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Highland Complementary-Warp Weaving and the Lima Style in the Central Coast of Peru, ca. 200-650 C.E.

Sophie Desrosiers

For people interested by ancient textiles, Peru represents an exceptional area with an amazing quantity of archaeological textiles that have been preserved. The combined efforts of many scholars have today lead to the understanding of many aspects of the history of textiles imbedded in the history of local cultures. Nevertheless, in the case of the Central Andes we face a problem that is common to other regions as well; while we understand aspects of the textile tradition, many pieces of the puzzle are missing. This is because archaeological textiles have primarily been preserved thanks to specific conditions – a dry desert along the coast - so that the vast highlands and the tropical lowlands on the eastern slope of the Andes, in contrast, have comparatively few local textile finds.

Among the methods used to understand what kind of textiles were made in these lesser known regions, the identification of highland pieces that have been found within coastal archaeological contexts has been a powerful tool. This is particularly true for the far south coast thanks to the discovery, there, of easily identifiable highland pieces, in particular from Tiahuanaco communities.¹ Other coastal areas have also offered interesting opportunities to identify highland material in particular during the three cultural periods or horizons when Chavin, Huari, and Inca influences have been strong. But highland textile productions from the intermediate period are not so well understood nor are those not directly related to the major Horizon styles. Exceptionally, in this context, some Recuay tapestry tunics have been recognized thanks to their designs, which are comparable with those appearing on ceramics.² To a certain extent, they represent the visible part of the iceberg.

In the case of those where design does not enable us to identify highland associations, several methods can be used. One is to identify possible intrusive pieces bearing uncommon features when compared with other pieces found in the same context. Another method is to establish a chronology of some highland features entering later on in the definition of a coastal style. And a third one consists of identifying such visually obvious influences of highland textiles on coastal art forms of other media or textile expressions, especially in their designs and even in their texture, that it becomes possible to reconstruct their probable textile models. This is not an easy task and, in the absence of highland artifacts bearing similar characteristics, it is difficult to identify easily the highland cultural connections of the preserved pieces. But this is a first important step.³

The main direction of my research deals with weaving processes and the ideas that contribute to their creation, especially when a design is created while weaving. Processes and ideas are embedded in many textiles, but they become understandable only after learning how to look at them. This is why, many years ago, I wanted to learn how to weave in the Bolivian highlands: as I felt it was an important way to understand pre-Columbian Andean weaving using as much as possible the internal grammar and logic from within the culture, rather than a western one.

¹ See session 6C on « Textiles from the Southern Andes : Tiwanaku and Beyond », with papers from Ann Peters, Elizabeth Plunger and Paul Goldstein, Sarah Baitzel, Carolina Agüero and Mauricio Uribe, Nicola Sharratt. TSA 2014 Symposium *New Directions*, Sept 10-14, 2014 in Los Angeles.

² Huari, Tiahuanaco, Inca and even some Recuay tapestry tunics are good examples of easily identified pieces (see for instance Oakland and Fernández 2000).

³ This is what the five papers in session 5C on “Andean Archaeological Textiles & Coast-Highland Interactions: New Methods to Reconstruct the Past” have examined from the perspective of the south and central coast at three different periods of time between the Early Horizon and the beginning of the Late Intermediate Period, ca. 850 B.C.E. – 1100 C.E. with papers from Jeffrey C. Splitstoser, Patricia Landa C., Carmen Thays D., Ann P. Rowe and myself.

For this paper, after explaining the most important characteristics of contemporary highland complementary-warp weaving, I will present the earliest examples woven with the same logic that I have identified so far on the south coast (Early Horizon 9-10), and how these pieces and others, which I believe were imported from the highland, inspired coastal weavers and embroiderers. This will provide the groundwork for an examination of specific design motifs, especially in the case of the interlocking snake designs and other geometrical motifs repeated constantly in Lima art that demonstrate this highland/coastal relationship on the Central Coast of Peru during the Early Intermediate Period.

Contemporary highland complementary-warp weaving, and the textures and geometric designs produced by counting warp threads

While I was learning warp-faced weaving with Jalq'a weavers in the mountains near Sucre, Bolivia, in 1979 and 1983, I became aware of two principles that are essential to the making of textiles:

***The first principle** - the complementarity principle - is based on pairs of threads warped together on the loom. They form conceptual pairs from which only one thread must be picked for each weft so that symmetrical floats appear on both faces. This method produces symmetrical designs with opposite colors on the two faces (fig.1).⁴ This is one expression among others of the reciprocity

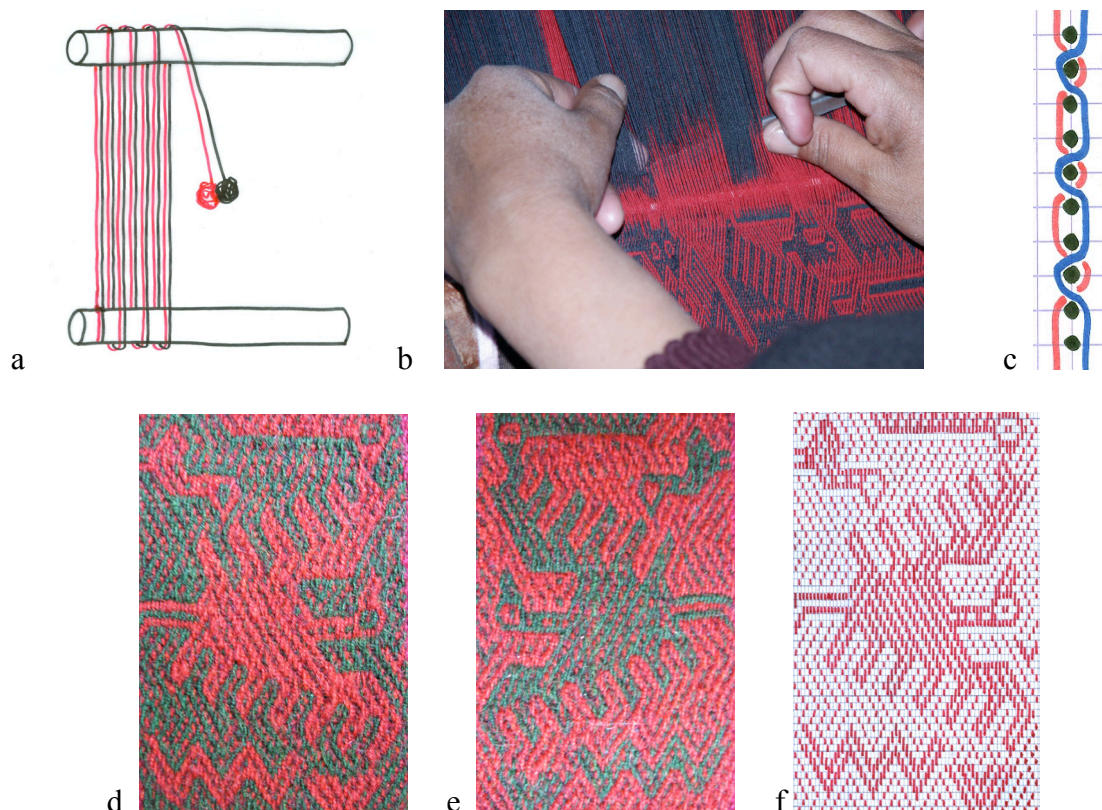


Fig.1 – a: warping complementary warps; b: a Jalq'a weaver counting the threads with an uneven count 2/1 (ASUR, 2006); c: profile showing the symmetrical floats of complementary warps; d-e: two faces of the same woven band with symmetrical designs, opposite colors, and the same texture of fine oblique parallel lines; f: bindings and floats of the red warps (red) and black warps (white) of design 'd' on graph paper.

⁴ Unless otherwise specified, photos, designs, and reconstructions are from the author and © Desrosiers.

principle that animates many Andean political, economic, social and religious activities - a young girl learning this method of weaving intuitively learns at the same time how many aspects of her community life are structured.⁵

***The second principle** is related to mathematics and the counts chosen by the weavers to pick up or select the threads in making a *pallay* or warp-faced woven design. On figure 1b, the weaver picks 2red-and-1black-yarns for the red areas and 2black-and-1red-yarns for the black areas. This count is named “uneven count 2/1” by the weavers and it produces “2-span floats in diagonal alignment”.⁶ It is the most characteristic count of Jalq’a weaving with a complementary-warp structure. The texture of the textile that is to say its surface physical appearance shows series of fine oblique parallel lines in Z or S direction (as in any twill), in both red and black areas. The 2/1 count also influences the formation of the design by limiting its boundaries to the same Z or S oblique lines – about 30° from the vertical⁷ -, and to horizontal lines (fig.1d-f). In addition, because of these technical features, it fosters the use of small hexagons and diamonds for construction of designs of animal heads or eyes, for example, and a specific symmetrical repetitive unit for bird feathers.

Besides the “uneven count 2/1”, some Jalq’a weavers produce complementary-warp structures with another count called “by pairs 2/2” that results in a texture characterized by markers or eyes (*ñawi* in Quechua) regularly distributed on the surface regardless of its color (fig.2a). The same oblique and horizontal lines form the design shapes, and the same hexagons and diamonds are employed for small details, but bird feathers are less fluidly represented.



Fig.2 – a : design woven with complementary warps and a count « by pairs 2/2 » ; b : design in warp-faced double-cloth ; c : grid paper (Cason and Cahlander 1976); d-f, different design styles : contrasted-color; linear, semi-linear. Textiles a-e were woven in the Jalq’a area, near Sucre, Bolivia ; f comes from the Cotabambas area, Apurímac, Peru.

⁵ For examples of complementarity logic, see for instance Desrosiers 1997 and 2012ab; Franquemont 2004; Franquemont *et al.* 1992; Stobart, 2008.

⁶ For the weavers term, see Arnold and Espejo, 2012: 207-209; for the descriptive term: Desrosiers and Pulini 1992 and Rowe 1977: 76.

⁷ This 30° angle is due to the relative density of warp and weft threads.

Jalq'a weavers also use the complementary principle to weave warp-faced double-cloth whose texture is regular and flat because it has no floats, therefore no specific count for the texture (fig.2b).⁸ Each binding unit of one-warp-one-weft can be considered like a pixel of a computer screen; the shape of the design is only limited by the number of pixel-units available. It allows Jalq'a weavers to imitate more traditional designs, for instance, here, the elegant feathers of the bird on figure 1d-e.

In 1976, Marjorie Cason and Adele Cahlander have explained how a specific grid paper with alternate pairs of pebbles (as they called the markers) could help represent designs woven with a count by pairs 2/2 (fig.2c). Using this grid paper makes it easier to graphically show the definition of the three styles of designs that may be obtained by the various weavers counting by pairs 2/2 in highland Bolivia and Peru (fig.2d-f): an **alternate-color style** opposing plain areas with markers of alternating colors; a **linear style** when all the markers are joined by lines. The design is therefore built with series of parallel lines: oblique and horizontal. And a **semi-linear style** when the lines link some of the markers with horizontal and oblique segments, the other markers being distributed at regular distance between them. Recurring details produced by this type of design construction consist of serrated lines forming triangles or hexagons, both with dots inside of the shape. Now that these fundamental ideas have been presented, it is possible to search the past for the presence of these different types of highland weaving processes, and to understand how to read (and therefore interpret) the archaeological textiles and the designs produced with them.

Complementary-warp woven textiles found on the south coast (EH 9-10) and local imitations

Three woolen bands found at Ocucaje on the south coast (Ica valley) have been published in 1977 by Ann Rowe as the earliest complementary-warp woven textiles. They show an advanced state of the art by their diversity and complexity: from 2 to 4 warps of different colors, each in one of the three

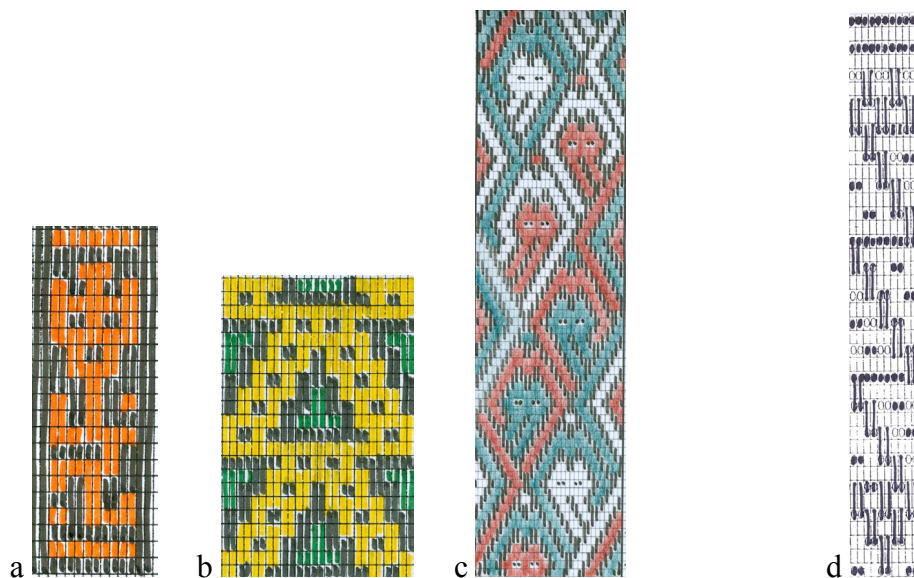


Fig.3 – abc : Designs from the Ocucaje bands (Textile Museum, Washington DC), alternate-color style with two warps (inv. 91.858) ; semi-linear style with three warps (inv. 91.880B) ; linear style with four warps (inv. 91.1060). d : Design of the bands inserted in the Paracas Cavernas tunic (MNAHP, Lima, inv. RT-20591 ; Medina 2014, cat. 17), alternate-color style with two warps. Only figure 3c, in linear style, shows smooth oblique lines; the others have stepped oblique lines or outlines (for more details about these variations, see Desrosiers 2013 : 493-494, fig. 11)

styles defined previously for a count by pairs 2/2: alternate-color style, semi-linear style and linear style (fig.3a-c). I have already explained elsewhere why I believe they are highland products

⁸ For more details, see Desrosiers 2012a.

imported on the south coast.⁹ To these Ocucaje examples can be added a recently published woolen tunic from a Paracas Cavernas context (Cerro Colorado, Paracas Peninsula) bearing complementary-warp woven bands in the alternate-color style inserted into a striped warp-faced plain weave (fig.3d).¹⁰

These bands, among others that have not been preserved, had probably fascinated the coastal textile artists that subsequently reproduced their designs, using different methods: either in plain weave



Fig.4 – Linear style Paracas Necropolis embroideries (MNAAHP, Lima): a, border of turban 290-89, interlocking snakes; c, border of mantel 147-13, Oculate being with bird features; b and d, reconstructions of their possible models woven with 5 and 4 complementary warps and a count by pairs 2/2; d (in progress).

⁹ Desrosiers 2008.

¹⁰ Medina 2014 : 37, 103 cat. 17.

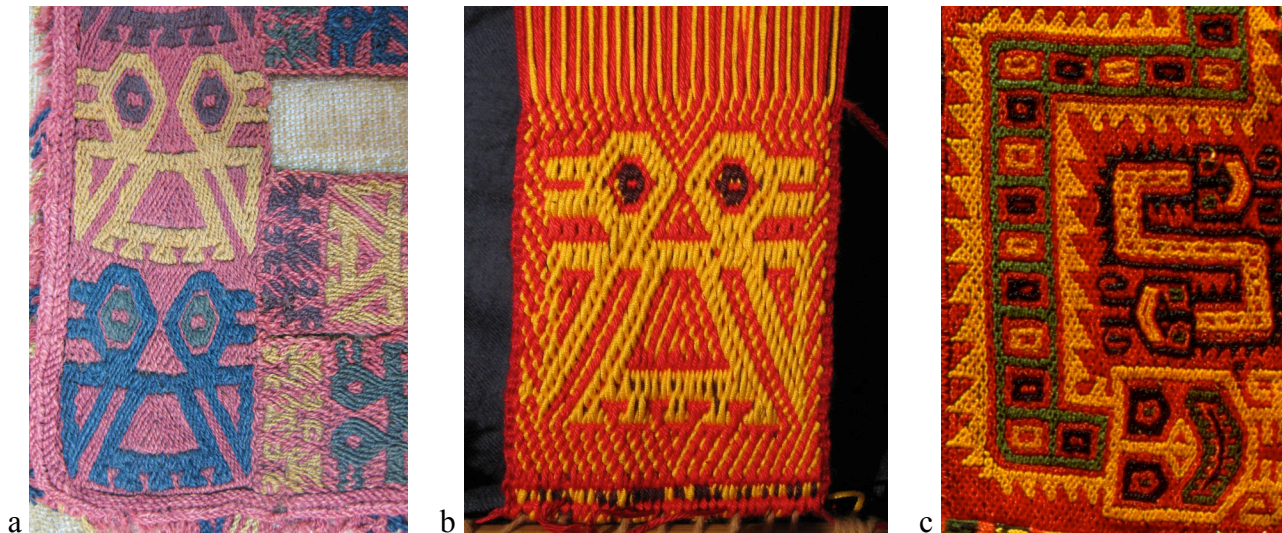


Fig.5 – Broad line style Paracas Necropolis embroideries (MNAAHP, Lima) : a, border of small mantel 260-62, 2-headed birds with a texture of series of oblique lines; b, reconstruction of its possible model woven with 3 complementary-warps and an uneven count 2/1; c, border 421-110 (© A. Paul), 2-headed snakes with a texture characterized by markers or eyes regularly distributed on the surface. Its model was probably woven with 4 complementary-warps and a count by pairs 2/2; The numerous vertical lines shaping the design show that a particular way to change colors was used then (Desrosiers 2010: Fig.8-III).

with discontinuous warps and wefts as shown from an opened tunic from Ocucaje (EH 9),¹¹ or in embroidery created mainly with stem-stitch and discovered in the Paracas Peninsula (EH 10-EIP 2). Among the three most important styles defined by Anne Paul for Paracas Necropolis embroideries – linear, broad lines, and block colors -, the first and some of the second one include pieces with geometric designs whose models can be reconstructed following various weaving counts and design styles (Fig.4, 5).¹²

In all these cases - where complementary-warp textiles have been effectively imported from the highland and it is possible to recognize their surface textures and design shapes and styles on other types of textiles or material objects -, by using this method it becomes possible to re-construct the potential products that had been imported and that served as their models. It can also help to evaluate the diversity of these original highland models, to understand the transformations that occurred during the process of imitation and re-creation by coastal weavers, and to identify a certain type of highland-coast cultural interconnections.

The situation is quite different when investigating what happened on the central coast during the Early Intermediate Period because the stylized figures that characterized the Lima style and that reflect highland influence have generally been found not in preserved examples of textiles, but rather in other media. This means we need to take our analysis one step further.

The central coast interlocking snake designs, and other geometric motifs: the use of design styles and warp-/weft-formats to distinguish regional textile traditions.

Stylized figures with triangular or forked heads and serrated bodies with striped backs, often called “interlocking snake designs” have been found repeatedly on artifacts attributed to phase 4 to 6 (or the

¹¹ Desrosiers 2008.

¹² Paul 1982 ; Desrosiers 2012a, 2013.



Fig.6 – Lima style interlocking snake designs painted on a ceramic bottle from Playa Grande (a: MNAHP C-18175) and on a mural at Cerro Trinidad, Chancay Valley (b: panel B, Bonavia 1985, fig. 26), carved on the Playa Grande sacred post (c: MNAHP; d: © Falcón), woven in tapestry on a fragment from Cerro Culebras (e: from Mogrovejo 1995, fig. 5), or with a complementary-weft structure in Playa Grande (f: from Harner 1979, fig. 18).



Fig. 7 - Complementary-warp woven designs (with 3 and 4 warps and a re-selection of colors according to the motifs) reconstructed from two ceramics from Playa Grande (fig.6a and MNAHP C-60934 (Falcón 2003)), and from Cerro Trinidad panel B (fig. 6c). Note that face A and C of the sacred post have designs very close to woven designs a and b.

middle period) of the Lima style of the central coast.¹³ They appear on ceramics and walls generally in three colors with black lines outlining white and red surfaces, and sometimes with a fourth orange color. They have also been carved in wood, and pyro-engraved on gourds, and in a limited way woven in tapestry and complementary-weft techniques (Fig. 6). Since Max Uhle's excavations in the Chancay valley in 1904, this type of design has been considered with few exceptions as "*undoubtedly a textile pattern*".¹⁴ With serrated lines and dots occupying the triangular shapes they form, I would argue that most of the examples clearly belong to the semi-linear style defined above. They could easily be modeled after a textile woven with three- or four-colored warps and a complementary-warp weaving process with a count by pairs 2/2 (Fig. 7). Some, showing only oblique and horizontal lines, point to the linear style.¹⁵ Nevertheless, as indicated in the first section, they call for the same weaving process.

Comparing figure 6f and 7a, it appears that very similar designs have been obtained with two structures oriented differently. For 7a, the design is figured by warp-floats forming horizontal and oblique lines, the later with a ca. 30° angle to the vertical (see note 7). In the case of 6f, the structure, design and oblique lines are similar to that of 7a, but turned 90° because it was woven with weft-floats, or weft-faced.¹⁶ Although there is no detail about the length and organization of these floats,¹⁷ it is difficult to imagine that both structures had been developed simultaneously, without reference to one another. One is derived after the other, but which one is the model, which the copy? And which one gave shape to the designs reproduced by the Lima artists? These two questions are important because, instead of an highland influence on the coast as presented so far as evident for the south coast, then for the central coast, it might be exactly the contrary, even if it contradicts a scheme accepted for later periods, overall since the Middle Horizon.¹⁸

In order to answer to this question, a chronological argument based only on the dating of the preserved pieces does not satisfy the issue as textile preservation is random, even on the coast at this period. The only example of complementary-weft weaving from the Late Paracas Period that I am aware of, so far, is a cotton plain weave textile with woolen weft-patterned bands on both extremities. It has been found in Cerrillos (south coast) and is contemporary with the examples from the same region woven warp-face (fig. 3).¹⁹ However, with their two wefts and small design of triangles, these Cerrillos bands are very simple by comparison with the Ocucaje ones that show a diversity and complexity indicating a long period of development of the technique.²⁰ To this observation that advocates an anteriority of complementary-warp weaving in the highland based on these examples, three other converging ones can be added.

¹³ For Lima chronology, see Patterson 1966; Goldhausen 2001; Lumbreras 2011.

¹⁴ Uhle 1926 : 299 ; see for instance Willey 1943 : 149. Escobedo and Goldhausen (1999: 11) list pieces with Lima iconography. See for instance Jijón y Caamaño; Wallace 1954; Harner 1979; Mogrovejo 1995; Fernández and Falcón 2006; Lumbreras 2011 (252-254, 261-262) for woven examples.

¹⁵ In his 2001 article (p. 235), Goldhausen described, with his own vocabulary, the linear style of some designs.

¹⁶ Sandra Harner (1979: 159 and fig. 17-18) describe the fragments as having two warps and a complementary-warp structure. However, my assessment of the mixing of fibers – camelid fibers (warps) and cotton (wefts) – and a supposed warp-selvage without a heading cord shows that she has misunderstood the piece: it is weft-faced with a cotton warp and camelid wefts.

¹⁷ The weave profile published in 1954 by Dwight Wallace shows that the weft-patterned weave border with three wefts that he analyzed is double-face because the segments of wefts that are not used momentarily on any face bind in plain weave inside, between the floats of the two other visible wefts (Wallace 1954: fig. 92). The piece published by Harner (1979: 159 and fig. 17-18) has two wefts and should not present unusual features.

¹⁸ See for instance Rowe 2014 and her presentation at TSA 2014 Symposium.

¹⁹ Splitstoser 2014 : fig. 2-4 ; Desrosiers 2013 : fig. 15.

²⁰ Desrosiers 2008.

The first observation is both technical and logical. Complementary-weft weaving is close to tapestry weaving as it means covering the warp threads with weft threads. At the same time it is a much more complicated process as the weaver must count the warp threads to produce weft floats of particular length and color and in a regular sequence across the width of the textile. Why then weave with complementary wefts when the same motif can be achieved more simply with a tapestry technique as indicated by figure 6e? Aesthetically, it might be done to obtain the specific texture with a strong relief produced by the weft-floats, and socially, it might be to demonstrate a capacity to create new textiles and to handle more complex counting principles.²¹ In any case, the idea of switching from tapestry weaving to complementary-weft weaving is difficult to conceive without a model coming from elsewhere.

I know two other cases of imitation of a complementary-warp weaving using the wefts as the active agent (and so far no opposite case). The first one, very modest, has been observed in 1979 in Bolivia on a man from the north Potosí, travelling across Jalq'a territory. His *chalina* (or scarf), woven on a treadle loom of European origin, included complementary-wefts bands reproducing the complementary-warp designs traditionally woven in his community.²² The second example – drawn from outside of the Andean world – has a paramount historical importance as it concerns the way figured silks woven with complementary warps in Han China (206 BCE-220 CE) have been copied in the west (of China) with complementary wefts. What was at first an imitation of luxurious exotic textiles gave rise, in Persia probably, to the creation of new structures – figured taquetés, then samits (or weft-faced compound tabby and twill) – and a new type of loom – a draw-loom – that are the ancestors of figured textiles weaving of the modern era.²³ Scholars today are in agreement and consider that this innovation came from the willingness to reproduce a warp-faced design in a region where looms, practical knowledge, and designs hinged on tapestry weaving, a weft-faced technique. Against this background, weavers would turn the textile they want to imitate 90 degrees. It is worth bearing in mind that in a similar context of opposition between regions accustomed to weaving warp-faced – as in the highlands – and weft-faced – along the Peruvian coast –, that the same process occurred, at least on the central and south coast. It has been almost concomitant with the Old World scenario, but in a much more reduced space and showing these contrasts in divisions of altitude more than in longitude. Could the opposite scenario have happened – of an influence of weft-faced on warp-faced weaving? In order to find the beginning of an answer, numerous complementary-weft woven examples would need to have been found on the coast where textiles have been much better preserved than in the highland. So far I have identified in the literature only four all cotton fragments found in Maranga (Rimac valley), and four others including cotton warps and camelid fibers wefts discovered in Playa Grande, near Ancón.²⁴

The second observation brings us back to the core issue of this article: what kind of model did the Lima artists follow? When looking at the various geometric designs represented on ceramics and other supports, I have been struck by the fact that a great majority of the designs, and all those I mapped out on graph paper, are oriented the same way – with a design limited by horizontal lines and oblique lines with an acute angle to the vertical – that is to say the orientation of a warp-

²¹ This is what happens with the Jalq'a (Desrosiers 2012a) and what can explain the extraordinary creativity that past and present Andean weavers show through almost infinite variations of woven structures.

²² Desrosiers 2013: 494 and fig. 13a.

²³ See for instance Kuhn 2012: 27-28.

²⁴ The first group has been published by Lumbreras 2011 (p. 252, 254, 261 with better photos than Jijón y Caamaño 1949: Lam. LXXII fig. 9ab and Lam. LXIV fig. 1), and by Wallace 1954: 137-138 (other pieces might have been found by Jijón y Caamaño, but his confusing descriptive terminology and dark illustrations make impossible their identification); the second group can be found in: Fernández and Falcón 2006: fig. 11-12, and Harner 1979: 159 and fig. 17-18. Some additional examples can be found in Carmen Thays's paper in these proceedings.

patterned textile,²⁵ as shown by the reconstructions on figure 7. Even the more complex designs such as the octopus and the smiling face, looked at in depth by Manuel Escobedo and Marco Goldhausen, follow the same orientation (fig. 8).²⁶ In the case of the Playa Grande sacred post (fig. 6cd), the design organized in narrow vertical bands makes me think of the belts woven nowadays in the Cotabambas regions (Apurimac, south highland) - perhaps the only ones woven today in Peru with a section with three complementary-warps and a semi-linear design²⁷. Some of them show geometric designs very close to those of the post (fig. 2f and 6d – band C). Such a chronological gap is not unrealistic; the same time span separates some Paracas Necrópolis embroideries and similar motifs woven by the Jalq'a.²⁸ And above all it is possible to compare many Lima style motifs with those appearing on complementary-warp woven textiles chronologically closer: small bags in camelid fibers found by Jijón y Caamaño in the oldest levels he excavated in the Huaca III of Maranga (dated Lima 6-8),²⁹ and other bags and textiles found on the central coast and attributed to the Middle Horizon or the beginning of the Late Intermediate Period.³⁰ Some have designs of beings with large hands full of fingers that bear many similarities with the octopus or the smiling face, or with the figure at the center of Cerro Culebras panel 4 (fig. 8a – right); others have interlocking snakes. Many were woven with camelid fibers of various natural colors: black café, brown, tan, white -, namely the colors obsessively used by the Lima artists.

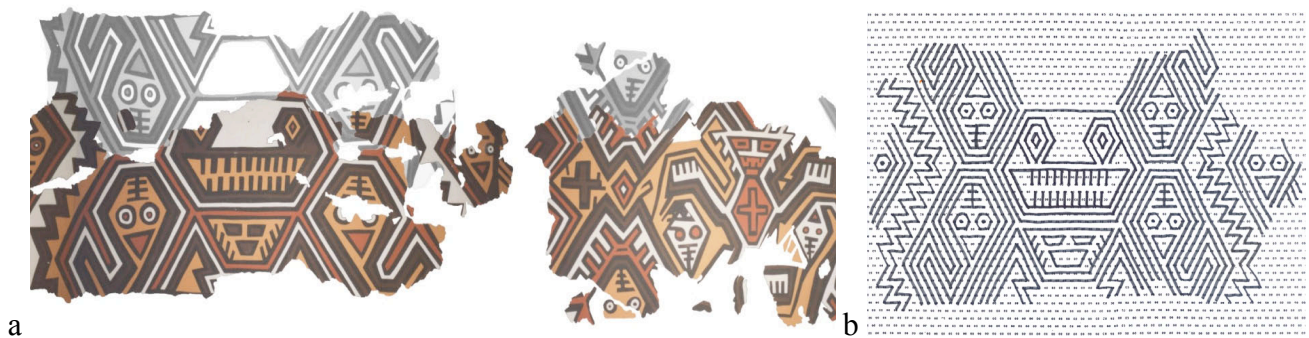


Fig.8 – a: Cerro Culebras mural panel 3 and 4 according to Paredes 1992 (© Paredes); b: panel 3 design with smiling face interpreted on grid paper.

The last observation is the simplest: the interlocking snake design existed already at the end of the Early Horizon or beginning of the Early Intermediate Period as shown by a small group of Paracas Necropolis embroideries whose example closest to the Lima style is the one reconstructed with complementary-warps on figure 4ab³¹. However this south coast example shows small differences that, besides the gap in time, indicate more probably a common highland origin than a direct relation with the central coast.

For these various reasons, it seems justified to think that the Lima iconography with a geometrical tendency has been directly influenced by complementary-warp woven textiles imported from the

²⁵ See the present article p. 3 and fig.2 à 6a-d. Few designs are oriented the other way: parts of Cerro Trinidad mural according to Uhle's drawing (Bonavia 1985: fig.25), and among the ceramics (Falcón 2000: 58, photo 3; Lumbreras 2011: 186C)

²⁶ Escobedo and Goldhausen 1999; Goldhausen 2001.

²⁷ Rowe 1977 : 83, fig. 103.

²⁸ Desrosiers 2012 : fig. 16ab.

²⁹ Jijón y Caamaño 1949: 407; Patterson 1966: 125; Lumbreras 2011: 87, 250-255; see Desrosiers 2013: fig.19.

³⁰ See for instance Desrosiers and Pulini 1992: 131-138; Ángeles 2008: fig.18-20, See also Rowe 2014.

³¹ Paul 1982: fig. 4-15; a similar design appears on a Lima style drum from Cerro Culebras (Lumbreras 2011: 96C)

highland, imports done through contacts with highland groups whose presence has been identified since the Early Intermediate Period in the upper Chillon valley.³²

In conclusion, there is still a lot to investigate in order to follow in space and time the textile interconnections between people from the central coast and from the highland, and to have a better picture on the circulation of motifs between various Peruvian regions during the Early Intermediate Period. The inter-regional relations have already given rise to several hypotheses starting from an interpretation of the iconography that does not take into account the technical conditions of the production of the designs.³³ Textiles move easily and designs and structures provoke imitations. Taking into consideration the style of the designs and the conditions of their creation will open new potential lines of fruitful research.³⁴ In the case of Lima-style art, this method allows us not only to confirm the textile origin of many motifs, but also to identify the type of structure with which they had been created and to propose reconstructions of their models. It also enable the establishment of distinctions of style and format between motifs that have been considered up until now as similar, and that has confused the issue. This could lead to a better understanding of local identities and of communication and influence networks. Finally, the two principles essential to the weaving of textiles in the highlands today were already in use more than two millennia ago and, if they left very little direct material evidence in archaeological records, their capacity to create powerful designs has had a great influence on art productions at different periods on both the south coast and the central coast of Peru.

Acknowledgements

With such a broad subject in limited pages, the list of people to thank is too long to fit in. But I don't forget the patience and support of the Jalq'a weavers, the help and assistance of many colleagues in museums in Peru and Bolivia, in the US and in Europe, the enthusiasm of the four colleagues who made the session a success and the warm atmosphere of TSA symposium in Los Angeles due to the effectiveness of TSA organization and the personal touch of its president Elena Phipps. I want to acknowledge the MNAHP, Lima, for the photograph permission, and my research center, the Centre de Recherches Historiques at the EHESS, Paris, for supporting my travel expenses to Los Angeles, along with the anonymous foundation supporting Latin American textile scholars for our attendance at the symposium. Part of the research concerning the Lima material and chronology has greatly benefited from a summer fellowship at Dumbarton Oaks, Washington D.C., in June and July 2014, and from an invitation at the Getty Research Institute, Los Angeles, in August 2014. Finally, I want to thank Gary Urton for his insisting question about the distinction between complementary-warp or –weft supremacy; I hope I have been convincing.

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³² Dillehay 1979; Goldhausen 2001 : 228.

³³ See for instance Patterson 1966: 92-97; Willey 1943:192-195; Makowski and Rucabado 2000.

³⁴ Desrosiers 1987, 2008 and 2013 (the last article develops the thesis presented at the International Conference « Textiles, *Techné*, and Power in the Andes » at Birkbeck, University of London, March 2012); Arnold *et al.* 2014.

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