

Making Medicines is carefully researched and deeply archival. Even its appendices put those qualities on display. They include not only a list of books dispatched from Spain to Lima toward the end of the seventeenth century but also – of use not only to area specialists but also to scholars of the early modern drugs trade more generally – an extensive list of the *materia medica* that circulated in the Spanish Atlantic.

If there were a criticism to make, it is that key concepts in the history of science and medicine which bear directly on the material in question and which figure prominently in Newson's discussion remain underdeveloped. The author draws heavily on the idea of the 'medical marketplace' and, although well aware of the pitfalls of such a framing (see the discussion on pp. 175–8), Newson's analysis tends to suppose that patients' choices concerning medical treatment amounted to mutually exclusive therapeutic decisions (so the licensed apothecary *before* and often *instead* of the unlettered healer). The book is also essentialist in its handling of concepts like 'science', 'experience', 'experimentation' and 'empiricism', the meanings of which are treated as self-evident rather than historicised. What, if anything, these things might have meant to apothecaries and their patients in sixteenth- and seventeenth-century Lima is unclear.

These and other questions may linger. But that is part of the value of Newson's book. Thanks to *Making Medicines*, scholars can now approach such issues with far greater clarity and specificity than they could have otherwise. The book will be a key point of reference for future studies not only on the Viceroyalty of Peru but in colonial Latin America.

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Gary Urton, *Inka History in Knots: Reading Khipus as Primary Sources*

(Austin, TX: University of Texas Press, 2017), pp. xvii + 293, \$27.95, pb.

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Gary Urton's new book opens with a thrilling claim: that he is attempting a history of the Inka empire that '[f]or the *first* time' is 'based on primary sources: the *khipus*', the spun and plied cords whose knots, pendant strands and colours recorded the tributary obligations, social relationships and lives of the inhabitants of the largest native polity in the history of the Americas (p. 3, emphasis mine). If anyone can begin so boldly it is Urton, for whom this work brings together 25 years of study of 544 of the 923 Inka-era *khipus* reported in public museums and private collections worldwide. And it is this reviewer's happy duty to report that he makes his case. Over and over again, Urton reveals unheralded ways in which Inka *khipukamayusq*s, the makers and readers of *khipus*, knotted the lives and labour of their Andean subjects.

Urton is helped by how he defines 'primary sources': contemporary records unmediated by subsequent memorialisation, mistranslation or historiographical expectation. By contrast, the sixteenth-century European-written histories of the 150 years of Inca expansion before Spain's invasion subjected memories and *kipus* to colonial rule, celebrating or denigrating particular Inka families, or conforming to Europe's king-centred historical genre. Those conventions long skewed scholarly attention, fuelling hopes of translating narrative *kipus* like those dictated by Sapa Inka sovereigns.

Urton instead centres his gaze on the workhorses of everyday Inka rule: the *kipus* that recorded quantitative or statistical information using a base-10 system of numeration, made by *kipukamayuqs* to supervise state activities, carry out censuses and assess tribute in communities. To do so, he combines the knowledge and practices gleaned from colonial- and republican-era *kipus* by Sabine Hyland ('Ply, Markedness, and Redundancy: New Evidence for how Andean Khipus Encoded Information', *American Anthropologist*, 116: 3 (2014), pp. 643–8), Frank Salomon (*The Cord Keepers: Khipus and Cultural Life in a Peruvian Village*, Durham, NC: Duke University Press, 2004) and others, with his exhaustive typologisation and analysis of the numerical and semasiographic ('meaning sign') units that most Inka-era *kipus* expressed. From those signs, he argues that 'while khipu recording was indeed concerned with "history", in this case, khipu history took the form of structural history or, more accurately the history of structures' (pp. 5, 20) – recording not just tribute numbers, but the external and internal organisation of communities, expressed via binary and hierarchical choices of knot numbers, ply direction, pendant strands and colours.

The results are brilliant, unspooling over 13 perfectly ordered chapters. Part 1 introduces readers to the challenges researchers confront in analysing *kipus*, as well as to the imperial and local structures that shaped what the *kipus* recorded, such as the decimal system of administration into which Inkas sorted local lords and descent groups (*ayllus*). Making use of Foucauldian histories of accounting, Urton lays out the *mentalité* that working with *kipus* may have encouraged in the *kipukamayuqs*, who instantiated power in Tawantinsuyu – the Inka Empire – with regularised public performances: 'discursive formations' in which they inscribed, read and later archived their counts.

Parts 2 and 3 demonstrate how Urton reads his tabulated *kipus* for administrative hierarchies, *ayllus*, deliveries, counts of tributary heads of households, and, in one daring occasion, a possible representation of the system of *ceque* worship that radiated out from Cuzco. Chapter 4 is the 'first attempt in studies of preconquest *kipus* to attach a specific example of one of these devices to a particular, named historical individual': a native Chachapoyan lord, Guaman (p. 63). Urton shows how two *kipus* found in 1996 in a mortuary 'archive' at the Laguna de los Cóndores may have belonged to two record keepers. Their labour was then synthesised into what Urton suggests was Guaman's larger *kipu*, found alongside them. Chapter 9 argues that pairs of *kipus* found 'archived' with peanuts or peppers at the administrative accounting centre of Inkawasi may have represented two *kipukamayuqs* observing the same accounting event for their respective *ayllu* or moiety, or, even more interestingly, enacting a double-entry-like accounting technique. Chapter 10 is even more spectacular. It identifies 50–60 *kipus* in Urton's

database, whose sequences resemble the magnitudes and distributions of written censuses of colonial communities.

Part 4's venture into Spanish colonialism is appropriately tentative given the explosiveness of Urton's suggestions, such as the possibility that the declining values of knots on one *kipu* closely matches the rate of post-conquest demographic collapse identified for the Chachapoyas region by Noble David Cook (*Demographic Collapse: Indian Peru, 1520–1620*, Cambridge University Press, 1981). And Chapter 12 argues for a match between a 1670 written *revisita* of a town named San Pedro de Corongo on the north-central coast of Peru – 132 tributaries among six *ayllus* – and a *kipu* with 133 six-cord groups found in a tomb in the Santa Valley below. If this is a 'Rosetta Khipu', it is one that opens the door to a number of fascinating problems. For example, while the Spanish demanded a fixed rate of specie from each tribute-paying male villager, slightly different numbers of tributaries may have paid different amounts – perhaps reflecting the increasing stratification of the colonial era – recorded only on the local *kipu*. And if colonial *kipus* and written records 'differ on internal details but coincide on the bottom line', this suggests that direct 'translations' will be next to impossible without grappling with how Andean communities worked out their own values outside of imperial view (p. 236).

Inka History in Knots is therefore something even more exciting than an event-based 'great man' narrative of Tawantinsuyu: a demonstration of how to use *kipus* to build up the foundational details and principles 'from which to begin to construct the edifice of an indigenous history of the Inka Empire' like that of the *Annales* school, concerned with statistics, demography and extended cultural processes (p. 255). In Braudelian terms, this means attending to the *longue durée* of cords as a medium to communicate and reproduce dualism and hierarchies; the conjunctural (*moyenne durée*) history of, for example, Inkawasi's many accounting events; and the event (*courte durée*) history of, for example, 132 tributaries showing up to be counted by Spanish officials at San Pedro de Corongo while a nameless 133rd hid in the wings.

And Urton is far from through. He promises a future book about the *kipus* in the database that aren't arranged decimally – possible 'narrative' *kipus* – but these numerical ones have more to reveal. Shortly after this book was published, Urton and one of his undergraduates at Harvard, Manuel Medrano, revealed that the latter had identified a bifurcating attachment type for the pendant cords of the Santa Valley *kipu* that could signal San Pedro de Corongo's moieties, making possible the identification of specific *ayllus* and, more tentatively, the correlation of strands' colours with individual tributaries' first names.

What further wonders await?

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