the vital statistical chores done by the quipucamayocs was the recording of births and deaths on an annual basis. Cieza de León points out the importance of the yearly census:

. . . for this was necessary for the levying of the tributes as well as to know how many were available for war and those who could assume the defense of the villages. This was an easy matter, for each province at the end of the year had a list by the knots of the quipus of all the people who had died there during the year, as well as of those who had been born.⁵

Surely these census quipucamayocs would have had to follow standardized rules for recording. When one studies the superb organization and order that was extant during the expansion of the empire, according to the early chroniclers (e.g., Cieza), it seems clear that a great deal of uniformity must have existed in the systems of accounting. Too much flexibility would have been an anathema to Incan accounting, even as it would be today when considering the accounting systems of modern planned economies.

After a tribe was conquered by the Inca, its governance was dictated by an administrative team from Cuzco, the capital, and the team would include quipucamayocs. Each village and region paid tribute to the Inca, although not every citizen was required to pay. Exempted from tribute, according to Father Blas Valera, were those of imperial blood, all Curacas (government officials/administrators) and their families, army officers and soldiers on active duty, women, men under 25 and over 50 years of age, the sick, priests,

and subordinate officials while in office.⁶ The official (and thus exempt) status of quipucamayocs is evident from the drawings of Poma de Ayala who depicted them with their quipus and identified them with titles such as provincial administrator, secretary and advisor to the Inca, senior accountant and treasurer, and astrologer.⁷ Garcilaso de la Vega also indicated that the quipucamayocs were "exempted from all tribute as well as from all other kinds of service" because their responsibilities were "so great and so absorbing."⁸

Jiménez de la Espada reported that quipucamayocs were given very good allotments of all sorts of sustenance for each month of the year as well as women and servants.⁹ They were to have "no other task other than that of their *quipos*, and of having them prepared and ready, with the correct information."¹⁰ Because of his significant (Curaca) position in the society, a favored quipucamayoc could enjoy special luxuries, as noted by Father Valera:

Certain specially prized goods, such as gold, silver, copper, precious stones, feathers, paints, and dye-stuffs, were restricted to the use of the imperial caste and to such favored curacas as might be honored with permission to use them.¹¹

These items came from the tribute surplus, after the royal wants had been satisfied.

The form of the tribute varied greatly, depending upon factors such as the prosperity of the natives, availability of metals, fertility of the land, and the results of the annual census. In addition to manual labor to work in the mines, fields, and to build public buildings, tribute could consist of such things as corn, chuno (dehydrated potatoes), blankets, coca, lances and slings. If a conquered area was deemed too poor to pay tribute, the Inca ordered that each inhabitant "turn in every four months a large quill full of live lice" as a form of taxation, until such time as the natives became more prosperous.¹² The concept of tribute was thus introduced immediately after each conquest.

Quipucamayocs held critical positions in the operation of this system of taxation. Theirs was the job of calculating and recording the amount of labor or other items furnished and still due, as can be seen from these descriptions by Cieza:

The tribute paid by each of these districts where the capital was situated, and that turned over by the natives, whether gold, silver, clothing, arms, and all else they gave, was entered in the accounts of the (*quipu-*)*camayocs*, who kept

the quipus and did everything ordered by the governor in the matter of finding the soldiers or supplying whom-ever the Inca ordered, or making delivery to Cuzco; but when they came from the city of Cuzco to go over the accounts, or when they were ordered to go to Cuzco to give an accounting, the accountants themselves gave it by the quipus, or went to give it where there could be no fraud, but everything had to come out right. Few years went by in which an accounting of all these things was not made.¹³

They saw, by the knots, the amount of labour that the Indians had performed, the crafts they had worked at, the roads they had travelled over by order of their superiors, and other tasks on which they had been employed. All this was deducted from the tribute that was due.¹⁴

From these descriptions, it can be seen that a certain amount of travel was part of the job. Although the capital city of Cuzco was the heart of the empire, it was distant from most of the provinces. An accountant from the southern part of the land might have a trip of 1,500 miles to cover before arriving in Cuzco. The roads, however, were excellent. The Incas built more than 10,000 miles of all-weather roads, including the 3,250-mile Royal Road and the 2,520-mile Coastal Road.

The quipucamayocs had the use of a rapid and efficient communication system that covered the immense distances over these well developed roads. They sometimes sent their information-laden quipus to other parts of the empire via the *chasqui* system. This nationwide network stationed couriers on duty perhaps every couple of miles, more or less, depending upon the terrain. Supply stations and rest houses were built and maintained for the youths who would keep watch for an approaching messenger, run out to meet him, and then run beside him long enough to exchange the message to be sent.¹⁵ Thus, a quipu might be received, along with any interpretive words needed to accompany it, with no slow-down or delay in the process. The organization and speed of the *chasqui* system is legendary. Cieza says that "they had things so well organized that in a week the news was carried by messenger from Quito to Cuzco."¹⁶

Agricultural land was divided by the Inca into three parts: one was cultivated for religion; a second part was assigned to the Inca and the general support of the government; the third part was left for the food production of the ordinary citizens. Although agri-

cultural land was limited, its productivity was high. Land designated to support the government was farmed to fill warehouses that dotted the nation. During times of war, distribution of food and other provisions was made to the soldiers. If a particular region suffered crop failure, food was redistributed from the storehouses to the afflicted area. The warehouse system made famine virtually unknown.

In addition to the storehouses, the Incas directed that housing be constructed for their troops to be able to move easily throughout the land. Cieza reports that:

. . . so there would be adequate supplies for their men, every four leagues there were lodgings and storehouses abundantly supplied with everything to be found in these regions. Even in the uninhabited areas and deserts there had to be these lodgings and storehouses, and the representatives or stewards who lived in the capital of the provinces took great care to see that the natives kept these inns or lodgings (*tambos*) well supplied.¹⁷

In the capitals of the provinces were more elaborate accommodations fit for the Inca and his high-ranking officials:

. . . throughout the extent of their provinces, there were sumptuous palaces for the Lord-Incas, and temples to the sun where the priests and the virgins—the *mamaconas*—lived, and where there were larger storehouses than the usual. Here the governor resided, and the Inca's officers, together with the *mitamaes* and other serving people.¹⁸

How many such inns and storehouses existed is impossible to determine, but clearly there were a great many. In one city, Cieza reports that in addition to the many storehouses where arms and fine clothing were kept as well as other articles of tribute, there were "over seven hundred houses in which the corn and other provisions for the troops patrolling the kingdom were stored."¹⁹

The quipucamayocs recorded the transactions affecting the inventories in all of these warehouses,²⁰ and they were subject to audit from time to time. For example, during one of his travels the Inca Huayna Capac

. . . was greeted and visited by many chieftans and captains of the region, and he sent *Orejones* of his kinsmen to the coast of the Llanos and into the highlands to examine the accounts of the *quipus-camayocs*, who are the account-

ants, as to the contents of the storehouses, and to learn how those he had named governors were conducting themselves. . . .²¹

Father Valera indicates that an item-by-item inventory count was done:

Then they showed the collectors and the governor each thing by itself that was stored in the royal depots, such as the provisions, pepper, clothes, shoes, arms, and all other things that the Indians gave as tribute, down to the gold, silver, precious stones, and copper belonging to the King and the Sun, each item being recorded separately.²²

And, although the quantity of quipus and quipucamayocs needed for such an accounting system throughout the empire was considerable, Incan law further required duplicate quipus at the higher administrative levels for internal control purposes:

The law ordained that the Inca governor of the province should have a duplicate of the accounts in his own custody, to check any error on the part either of the collectors or of the payers of tribute.²³

The Historian-Quipucamayoc

Even though quipucamayocs are often referred to in the literature as accountants, such descriptions seem altogether too limiting. There is little doubt that quipucamayocs performed many functions which we would categorize as accounting. Their efforts in recording transactions relating to tax collection (tribute) and inventory management throughout the land are clear examples. Their vital role in census-taking is perhaps also aptly described as accounting. It is easy to see their overall role in the empire within our current concept of managerial accounting.

The early Spanish chroniclers, however, used broader representations when referring to quipucamayocs. Cieza (the first Spaniard to describe and explain the quipu in writing) often referred to quipucamayocs as accountants; but he also described them as we might refer to oral historians:

. . . they would send for the great *quipu-camayocs*, who kept the accounts and could tell the things that had taken place in the kingdom, so that they should instruct others

of their own calling, selecting those possessing the best faculties and the greatest flow of words, to relate in orderly manner each thing that had taken place, as is done among us in ballads and lays.²⁴

Father Cobo says that these officials "were like our historians, scribes, and accountants" and that they "learned with great care this way of making records and preserving historical facts."²⁵ In his lengthy descriptions of the disastrous meeting between the Spanish and Atahualpa, Garcilaso relates how the Inca made a speech replying to the Spaniards and "ordered the annalists, who have charge of the knots, to take note of it and include it in their tradition."²⁶ In another incident, Garcilaso refers to two quipucamayocs by name as the "historians López de Gómara and Zárate."²⁷

Cristóbal Vaca de Castro governed Peru from 1541 until 1544 and attempted to determine the history of the Indians and the lineage of the Incas. His questioning of the elder residents of the Cuzco area was reported to be unsatisfactory in that their usual response was only that all Incas were the descendants of Manco Capac, the first Inca. The governor's search for historical information was difficult because few quipus or quipucamayocs still existed. Upon his military victory over his half-brother, Huascar, Atahualpa had ascended to power in 1532 and had ordered his captains to kill all the quipucamayocs they could find and burn their quipus. Only the quipucamayoc knew what was being counted on his knotted strings. Killing the recorder-interpreter and burning his quipus effectively erased the history of the past: "all was to begin anew (new world) with Ticcicapac Inca, as Atahualpa Inca was called. . . ."²⁸

Fortunately, Vaca de Castro was able to locate four very old quipu experts who managed to escape the massacres ordered by Atahualpa's military captains Chalcochima and Quizquiz. These old quipucamayocs, found wandering in the mountains and terrorized by the tyrants of the past,

. . . had been a kind of historian, who kept account of events, and there were many and among all there was agreement in their *quipos* and accounts; they had no other task other than that of being responsible for their *quipos* and also of the history and beginnings of the Incas, of each one in particular, from the day they were born as well as the events which occurred during their respective reigns.²⁹

The preceding quote suggests that there was specialization among the quipu experts. These four recorded the history of the rulers; others, for example, controlled the system of taxation.

The historical records were selective, and more than one version was kept. The common people heard one and the Inca's imperial family heard another. Not surprisingly, the "dark side of the historical picture was pretty well suppressed in the story as told to the populace, but . . . among themselves, the Incas dared to remember the devious methods whereby they came to power."³⁰

Cieza indicates that there were inconsistent versions among the quipucamayocs who related history through their ballads and quipus.³¹ The inconsistencies seem reasonable when we consider the selectivity that was operative. After the death of an Inca, the elders of the people decided which events that took place during his reign should be remembered. Expanding the empire, for example, was worthy of note by the quipucamayocs. Laziness, cowardliness, or excessive indulgence in vice and pleasure warranted virtual oblivion in the historical record. Such negative behavior meant that

. . . if any mention of them was made, it was only so their names and succession should not be forgotten, but about all else they were silent, singing only of those who had been good and brave.³²

If the Inca was deemed praiseworthy by reason of his bravery and good rule and "deserved to live forever in their memory, they would send for the great *quipu-camayocs*, who kept the accounts and could tell the things that had taken place in the kingdom."³³

A very interesting, but not answerable, question is: how were the quipucamayocs able to adequately record historical events, as is claimed? Quipus were records of numerical data using the decimal system. The knotted strings were often of different lengths and colors, apparently to distinguish one kind of data from another. How much of a problem would it have been to make the original historical entry on the quipu in terms of numerical data? And what about the subsequent difficulty of translating that data into historical narrative? The following sweeping statement from Father Cobo raises more questions than it answers:

And the *quipu camayos* customarily passed their knowledge on to those who entered their ranks from one generation to the next. The *quipu camayos* explained to the newcomers the events of the past that were contained in the

ancient *quipos* as well as the things that were added to the new *quipos*; and in this way they explain everything that transpired in this land during all the time that the Incas governed.³⁴

It is difficult to understand how the recording of historical events could be done on the quipu.

Education and Societal Roles

The route by which quipucamayocs became proficient in their vocation apparently varied. In some cases, formal schooling was the approach. Garcilaso says that, according to Father Valera, the sixth Inca (Roca) was the first ruler to open the state college (the *Yacha-huasi*) in Cuzco to educate young nobles. They were taught many subjects, including theology, law, music, philosophy, astronomy, poetry, and military science. The *amautas* (philosophers) taught them "their numbers and the art of equitably interpreting them" and "how to keep account of the years and of history by means of quipus."³⁵

It is reported by Father Morúa that the first year of study involved the study of the Quechua language and the second was spent on theology, ritual, and kindred matters. Study of the quipu was begun in the third year and continued during the fourth, "learning history and many other things from the knot-records."³⁶ Quipu study was thus an "upper-division" level, academic discipline in the college at Cuzco.

Before the advent of the Inca Roca's college, quipu study was presumably done on an individual, tutoring basis. Some evidence for this assumption involves a quipucamayoc named Catari who "had inherited his office and the knowledge of native lore that went with it from a certain . . . keeper of the *quipus* under Mayta Capac" (the fourth Inca).³⁷ Also, Jiménez de la Espada indicates that quipucamayocs "were also obliged to teach their sons, keeping them well-prepared, teaching them the significance of each thing."³⁸ We cannot tell how many quipu-keepers the empire required from time to time, but many were necessary for accounting-related functions; Cieza reported that "all the regions had their accountants . . . and there are always in the storehouses as many accountants as there are lords, and every four months they cast up their accounts."³⁹ An apprentice system could have provided large numbers of quipucamayocs who were needed locally for governmental accounting. This demand surely could not have been met by the supply of

graduates from the exclusive college in Cuzco. It seems reasonable to assume that throughout the four-century reign of the Incas new quipucamayocs were taught, in most instances, by quipucamayocs in practice.

The quipucamayoc had to possess great manual dexterity to cope with the knotting intricacies of the quipu. In addition to the quipu, there was another useful device available to the quipucamayoc. It is shown in Poma de Ayala's depiction of the senior accountant and treasurer⁴⁰ and, apparently, represents a type of computing box or tray. This abacus-like counting tray was used with piles of grain or pebbles to obtain totals which could then be recorded in quipus. In his analysis of this "calculator," Wassén concluded that its use by treasurers in Incan times was no doubt marked by expert skill and speed.⁴¹

Quipucamayocs played an important environmental role in assuring that royal hunts left viable herds of animals for the future. The Incas periodically organized a ceremonial hunt of wild animals, including deer, foxes, guanacos, vicuñas, and bear. Thousands of Indians were assembled for the hunt which succeeded by encircling, and thus capturing, the animals. Some were destroyed (e.g., bear), some sheared of their wool and set free (e.g., vicuña), and some eaten (e.g., deer). Hunting ordinarily was prohibited in the empire and the hunts were not permitted so often as to decimate animal populations. While the game was captured and sorted, a complete census "was taken, according to sex and species, and the figures were noted down by means of quipus."⁴²

Most of the quipus that survive to the present time were found in graves on the Peruvian coast. Exactly what purpose there was for including them with burials is not known, but there is conjecture. Nordenskiöld analyzed sixteen such quipus and concluded that, of the numbers recorded on them, the number "seven" plays an important part, and was very likely a magical number for the Indians. He also concluded that these quipus are clever combinations of astronomical numbers that had importance to Incan astronomers or astrologers.⁴³ It may have been that some quipucamayocs were intimately involved in the metaphysical and astrological fabric of their society, in addition to the economic and historical.

Conclusion

It is accurate to say that the quipucamayocs were at the very center of the regulation and smooth functioning of the cradle-to-the-grave socialistic Incan society. They were there, working with

the professional architects, recording the progress of the construction of the fabulous fortress of Sacsahuamán, overlooking Cuzco.⁴⁴ They were intimately and continuously occupied with the allocation of resources within the empire. They were the vital force which recorded, interpreted, and preserved the ceremonies and the history of the people. And, when the Spanish arrived, the attention of the quipucamayocs to detail and order may, as Cieza contended, have insured against the demise of the conquered Indians:

. . . the wars, cruelties, pillaging, and tyranny of the Spaniards have been such that if these Indians had not been so accustomed to order and providence they would all have perished. . . . But being very prudent and sensible . . . they all decided that if an army of Spaniards passed through any of the provinces, unless the harm was irreparable, such as destroying the crops and robbing the houses and doing other still greater damage, as all the regions along the highway by which our men passed had their accountants, these would give out all the supplies the people could furnish so as to avoid the destruction of everything, and thus they were provided. And after they had passed through, the chieftains came together with the keepers of the quipus, and if one had expended more than another, those who had given less made up the difference, so they were all on an equal footing.⁴⁵

Perhaps it is not too much to conclude that the Incan accounting systems and accountants were instrumental in preserving a people.

But, with rare exception, the quipus and the quipucamayocs were not to be preserved. At the end of the bloody civil war between the brothers Huascar and Atahualpa, the latter's generals sacked Cuzco, desecrated the Tupa Inca's palace, burned his vast archive of quipus and killed quipucamayocs.⁴⁶ The Spaniards subsequently destroyed whole storerooms full of quipus to stamp out what they believed to be pagan practices, and even seized personal quipus.⁴⁷

To completely erase the past in Incan times, both the records and the recorders had to be eliminated. Without the recorder, the quipus could not be interpreted. The accountant-historian and his data and his history were inextricably, and unfortunately, linked.

FOOTNOTES

¹See, for example, Keister and Locke. For colored photographs of quipus, see McIntyre, p. 30.

²See Jacobsen and Buckmaster.

- ³Means, p. 287.
⁴Means, p. 275.
⁵von Hagen, p. 177.
⁶Means, pp. 299-300.
⁷Poma de Ayala, pp. 348, 358, 360, and 883, respectively.
⁸Gheerbrant, p. 160.
⁹Jiménez de la Espada, p. 6.
¹⁰Jiménez de la Espada, p. 6.
¹¹Means, p. 301.
¹²von Hagen, p. 161.
¹³von Hagen, pp. 166-167.
¹⁴Means, p. 301.
¹⁵Poma de Ayala's drawing of such a courier youth is on p. 350.
¹⁶von Hagen, p. 63.
¹⁷von Hagen, p. 105.
¹⁸von Hagen, p. 69. *Mitamaes* were settlers or newcomers who were brought into a recently conquered province to propagate Incan culture. In exchange, an equal number of newly conquered people (also referred to as *mitamaes*) was sent to take the place of the settlers.
¹⁹von Hagen, p. 127.
²⁰von Hagen, p. 71.
²¹von Hagen, pp. 77-78. *Orejones*: name used by the Spaniards to designate the nobles, i.e., Incas either by blood or by privilege.
²²Means, p. 301.
²³Means, p. 301.
²⁴von Hagen, p. 187.
²⁵Cobo, p. 254.
²⁶Garcilaso, p. 687.
²⁷Garcilaso, p. 764.
²⁸Jiménez de la Espada, p. 6.
²⁹Jiménez de la Espada, p. 6.
³⁰Means, pp. 220-221.
³¹von Hagen, p. 231.
³²von Hagen, p. 188.
³³von Hagen, p. 187.
³⁴Cobo, p. 254.
³⁵Gheerbrant, p. 103.
³⁶Means, p. 306.
³⁷Means, p. 210.
³⁸Jiménez de la Espada, p. 6.
³⁹von Hagen, p. 175.
⁴⁰Poma de Ayala, p. 360.
⁴¹Wassén, p. 200.
⁴²Gheerbrant, p. 156.
⁴³Nordenskiöld ("Calculations . . ."), p. 33.
⁴⁴von Hagen, p. 143 (footnote 1) and p. 155 (footnote 5).
⁴⁵von Hagen, pp. 174-175.
⁴⁶McIntyre, p. 118.
⁴⁷McIntyre, p. 31.

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