

Andean Khipu and Spanish alphabet: Independence and opacity

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This paper concerns the cord-based inscription technology of Andean South America as it existed in the Spanish colonial era (1532-1825 for Peru) and in recent modernity. The Andes, for present purposes, means the highlands plus the Pacific coast of Peru, the highlands of Ecuador and of Bolivia, as well northern Chile and northwestern Argentina. The people concerned belong to many ethnic groups. The Inkas, a southern Peruvian people, ruled over almost all these groups as an imperial caste for a short time (less than a century, ending with the Spanish invasion of 1532 CE), and endured as a colonial upper crust for a longer one. But the story of khipu is by no means coextensive with Inka history.

The many Andean ethnic groups are connected by present or past use of the Quechua and/or Aymara languages (Adelaar 2004: 165-410). Quechua developed in central Peru, became a far-flung tongue with both vernacular and lingua franca variants. Toward 1530 it was promoted as the political tongue of the Inka state. (The sociolinguistic nature and chronology of these processes are matters of current debate; Heggarty

Fig. 1. An Inka khipu in the Musée du Quai Branly exhibits a common format: groups containing repeated color sequences. From the author's collection.



2008.) Highly diversified, the Quechua language or languages of today have perhaps 10 million speakers in six countries and in a far-flung diaspora. The other massive Andean language, Aymara, belongs to a language family that once covered a great swath of central to southern Peru and much of the Bolivian highlands. Aymara now exists as a more ethnically particular tongue of over 2 million people on a smaller but still considerable terrain in both countries. Khipu as a data armature structured Inka administration over this whole vast space. However, as we will see below, khipu history may be less bound to specific languages than the histories of most scripts are.

Khipus are recording devices made of cord, with meaningful elements including but not limited to knots, colors, color combinations, and plying (Fig.1). In calling khipu an “inscriptive technology” at the outset, rather than a “writing,” I acknowledge that by a traditional definitions of “true

writing,” the khipu may not be one. Philologically oriented writers such as Boltz (1994) or Daniels (1996) hold that we should reserve the term for phonography, that is, inscriptions consisting of signs that stand for segments of the speech stream in a given language. Some scholars persist in nominating khipu to the “true writing” club by detecting a purported syllabography in esoteric knots and cords (Laurencich 1996, Burns Glynn 2002), but this position has become sectarian rather than consensual. Recent progress in the decipherment of this still poorly-understood medium takes place chiefly by collating known (rather than esoterically attested) khipus with known contexts such as tribute proceedings, demographic inspections, parish registries, or village self-government. The results demonstrate properties other than phonography.

From such research it becomes clear that khipu was a registry with great powers of representation when applied to quantities and calculations, hierarchical data sets, summations, schematic relations, and formats. It appears to this writer as a highly developed system for modeling and diagramming arrays of culturally categorized “things,” rather than for registering their verbal names in a specific language. Among the “things” it could represent, we learn from early Spanish sources (Assadourian 2002), were verbal artifacts such as songs, narratives, and genealogies. We know little as yet about how this was done; the most credible model is that of Catherine Julien (2000), who posits khipu formats closely matched to stereotyped speech genres and used for cuing the key (variable) terms in each utterance. Contrary to a common supposition, the Spanish invasion of 1532 was nothing like the end of khipu history, but rather the beginning of a long period – somewhat under 400 years – in which Spanish “true writing” and khipu inscription coexisted. This paper largely concerns the terms of their coexistence.

Such a case requires us to examine afresh what we mean by “a writing system.” In the colonial Viceroyalty of Peru, a society of millions was

organized through the conjoint use of two graphic technologies, namely cord and alphabet, that were not only different in fundamental semiotic constitution, but also kept mutually opaque by sociolinguistic practices. Although Peru used two methods of inscription, one must nonetheless say that the result was a single “writing system,” because they functioned jointly as a means of organizing social action. Information was routinely moved back and forth between the two systems by oral mediation, and the proper functioning of each was dependent on its engagement with the other. By “writing system,” then, we mean a practice that organizes many people through visible media, regardless whether all the members are deploying one unified code all the time. For such a situation one might speak of graphic pluralism. The conjoint use of multiple scripts is not a rare situation; perhaps it is more normal than otherwise. But the extreme features of the Andean case make it especially interesting.

Several good books explain khipu basics and research frontiers. Almost all are focused on the Inka era (c.1400 CE-1532 CE), the brief time when khipus had their heydays as an imperial medium. The classic introduction is Marcia Ascher and Robert Ascher’s *Code of the Khipu* (1981, republished 1997). It presents a lively and accessible study of cord records= mathematical makeup. Quilter and Urton’s *Narrative Threads* (2002), is rich on khipus in colonial context, and contains findings by William Conklin that are relevant to Urton’s *Signs of the Inka Khipu* (2003). *Their Way of Writing* (Boone and Urton, eds., 2011) offers two khipu-oriented chapters in a context of rich and recent articles on many Amerindian scripts. *Quipu y yupana* (edited by Mackey and Pereyra 1990) contains an earlier harvest of research, connecting the key findings of the 1920's with the current resurgence of khipu studies. Rich illustrations appear in Carmen Arellano’s “Quipu y tocapu, sistemas de comunicación inca” (1999), and also in a museum catalogue from Chile (Urton 2003). *Atando Cabos* (Arellano and Urton, eds., 2011) contains the first interpretative task broached in modern

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times concerned khipus= arithmetical structure. Leland Locke (1923, 1928) was able to establish base-10 positional notation as the numerical content of many knots. The plan is similar to Indo-Arabic numeracy except that zero is represented by an empty place rather than a sign. Ascher and Ascher explain the basic “Lockean” conventions as in Figs. 2-4.

Fig. 2. Basic khipu terminology and structure according to M. and R. Ascher. University of Michigan Press.

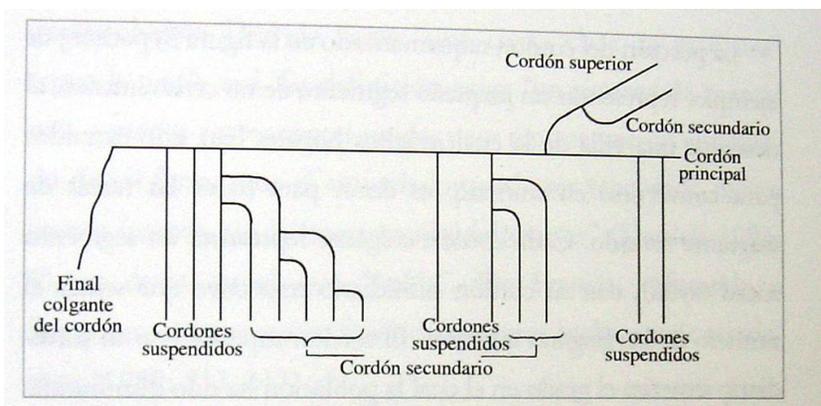


Fig. 3. Three common knots used in Inka khipus according to M. and R. Ascher. University of Michigan Press.

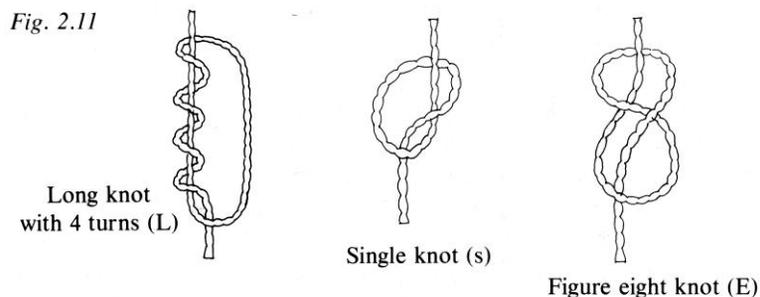


Fig.4. A khipu with arithmetical values according to M. and R. Ascher. University of Michigan Press.

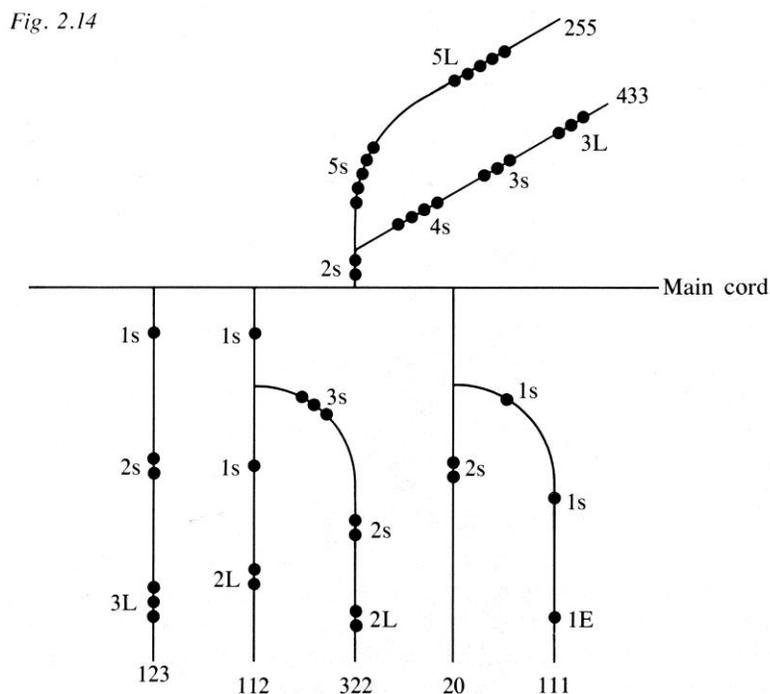


Fig. 4 could, for example, represent a segment of an Inka census. It might describe a village from which some households have been removed for extraterritorial duty. Each pendant could stand for an ayllu (corporate descent group), with its respective subsidiary signaling the number of its absent households. The topcord could signify the whole population with a subsidiary expressing the aggregate number of absentees. The Aschers detected more complex mathematical relations and also argued that khipu numbers can function as “label numbers.” (That is, like a social security number, khipu numbers could register identity rather than quantity.)

But beyond numerical issues, there is doubt about how khipus expressed information. A field of basic dissensus lies wide open. *Grosso modo*, three

positions are in play. An eighteenth-century thesis (Sansevero 1750) holds that, besides the “numerical” code, a separate kind of “royal” khipu contained a Quechua-based syllabography. This 18th century speculation parallels erroneous interpretations of Chinese and Egyptian scripts by the intellectual descendents of Athanasius Kircher and might derive from them. (Sansevero posits cord emblems which at once encode the elements of cosmology and the syllables of Quechua.) Nonetheless it has gained new adherents through the publication of materials found in Naples in the 1980's and continuing to tumble forth in the 1990's from the private collections of Clara Miccinelli (Animato et al 1989, Domenici and Domenici 2003, Laurencich 1996 and 2005). The claim that these materials are Inka is credited by few. The Naples objects seem to have been made by colonial Jesuits interested in re-inventing the cord medium for purposes internal to a faction within their own order. Hyland (2003) holds that a neoplatonistic reworking of khipu code by the early-colonial mestizo Jesuit Blas Valera or his peers yielded an experimental post-Inka khipu phonography.

A second thesis is often linked with renewed interest in semasiography. Semasiography is a term coined by Gelb (1952), denoting codes whose signs are (in Boltz' terms) semantically full but phonetically empty – codes such as sheet music or mathematical formulae (Boltz 1994:3-28). If khipu were of such nature, they would signify entities other than words: categories, acts, objects. Boone and Mignolo (1994) gave such codes the nickname “writing without words.” Finally, Gary Urton (2003) launched a third thesis, namely that khipu signs are in themselves a neutral underlying code, each sign being assignable to variable surface meaning according to contexts. That is, their status is similar to eight-bit ASCII sequences, which “stand for” nothing in themselves but are assigned to different surface entities depending what program they are deployed in (e.g. a text processor, a statistical package, etc.).

In the next pages we are concerned with the use of cord media from the end of Inka independence onward. Although Pizarro's armies entered Peru in 1532, the loss of independence is best dated to 1535, when Spaniards ransacked the sacred precincts of the capital, Cusco. Up to this time, khipu trumped all other media as a source of authoritative information. But the khipu was not a strictly Inka medium. What little we know about the demography of Inka khipu use at the 1535 baseline suggests a large number of practitioners outside the charmed circle of Inka descent. The half-Inka chronicler Inka Garcilaso de la Vega wrote that each village had at least four khipu masters, keeping mutually verifiable records (Garcilaso De la Vega 1966 [1609]:331). If so, the all-imperial number of authorized masters would have been in the tens of thousands. The attested Inka manner of aggregating and verifying tribute rolls (Julien 1988) implies a well-developed "grass roots" recording base.

It is unlikely, then, that later khipu use was a postconquest plebeian appropriation of a formerly aristocratic script. Rather colonial khipu use probably represents an adaptive reworking of an already widespread skill. The decay of central Inka authority made khipus useful as the private data reserves of lesser indigenous lords, usually belonging to non-Inka lineages. Khipus afforded a margin of data independence from the records of scribes and notaries.

In this matter the distinction between speech and graphic communities is crucial. Spaniards (especially clergy, rural administrators, merchants, and would-be-feudal overlords of indigenous land and people) quickly acquired Quechua as a colonial "general language" (Itier 2002). The first Quechua teaching grammar and dictionary were in print as early as 1560 (Santo Tomás 2006 [1560]). Overlaps between Spanish and Andean *speech* communities were massive. But not a single person who claimed the status of Spaniard is known to have claimed khipu competence. "We [Spaniards] have been dealing with them [Peruvians] for more than seventy years

without ever learning the theory and rules of their knots and accounts, whereas they have very soon picked up not only our writing but also our figures...” wrote Blas Valera (quoted by Inka Garcilaso de la Vega 1966:824).

The more radiocarbon research is done on khipu collections, the more it appears that some khipus formerly considered Inka actually were made in colonial times: “Twelve of seventeen samples from the Peabody museum at Harvard University and from the Berlin Museum für Volkerkunde tested by the University of Georgia AMS facility dated to the Spanish colonial period” (Urton and Cherkinsky 2011:6). The khipu information network had multiple colonial uses. People of Inka lineage used cords from the 1540s onward to claim noble status under Spanish law and to guard against tribute abuse (Garcilaso 1966:333). Viceroy Toledo, the architect of the colony’s core institutions starting in 1569, consulted khipu masters to build an argument that Inkas were only “tyrants” and therefore unable to confer noble title (Sarmiento [1572] 1942:114-115). More consequential than these backward-looking uses, however, were khipus’ ongoing roles in constructing colonial and even modern society. In nutshell synthesis, they can be reduced to three:

First, cords became systematically articulated with the world of legal paper. By the 1560’s they began to figure as sources of evidence for litigation about tribute abuse (Medelius and de la Puente 2004, Loza 1998, Murra 1975, Platt 2002). Convinced of their accounting value, the colonial planner Matienzo (1967 [1567]: 67) and the Viceroy Francisco de Toledo (Levillier 1925: 337-38), began in the 1570’s not just to admit khipus but to demand that village scribes serving the *cabildo* our council make continually updated transcripts of cord records of all village affairs related to the colonial state. The “indigenous chronicler” Felipe Guaman Poma de Ayala toward 1615 envisioned a state fully equipped for both media through the agency of native specialist scribe/khipu masters (Fig. 5). Pärssinen and Kiviharju (2004) have compiled a collection of the khipu

“readout” documents that resulted from indigenous presentations within fora of the “lettered city.”

Fig. 5. Guaman Poma envisioned a regime of doubly literate indigenous scribes/kipu masters (1980 [1615]: 746. By permission Royal Library of Denmark.



By the mid 17th century, nonetheless, the crown lost interest in khipus and also in Quechua. San Marcos University replaced its Quechua chair with one in mathematics in 1678 (Klaren 2000:74). By that time notaries and scribes generating Spanish text via interpreters had become omnipresent in the countryside, while different, generally rural individuals produced khipus and presented their contents to scribes.

Indigenous authorities held onto the cord-plus-paper solution. A 1650 report on a textile plant in Andean Ecuador mentions that only the presence of a khipu master made it possible for workers and their bosses to agree on payrolling (Costales de Oviedo 1983:276-277). During the early independence era, the forms of khipu and rules for data exchange continued to mold themselves around administrative needs, but these were

increasingly the needs of systems dominated by usurping private landlords. In the Puno, Cusco, and Cajamarca highlands, the hispano-Quechua word *quipo* came to mean a range boss who collected information on the herds under debt peons' care by making cord records and reporting the information to estate bookkeepers. Pimentel (2005) and Carbajal Solís (2006) report patrimonial khipus referring to herds and their rituals in the regions of Oruro, Bolivia and Cuzco, Peru respectively.

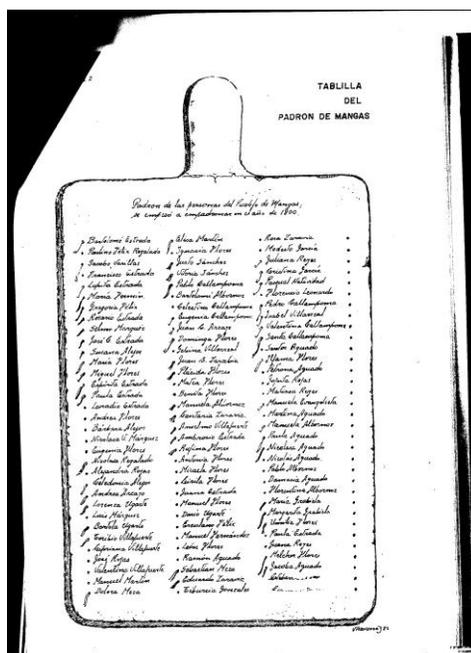
Second, the colonial church implanted (and later regretted, but could not uproot) the use of khipu as vehicles for catechism and confession. In particular, Jesuit missions to the Lake Titicaca basin experimented with khipu-based Christianity. In 1583 the Peruvian Church hierarchy in council banned khipus because they might contain “testimonies of ancient superstitions...[and] secrets of their rituals, ceremonies, and iniquitous laws” (Mannheim 1991:66-71, Sempat Assadourian 2002:134). Without permission, Andean parishioners, and especially women, went on making cord memos of sins to confess, dates in the calendar of saints, and points of doctrine to memorize (Harrison 2002:267, Polia Meconi 1999:273). A few churchmen active in writing “pastoral Quechua” reported that by the first half of the 17th century rural highlanders had developed comprehensive ways to encode Christian doctrine and confession on cords (Estensoro Fuchs 2003: 217-228). The most recent find of khipus collected in a church occurred in Bolivia in 1963 (Gisbert and Mesa 1966).

One important facet of church involvement with khipus is the invention of a hybrid medium, the ‘khipu board’ (*tabla quipo*), which integrated alphabetic with cord signs in a single object. Two drawings, which may show khipus-tablas in the catechesis of women, come from the remote north coast c. 1789 (Martínez Compañón y Bujanda 1985:53). In 1852 the scientific traveler Mariano Rivero observed that “in some parishes of Indians, the khipu were attached to a panel with a register of

the inhabitants on which were noted ‘their absences on the days when Christian doctrine is taught’” (Sempat Assadourian 2002:136)

As late as 1968 another specimen of 19th century origin was discovered, in disuse, at the church of Mangas (Robles Mendoza 1990; see Fig.7). Mangas is in Cajatambo Province, near the northern extreme of Lima Department. The tablet bears a legend meaning “Register [*padrón*] of the persons of the Town of Mangas, the registry began in the year of 1800” or “1880” (the doubt being Robles’). It contains the names of 110 men and women on front and back, and next to each, a hole in which varicolored cords with lengths 4cm.-20cm.have been inserted. The cords are grouped by color but since most are missing the color patterning is unclear. The knotting (if any) was not described in the report, nor the articulation of color elements in cords.

Fig. 6. The “Alphabetic *kipu* of Mangas” from Cajatambo, as drawn by Román Robles.



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In 2011, Sabine Hyland was able to locate and photograph the purportedly lost khipu-boards of Mangas (2012; fig. 8). Because the component threads contain aniline dyes, they must postdate the invention of aniline in 1856. Mangas, like many Andean communities, sees itself as composed of two opposed halves or moieties. Hyland finds that the leftward or rightward plying of the threads that combine to make a cord corresponds to the affiliation of the named person with one or the other of Mangas' two moieties. This confirms a hypothesis of Urton's. Because moiety organization was fundamental to Inka statecraft in many linguistic environments and has varied terminologies, a semasiographic sign for moiety identity would form an example of the convenience of non-linguistic registry.

Fig. 7. Khipu-tablet of Mangas, Peru. By permission of Sabine Hyland.



Certainly the hybrid khipu board must now be counted as one of the most durable variants of the cord art. Whether it represented a breach in the

opacity of khipu is an open question, because we do not know who actually made the cords and how they were inserted in the holes corresponding to names. A likely process would be cooperation between a priest and his sacristan or church warden, these latter offices being normally held by indigenous men who would not necessarily be alphabetically literate. Being somewhat bicultural, they would have been able to supply for the priest cords representing parishioners and legible to lay people. In this way, issues of compliance could be presented convincingly to unlettered parishioners.

Third, and most relevantly for the present work, the “Indian” villages organized in the resettlement pattern called *reducción* from c. 1570-1590 onward, kept on using khipus for internal civil governance purposes. We will consider such usage in ethnographic detail below. Some villages also seem to have adopted the khipu-board for purposes of internal governance. In 1923 the pioneer archaeologists Tello and Miranda described a *khipu-tabla* which administered intra-communal canal-cleaning and the veneration of non-Christian water-owning deities in Casta, Huarochirí (Fig. 6). In many respects the New Year’s administrative cycle they described closely resembles Tupicocha’s cycle:

Fig. 8. The tablet on which celebrants of the canal cleaning *faena* at S. Pedro de Casta, from Tello and Miranda (1923)

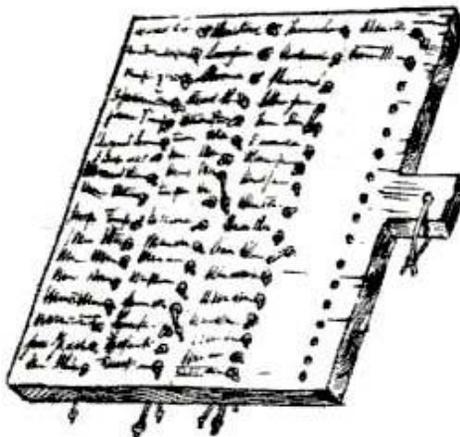


Fig. 10.—Padrón de madera.

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At Wanka Canal, where...all the men gathered, the [village] functionaries take attendance of the workers. They all sit in a circle, in the plaza that exists at this place, and the Headman notes the names of those who are absent. This operation is carried out through the use of the apparatus shown ..., which consists of a rectangular board, equipped with a handle; on one of its sides appear the names of the workers, and by means of different-colored cords which pass through holes placed beside each name, and [by means of] knots, not only the absences, and the quality of work carried out are mnemonically annotated, but everything which the authorities demand from the worker as indispensable accessories for attending the work: special clothes, *wallkis*ⁱ, *shukank'as*ⁱⁱ and *ishkupurus*ⁱⁱⁱ, tools, and even the greater or lesser enthusiasm of each person; with the objective of presenting it for the consideration of the elders, on the day of the Wari Runa^{iv} (Tello and Miranda 1923:534).

If Tello and Miranda are correct, these cords encoded non-numerical data. Wari Runa was a tribunal at which elders named incoming officers, judged and recorded the merits of everyone's participation in village duties, and discharged the dancers impersonating the Wari demigods.

In short, in the period of late khipu use, the khipu orbit altered 180 degrees. Before 1535 it served as the unified nerve system of cult and government. By the midcolonial era cords served a range of small collectivities no longer exchanging cord information supralocally.

But at this level, as a medium of local affairs, the old medium proved tenacious. We now turn to a regional case examining their dynamic in one part of the colony.

The endurance of khipus as a medium for village self-administration is better known in the central Peruvian province of Huarochirí than in other places. At the same time, Huarochirí's insertion in the orbit of Roman letters is also notably old and deep. It was here that an anonymous Quechua-speaking scribe wrote down an astonishing corpus of prehispanic

myth and priestly lore. It was, in fact one of the early places of encounter between indigenous Andean people and the European alphabet. At the future Provincial capital of Santa María Jesús de Huarochirí, in 1570, Peru's first Jesuits set up an experimental prototype for their famous schools to teach the sons of native lords' literacy, music, and Catholic doctrine (Hyland 2003:37-47, Wood 1986: 66).

At the turn of the 17th century, Huarochirí was in the pastoral care of another brilliant clergyman, who, like Blas Valera, had enjoyed a Quechua-Spanish bilingual upbringing in the shadow of the Inka palaces, but who unlike Valera saw nothing worth preserving in pre-Christian tradition. This was Francisco de Avila, a diocesan curate much influenced by Jesuits. Using an unknown cat's-paw (Acosta 1979), Avila sleuthed out incriminating Andean cults and organized the series of persecutions called "extirpation of idolatries" (Duviols 1972,). The secret document he commissioned in order to do this has survived as the great Quechua manuscript of 1608,

The anonymous author of this source was a person closely acquainted with the ayllus of Tupicocha, and perhaps a member. He seems to have been on Cristóbal Choque Casa. He seems to have been too young to study with the first Jesuits in Peru. But he was well versed in pastoral Quechua, and with scribal methods. He was apparently trained to work in the diocesan apparatus that the Lima archdiocese organized during the Third Council of Lima, which ended in 1583. Avila's biographer Acosta believes Avila charged this person with getting incriminating testimonies about the persistence of "pagan" worship so as to blackmail his local foes. But the author, for reasons unknown, chose a more complex approach. He conceived of his mission as a strangely subjunctive authorship: he meant to write the book the ayllus would have written before 1532, had they been trained in the alphabet.

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If the ancestors of the people called Indians had known writing in former times, then the lives they lived would not have faded from view until now. As the mighty past of the Spanish Vira Cochas is visible until now, so too would theirs be. But since things are as they are, and since nothing has been written until now, let us set forth here the lives of the ancient forebears of the Huarochiri people, who all descend from one common forefather: What faith they held, how they live up until now, those things and more. Village by village it will all be written down: How they lived from their dawning age onward (Salomon and Urioste 1991: 41-42).

The writer knew something of khipus and mentions them twice, once as a resource of Inka administration and once as an internal record made by a community. In the first instance, he mentioned that Inka rulers used cords to record their donations to the cult of a locally important deity. In the second, we are told that villagers made khipus of their own to record attendance at rites for local deities who were considered the owners of their water supply.

In 1750 some Huarochiranos rose up against Spain, an early episode in the wave of “neo-Inka” insurrections which shook various parts of the viceroyalty until the 1780’s (Spalding 1984:273-293). One episode of that struggle sheds light on the late colonial khipu-paper interface. Its source is the field diary of Sebastián Franco de Melo, a bilingual Spanish mine operator who fought down the insurgent Francisco Ximénez Ynga (Salomon and Spalding 2002). In rural rebellions, letters and interception often provided the intelligence keys to tactical success. Franco de Melo invented a disinformation trick to disable rebel villages by setting them against each other: he disseminated 22 fake letters which would cause each rebel village to think its allied villages had switched sides.

The disinformation trick, however, depended on associated use of khipus. Franco had a herdsman of his acquaintance, María Micaela Chinchano, make one khipu for each message, and tie the letter up in it.

He wrote that the khipu “is the way they communicate” (“es el modo con que ellos se entienden”), using a distancing third-person pronoun that implies Franco, though bilingual and to some degree bicultural, did understand cords. As for what Chinchano knotted onto her khipus, doubt remains. She may have given a paraphrase of the letter’s content, or some other signal falsely warranting its origin. It is also possible she made the khipus as address labels so as to avoid a disastrous mis-delivery. What is clear from the incident is that c. 1750 khipu was a specifically “Indian,” commonplace vernacular, among women as well as men, and not a specialist art.

In 1876 the Peruvian republic conducted a census quite attentive to literacy, in accord with the pro-schooling agenda of President Manuel Pardo y Lavalle (1872-1876). It shows that Huarochirí’s “Indians” had acquired a very substantial command of the alphabet, even though the government at that time provided no schools in rural areas. A third of the men, and in one village 60%, could at least read. But this population, as we will see, continued to prize its khipus.

Not long after the census, in 1879-1883, Peru went to war against Chile. The Peruvian state was humbled and its central control over the countryside compromised by defeat. Oral tradition records that in this era the village’s khipus were at that time cached in a cave.

The best-documented patrimonial case from this province is the village of Tupicocha, a community at 3,321 meters over sea level in the mountains of central Huarochirí (Fig.9). Tupicocha owns ten khipus (Salomon 2004). Nobody c. 1994-2003 claimed competence to read or make khipus. They are of medium size, and in overall design resemble canonical Inka type. They show little if any of the ‘reduction’ or ‘defectiveness’ characteristic of moribund scripts.

Fig. 9. Tupicocha, a village in Huarochirí Province, Peru, conserves as patrimony a group of administrative khipus. From the author's collection.



Like many Andean villages Tupicocha is a confederation of ayllus or corporate kin groups. In such a system the core social contract is equitable contribution: every member household had to perform its fair share of days of collective labor for its own ayllu, and every ayllu had to perform a fair share of labor supporting the overall government of confederated ayllus. Exact accounting was necessary because, if people doubted that all were complying, none would want to comply. When the khipus were in full function each ayllu owned a pair of presentation khipus, which it used to plan its member-households' duties to each other, and the ayllu's collective

duties to the federation. Knots added or removed in ritual intervals that punctuate collective tasks recorded compliance. The khipus were displayed at the annual village plenary meeting (*Huayrona*) as proof of good standing. Today, the ceremony of draping a khipu upon the chest of each incoming ayllu president (*camachico*) is still the climactic moment (see Fig. 10).

Fig. 10. In Tupicocha, presidents of clans don khipus as insignia (2010). From the author's collection.



The impact of Spanish writing could not by itself be the reason Tupicocha abandoned khipus, because late use and abandonment happened when the village had been involved with writing for over 300 years. Tupicochan khipus yield ambiguous radiocarbon dates, with 19th century dates being most prevalent as dates of manufacture. Internal ayllu books give clues about when cords ceased to be official media. One in 1898 mentions the *quipocamayos* as artifacts ‘de anterior’ (‘of former [times]’). If khipu were

still made in the 19th century but obsolescent by 1898, people trained after the end of the War of the Pacific (1883) are likely to be the ones who relinquished khipu practice. In the 1920's, the time when people born c. 1880 were reaching peak power, khipu sets were broken up by ayllu fission, suggesting their functionality was no longer important. In the 1920's, too, the ayllus responded to the national state's 'indigenist' campaign to include traditional governments within government structures by writing themselves modernist constitutions. These were understood as replacements for 'customs' like khipu. Official recognition of the community in 1935 probably set the seal on an already advanced transition from cords to books. Yet from 1958 to 1974, one ayllu's secretaries still described, as opposed to merely inventorying, its khipu. This registry shows some change over time, suggesting some residue of remembered competence and perhaps a final round of knotting activity.

The khipus of Tupicocha are made of wool from alpacas and llama, plus some sheep wool. Their manufacture shows artful elaboration. The overall design of Tupicochan khipus is remarkably similar to the basic Inka design (see Fig. 11), consisting of a main cord with an insignia knob at one end, pendants and subsidiary cords hanging from pendants. They are considered a precious patrimony – “our constitution,” “our Magna Charta” – and taken out for public view only when they serve as the insignia of newly invested authorities each January. }

In Tupicocha, it was not literacy or prestige factors that decided the fate of Andean media. Their death sentence was, rather, the end of a situation in which incommensurability of media seemed to serve user interests (Cummins 1994:192-198). From 1783 to the 1910's it was sometimes illegal, and never common, to teach Spanish writing to *indios*. But in the wake of the disastrous War of the Pacific the state reversed this policy. Under the Leguía administration (1919-1930) indigenist pressures to retool the ayllu as a part of state apparatus tipped the khipus'

obsolescence past the point of no return – the point at which no potential learner believed code transmission to be indispensable. Community recognition and access to schools convinced villagers that the alphabet would be the only way to defend their titles and data. Despite the presence of elders who knew elements of khipu into the second half of the 20th century, villagers by that time counted khipu use among stigmatizing ‘Indian’ habits harmful to ‘modernization’ interests.

Fig. 11. A Tupicochan khipu. Note similarity to Inka design. From the author’s collection.



Tupicocha is not the only place where cord media lasted into modernity. This writer’s current project concerns Rapaz (Fig. 12), a village at 4,040 m. altitude farther north in Peru’s western Andes. Like Tupicocha, Rapaz has interacted with the Roman alphabetic orbit since the middle 16th century and has had high levels of alphabetic literacy since the middle 20th century.

Fig. 12. Rapaz, a village in the western cordillera of the Andes in Oyón Province. From the author's collection.



Rapaz holds a large and famous collection of cord records, reported in 1982 by Arturo Ruíz Estrada but only recently studied in detail. They exist in a sacred precinct which functioned as a ritual and administrative control center over the village's lands and herds. The cords are associated with work in the precinct's two buildings: the ritual center Kaha Wayi, (Fig. 13), in which they are stored, and the communal storehouse Pasa Qullqa, (Fig.14), which contained the harvests which Kaha Wayi governed. The two functioned conjointly into the 20th century, when Pasa Qullqa went out of use.

Fig. 13. Pasa Qullqa, the old communal storehouse of Rapaz. From the author's collection.



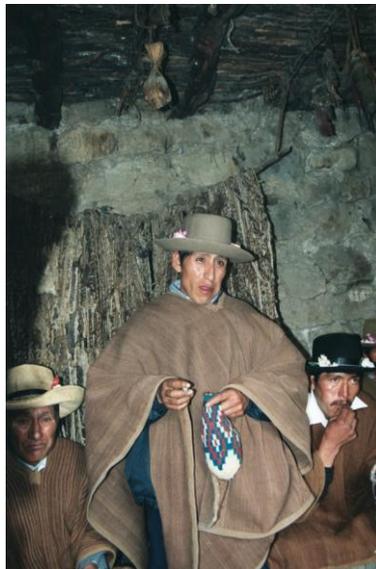
Fig. 14. Kaha Wayi, the chamber of communal ritual and governance in Rapaz. Patrimonial khipus are kept here. From the author's collection.



Kaha Wayi was and still is a temple for offerings to the deified mountains. Rapaz people continue to perform with surprising completeness the same “idolatries” that Spanish clergy tried to stamp out in several campaigns

from 1608 to the 1750s. The rituals involve offerings and small animal sacrifices to the mountain who are considered the “owners of rain.” They take place at the installation of new village officers, and at moments of anxiety about bad weather. (Fig. 15), Villagers consider their long invocations and coca-sucking sessions of devotion indispensable to secure rain for their water-poor agropastoral system. The ritual house is served by a contracted ritualist (*vendelhombre*, *aukin*) who intervenes for the community’s traditional officers by invoking and sacrificing to mountain deities, lakes, etc. He “seeks weather” for collectively owned fields by making heroic pilgrimages to the frozen heights while in a state of austere purification.

Fig. 15. Ritual invoking the “owners of rain” in January 2004. Khipus hang behind. From the author’s collection.



The khipu house is also the seat of land tenure control and oversight of crops’ physical health by overlapping ritual and administrative means.

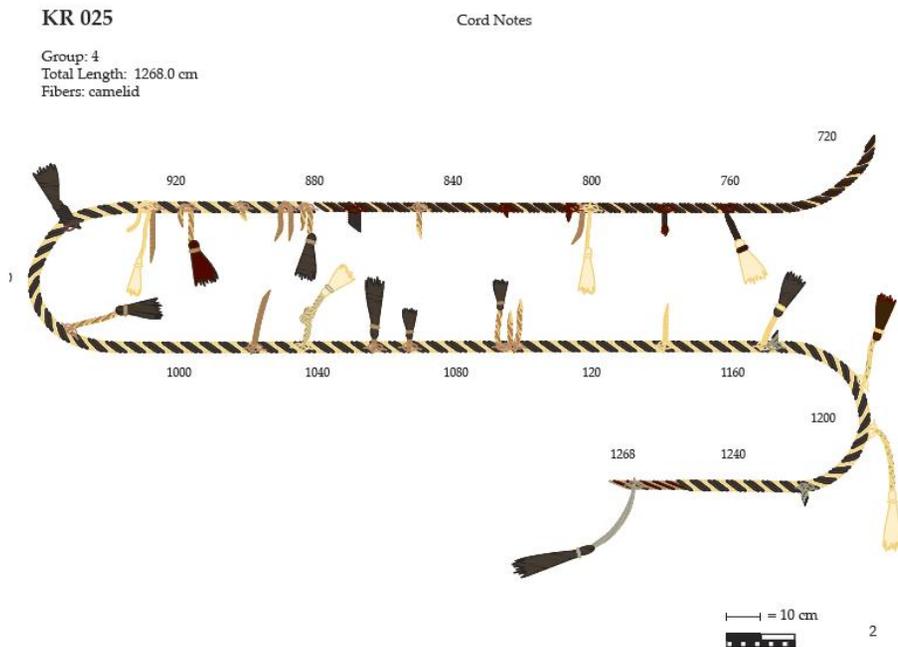
Formerly they were also associated with canal cleaning, which was festive and ritualized. In front of the khipus, villagers today suspend offerings such as wild birds, maize cobs, sugar loaves, and bottled liquids. They regard the cords as very sacred, and do not allow anyone to touch them. The Rapaz cords are very different from Inka products, so much so that some scholars might hesitate to use the word khipu. But that is the only name local people have for them. The khipus are considered as sacred patrimony documenting the deeds of local ancestors, who were also major officers in village self-government.

Contrary to printed reports, the Rapaz patrimony is not one giant khipu but a collection of 263 discrete cord objects(Fig. 16). After a period of neglect in the 1970s and 1980s, they were suspended from a rod in the ritual chamber. Most of the objects consist of single long cords, sometimes of very elaborate structure, with up to eight plies, onto which a multitude of small, apparently symbolic objects are tied (Fig. 17). These include short cords that might be called subsidiaries, tufts of variously colored wool, pompoms, tags of rawhide with or without attached wool, strands of mane from horses or cattle, and occasionally, figurines. They do not show the decimal knotting typical of Inka work, and indeed few knots altogether. They have complexly branching attachments, apparently recording a hierarchy of information. At first glance Rapaz khipus appear to have subsidiaries as Inka and Tupicochan khipus do. On closer inspection one sees that they actually are stretches of the single cord which have redoubled back on themselves due to the torsion pull of very tightly plied cord. (Fig. 18). This many have been a technique for reducing the ungainly length of the khipus, which can be fifteen meters or more. Today, the cords are unintelligible to their owners, but they are held in great reverence and until recently, in secrecy. Even now many villagers (especially women) have never seen them.

Fig. 16. Sr. Toribio Gallardo shows he Rapaz khipu collection, 2004. From the author's collection.



Fig. 17. Rapaz khipu 25 drawn by Carrie Brezine.



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The figurine may refer to Rapaz villagers' role in logistically supporting the decisive 1824 battle of Junín, perhaps to their work in caring for livestock sequestered from Cerro de Pasco by the Independence generals. Other figurines appear to represent peasants attending a ritual context. We know they are associated with ritual because they carry tiny, but real, coca bags under their ponchos.

Fig. 19. Figurine 6 of the Rapaz patrimonial collection appears to show a man in gala military dress of the early 19th c. From the author's collection.



Regional legend notwithstanding, the Rapaz khipu patrimony is only indirectly related to imperial Inka khipu use. Rather, the above-

summarized lines of evidence indicate that in Rapaz khipu use served a local system of central communal storage and redistribution, administered through a temple-like ritual center with attached storehouse. Khipus of a vernacular, non-imperial type mediated this complex's work. Rapaz thus attests to an unsuspected colonial and postcolonial evolution of institutions that archaeologists and ethnohistorians associate only with deep strata of Andean society.

Mangas, Tupicocha, and Rapaz are not the only places where the Andes produced a sharply defined dual writing system. But they suffice to put before us a few interesting questions. For one, they ask us to think about how coexisting scripts influence each other. In the abstract, one can see pressures both toward convergence and divergence. One would think that the nearby presence of phonography would enhance the chance of phonographic "mutations" in the khipu art – an important kind of change, because it is often held to be the crucial moment in pristine graphogenesis. On the other hand, one can equally well hypothesize that coexistence would tend to conserve differences, to the degree that coexistence is based on a division of labor and/or a sociological distance between the respective user communities.

As for the first hypothesis, certainly it does seem that in Mexico and in the northern plains of North America, situations of European conquest or encroachment did stimulate phonographic innovations in semasiographic media. Central Mexican pictography was already experimenting substantially with phonography by 1518, when Spaniards invaded, and did so even more as Spanish cultural domination advanced (Boone 2000:37-38). Later, on the great plains, 19th century makers of pictographic "winter counts" resorted to phonographic usages to register names in unfamiliar languages, as when one artist drew two stag heads to render the name of a General Maynadier (heard as "many deer"; Greene and Thornton 2007: 257, 260). But it seems significant that these mutations occurred

under *linguistic* rather than *grammatological* pressure. The Mexican inventors used the Nahuatl sound value of certain glyphs to render foreign names, and the plains Indians their English sound value. Either way, it was the situation of incipient bilingualism, and not the internal properties of scripts, that motivated the change. Both seem to have opted for graphic convergence. They adapted their own graphic resources toward representation language as such, the better to represent two languages.

In Peru, bilingualism was common during four centuries, so opportunities to make similar mutations abounded. Yet nobody has yet found signs of colonial phonographic mutations in vernacular khipus. The process of Peruvian graphic pluralism was characterized, it seems, not by convergence but by division of labor, and by division of user communities. The division of labor separated an art of diagrammatic and quantitative information, the khipu, from an art of verbal information, the alphabet. Spanish scribal writing offered only clumsy resources for the former, while khipu were good for such purposes – a precious resource for a society which had been working with complex indigenous organization for centuries. For them, language as such did not seem the paramount graphic issue.

The division of user communities, on the other hand, was an artifact of Spanish policies that systematically sought to build a viceroyalty composed of “two republics” with parallel separate internal institutions. Since, in practice, the Spanish “republic” enjoyed advantages of power, it is not surprising that the “Republic of Indians” prized its independent information reservoir as a way to check domination. So effective was this measure that today, the inner record of indigenous Peru remains for the most part opaque to outsiders.

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ⁱ Decorated coca bags.

ⁱⁱ Decorated gourds for lime or vegetable ash to accompany coca.

ⁱⁱⁱ Bone sticks for dipping lime.

^{iv} *Wari*, Quechua, 'ancient,' 'primordial'; *runa* 'person, people.'