

9. The record keepers: maintaining irrigation canals, traditions, and Inca codes of law in 1920s Huarochirí, Peru

Sarah Bennison

Can infrastructures facilitate communication with sacred ancestors? What role do record-keeping practices have in supporting infrastructures ideologically? This chapter seeks to explore these questions through focusing on Andean canal-maintenance customs.¹ These customs require social and political coherence, achieved through adherence to codified precepts associated with the Inca era. The historical and anthropological study of irrigative infrastructure in the Andes has focused heavily on social organisation and ritual (Gelles, 1984; Mitchell and Guillet, 1994; Sherbondy, 1998; Valderrama and Escalante, 1988). The reason for this is quite simply because life in Andean communities makes it impossible not to acknowledge ritual's centrality in infrastructure maintenance.

Appel (2018) points out that visible infrastructure requires recursive substrates conducive to its construction and maintenance, such as legal climates. In canal-cleaning rituals which accompany the technical aspect of maintaining the canals prior to the dry season, community regulations simultaneously give order and structure to social organisation and cooperation (de la Cadena, 1989, p. 83). Community regulations for water rituals cover the fine detail; most Andean villages have strict rules on what ritual items are needed and who should contribute what (Rösing, 1995, p. 74). In this respect, channelling water through the canals is as much a socio-legal matter as it is an economic or religious one: how to make sure all contribute what they are obliged to?

From the pre-Hispanic era to the 20th century, irrigation system maintenance was documented by material infrastructure in the form of knotted string records

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known as *kipus* (Salomon, 1998) and hybrid *kipu*-writing devices (Tello and Miranda, 1923; Hyland, 2016; Hyland, Bennison, and Hyland, 2021). Salomon (2004) demonstrated that *kipus* were fundamental in the structuring of water management and for expressing and legitimising authority in Tupicocha, Huarochirí. In the following discussion, I acknowledge *kipus* and associated records as instruments of governance.² In this respect, they resemble other forms of infrastructure in that they constitute political power and rely on being sustained through material politics and silent relationships holding them together (Harvey and Knox, 2015, p. 6, citing Lampland and Star, 2009). Despite the acknowledgement of the disciplining and controlling functions of infrastructure (Gupta, 2018; Harvey and Knox, 2015, p. 14), the role of codified regulations in promoting the level of social coherence required to maintain big material infrastructure has received little attention in the infrastructure literature.

As Salomon explains: 'It would be no exaggeration to call coding of information on textile fibre a core infrastructure of Andean social organization' (Salomon, 2013, p. 32). I build on this proposal by demonstrating the ways in which *kipu* infrastructure and *kipu*-inspired canal-maintenance regulations encouraged subjects to work effectively as an economic and social unit, drawing on community skills, knowledge, labour, and resources. *Kipus* functioned to regulate the social and political environment, promoting the cooperation required for mobilising the hard work of cleaning and maintaining long canal tracts and reservoirs. Furthermore, *kipus* facilitated communication with the ancestors whom Andeans understood to own (and have created and have dictated maintenance instructions for) the canals.³ As Verónica Belén from San Damián, Huarochirí explained, 'the ancestors teach us how to behave'. Rigoberto Jiménez from San Damián explained that the ancestors are the *owner-governors* of the canals and the ritual specialists pay homage to them and to the laws they mandated for canal maintenance: 'Really, we're here obeying the sacred orders, right?' (Bennison, 2016, p. 226). As channels of communication and power, canals and *kipus* are temporally dynamic in a manner characteristic of infrastructure, which 'lies at the intersection of different temporalities: human and nonhuman, social and technical, and material and ideological' (Gupta, 2018, p. 76).

Although Andean ritual customary laws are thought to have been transmitted orally (de Pedro et al., 2018, p. 2), my findings suggest that Andeans historically codified customary laws [*la costumbre*] in *kipus* obliging participation and good conduct during canal-maintenance events (Bennison, forthcoming). Recent research on colonial and republican *kipus* shows that these devices were important for minimising conflict and for negotiation, and that post-Inca *kipus* were often integrated into written Spanish accounting systems (Curatola

2 On infrastructure as an instrument of governance, also see Chapter 6.

3 See, for example, Chapter 31 of The Huarochirí Manuscript (Salomon and Urioste, 1991, p. 141).

Petrocchi and de la Puente Luna, 2013; de la Puente Luna, 2019; Hyland and Lee, 2021; Hyland, 2021).⁴ Furthermore, *kipus* were apparently used to propose and decline agreements relating to the organisation of community events (Pimentel, 2014, p. 193). *Khipus* were therefore instrumental for minimising conflict and maximising cooperation.⁵ Even in post-*kipu* contexts in the late 20th century, cooperation in Andean communities had become institutionalised (de la Cadena, 1989).

The functions of *kipus* and canals I explore correspond with Gupta's perception of infrastructure as 'a channel that enables communication, travel, and the transportation of goods; a biopolitical project to maximise the health and welfare of the population at the same time as subjecting it to control and discipline; and its role as the symbol of a future being brought into fruition' (Gupta, 2018, p. 65). For Harvey and Knox (2015), infrastructural systems only function when they produce smooth flows and obscure the complex relational mechanisms on which such flows rely (p. 5). To explore the ways in which *kipu* and canal infrastructures overlapped to make Andean irrigation systems work, I explore the social dynamics of the period *kipus* stopped being used for canal maintenance in the Huarochirí province in the highlands of Lima. The chapter describes changes in social relationships – between people as well as between people and place – in the early to mid-20th century. I argue that a blend of political, legal, economic, and social factors contributed to the decline of *kipus* (in favour of paper regulations) as authoritative infrastructure. Drawing on archival material, I trace the ways in which changing attitudes towards ancestral infrastructure in the last century destabilised the relationships necessary for maintaining the cohesion of Andean institutions and their infrastructural manifestations.

First, I illuminate ideological continuities between the *wachu* (Quechua for *rank-file* or *furrow*) hierarchical model of social organisation and governance, which transcends the legal, political, and religious spheres, and the tangible infrastructure of canals and *kipus*, wherein the *wachu* system is legitimised and reproduced. Second, I introduce the reader to *The Entablo*, a *kipu*-inspired manuscript from Huarochirí containing Inca era-derived regulations for canal maintenance. I explain how *The Entablo* forces us to consider the role of record-keeping for organising irrigation, promoting a meritocratic hierarchy where cooperation and the avoidance of dissonance are essential for maintaining the irrigation systems. Finally, I look outwards in time and space to explore the impact of global political events at the turn of the 20th century on Andean community organisation throughout Peru. Based on the premise that canal-cleaning ritual accountancy *kipus* were inextricably tied to the *wachu* prestige hierarchy system, I hypothesise that the demise of tangible *kipu* infrastructure

⁴ I am grateful to Sabine Hyland for recommending these supporting sources.

⁵ It is important to note that *kipus* were also used to organise colonial native uprisings (Stevenson, 1825, pp. 50–1; Spalding, 2012, p. 88; Hyland, 2017).

was caused by the erosion of the intangible infrastructure expressed in codified form through *khipus*.

Sacred infrastructure: giving order to society and landscape in Huarochirí

In the highland Huarochirí province of the Lima region (Peru), irrigation rituals are key domains of reference in the (re)production of moral, ethnic, and cultural identity (Bennison, 2016). The Huarochirí Manuscript of 1608, an early colonial Quechua text of native authorship, describes the water customs and origin myths of many of the kin groups or *ayllus* in the province, many of which focus on the groups' respective water sources (inter alia Salomon and Urioste, 1991; Taylor, 2008). The Quechua word *ayllu* can be translated literally into English as *family*; however, *ayllus* as a functional entity are linked through shared resources and lands. As Spalding (1974) explains, in pre-Hispanic Andean society, *ayllus* had primordial access to lands, irrigation rights and other group resources, which were distributed among its members (p. 66). These shared resources were accessed through collective labour efforts, including ritual work. This work involved invoking the water-owning sacred ancestors through elaborate rituals carried out in and beside the irrigative infrastructure. As Paerregaard's work in the Peruvian village of Tapay elucidates, Andean people believe that '... the flow of water is controlled by spiritual beings that inhabit each of their water sources. Maintaining good relations with these spirits through periodic ritual offerings is crucial to securing adequate water flow and, therefore, agricultural success' (Paerregaard, 1994, p. 189).

Each *ayllu* group carried out rituals in honour of their tutelary *huaca* – sacred beings of varied material forms who represented, or were, a group's primordial ancestor (Salomon 1991, p. 21; Paerregaard, 1994, p. 199). Because members of *ayllus* were linked through shared tutelary ancestor *huacas*, this unit of social organisation 'figured as the basic unit of ritual action' (Salomon, 1991, p. 21). Allen's (2002) definition of *ayllu* is especially relevant here; she glosses the term: 'Indigenous community or other social group whose members share a common focus' (p. 272). Irrigation systems are domains where members commit to the group's common focus of securing water and maximising production. The commitment of all individuals in canal-cleaning rituals was closely monitored by the community authorities; in the moment of communicating with the sacred ancestors, the community needed to be able to materially demonstrate its collective commitment to upholding the laws instructing on the specific rules of reciprocity expected for each canal.

According to Rodolfo Cerrón Palomino, the toponym *Huarochirí* is of Aymara etymology, and its elements (*huatru-cha-ri*) can be translated as 'he who makes furrows for irrigation' or alternatively, 'he who makes terraces' (personal communication). The toponym therefore may attest to the extent to

which groups in the province were known for their irrigative infrastructure in the pre-Hispanic era (Bennison, forthcoming b). The advanced pre-Hispanic irrigative infrastructure in Huarochirí functioned in a context of *verticality* or *vertical archipelagos* (Murra, 1975). It is in this context where Andean people attempted to lay claim to and control as great a variety of resource areas as possible to maximise production and minimise crop failure and famine (Spalding, 1984, p. 16). In pre-Hispanic Huarochirí, this strategy appears to have proven fruitful; early colonial chronicles describe the relative wealth of the province (Spalding 1984, p. 20).

This highly developed infrastructural system relied on a socio-legal system geared at promoting cooperation, minimising internal conflict, and maintaining the organisation of labour. Today, the Huarochirí village of San Pedro de Casta treasures its set of regulations for the annual canal-cleaning ritual, codified in a 1921 *kipu*-inspired manuscript called *The Entablo* [*El Entablo*].⁶ This text describes the responsibilities of the traditional authorities known as *functionaries* including specifying the material obligations required by each authority and instructions for ensuring that the canal work is completed swiftly, with devotion and without complaint. In Casta, like other Andean villages, these authorities are also known as Autoridades de Vara (staff-holding authorities; Llanos and Osterling, 1982, p. 119).⁷ Like the traditional staff-holding authorities in other Andean communities, they are responsible for policing compliance with ancestral community laws (Mayer, 2002, pp. 125–6; Salomon, 2004, pp. 78).

Analysis of *The Entablo* manuscript is helpful for exploring the changing legal environment in Huarochirí communities between the 1920s and the 1950s, since its production and content convey the impact of the 1920 national constitution and associated legislation – including roadbuilding conscription law – on social organisation. As Harvey and Knox explain, the Leguía presidency saw men in Peru's provinces gain additional labour obligations through national law:

The first major road to the interior of the country, the Carretera Central, was initiated in 1918 and soon stretched 231 kilometres from Lima to Tarma. President Augusto Leguía, in office from 1908 to 1912 and from 1919 to 1930, was a modernizer, committed to enhancing national integration through the systematic implementation of a road construction program. He was not averse to deploying authoritarian means to bring about the changes he was looking for. In 1920 he famously passed a law of conscription that obliged men between the ages of eighteen and sixty to work on the construction and repair of roads in the province in which they lived for six to twelve days a year. (Harvey and Knox, 2015, p. 28)

6 I am indebted to the community authorities of the Comunidad Campesina de San Pedro de Casta, who granted me permission to borrow, photograph and publish about *The Entablo*. For a full transcription of *The Entablo* and a translation into English, see Bennison (forthcoming, c).

7 For detailed descriptions of the canal-cleaning ritual in Casta, see Tello and Miranda (1923) and Llanos and Osterling (1982).

The traditional authority system in Andean communities is based on a hierarchical model wherein members ascend a ladder of prestige on the successful completion of increasingly highly-graded *cargo* duties (Isbell, 1978; Fernández Osco, 2000; Valderrama and Escalante, 1988, 55–9; Seligmann, 1997). Within this framework, community members who have successfully fulfilled their obligations throughout their lifetime are deemed to be moral authorities and icons of good work ethic and as such are conferred a special social status (Fernández Osco, 2000; Soler, 1958, pp. 180–1). These individuals are referred to as *notables* and *mayores*, and were (and in Casta, still are today) central figures in the application of the traditional justice system. They were consulted on matters relating to community organisation and the negotiation of community agreements (Soler 1958, p.181). Ethnographies from Huarochirí describe the severe punishments within the traditional authority system supervised by the *notables* (Soler, 1958; Flora Tristán and CENDOC-Mujer, 2002) and elderly locals in Casta emphasised the strict nature of former ritual punishments to me. As I shall explore further, the hierarchical authority system meant that young community members were categorically low status. Younger generations across Peru encountered urban ideologies in the early 20th century and began to question and resist the existing power structures in their home villages (Bennison, forthcoming). Ritual punishments came to be seen by younger generations as an abuse of power and many became resentful of the traditional system and the power that the elders wielded over them. *Khipu* devices, as institutional infrastructure, emblemised this hierarchical system and may have come to symbolise tyranny among the young. In the following discussion, I explore how the *khipu* infrastructure and more recent *khipu*-inspired paper accounts aided the maintenance of canals. The *wachu* system, otherwise known as the community justice *ayllu law* system (Fernández Osco, 2000), was historically administered through *khipus*, and administered through written accounts from the early 20th century onwards in some communities. Prior to the 20th century, ritual *khipu* accounts recording individuals' performance played a central role in minimising conflict and maximising production, since all people in a given account category were bound by the pre-agreed terms for their rank. Expectations were clear.

It is worth noting that the Aymara noun *huatru* [*wachu*] in the toponym Huarochirí means *furrow, groove, or rank file*. *Wachu* therefore denotes a vertical, hierarchical ordering system as well as a furrow or irrigation canal; the material infrastructure is ideologically inseparable from the notion of social order (Pérez Galán, 2008). The noun *wachu* has related connotations in Quechua; the early colonial dictionary of González Holguín glosses *huachu huachu* as 'camellones, o renglera'⁸ (González Holguín, 1952 [1608], p. 169). Synthesising the Aymara and Quechua definitions allows us to identify a semantic association

8 The Spanish *camellón* means 'ridge' or 'strip', while *renglera* means 'string', 'file', 'rank', or 'row'.

between canals, *kipu* cords, and ranked hierarchies. Broadly speaking, the noun *wachu* refers to a (sacred) linear structure or ordering system through which a substance or entity can travel.

Although *The Entablo* makes no mention of the word *wachu* in relation to its authority structure, at the time of its writing in the 1920s, a functionary known as the Wachiq communicated with the ancestors on behalf of the community (Tello and Miranda, 1923, p. 526; Bennison, 2019).⁹ The first page describes the importance of all community members submitting to the 'legal-political regime' honouring water as a sacred lifeblood (f. 3). Within this conceptualisation of water, the canal system represents the ancestors' veins, which must be ritually penetrated for the sacred lifeblood to reach their children (Arguedas, 2002, p. 165, Bennison, 2019; also see Valderrama and Escalante, 1988, p. 102). As such, the *sacred vein* logic of the *wachu* system defines the regulations for canal maintenance and associated social organisation prescribed in *The Entablo*.

In Quechua-speaking parts of Peru and Bolivia, the hierarchical organising system through which the staff-holding authorities advance is known as *wachu* (Pérez Galán 2004, pp. 13–15; Rösing, 2003). In Pisac, *wachu* refers to a specific series of obligations within the rank-file system, and as such *pasar un wachu* is equivalent to the phrase *cumplir un cargo* [fulfil an obligation to completion] in Spanish (Pérez Galán, 2004, pp. 15). Hyland's research on a *kipu* from the Huarochirí village of Anchucaya suggests that the word *wachu* was used in Huarochirí communities until the early 20th century in the classification of work categories. Testimonial material from the ritual specialist Mariano Pumajulka in the Tello archive describes multiple functionary roles suffixed with the (hispanised) word *huacho*¹⁰ (Hyland, 2016, p. 495). Multiple *huacho* obligations were encoded in *kipus* and, according to Tello, Inca *kipus* were organised in the same structure (Hyland, 2016, p. 495; citing Tello, 1935).

According to Pérez Galán, *wachu* – the Andean traditional system of authorities – manifests as the symbolic representation of a mode of social, political, and religious organisation transmitted through territory (Pérez Galán, 2004, p. 15). Given that canal maintenance requires the channelling of values rooted in the ancestral past, the *wachu* ancestral system of governance likewise requires the mobilisation of lines of memory in the mind. Abercrombie (1998) has described the intersecting pathways of memory through which Andean people navigate the landscape, their relationships with the sacred ancestors and social structures (p. 113).

9 Arguedas' description of the canal-cleaning ritual in Puquio describes sacred heroes known as the *wachok* who were said to have pierced the ancestors and channelled water from them (Arguedas, 2002, p. 164).

10 For example, the *Runa Huacho* obligations involved carrying messages from Anchucaya to Matucana or Lima (Hyland, 2016, p. 495).

Ritual record-keeping through *kipus* was central for canal maintenance in that these devices generated memories of the authoritative past. In the Inca era, *kipus* held people accountable to the moral codes of the past through the concept of *capac unancha*, ‘the ancestral past as the present’ (Fernández Osco, 2009, p. 62). As I shall explain later, the Inca state used *kipu*-like reminders describing the punishments to be issued if the ancestral legal codes were not upheld. Irrigation rituals were a context where regulation was especially important, since the legal system was geared towards ensuring the maintenance of the irrigation canals and maximising production through cooperation with ancestral precepts and with one’s *ayllu* members. In precolonial Huarochirí, native priests known as *yanca*s were in charge of monitoring the irrigative infrastructure. One aspect of this work involved ensuring there were no conflicts between *ayllu* members that might threaten the community’s stability and hamper communication with the water-owning ancestors (Spalding, 1984, p. 66). The need to regulate conflict and ensure cooperation as part of the broader work of maintaining irrigative infrastructure persists today: in Tapay, matters undermining communication with water spirits ‘sometimes leads to conflict’ (Paerregaard, 1994, p. 189).

War and disorder: global politics and changes to the traditional order

To understand the demise of *kipu* infrastructural functionality in the Andean community justice system, we must look beyond national-level change-inducing processes such as roadbuilding. The economic aftermath of the First World War (ending in 1918) negatively affected the Peruvian economy, resulting in the emergence of new technologies and new ideologies (Soler, 1958, p. 180). In 1920s Peru, nation-building infrastructure and a growing international interest in the role of infrastructure for development led to social transformation: ‘The 1920s was ... an important period of social change in Peru in which road building played a key part. The hold of the aristocracy was diminishing, and the post-war era in Europe and the new technological dominance of the United States was opening up many areas of social and cultural life’ (Harvey and Knox, 2015, p. 29).

Casta’s use of hybrid *kipu*-script devices known as *kipu* boards¹¹ during the canal-cleaning ritual – known as the *champería* – in Casta was documented in a 1923 ethnographic paper (Tello and Miranda, 1923, p. 534). Recent research based on an analysis of *The Entablo* suggests that *kipu* boards were used for canal maintenance in Casta until the mid-20th century (Hyland et al., 2021). As such, social changes during this time are relevant for understanding their demise.

11 In their analysis of the Mangas *kipu* board, Hyland, Ware, and Clark (2014) provide information on the history and uses of these devices.

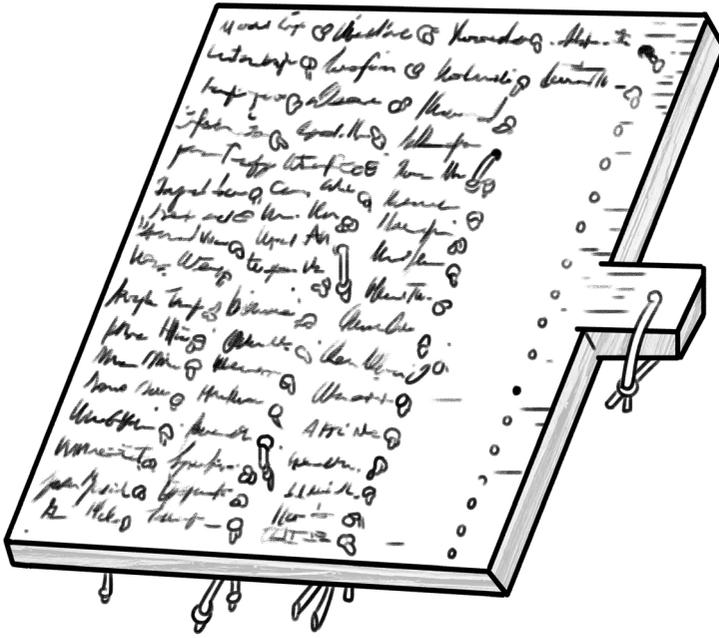


Figure 9.1 Tello and Miranda's 1923 article on the *Casta champeria* featured a drawing of a khipu board they observed being used (Tello and Miranda, 1923, p. 534). Redrawn by Eleanor Hyland. Copyright Sabine Hyland¹²

Numerous mid- to late-20th century ethnographies attest to social transformations and resultant intergenerational conflict in Peruvian Andean communities (Arguedas, 2002 [1956]; Soler, 1958; Hyland, 2016, 497–8 citing Tello, 1935; Flora Tristán and CENDOC-Mujer, 2002; Gow and Condori, 1976; Huber, 2002). The importance of the generational transmission of values over time for the smooth functioning of the *wachu* authority system is evidenced in the conferral of social responsibility on the parents of youths, who were punished if their children did not show the elders or the authorities respect (Flora Tristán and CENDOC Mujer, 2002, p. 28).¹²

Soler's mid-20th-century research describing intergenerational conflict in the Huarochirí community of San Pedro de Huancaire helps us understand why the elders in *Casta* insisted on producing a list of responsibilities that all community members would accept as a legal agreement. Soler (1958) states that tensions escalated to a crisis point in the 1940s, when the liberalised youth collectively challenged the authority of the elders, who would humiliate and punish young objectors in public during rituals for attempting to challenge them individually (p. 181). This resulted in a youth rebellion in 1940, which

¹² I am grateful to Sabine Hyland for allowing me to use this image.

revolutionised community life, resulting in a more equitable distribution of lands and more power conferred to the youths. Liberal youth groups began cultural and sporting initiatives, which brought men and women into closer social contact; prior to this, the elders strictly controlled social relations (Soler, 1958, pp. 180–9). Crucially, the changes the youths in San Pedro de Huancaire effected were made possible through their gaining control of the community records; their rebellion was complete when they seized the community books during a meeting (Soler, 1958, p. 182).

Soler's ethnography links the emergence of the new social group, the *youths* (*jóvenes*), with the impact of World War I on Peruvian society and its economy (Soler 1958, p. 180). Various Andeanist ethnographies document the changes in community relationships brought on by the emergence of the youths as a coherent social group (Arguedas, 2002 [1956]; Mayer, 1989; Gow and Condori, 1976; Huber, 2002, p. 76). During my 2021 doctoral fieldwork in San Damián, Don Eugenio Anchelía Llata, a former *curandero* (ritual specialist and healer) born in 1920, lamented the erosion of ancestral traditions during his lifetime. He explained that canal-cleaning traditions and other traditions, such as behaving respectfully towards elders, began to erode 'when the youth began'.

In the 1970s, Isbell described the decline of the traditional prestige hierarchy *hatun* system in Chuschi, Ayacucho, exploring the impact of the Spanish-language bureaucracy of the government legal system and of urban ideology on the closed corporate village (Isbell, 1978, pp. 84–97). The *hatun* system persisted until 1970, when the *comuneros* in Chuschi voted to abolish it, claiming that 'the prestige and respect previously accorded the *hatun* authorities had all but disappeared' (Isbell, 1978, p. 94).

The spread of revolutionary thinking throughout the central Andean highlands in 20th-century Peru had profound impacts on village life and the distribution of resources decades prior to the Civil War in the 1980s. While increased articulation with cities brought educational and entrepreneurial opportunities in rural villages, individual accumulation of wealth was antithetical to the community hierarchy system founded on cooperation and reciprocity, and to the ideology of progressive youth groups committed to overseeing an equitable redistribution of community resources.

In Chuschi, migrants acted as extra-legal cultural brokers who 'sought solutions to village problems outside of the sanction of the law' (Isbell, 1978, p. 191). Members of a progressive society charged the local head teacher with prioritising his private business affairs over public office commitments, denouncing him an 'enemy of the revolution' (Isbell, 1978, p. 192).

Various communities in the province of Canta (Lima region) saw intergenerational conflicts lead to organised youth resistance movements during the early to mid-20th century (Alberti, 1972).¹³ In 1930, youths in Lampián

13 I am grateful to Patricia Oliart, who helpfully recommended Alberti's chapter.

were discontented with their low rank within the community hierarchy system. They were denied access to the same resources (chiefly lands) afforded to members who had fulfilled all their community obligations (Alberti, 1972, p. 99). Since 1927, the new head teacher at the local school had encouraged his pupils to implement new agricultural techniques using the community's irrigated lands. He also disseminated new urban political ideas among pupils, advocating youth participation in political life (Alberti, 1972, p. 99). During community assemblies where decisions were agreed, the youths began to object to their lack of access to land. The authorities acted immediately:

In a general assembly, they decreed the expulsion of the youths, accusing them of rebelling against the community's *costumbres* and traditions, and as such impeding their access to any resources that the community could offer. That is to say, they were banned from participating in any aspect of community life and at the same time, they were denied the right to receive lands, even in the event that lands should be redistributed in the future. Furthermore, the authorities reported the youths to the Ministerio de Fomento, Dirección de Asuntos Indígenas, accusing them of provoking disorder.¹⁴ (Alberti, 1972, p. 99)

According to Alberti, the emergence of the youths as a distinct solidary group was a key factor in the conflict. As the Lampián case shows, the effects of urbanisation on the traditional community system manifested as in-situ exposure to new ideologies as well as direct engagement with these ideas in urban environments.

This case parallels that of San Pedro de Huancaire in Huarochirí, where in the 1930s, community authorities reported youths accused of communist ideology to the district authorities (Soler, 1958, p. 181). The expulsion of the Lampián youths meant they were forced to emigrate, resulting in an exodus of 30 youths in 1938 (Alberti, 1972, pp. 101–2). The resultant loss of labour had detrimental effects that highlight the importance of community cohesion and cooperation: the failure to collectively maintain the irrigation systems (due to a lack of assistance at community *faenas*) resulted in a lack of water for pastures and agriculture production (Alberti, 1972, p. 104). The impact of changing social relationships on the functionality of the irrigative infrastructure demonstrates that the continuous work of [social] maintenance is what 'keeps infrastructure functioning' (Gupta, 2018, p. 76).

14 My translation from the Spanish: 'En una asamblea general se decretó la expulsión de los jóvenes, acusándolos de rebeldes a las costumbres y tradiciones de la comunidad, impidiéndoles por lo tanto el acceso a cualquier recurso que la comunidad podía ofrecer. Es decir, se les impedía participar en cualquier aspecto de la vida comunal y al mismo tiempo, se les negaba el derecho de recibir tierras, aún en el caso de nuevos repartos. Además, fueron denunciados por las autoridades ante el Ministerio de Fomento, Dirección de Asuntos Indígenas, como provocadores de desórdenes' (Alberti, 1972, p. 99).

Reflecting on the 20th-century shift from functional to patrimonial *kipu* use in Tupicocha, Huarochirí, Salomon has hypothesised that social change following the War of the Pacific (1879–83) contributed to a decrease in active *kipu* use to the point of virtual abandonment of cord record-keeping in the 1930s (Salomon, 2008, pp. 299–300).¹⁵ As he explains, in 1898, *kipus* were described in a Tupicocha *ayllu*'s books as artefacts *de anterior* [of former [times]]; by the 1920s – when the *comuneros* who were born around the year 1880 would have risen to power within the community – the *kipus* were no longer functional (Salomon, 2008, p. 299). Mayer has made a similar point about the period 1900–50, when the 'Libre Pensadores' [Freethinkers] were in power in the highland Lima community of Laraos (Mayer, 1989, p. 40). This period saw increased autonomy for individuals and less regulation in terms of land and water use until a group of *comunero* youths gained control, reinstating the community controls in three of the five production zones (Mayer, 1989, p. 40).

As Rösing has pointed out, the biggest danger to the persistence of Andean rituals is the undermining of ethics of reciprocity; she writes: 'introducing the value of individual profit maximisation with so-called modernisation, is infinitely more deleterious to the survival of Andean religion and ritual than all direct attempts by extirpation or other missionary efforts' (Rösing, 1995, p. 85). It is no wonder then that in 1921, when the elders in Casta observed individualist values among younger generations seeping into the *champería*, they acted quickly. In the intergenerational conflicts that emerged in Pinchimuro, Cusco, the more the youth clung to ideas about modernity, the more the elders adhered to the past (Gow and Condori, 1976, p. 23). *The Entablo* manuscript of Casta suggests that the elders in Casta responded similarly to the modern ideals of the youth.

The Entablo: a kipu-inspired text and Casta's constitution for cooperation in canal maintenance

The Spanish-language *Entablo* manuscript was written in Casta between 1921 and 1952 as a collective endeavour by community authorities in office at the respective times of writing, drawing on the knowledge of village elders.¹⁶ The text sets out the agreed regulations for proper ritual discourse during the annual canal-cleaning ceremony (*champería*) carried out during the first week of every October. Written for an internal readership of ritual officials,

¹⁵ I wish to thank Sabine Hyland for recommending this source.

¹⁶ While the main corpus of the text was penned in 1921, the *Entablo* constitution appears to have taken three years to be approved as an official record or *constancia* in Spanish (Bennison, forthcoming). An entry in 1926 reaffirms the regulations on permitted kinds of alcohol in the 1921 entry. Subsequent entries in 1939 and 1947 are constitutional reforms; both provide further details of the functionaries' duties throughout the year. The final entry in 1952 provides regulations for the January traditions and an inventory of ritual items used for rain divination during the January rituals.

the content illustrates tensions regarding issues relating to autonomy and outside intrusions. Nevertheless, this internal constitution is by no means itself autonomous in an institutional sense; representatives of state institutions feature as legitimising forces in this document containing ‘many laws of the archaic era’¹⁷ (*The Entablo*, f. 19). Casteños align their water customs with the Inca era; in 2018, a collaborator in Casta explained that cigarettes brought to the ritual must be Inca branded and a 1939 entry in *The Entablo* regulations for the New Year customs dictate that an ‘Inca meal’ be served (*The Entablo*, f. 25r). Likewise, in San Damián, elderly collaborators recalled the ‘Inca dances’ of the Concha group’s *champerías* in the early 20th century. The alignment of 20th- and 21st-century landscape customs with Inca traditions is not unique to Huarochirí. In the 1990s, people in Huanquite repeatedly appealed to ancient modes of social organisation and Inca-era social relations in land litigation processes (Seligmann, 1997, p. 115). Likewise, *wachu* authorities in Pisac, Cusco take their authority system to resemble that of the Incas; a collaborator of Pérez Galán stated ‘somos como Incas’ (Pérez Galán, 2004). Similarly, community members in Hauynacotas, Arequipa claim their irrigation management methods are Inca (Trawick, 2002, p. 39). As I explain elsewhere (Bennison, 2019), in describing their cherished regulations as deriving from the ‘archaic era’, the makers of *The Entablo* echo the endeavours of Guaman Poma de Ayala, whose early colonial chronicle addressed to the Spanish king emphasised the admirable moral foundations of the *good justice* of the Inca empire (Guaman Poma, 1615/1616). Like *The Entablo*, Guaman Poma’s Inca codes of law explicate and pinpoint the duties of the officials enforcing the laws (Harrison, 2015, p. 144).¹⁸

The word *entablo* refers to a text produced through a process of collectively agreeing on a memory as an official narrative or fact. It refers to a set of codified ordinances deemed conducive to achieving a moral or social goal – in other words, precepts. Casta elder Eufronio Obispo Rojas, defined *entablo* as ‘a code of conduct or a law’. An elder named Porfirio explained that an *entablo* is: ‘lo que queda en escrito’ (‘That which gets set down in written form’, or ‘a definitive version of events that ends up in the books’). In this respect, an *entablo* is a definitive agreement and, as such, represents the basis of the *justicia de acuerdos* system, where *khipu* records reflected collectively agreed-upon and approved sets of data (Bennison, forthcoming). As Hyland’s work on the Anchucaya *khipu* explains, when discrepancies arose about the contributions of an *ayllu* to collective labour events, the details recorded by two authorities in charge of maintaining matching accounts in two separate *khipus* would be discussed ‘until an agreement was reached on the correct figures’ (Hyland, 2016, p. 493).

17 My translation from the Spanish: ‘muchos leyes de la era arcaica’ (*The Entablo* f. 19).

18 Guaman Poma used the verb *entablar* when describing how the Inca disseminated the forms of governance he describes in his account (Bennison, 2019).



Figure 9.2 An *alguacil* (junior-ranking functionary) reads out passages of *The Entablo* in 2018. Image: Sarah Bennison

As a set of collectively agreed-upon regulations and a community's sacred constitution, *The Entablo* illuminates the finely detailed workings of the Andean community traditional justice system, where the organisation of the *champería* requires the ritual authorities or functionaries [*funcionarios*] to conduct extensive calculations in the ordering and delegation of work parties. The regulations outlined in *The Entablo* are helpful for illustrating the proportional, egalitarian nature of the division of labour in the Casta canal-cleaning ritual.¹⁹

¹⁹ The egalitarian division of labour in Andean canal-cleaning ceremonies has also been noted for Huaquirca, Peru (Gose, 1994, p. 95).

Assisted by community elders, the functionaries had to memorise large data sets and were required to maintain detailed accounts, recording various aspects of participants' performance at points throughout the *champeria*. Their work involved recording the agreed obligations to be submitted (including material submissions such as food, drink, skilled crafts, coca leaves, and cigarettes from the participants in addition to their labour contributions), and recording whether these obligations were fulfilled by making entries on the *khipu* board *padrones* [registers]. The regulations for the *champeria* are egalitarian in that they are proportional; the obligations to be submitted by the functionaries reflect their respective grade in the hierarchy. The regulations for the first Monday of the *champeria* instruct that the functionaries should meet in the morning, with everyone organised and ready for work:

In this meeting, the functionaries will bring out their obligations for this day. The Sr. Campo will give a pound of coca, a bottle of rum, two packets of cigarettes of any quantity, two starter flares; the Regidor Mayor will give the same obligation. The Regidor Campo will give half a pound of coca, half a bottle of rum, one packet of cigarettes of any quantity, and a flare. The Alguacil Mayor will give the same as the Regidor Campo. (*The Entablo* f. 4r)²⁰

The Entablo instructs that the functionaries must file out in hierarchical order at various points during the *champeria*.²¹ The instructions for the Wednesday describe the solemn moment when the functionaries assemble at the sacred site of Otagaca and kneel down, reciting a prayer geared at ensuring the canal-cleaning work goes well. Following this, the Teniente must recite a speech, while the other functionaries must stand in formation: 'lining up in order with the Alcalde Campo first and next, the Regidor Mayor and so forth with the rest right down to the very last enthusiast' (*The Entablo*, f.9r).

The emphasis on performing a clearly defined hierarchy serves to assert and legitimise the proportional degree of authority conferred to all the respective functionaries. The fact that the functionaries are required to file out according to rank during the canal-cleaning ritual is particularly fitting given that, as I mentioned earlier, *wachu* refers to both a rank file and a furrow for irrigation. The *wachu* system is well-suited for the governance of common resources and associated infrastructural maintenance in that the hierarchical system confers power and obligation proportionately according to rank. Trawick has noted the importance of maintaining proportionality, 'a basic moral principle that clearly defines everyone's rights' (Trawick, 2002, p. 42). He explains that a

20 For a similar but slightly modified presentation of this section of the manuscript, see Bennison forthcoming *c.*

21 Pérez Galán (2008) explores the logics of traditional authorities filing out in order in Pisac, suggesting that through their physical movements, they engage with and symbolise the movements of the sun and the cosmic order. Furthermore, the respective functionaries must perform their rank in relation to that of the other functionaries above and below them (Pérez Galán, 2008).

lack of proportionality concerning duties and rights leads to resentment and conflict and, ultimately, erosion of communal life (Trawick, 2001, p. 14). This characteristic of Andean ritual makes accountancy central for the prevention of dissonance since the regulations for individual responsibilities and contributions in labour and in-kind are publicly agreed and recorded. This is done close to the canals whose maintenance all members have a stake in.

Ritual punishments were also proportional. In *kipus*, the regulations for ritual performance were communicated transparently in public. As the early colonial chronicle of Guaman Poma explains, the Inca-mandated *bordenanzas* [*bordenansas*], or laws, decreed that there should be various *kipu* scribes in each village in order to uphold the royal Inca justice system. These included a public scribe with commandeering duties, a royal or elected accountancy scribe sent from afar and senior accountants in charge of making *kipu* accounts every month and year of all the unfulfilled taxes in the Tawantinsuyu kingdom (Guaman Poma, 1615/1616, p. 185 [187]).

The Inca-era justice system apparently included *kipu*-like signs known as *unañchas*²² where numerical values were attributed to various kinds of behaviour categorised as moral or immoral (Fernández Osco, 2001, p. 12). These *unañchas* functioned through a decimal system where ten different categories of offences – such as failing to heed the words of the elders – corresponded with a finger on the hand.²³ Legal codes of this nature applied to canal-cleaning rituals in Casta and likely elsewhere; the *kipu* boards introduced by the Mercedarians in the 17th century emulated the Inca use of *kipus* for moral compliance and compliance with material obligations, i.e. taxation (Hyland et al., 2021). The *kipu* boards in the *champería* in Casta performed infrastructural functions associated with *kipus*, whose uses following colonisation appear to have been no less colonial than the hybrid *kipu* boards. Based on the use of hybrid *kipu* devices in the colonial era and beyond, *kipus* were clearly important for structuring and generating the labour that kept water flowing through the canals.

The Entablo explains that the functionaries used *kipu* boards to numerically categorise participants' performance in the canal-cleaning ritual and how individuals were publicly punished if they failed to fulfil their respective obligations (Hyland et al., 2021; Bennison, forthcoming). This practice resembles the similarly *kipu*-like one Hall describes, where the recording of ritual scores by ritual authorities on written *padrones* in Llancho, Cusco today is taken seriously by participants since their number grade carries significant social repercussions (Hall, 2014). According to Rösing, disagreements and

22 While the Quechua noun *unancha* may refer to a sign (Harrison, 1989, pp. 79–80), the term has legal connotations; Salomon glosses the related form *hunanchasca* as 'law' (Salomon, 1991, p. 71).

23 Fernández Osco's description of *unañchas* draws on a February 1950 article in *El Diario* by Arias, based on chronicles produced by 16th-century friars (Fernández Osco, 2001, p. 12).



Figure 9.3 During the *champeria* in Casta, one of the Michco functionaries whips the water 'so that it does not delay on its way to the village'. Image and caption: Luis Miguel Silva-Novoa Sánchez²³

unmitigated ritual failings incur a *sacrificial debt*, preventing the ancestors from providing water access (Rösing, 1995). As Fernández Osco explains, if *ayllu* law based on *justicia de acuerdos* – which attributes numerical values to categories of offences – is not applied, moral offences are left unresolved since punishments are not commensurate with the ideological offence. As such, the *pena* [penalty or shame] remains in the community domain (Fernández Osco, 2001, p. 12). According to this logic, elders in early to mid-20th century Andean communities may have seen the abandonment of this quantifiable system to be harmful since failure to apply it could permit the accumulation of shameful penalties, which would materialise in the canals. Ritual penalties are punishable by the mountain deities governing communities who respond by negatively impacting community production and wellbeing, such as withholding water (Allen, 2015, p. 28; Gow and Condori, 1976; Rösing, 1995).²⁴

The Entablo's instructions for the Saturday accounts mention that the elders approved punishment number scores at the end of the Casta canal-cleaning. It is likely that the kinds of offences listed on an Inca *unañcha*, such as failing to heed the words of the elders, were punishable offences in Casta's *champeria*. Anyone back-chatting or giving excuses would likely have been attributed a rebel number score and be publicly punished. The punishments resembled a blend of Inca moral codes of law and vice-

²⁴ I am grateful to Luis Miguel Silva-Novoa Sánchez for allowing me to use this image.

regal criminal penalties. The regulations describe the final duties of the Camachico authorities, who must assess the moral performance and material obligations of the ritual participants through multiple accounts, including *kipu* board *padrones*. The *notables* (elders) then assess the Camachicos' performance:

The notables call for the outgoing Camachicos and the Camachico commands that that [*sic*] they tie their hands behind them and he [they?] gets taken to stand before the notables and receives his punishment for having helped certain citizens or having altered their mandated duties or obligations. The *notables* order him to go to the Council and they take him to the table where the crupper and whip are and then one person comes out from among the *notables'* circle to give them their correction, taking the scissors and carrying out the ceremony of shaving him [them?]. (*The Entablo* f. 15v)²⁵

The cutting of hair as a punishment for failing to maintain order during the canal-cleaning ritual served to remind the participants of the Camachico functionary's responsibility for upholding the rank-file system. Haircutting was a colonial punishment used for native rebels alongside lashes and beatings (Spalding, 1984, p. 289; Larson, 2004, p. 190). Haircutting was apparently an established punishment prior to the colonial era; according to Guaman Poma, drunken criminal behaviour was punished severely under the '*buena justicia*' of the Inca: 'those who argue or fight while drunk [got] fifty lashes and were shorn of their hair'²⁶ (Guaman Poma, 1615/1616, p. 259 [261]). The use of haircutting as a ritual punishment during the *champeria* in Casta is likely a legacy of the colonial-era public ridicule and debasement of criminals, which in turn may have emulated Inca punishments for lawless behaviour.

Interlegality and intertextuality: *kipus*, canals, and constitutions

The Entablo emerged from a context of *interlegality*, meaning: 'the use, the co-existence and the transformation of diverse legal systems in one specific social setting, which create a situation of legal porosity'²⁷ (de la Puente Luna and Honores, 2016, p. 14). Various scholars have described the ways in which colonial-era Andeans appealed to both Spanish and pre-Hispanic Andean legal norms in their construction of the law (Salomon, 1998; Harrison, 2015, p. 141,

25 For a similar but slightly modified presentation of this section of the manuscript, see Bennison forthcoming *c.*

26 My translation from the Spanish: 'Al que riñe o pelea, estando borracho, cincuenta asotes luego y tresquilado' (Poma, 1615/1616, p. 259 [261]).

27 My translation from the Spanish: 'Por "interlegalidad" entendemos el uso, la coexistencia y la transformación de diversos ordenamientos jurídicos en un espacio social específico, los mismos que configuran una situación de porosidad normativa' (de la Puente Luna and Honores, 2016, p. 14).



Figure 9.4 The annual huayrona settling of accounts in Casta at the sacred site Cubuay, presided over by the elders and Yachaq ritual expert (seated). The authorities stand between the elders (to their left) and the padrón accounts (to their right). Image: Sarah Bennison



Figure 9.5 The secretario updates the padrón comunal beneath the gaze of the elders, located opposite on a raised platform. In 2018, an elderly collaborator explained that in her youth, the khipu board padrones were displayed here. Image: Sarah Bennison

de la Puente and Honores, 2016, p. 14). Such dualist interlegal approaches have persisted into current times (Drzewieniecki, 1995); according to Seligmann, people in Huanquite deftly blend new legal codes with principles deriving from their ancient ancestral laws (Seligmann 1997, p. 116).

National legislation had a significant impact on record-keeping in Peruvian Andean communities in the early 20th century. A result of the 1920 national constitution was the formalisation of indigenous communities who, once legally recognised, were obliged to keep records in Spanish of community decisions and legislative affairs (Hall, 2014, p. 15). As García-Sayán has pointed out, throughout the 20th century, during the process of obtaining official recognition from the Peruvian state, some indigenous communities partially codified their traditional laws, and decisions based on them, in separate and secret books when administering justice (Drzewieniecki, 1995, citing Diego García-Sayán, personal communication). It is likely for this reason that the authorities in Casta, like the *ayllu* groups in Tupicocha, Huarochirí, wrote themselves modernist constitutions (Salomon, 2008, p. 299). Salomon writes: ‘These were understood as replacements for “customs” such as *kipu*’ (Salomon, 2008, p. 300). This appears to be the case for Casta: a collaborator explained that *The Entablo* was produced in the absence of older inscriptive devices such as *kipus* (Bennison, 2019). It is likely that many communities across Peru maintain *kipu*-inspired manuscripts penned from the 1920s onwards. According to García-Sayán, the ‘double record’ can be observed throughout communities in Cusco (personal communication). There may be commonalities in the ways Andean communities throughout Peru adjusted their internal recording practices over time in accordance with (and often exceeding) national legal infrastructure. *Kipu*-inspired agreements may have been instrumental for maintaining cohesion in that their content, like *kipus*, would have constituted the agreed terms for group membership.

Perhaps the punishments at the October 1921 canal-cleaning ceremony were severe; *The Entablo* was written days afterwards, following a collective agreement.²⁸ The dictated memories of three highly esteemed elders formed the basis of its content, which began with the following explanation:

The functionaries are not fulfilling their duties and obligations. In light of the many interventions and disagreements concerning the obligations starting from the Teniente right down to the last functionary, which is the Camachico, they agreed to collectively set down an official record, under [the jurisdiction of] our signatures so that they are obliged to fulfil their duties. They must fulfil them in a punctual manner and cannot give the excuse of taking on their roles without there being a written record and claiming diminished force of law. (*The Entablo*, 1921, f. 3)²⁹

28 At the end of each *champeria* in Casta, the community assesses the success of the event and elects next year’s functionaries (Ráez Retamozo, 2001, p. 3). Prior to the 1920s, these procedures would have likely been documented in *kipus*.

29 Also see Bennison forthcoming *c.*

The Entablo's instructions would serve as an official response to the claims of functionaries who had underperformed and gave the excuse that there was no official written record. It is difficult to ascertain if there were records accessible to the elders of the duties latterly set out in *The Entablo*. Ethnographic evidence from the period indicates that, in the Huarochiri village of Anchucaya, *kipu* use was obligatory until around 1910, when younger community members insisted that the accounts be kept in books and jotters (Hyland, 2016, p. 496, citing Tello, 1935). Tello's collaborator, Mariano Pomajulka, stated that the decline of *kipu* customs in Anchucaya saw the *kipucamayoc*, the functionary who had previously been in charge of *kipu* accounts, be replaced by a scribe (Hyland, 2020, p. 246, citing Tello, 1935). It is possible that in 1921 Casta there was a record of some kind, but some functionaries did not acknowledge its legal status. While the *champeria* regulations were described locally as Inca-era laws, the increasing legal presence of the state since the 1920 national constitution in community life evidently led to shifting attitudes regarding what may constitute a valid *constancia* – an official record.

As models of good moral behaviour, the elders played a key role in the administration of punishments within the ritual, and also invigilated the performance of the functionaries charged with promoting compliance with the laws governing work standards. Ritual accounts were conducted in sites associated with *huaca* ancestor beings, suggesting that each community's justice system was tied to specific points in the local landscape that represented the sacred past (Hyland et al., 2021). In this respect, the justice system was inscribed on the land and at points situated along the canal. Could nation-building projects such as the national constitution of 1920 and road building from 1918 onwards have led to the undermining of community ancestral sites' authority? To what extent might the national laws and the allure of labour (Drinot, 2011) have contributed to Lima city coming to represent economic promise and legal power over and above the *huaca* ancestors, whose generosity relied on compliance with the traditional authority system?

A 1926 entry in *The Entablo* suggests that these were real concerns; in it, the elders ruled that participants in the October 1926 *champeria* had lost sight of the Inca-era laws in terms of the kinds of alcohol that were consumed. The entry explains that the elders agreed on the Saturday at the sacred site of Cuhuy that bottles of beer and non-local wines remained banned and that in future years, participants must drink only *chicha* (fermented maize beer; *The Entablo* f. 20v). Whereas the sacred ritual *chicha* beer was produced locally using local irrigation water and labour, purchased beers from elsewhere were unsuitable. Bottled beers were also likely antithetical to the ethics of reciprocity, since they are produced through (and so represent) an economic model based on individual accumulation and consumption rather than cooperation and reciprocity. Bottled beers therefore represented individual interests and

person-focused economic agency: precisely the kinds of modern interests that threatened social cohesion and the maintenance of the canals.

Conclusions: canals, *kipus*, roads, and rebellion

Inscriptive practices are central for understanding the lived experiences of infrastructures and particularly their temporal dimensions in the Andes. My discussion highlighted the role of *kipus* in the governance of canal maintenance, where these infrastructures collapse time and require adherence with Inca legal codes. Through *kipus*, community members were encouraged to express a sense of community belonging, expressing one's debts to the sacred 'owner-governor' ancestors who would arbitrate whether the group may channel water through the canals they built in the remote past. This context reflects the perspective of infrastructure as relationally and temporally dynamic, and not necessarily associated with modernity (Gupta, 2018; Harvey and Knox, 2015).

Through reconstructing the social dynamics where *kipus* and associated records have legal status in determining the canal-maintenance regulations, my discussion revealed the invisible legal climate Appel (2018) deems conducive for the construction and maintenance of infrastructure. A focus on the *wachu* traditional authority system likewise made visible the intangible infrastructures ideologically knitting *kipus* and canals together, while my discussion of early-20th century social change described the conditions that led to their ideological unravelling.

As icons and ordering indices of the hierarchical *wachu* system, *kipus* likely became objects of conflict in communities where factions of the youth saw the *wachu* system as ideologically opposed to the notion of individual rights and an equitable distribution of power and resources. The prospect of being connected to the nation through the roads-to-be built may therefore have played a part in changing attitudes towards *kipu* infrastructure and the model of governance they symbolised, since new possibilities for the distribution of power and resources became imaginable among those exposed to urban ideologies. As *The Entablo* suggests, these tensions were expressed and negotiated at canal-cleaning rituals.

In Casta, the intergenerational conflicts that led to the youth rebellion phenomenon in other Peruvian communities where the traditional community justice system was abolished were evidently present. Nevertheless, these conflicts were managed through *kipu* logics of justice codified in a format compatible with the modern national laws written on paper in Spanish. Through transcribing *kipu* logics onto a paper-law format an increasingly modernised youth idealised, the makers of *The Entablo* ensured that the laws dictated by the ancestors would be adhered in Casta for years to come. The efforts of the three notable elders whose ritual expertise formed the basis of the agreed regulations ensured that their memories of the past are respected

as community law a century later. *The Entablo* is revered as a sacred bible in Casta today, and the leading community authority must study it ahead of the *champería* each year.

The context I have explored, where canal-dwelling ancestors are central figures in the social life of infrastructure, serves as a reminder that infrastructures do not only function to communicate and transport goods or information between people, but also with non-human and/or formerly human actors. This dynamic resembles the way infrastructures mediate with the nation state, evoking de la Cadena's proposal for earth beings' agency in Andean political life to be acknowledged (de la Cadena, 2010).

Canal maintenance in Andean communities relies on the reinforcement of positive, proportionate relationships among community members, including with the founding community ancestors controlling the irrigation system's water. Irrigative infrastructure functions as a temporal intermediary, where hopes for a productive economic future do not lie entirely in the robustness of the material composition of infrastructure, but also in its ideological durability. The Inca authorities were surely aware of this fact when the laws they mandated for canal maintenance exceeded the technical aspects. Maximum adherence was encouraged through making all community members accountable in multiple literal respects.

In the Andes, the social life of irrigative infrastructure is defined by a legal emphasis on cooperation as law. The ability of the canals to keep giving is dependent on continued human engagement with the moral and economic ideals associated with the time the canals – and the lineages that would come to depend on them – came into being. The appeal of integration with the modernist state through roadbuilding and increased articulation with Lima meant that the model of prosperity the canals offered was undermined by that of the roads and the appeal of the material and ideological novelties that could be gained through them.

Having developed a nuanced and relational approach to the evolution of infrastructure over time, I advocate giving greater attention to the many diverse infrastructural forms which intersect, mutually support and, at times, undermine and compete with one another over time. Through this approach, the lesser-studied entanglements bound up in the dynamic and relational social lives of infrastructure may come to the fore, even if the sources on infrastructural social history require contextualisation to be unravelled and understood.

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