

JAKUB WANOT*, JÓZEF SZYKULSKI, LUIS HÉCTOR DÍAZ RODRÍGUEZ,
PAULINA KACZYŃSKA, MARTYNA WRÓBEL

PRE-COLUMBIAN WEAVING TOOLSETS FROM THE SAN FRANCISCO CEMETERY IN THE YAUCA VALLEY ON THE PERUVIAN SOUTHERN COAST

ABSTRACT: Weaving is undoubtedly a hallmark of the Pre-Columbian societies that occupied the Andean region, reflected in the varied roles of textiles based on their characteristics as objects for clothing, funeral offerings, and vehicles for the transmission of ideas, ethnic differentiation or status indicators. Many textiles excavated in Peru – deposited without access of humidity, light, and oxygen – are still in excellent condition. Analyses of specimens of weaving from the archaeological sites in the Yauca Valley confirm a relatively high level of textile production and the proficiency of local craftsmen. The paper discusses the results of analyses of the weaving workbaskets and their equipment – sometimes precisely crafted and elaborately decorated – belonging to the textile manufacturers buried within the San Francisco cemetery (Caravelí Province) in the Yauca Valley. Although often colloquially referred to as weavers' workbaskets, the materials and implements found within them are also associated with other stages of textile production, such as spinning, sewing, and embroidery. Ra-

diocarbon dating allowed determination of the chronology of these materials to the 15th and 16th centuries, i.e. the Late Horizon in the Central Andean chronology.

KEY WORDS: weaving toolsets, workbaskets, spinning, Acarí culture, Inca, Yauca Valley, Southern Coast of Peru, Pre-Columbian textiles

1. INTRODUCTION

The San Francisco cemetery is situated at an altitude of approximately 62 m.a.s.l. on the right-bank terrace of the Yauca River, near the modern cemetery (Walsh 1996, 81; Wanot 2021, 236-237)¹. It is located

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* Corresponding author: **Jakub Wanot**, Instytut Archeologii Uniwersytetu Wrocławskiego, ul. Szewska 48, 50-139 Wrocław, Poland; e-mail: jakub.wanot2@uwr.edu.pl; <https://orcid.org/0000-0001-8930-2934>

Józef Szykowski, Instytut Archeologii Uniwersytetu Wrocławskiego, ul. Szewska 48, 50-139 Wrocław, Poland; e-mail: jozef.szykowski@uwr.edu.pl; <https://orcid.org/0000-0002-0658-4217>

Luis Héctor Díaz Rodríguez, Universidad Católica de Santa María, Urb. San José s/n, Umacollo, Arequipa, Peru; email: luishector25@yahoo.com; <https://orcid.org/0009-0004-8119-8238>

Paulina Kaczyńska, Instytut Archeologii Uniwersytetu Wrocławskiego, ul. Szewska 48, 50-139 Wrocław, Poland; e-mail: 317862@uwr.edu.pl; <https://orcid.org/0009-0007-5873-9309>

Martyna Wróbel, Instytut Archeologii Uniwersytetu Wrocławskiego, ul. Szewska 48, 50-139 Wrocław, Poland; e-mail: martyn.wrobel@gmail.com; <https://orcid.org/0009-0007-7396-0650>

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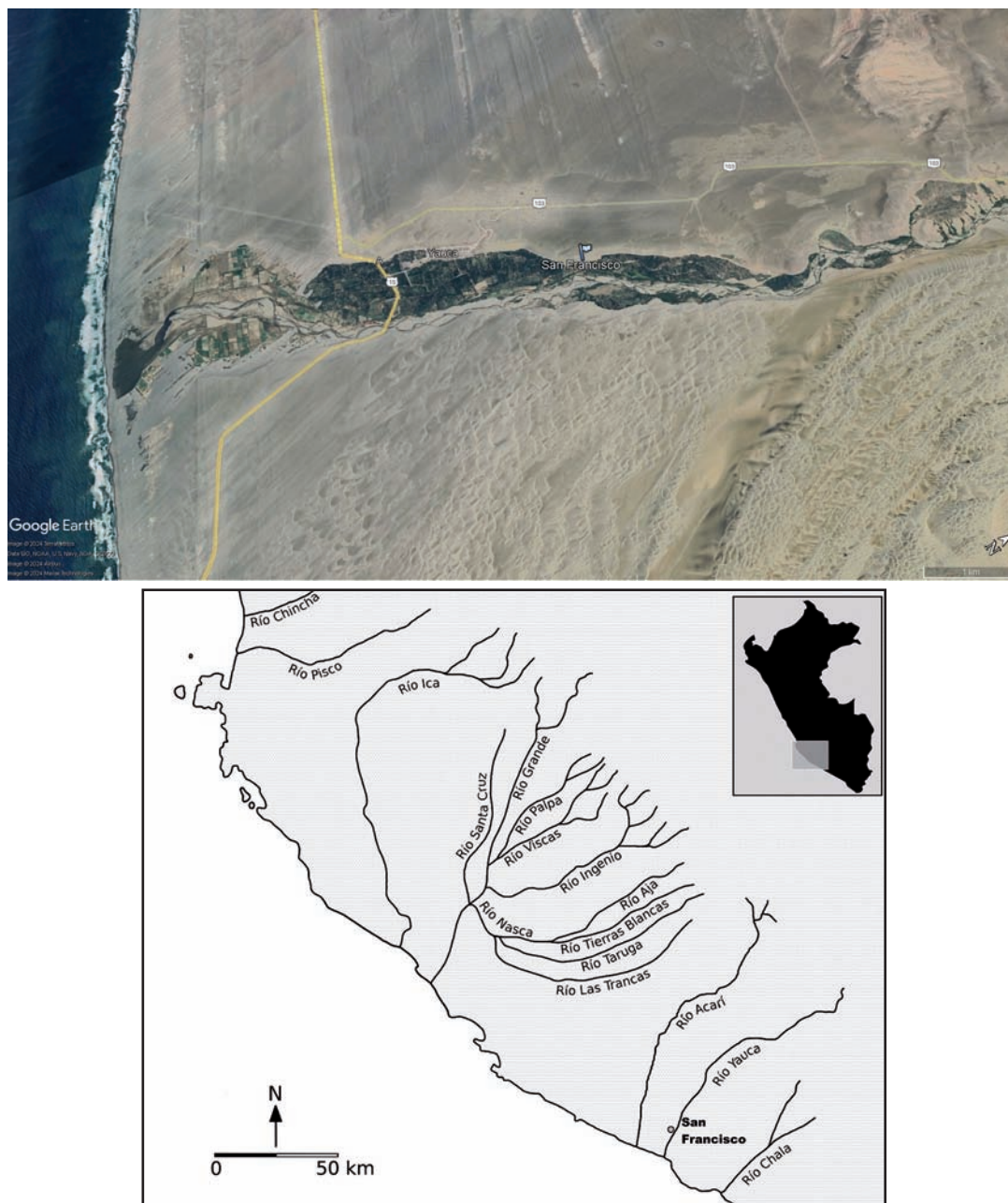


Fig. 1. Location of the San Francisco site in the Yauca Valley and southern Peruvian coast (prepared with the Google Earth software, compiled by Jakub Wanot)

about 1.9 km from Yauca, 7.3 km from Chipchipe village, and 6.1 km from the Pacific coastline (Fig. 1). This Pre-Columbian archaeological site was recorded in 1985 during the archaeological field survey carried out by the California Institute for Peruvian Studies (Riddell 1986, 28; Walsh 1996, 51). Salvage excavations were conducted in November 1987 and March 1988 by Augusto Belan Franco from the Universi-

dad Católica de Santa María (UCSM) in Arequipa and his students. Unfortunately, the documentation of these archaeological works has been lost and the exact provenience of each mummy remains unknown (Walsh 1996, 81-83; Fairchild 1999, 20; Wanot 2019, 289). According to Augusto Belan Franco's oral report, 120 graves were explored, of which exactly 79 have survived and are currently stored at the facilities of the Universidad Católica de Santa María in Arequipa – the fate of the rest is not known (Walsh 1996, 82; Wanot 2019, 286; 2021, 246).

Szykowski and defended with a distinction in July 2021 at the University of Wrocław (Wanot 2021).

The archaeological material excavated in the San Francisco cemetery is connected with the Late Acarí cultural tradition, defined initially in 1954 by Francis A. Riddell and Dorothy Menzel (von Hagen 1955; Rowe 1956, 137; Menzel 1959). Its main distinctive element was the pottery known as the Late Acarí (*Acarí Tardío*) or Acarí Polychrome (*Acarí Policromo*) ceramic style (Menzel 1959; 1976; Menzel, Riddell 1986; Fairchild 1999, 30). The analyses of burials from the San Francisco site as well as the results of the field survey conducted in the river valleys of the Cavelí Province made it possible to define diverse archaeological materials characterizing this local cultural phenomenon. This applies not only to ceramic wares with specific painted ornamentation (including geometric iconographic motifs in red, black, or cream colour; especially quartered horizontal bands, wavy lines, checkerboards, crescent moon motifs, step-fret designs, and black ball bands), but also to wooden and bone artefacts, decorated (and often with traces of repair) gourd containers as well as textile, furrier, and basketry specimens. A specific and complex funeral rite of the local community, including various thanatopraxic practices, was also identified and described. Therefore, it is reasonable and logical to use the term “the Acarí culture” when referring to the Late Intermediate Period (1000-1438 AD) and the Late Horizon (1438-1532 AD) archaeological materials registered in the Acarí Valley and neighbouring areas (Presbítero Rodríguez 1991, 16; Wanot 2019; 2021).

Small workbaskets containing diversified assemblages of tools and materials used in textile production – similar or even identical to the sets registered in the San Francisco site – are fairly common in the Pre-Columbian burial contexts in the Andean coastal regions. The weaving workbaskets from the Central Andes were first examined in the second half of the 19th century and the beginning of the 20th century (Reiss, Stübel 1880; Holmes 1888; Mason 1988 [1904]; Uhle 1991 [1903]). The number of publications devoted to this topic gradually increased in the second half of the 20th century. Not infrequently, they mentioned weaving toolkits only cursorily, although a number of authors considered them in more detail, highlighting the potential of Pre-Columbian workbaskets and their contents to help in better understanding of textile production and to support the study of weaving technology (Bird 1943, 270-273; King 1965; Amano, Tsunoyama 1979; Dransart 1992; 1993; Boytner 2004; Tiballi 2010; Arnold, Espejo 2012; Sillar, Hicks 2013; Arnold *et al.* 2015; Price *et al.* 2015).

Many of these sets preserved in museum collections all over the world were gathered in the late 19th and early 20th centuries. Where the contents of the toolkits are described, these include raw fibre, balls, and skeins of cotton/camelid fibre yarn, as well as weaving combs, spindles, spindle whorls, tapestry needles, sewing needles, weaving sticks, and bobbins or shuttles for weaving (Price *et al.* 2015, 66). Additional items – whose functions have not yet been identified or are unrelated to fabric production – may also be present inside, possibly including grave goods. They offer potential insights into textile production, even though most of them lack provenience and contextual information (Dransart 1993; Price *et al.* 2015; Young, Kaplan 2023). This is why spinning and weaving toolsets from the San Francisco site with confirmed provenance, identified cultural context and radiocarbon dating available are so particularly relevant.

2. MATERIALS AND METHODS

During laboratory work on the material from the San Francisco cemetery in 2018, in addition to the standard assessment of the outer layers of funerary bundles (*fardos funerarios*), four of those objects were carefully unpacked and analysed. Two of them contained the remains of children (Burials 24 and 27), while the other two contained the bodies of adults (Burials 41 and 48). During the documentation of the contents of the unpacked *fardos funerarios*, appropriately adapted stratigraphic methods were used (Frame *et al.* 2004; Van Dalen Luna, Majchrzak 2019).

Among the 79 analysed burials from the San Francisco sepulchral site, well-preserved funerary bundles dominated, in which the human bodies – deposited in the foetal position and bound with cords – were wrapped in 1-6 layers of burial shrouds, between which a layer of unprocessed cotton or camelid fibre was often placed (Fig. 2). In order to stabilize them, the funerary bundles were often tied and the edges of the shrouds were fastened with wooden needles and cactus spikes. The grave inventories also contained sets of fringes made of camelid fibre, consisting of black braids tied with a string. These objects were placed on the heads of the deceased and attached to the funerary bundle with slingshots, so that the fringes fell along both temples of the individual, resembling braids of hair. Undoubtedly, the purpose of this type of procedure was to anthropomorphize the funerary



Fig. 2. Funerary bundles from the San Francisco cemetery; Burials 73 (with weaving tools stuck into the external shroud) and 74 (photos by Jakub Wanot)

bundle. The bodies of adults were dressed only in a loincloth, while children were placed naked within funerary bundles (Wanot 2021, 436-439).

Our analysis of the funerary contexts from the San Francisco cemetery indicated that in approximately 46% of them – especially in the burials of children – there were no grave goods included. The rest of the burials contained grave goods that were diversified in terms of quality and quantity; they included chiselled and pyroengraved gourd containers, pottery, woven baskets, reed and rush mats, botanical remains (mainly leaves of coca and other plants as well as corn cobs), guinea pig remains, bird feather necklaces, and various artefacts made of wood, bone, and shell. However, the largest group of items constituting grave inventories from the San Francisco site was undoubtedly textile and leather products. In the graves there were various types of slingshots (*hondas*), coca pouches (*chuspas*), bags made of the skin of young camelids, leather sandals, narrow belts (*hakimas*) and

wide ones (*chumpis*), braided strings, loincloths (*tapparrabos*), purses (*bolsas fajás*), openwork fabrics, square scarves (*unkhuñas*), tunics (*unkus*), fringes imitating braids, blankets (*mantas*), and fragments of decorative textiles (Wanot 2021, 243-287).

Examination of textile examples from the San Francisco cemetery confirms that in terms of production technique, the traditional Pre-Columbian warp-faced plain weave was most frequently applied and the warp-patterned weaving technique was used to produce a number of fabrics – including e.g. complementary-warp weave (with an uneven warp count) and a discontinuous warp – which certainly could be considered complex weaving. It was also concluded that the S-plyed yarns predominate, while Z-spun threads are particularly uncommon. The thickness of the threads in the textiles varied from 400 µm to 700 µm in the case of camelid fibre and 300 µm to 600 µm regarding cotton. Its thickness also varied along their length between its sections, which sug-



Fig. 3. Spinning toolkit wrapped in a reed mat from Burial 38 (photos by Jakub Wanot)

gests that yarn ends were twisted by hand during spinning. Microscopic analyses confirm a relatively high level of textile production and the proficiency of local craftsmen. The number of warp yarns usually reached 30-40 per 1 cm² of the fabric, while there is usually less than 12 weft yarns per 1 cm² of the fabric (Wanot 2021, 395).

Sets of weaving tools – unlike the numerous textiles – were registered within only three of 78 (approximately 3.85%) burials of the San Francisco cemetery in the Yauca Valley, i.e. within Burials 38, 40, and 73. All these burials contained the remains of adult individuals, which is of particular importance as this archaeological site was dominated by infant burials (52 graves), constituting approximately 67%

of the local sepulchral contexts. Three more weaving and spinning toolsets were also discovered in the San Francisco cemetery, as well as a number of various weaving tools – two wooden and four bone weaving swords/battens, two bone weaving tools combining the functions of a weaving sword and a shuttle (*lanzadera*), four combs with reed teeth for brushing out the camelid fibre, a significant quantity of wooden needles, and a decorated bone weaving comb – all lacking the burial context and exact provenance as a result of the loss of excavation documentation mentioned above (Wanot 2019; 2021).

The first weaving toolkit, registered within Burial 38, consisted of a single wooden, weaving sword (*vi-chuña*) approx. 27.5 cm long, with a bunch of camelid



Fig. 4. Workbasket from Burial 40 (photos by Jakub Wanot)

fibres wrapped in a reed mat (Fig. 3). The reed elements of the mat were combined with a straight and herringbone stitch of light and dark brown threads from camelid fibre; a crossed-warp string – tipped with a characteristic knot-shaped tassel – was used to tie the mat.

The second weaving set from the San Francisco cemetery, found in Burial 40, was placed in a twill interlaced rectangular workbasket made of club-rush, reed, and wooden elements (Fig. 4). The outer surface of the container is decorated with characteristic geometric motifs, often referred to as Andean cross



Fig. 5. Weaving toolkit from San Francisco wrapped in an unadorned textile (photos by Jakub Wanot)

or *chakana* (Rowe 1997). Three motifs of this type, made from interlacing darker strips of reed, were observed along the longer sides of the rectangular box, and one along each shorter side. Inside the basket, a cream coloured slingshot decorated with red rhombus motifs was registered, possibly as a typical grave good not linked to textile production. The set also consists of two spools of thread – a red one, which did not have a core, and a brown thread wrapped around a corncob – two needles made of cactus spines, and a broad bean type of seed, which is quite unusual. It is worth noting, however, that at the San Francisco site we have observed several instances of using dried grains of legumes as spools around which cotton or camelid fibre threads were wrapped.

The third set – unfortunately devoid of archaeological context – was wrapped in undecorated, light brown warp-faced plain weave textile made of camelid fibre, forming a bundle of irregular shape and approximately 19.5 cm long. It consisted of five bundles of dyed, colouristically varied threads (green, yellow, red, and two shades of brown) as well as balls of camelid fibre yarn. The toolkit also included a wooden spindle (*phuska* or *qapu*) with a crudely made, undecorated, utilitarian biconical spindle whorl (*piruro*), made of wood, and a relatively long wooden needle with a drilled hole. Inside the bundle we can also observe the remains of red dye and botanical residues (Fig. 5).

The fourth weaving bundle, also lacking its context, is a set of two spindles – both tied with a red thread – two ceramic spindle whorls as well as a leather thimble, wrapped in a reed mat. The reed elements of the mat were combined with a straight stitch of light and dark brown threads from camelid fibre; a string – with a loop at its end – was used to tie the mat (Fig. 6). On the first, much more massive (approx. 25.5 cm long) wooden spindle, a relatively heavy, clay, truncated conical spindle whorl with precisely-modelled, omnidirectional decorative strips was placed. On the thinner drop spindle (approx. 20.5 cm long) – made of a cactus needle – there was a precisely made, flat and light discoid spindle whorl, made of fine-grained kaolin clay. It was decorated with a carefully made incised ornamentation in the form of omnidirectional strips, forming a circle motif, which was divided into eight parts by perpendicular lines. The spindle whorl was also painted with gold and red dye. The thimble was made of a thin strip of camelid leather, whose shorter edges were rolled outwards and sewn together with a thick red thread. At the point of sewing, pro-

truding pieces of leather were carefully sewn around by many layers of red cotton threads. A fragment of material created in this way was also decorated with two embroidered white and black circular motifs forming shapes resembling eyes.

The fifth set, devoid of archaeological context, was also wrapped in a reed mat, and had the most elaborate and diverse equipment. The reed elements of the mat were combined with a straight and herringbone stitch of light and dark brown threads made from camelid fibre; a brown Z-ply string made of camelid fibre was used to tie the mat. This set of weaving tools consisted, among other things, of a precisely crafted bone weaving comb/fork (*carda*) with 6 short teeth, approx. 9.5 cm long. This was used to tamp the weft and warp threads in rows (Fig. 7). The weaving and spinning toolkit also contains two spools of creamy and red thread wrapped without a core, as well as a leather thimble, made of a thin strip of camelid leather, whose shorter edges were rolled outwards and sewn around with a thick red thread. The set also consisted of two spindles with spindle whorls, analogous to the two spindles placed in the previously described toolset. A heavy, ceramic, discoid spindle whorl – precisely modelled, but without any ornament – was placed on the more massive wooden spindle (approx. 24 cm long), wrapped with a red thread. A thinner drop spindle (approx. 23 cm long) was made of a cactus needle. On top of it there was an intricately crafted, flat and lightweight discoid spindle whorl, made of fine-grained kaolin clay. It has circumferential, precisely engraved stripes as well as red and gold painted ornament (Fig. 8).

In the case of the burials from the San Francisco site, weaving tools were not always placed in distinctive sets. In one funerary bundle (Burial 73) two weaving tools were observed just stuck into the outer layers of the shrouds forming the *fardo funerario* (cf. Fig. 2). The first tool is a massive wooden spindle (approx. 29 cm long) wrapped around with a red thread. On top of it there was a heavy, ceramic truncated discoid spindle whorl – precisely modelled, but without any ornament. The other tool is a thin wooden selecting rod (*jaynu*), approx. 16.5 cm long, decorated with black and red painted geometrical ornament, usually used to flip the thread during weaving and to group threads of a specific colour to create colourful ornamental motifs (Fig. 9).

Arrangements concerning the chronological position of the analyzed weaving and spinning toolkits are confirmed by radiocarbon dating of three burials



Fig. 6. Weaving toolkit from San Francisco with two spindles and leather thimble wrapped in a reed mat (photos by Józef Szykulski and Jakub Wanot)



Fig. 7. Multi-element weaving toolset without an archaeological context from the San Francisco site (photos by Jakub Wanot)

from the San Francisco cemetery performed in the Poznań Radiocarbon Laboratory in Poland (Tab. 1). The dating of two pieces of camelid fibre from Burials 24 and 41 yielded the result of 410 ± 30 BP and 360 ± 30 BP. The dating of the third sample, collected from the internal layer of cotton constituting a funerary bundle from Burial 38, yielded the result of 375 ± 30 BP. The chronological ranges obtained after calibration with OxCal v4.2.3 (Bronk Ramsey 2013) using the SHCal13 (Hogg *et al.* 2013) and the IntCal13 (Reimer *et al.* 2013) radiocarbon calibration curves prompt the conclusion that the San Francisco cemetery in the Yauca Valley functioned mainly during the Late Horizon (1438-1532 AD) and at the beginning of the Colonial period (Wanot 2021, 355-357). It is worth emphasizing, however, that taking for granted the ^{14}C dating of raw materials used for textile produc-

tion within the Peruvian coast is relatively risky and should be confirmed by additional radiocarbon dating (*cf.* Ancapichún *et al.* 2022; Ziolkowski *et al.* 2022; Arkush *et al.* 2025; Sobczyk *et al.* 2025).

Quite importantly, all ceramic wares registered at the site should be described as the Late Acarí pottery style (Wanot 2019, 292-293; 2021, 367). The examined cultural contexts from the San Francisco site lack any pottery in forms inseparably connected with the Inca rule, e.g. *aríbalos*, *keros* as well as characteristic plates with domed bottoms (Bray 2003, 13; Valdez *et al.* 2014, 238). It is also striking that the cemetery did not yield the funeral bundles formed in the way typical of the Incas, especially those fastened with metal pins *tupus* (Murra 1962, 719; Rowe 1997, 22). This may prove that, apart from establishing administrative centres like Tambo Viejo (Acarí Valley) or

Tab. 1. Results of calibration of ^{14}C dates from the San Francisco cemetery with OxCal v4.2.3 software (compiled by Poznan Radiocarbon Laboratory)

Sample laboratory no.	Burial no.	Obtained ^{14}C age	Calibrated age of the sample	
			IntCal13 (Reimer <i>et al.</i> 2013)	SHCal13 (Hogg <i>et al.</i> 2013)
Poz-118366	24	410 $\pm$ 30 BP	<u>Probability 68.2%</u> 1441–1486 cal AD (68.2%) <u>Probability 95.4%</u> 1430–1522 cal AD (82.8%) 1578–1583 cal AD (0.5%) 1591–1620 cal AD (12.1%)	<u>Probability 68.2%</u> 1458–1504 cal AD (45.4%) 1590–1616 cal AD (22.8%) <u>Probability 95.4%</u> 1451–1517 cal AD (52.8%) 1539–1626 cal AD (42.6%)
Poz-118367	41	360 $\pm$ 30 BP	<u>Probability 68.2%</u> 1466–1522 cal AD (37.4%) 1575–1625 cal AD (30.8%) <u>Probability 95.4%</u> 1450–1530 cal AD (47.7%) 1540–1635 cal AD (47.7%)	<u>Probability 68.2%</u> 1504–1590 cal AD (60.2%) 1616–1627 cal AD (8.0%) <u>Probability 95.4%</u> 1482–1642 cal AD (95.4%)
Poz-118368	38	375 $\pm$ 30 BP	<u>Probability 68.2%</u> 1453–1516 cal AD (51.3%) 1597–1618 cal AD (16.9%) <u>Probability 95.4%</u> 1446–1526 cal AD (58.2%) 1556–1633 cal AD (37.2%)	<u>Probability 68.2%</u> 1496–1516 cal AD (13.1%) 1541–1625 cal AD (55.1%) <u>Probability 95.4%</u> 1464–1632 cal AD (95.4%)

Tambo de Jaqui (Yauca Valley), as well as production centres such as Quebrada de la Vaca (Chala Valley), in the areas that had not previously been subject to centralized administration, the influence of the Tawantinsuyu empire on the local communities from the Caraveli Province was limited or even ephemeral (Menzel 1959, 128; Katterman 2007; Valdez 2018, 10–11; 2022; Valdez *et al.* 2020, 1571; Valdez, Bettcher 2023).

3. DISCUSSION

At the examined sepulchral site weaving toolkits were placed only in the graves of adults. So far, however, it has not been possible to determine the sex of the individuals buried with the spinning and weaving equipment. Therefore, it is currently impossible to verify the theses put forward by some authors, who claim that spinning with a drop or supported spindle should be considered as women's work, while men are supposed to have been engaged in spinning with a simple stick to produce strongly twisted yarn for plaiting into ropes and slingshots (Dransart 1993, 139; Arnold, Espejo 2015).

In the case of Burial 38, in addition to a sparsely equipped weaving toolset, the equipment included only one textile pouch filled with coca leaves and within Burial 40 the remains of the deceased were accompanied only by a decorated weaving workbasket. However, it is worth emphasizing that Burial 73, in addition to the perfectly preserved funerary bundle with the remains of an adult, included also two weaving implements, a wide textile belt (*chumpi*), a slingshot richly decorated with geometric patterns, five textile bags filled with coca leaves and lumps of mineral activator as well as two funerary bundles' adornments in the form of braided strings with fringes, which were tied to cactus needles (Wanot 2021).

Some scholars analysing Central Andean weaving workbaskets in the collections of many museums claim that those coastal toolsets appear to be fairly homogenous, standardized in form and to contain a consistent range and distribution of tools and materials (Dransart 1993, 135; Arnold *et al.* 2015; Price *et al.* 2015). According to the literature, three general types of weaving toolsets can be distinguished, including yarn-woven baskets (usually referred to as 'cross-stick pack baskets'), split reed baskets, and rectangular twill-woven workbaskets made of reed or rush fi-



Fig. 8. Microscopic photos of the decorated spindle whorl included in a weaving toolkit from San Francisco (photos by Jakub Wanot)



Fig. 9. Weaving tools attached to the external shroud of a funerary bundle from Burial 73 (photos by Jakub Wanot)

brous material plaited around wooden stiffeners (Bird 1943, 271-272; Dransart 1993; Price *et al.* 2015, 70).

The weaving toolkits from the San Francisco cemetery, despite their limited number, are definitely more diversified. Only one of the toolkits registered in the Yauca Valley could be described as a rectangular twill-woven workbasket and its form was similar to the analogical artefacts discovered by archaeologists at pre-Inca sites in the Andean valleys of Huarney (Prümers 1990, 35), Virú (Strong, Evans 1952), Chancay (Amano, Tsunoyama 1979, 196), Cañete (Marcus 1987, 78-99; 2024) and also in the Ancón

region (Reiss, Stübel 1887). Most of the mentioned objects are dated back to the Middle Horizon or Late Intermediate Period (Dransart 1992; 1993; Arnold *et al.* 2015). Radiocarbon dating and iconographic designs decorating the weaving workbasket from the San Francisco site – Andean cross or *chakana* motifs – may indicate its connection with the Late Horizon, yet discoveries of Inca weaving baskets (at least those of known provenance) are much rarer. Documented finds of this type come mainly from the Ica Valley (Menzel 1977, 14) and from the Pachacamac archaeological site (Uhle 1991 [1903], 96).

Andean weaving tools were kept in baskets as well as braided or woven bags, depending on the region, which reflects the relative degree of weavers' mobility during their daily activities. On the coast and in the coastal valleys weaving implements tended to be kept in baskets or bags made from plant fibres, while in the highlands woven bags or carrying cloths (*awayus*) tended to be used for this purpose (Arnold, Espejo 2015, 108-111; Arnold *et al.* 2015, 16). In the case of the weaving toolsets from the San Francisco site, the implements were stored both in baskets (characteristic of the coast) and in woven materials (typical of the mountainous zone); toolkits wrapped in a single reed mat were also recorded, which is a method of storage that has not yet been described in the literature. It is quite possible that the diversity of the analysed artefacts reflects the complex social structure of the Yauca Valley population in the Late Horizon, or rather the different ethnic/geographic origins of the individuals buried within the San Francisco cemetery.

Weaving workbaskets from the Yauca Valley are very diverse in terms of their form, but their content as well as the precision of making and decorating its individual elements are even more so. It is worth emphasizing, however, that the equipment of the weaving toolkits from San Francisco is relatively modest, especially when compared to the extremely rich workbaskets collected in the Pitt Rivers Museum in Oxford, which could contain several hundred decorated weaving implements (King 1965, 82-83; Dransart 1992; 1993, 135-136; Arnold *et al.* 2015, 98). It is also worth noting that the elements like spoons, shells, and small gourd, wooden, or ceramic vessels, which may have been used for supporting the spindle during spinning – commonly found in Andean sets analysed by other researchers – were not observed in the toolsets from the Yauca Valley (Dransart 1993, 136).

It is generally impossible to determine the cultural affiliation of these artefacts exclusively on the basis of the weaving toolsets themselves (and their contents). However, the analysis of the remaining cultural materials from the sepulchral contexts of the San Francisco site allows identifying those weavers as the representatives of the Acari culture (Wanot 2021). The forms and decorations of the analysed weaving tools are so non-diagnostic that it is difficult to compare them with other artefacts of this type from ancient Peru. Also the applied colours – especially red and yellow (or gold) colours combination – were used by different ethnic groups in the late Pre-Columbian times in the Central

Andes (Dransart 1993, 136). It is just worth noting that painted geometrical ornaments on the selecting rod (*jaynu*) from Burial 73 from the San Francisco cemetery resemble the decorations of weaving tools registered at the Cerro Azul archaeological site in the Cañete Valley (Marcus 2016, 9-16).

4. CONCLUSIONS

The important role of weaving for the representatives of the Acari culture is confirmed not only by the discovered weaving tool sets, consisting of many precisely made and richly decorated elements, but also by the excellent quality of textile specimens: multicoloured belts, tunics, and pouches (*chuspas*) filled with coca leaves and lumps of mineral activator, in multiple shapes and colours, made of cotton or camelids' fibre. Various variants of multicoloured slingshots also draw attention – they were part of many burial contexts from the San Francisco cemetery – both those of children and adults.

We can state that the diverse weaving toolsets from the San Francisco cemetery were registered in adult burials, both in relatively poorly equipped funerary contexts as well as in one of the richest graves of a member of the elite (Wanot 2021, 346). Therefore, we cannot conclude that in all cases the weaving workbaskets were accompanied by relatively rich and varied grave goods, testifying to the high social/economic status of the deceased weavers. So far, the analyses of the Acari culture burials from the San Francisco site do not confirm the high socio-economic status enjoyed by weavers. It is also worth emphasizing that the three remaining weaving toolkits – with the most diverse and best-made implements – unfortunately lack an archaeological context. Based on the currently available information, it is difficult to draw far-reaching conclusions regarding the social position or economic status of the weavers of the Acari culture.

Other perspectives on the nature of weaving toolsets and their contents should also be adopted in the light of their role as grave goods. Their presence in funerary contexts suggests that these artefacts may be invested with added social, symbolic, or personal significance that transcends purely utilitarian functions. The decision to include workbaskets as burial offerings must have been in part a response to the role and status of the deceased individual, which does not nec-

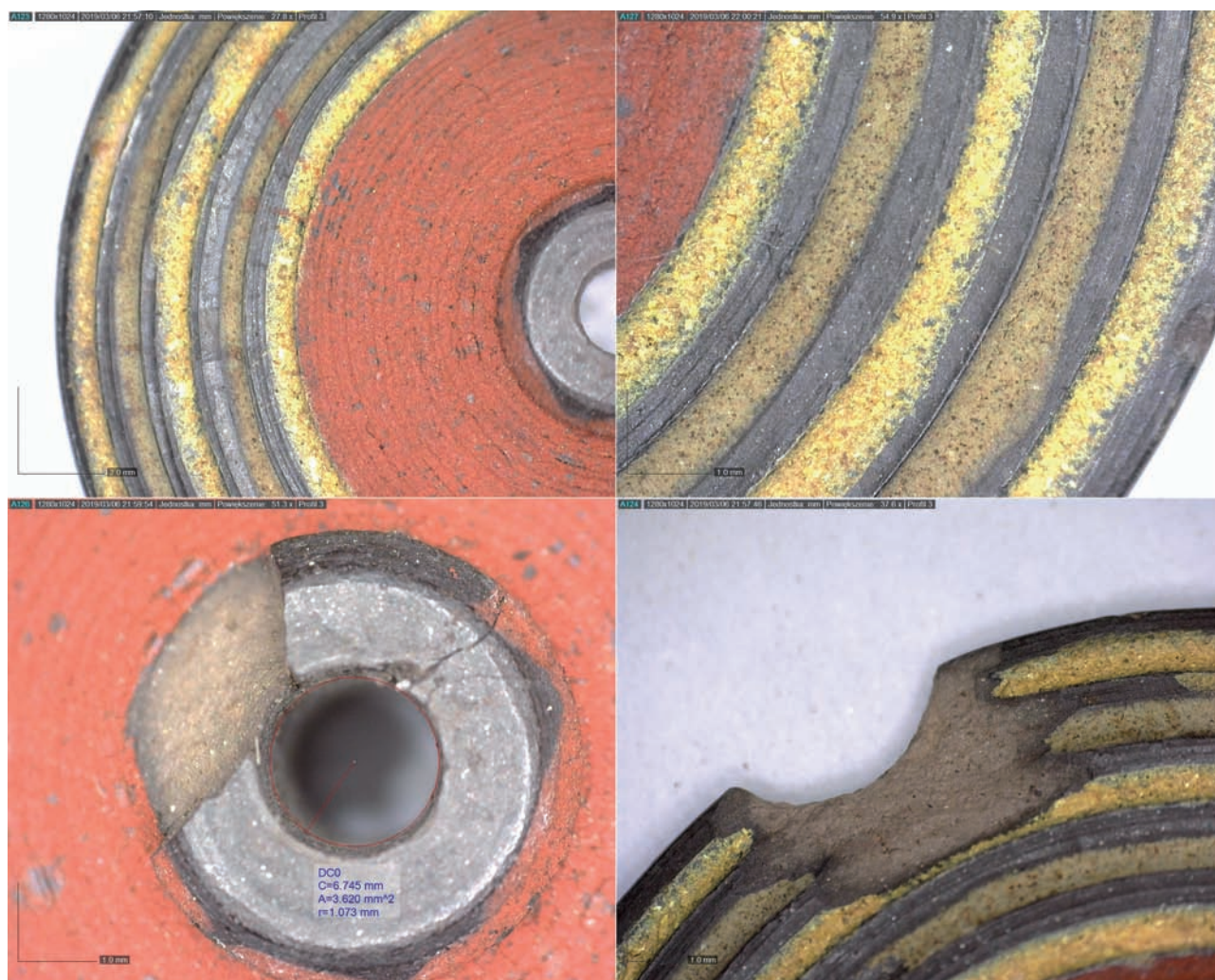


Fig. 10. Decorated bone weaving comb and combs with reed teeth for brushing out wool from the San Francisco cemetery (photos by Jakub Wanot)

essarily imply that he or she was invariably involved in textile production when alive (Young-Sánchez 1994; Price *et al.* 2015, 81).

The analysis of toolkits from the San Francisco site provided clear traseological evidence of use, indicating that the workbaskets served practical utilitarian functions and were not created especially and specifically for the purpose of burial. It seems reasonable to assume that the majority of them were indeed the personal possessions of the deceased. It is quite possible that the workbaskets were too intimately associated with the deceased to be kept and reused by the living and were thus chosen to accompany the individual into burial (Price *et al.* 2015, 82).

While the Acarí culture's weaving and spinning tools were certainly fully functional, their role was not limited to the manufacture of fabrics. Several tools

from the San Francisco site – selecting rods, spindle whorls, spindles, thimbles, and weaving combs – were decorated with painted or engraved geometric designs, which transformed them into “art-tools”, thus emphasizing their functional and aesthetic aspects in equal measure (Fig. 10; Graham 1992; Stone-Miller 2002, 146; 2012). It seems quite possible that the form and colour of the decorations was a method of marking to which particular manufacturer or weaving workshop a given tool belonged, while a specific combination of dyes enabled the owner to identify his or her personal belongings in a workplace. However, in the case of archaeological material from the Yauca Valley the limited amount of comparative material prevents any sensible discussion of the “barcoding” of spindles and spindle whorls, which has been observed at Cerro Azul in the Cañete Valley (Marcus 2016; 2024).

It is worth emphasizing, however, that apart from brief rescue excavations conducted in the San Francisco cemetery, no professional archaeological investigations have ever been carried out in the Yauca Valley. Archaeological field surveys along the relatively difficult-to-reach left bank of this river, carried out in the first half of 2024, resulted in registering numerous – partially looted – cemetery sites, on the surface of which various textiles, pottery fragments as well

as intact funerary bundles of the Acari culture were observed. Undoubtedly, only long-term and interdisciplinary archaeological research carried out in the Yauca Valley catchment area would enable reconstructing the complex cultural processes taking place in this area in the past, explaining the role played by the regional weaving in the Pre-Columbian period as well as identifying its technological aspects and importance.

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CRedit authorship contribution statement:

Jakub Wanot: conceptualization, data curation, formal analysis, investigation, methodology, project administration, supervision, validation, visualization, writing – original draft, writing – review and editing (total share 50%).

Józef Szykowski: funding acquisition, investigation, methodology, project administration, resources, supervision, writing – original draft (total share 20%).

Luis Héctor Díaz Rodríguez: investigation, software, validation, writing – review and editing (total share 10%).

Paulina Kaczyńska: validation, visualization, writing – review and editing (total share 10%).

Martyna Wróbel: validation, visualization, writing – review and editing (total share 10%).

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