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'Tornesol': a Colonial synthesis of European and Andean textile traditions

Elena Phipps

Of all the beautiful, colored and patterned textiles produced in the Andes, one group of plain, black cloth stands out. (Fig.1) Its plain appearance is deceptive, however, and masks the virtuosity of the craftsmanship of the spinner, dyer and weaver. Generally constructed of native camelid fiber warp and imported silk weft, in a simple warp-faced weave, these fabrics, (Fig.2) during the early Colonial period, became an important component in high status native dress and exemplify the integration and adaptation of a European tradition within the Andean weaving vocabulary. Its proliferation throughout the Southern highlands would seemingly indicate a pre-Colonial origin, however, I would propose that, in fact, it is a Colonial construct in a conflagrance of cultural traditions not seen prior to the arrival of the Spanish. Referred to as *'tornesol'* ("turns to the sun") in colonial documents this fabric constituted some of the finest and most subtle textiles produced by highland Andean weavers¹.

In my own travels around Peru and Bolivia over the last 20 years, I have come across many examples of this fine black cloth, which has always struck my imagination, for its silk-like appearance. Tightly spun and densely woven, these shimmering textiles seemed old, possibly 17th or 18th century—primarily based on their appearance and hand, the way they felt, and aged. The extreme fineness of the yarns, the extent of over-twisting and the luster all speak of a level of craftsmanship seldom encountered in textiles produced long after the conquest. Although, at the same time, they also, in some ways, did not appear similar to textiles produced before the conquest, either. They seemed to have come from a different cultural tradition, reflecting a different aesthetic, embodying a cultural contradiction.

Why weave a predominantly warp faced fabric with a brightly colored weft which would be virtually hidden by the black warps? Looking at these textiles folded up on shelves of the various antique stores and textile merchants' shops and in museum collections—because, for the most part, these textiles had already left their original owners—one cannot see their true beauty². This comes from seeing the textile in motion, in the three-dimensionality of the garment, as it flows and folds over the shoulders of a manta. The visual effect of the fabric—its texture and sheen—can best be appreciated when worn by another, observed at a distance, in the sunlight.

What I would like to present here will be aspects of my research on Colonial Andean textile traditions, formulating a discussion as to why this particular type of fabric was made in the Andes, its origins and implications. This is a work in progress, which stems from observations both in the field, as well as from detailed examination of the textiles themselves. For those of us who study Andean culture and history, we often want to glean preserved elements of pre-Colonial cultural continuity from our research. An often-unrecognized component of Andean history, however, is the creative absorption of European influences, which in turn, transformed into integral elements of Colonial

¹ Tornesol as a term is found in the Aymara dictionary of Ludovico Bertonio *Vocabulario de la lengua Aymara* [1612] Sucre, 1989.

² Thanks to Nobuko Kajitani for showing me several pieces in her collection, including the beautiful gathered dress shown in Fig.1.

Andean identity. The presence of these ‘tornasol’ fabrics, prolific throughout the Southern Andes, is a striking example of this process.

Tornasol

In Spain, the term ‘tornasol’ is found beginning in the 14th century, according to a scholar of Spanish Medieval textile terminology Martinez Melendez, with references from an Aragon inventory of 1374, to mantles and headcloths made of ‘taffatan of tornasol’³. This fabric continued to be used in Spain as the luxury fabric of nobility, attested to by its depiction in the portraits by Velazques and Zurbaran of the mid-17th century. (Fig.3).

Earlier, we can find visual references to tornasol in Netherlandish tapestries of the 16th century depicting elite personages wearing garments of the fabric. In France, the silk-weaving capitol of Europe, ‘gorge de pigeon’⁴ was produced from at least as early as the 17th and 18th century, evidenced by the presence of samplebooks from 1726, in Nimes—a silk textile producing region of southern France, with examples of a variety of colors⁵.

In South America, from Bolivia, Padre Ludovico Bertonio’s Aymara dictionary of 1612 has a term *Huateca isi*⁶. which he defines as “Tornasol, silk that when turned in one way appears as one color, and in another way, as another color.”⁷ The fact that the term is already in the Aymara vocabulary, with variants, by the early 17th century is notable.

Today, in the Andes, this type of cloth is called *pecho* (or *pechuga*) *de paloma* (doves breast). Dovesbreast is the shimmering effect Andean weavers achieve by using a dark colored warp --generally black (or sometimes green or blue) -- and a bright, contrasting colored weft, in a warp-faced or highly warp-predominant fabric. The dark warp colors predominate, but as the fabric is folded or moved, the light colored hidden weft catches the light, and gives a ‘glimmering’ effect. Most commonly, this was done with a black camelid warp and pink silk weft. The use of silk adds to the suppleness of the fabric, and the bright cochineal color can be seen in brilliant contrast. The weft yarns can also be a light blue, green or yellow. They can also be made of camelid hair, instead of silk. The dense, tightly overspun camelid warp often has a sheen of its own. In

³ Martinez Melendez, Carmen *Los Nombres de Tejidos en Castellano Medieval* Universidad de Granada 1989, p. 516 found the term tornasol in two Spanish texts, one from 1348, and in 1435. It had been used both, for ‘manto and sayo’ (mantle and skirt) as well as from an inventory in 1374, as a lining of a headcloth, described as a ‘taffetan de tornasol’ (pg. 517). (I learned of this interesting book from a citation in C. Julien, “History and Art in Translation: the Paños and Other Objects Collected by Francisco de Toledo” *Colonial Latin American Review*, vol. 8, no. 1, June 1999, pp. 61-89.

⁴ *Gorge de pigeon* is defined in an 18th c. French textile dictionary. (Thanks to Sophie Desrosier for this reference)

⁵ Sample books belongs to the Musee du Vieux Nimes: I came across them by chance, during a visit to the storerooms in 1988. Future examination of other samplebook collections in Europe could yield many other interesting and dated examples.

⁶ Bertonio *Vocabulario* p. 453. *Tornesol ropa or seda q tiene visos: Huateca ifi, Paya famiri ifi.* p. 154 ;*Huateca isi.* Tornasol, seda que buelta de una manera parecese e una color, y de otra manera de otra color; p. 307 Samiri, pospuesto a Paya. Paya famiri ili. Ropa de dos colores, segun esta buelta a la luz. Puraparo hakhsuri ifi. Idem Tornasol.

⁷ Of course for Bertonio, the fabric is silk—whether this refers to a fabric of European origin or not, we can only assume.

combination with the hidden pink weft, a particular combination of black and an iridescent color effect results.

Black garments in the Andes

Plain black garments—worn by men and women—became the staple of highland Andean garments during the Colonial period. The significance of black fabric, and the wearing of black by native populations during the Colonial period was interpreted by the Spanish administrators, in part, as a form of silent protest—a sign of mourning for the lost Inca times.⁸ In a letter from the Viceroy to the Minister of the Indes, in 1781, he recommended a prohibition against the wearing of black.

“For this negation of the Spanish civil politica they keep the said clothing that ... they never abandon the Yacolla [mantle] and the Uncu, nor leave the black color of their clothing that they carry as a sign of mourning for the Spanish who dominate them”⁹

The Spanish themselves were prone to wearing black—elegant silk garments—which came into particular fashion at the court of Phillip IV¹⁰. The Spanish were partial to silk—a luxury fiber raised in Spain since the 12th century--and fabric from the various silk weaving centers throughout Spain, as well as imports from France and Italy. These silks included the tornasol fabrics, as well as plain and patterned silks, damasks and metallic brocades. The use of these luxury fabrics in Spain were regulated by a series of complex sumptuary laws. These laws defined the minutia of social distinctions, including the categories of social class which were allowed to wear particular items or types of cloth, along, of course with other regulations of social behavior.

These sumptuary laws extended to the Andes, under the Viceroyal government, and certain aspects of native Andean dress were also, at various times, regulated by decrees originating in Spain. During part of the 16th century for example, the native people were to “accommodate themselves to our clothing”. At other times, they were not allowed to dress in the Spanish style.¹¹ Additionally, the laws regulated the amount of silk, for example, that a native woman could wear, including the number of pieces of lace that were allowed to be added to their mantles. And in 1571, silk mantles for women of mixed blood were prohibited.¹²

Silk in Peru

⁸In 1781, viceregal administrators were recommending a prohibition against wearing black clothing “... that they use or wear black clothing as a sign of mourning that they use in some provinces as a remembrance of their dead monarchs.” Letter from Virrey Augustin de Jauregui to the Minister of the Indias, Jose de Galvez In Varcancel, C.D. *Fuentes Documentales*, 1974 p. 410 A.G.I Audiencia de Lima, Legajo 1041 (author translation.)

⁹ “Por eso negandose a la politica civil espanola conservan el traje dicho aun en el usual manejo de sus Casas, jamas abandonan la Yacolla y el Uncu, ni dejan el negro color de sus ropas en senal de luto que arrastran por los espanoles que les dominan.” Antonio de Areche, April 14, 1781 Archivos de las Indias, Seville, Folio 5r (author translation)

¹⁰ See M. Defourneaux *Daily Life in Spain in the Golden Age* Stanford University Press, 1966 p. 56

¹¹ “They are prohibited to dress themselves like us” Royal Cedula 43, Madrid 1791, p. 403.

¹² See E. Phipps. “Textiles as Cultural Memory: Andean Garments in the Colonial Period” in *Converging Cultures: Art and Identity in Spanish America*. The Brooklyn Museum, NY 1997, p.152; “11 February 1571, D. Felipe II. Madrid: That the free Negroes and Mulattos [female] do not wear gold, silk mantles, nor pearls.” Madrid, 1791, p., 369.

The importation of silk from China to Lima via the Manila Galleons began as early as 1534¹³. To guard against excessive luxury, and to protect their domestic trade, the Spanish controlled the shipping of silk from Asia to the New World,¹⁴ and at various times prohibited its sale¹⁵. While available in the highlands, legally or illegally, silk was an expensive and highly desired luxury material.

We don't know whether the use of silk as hidden weft in the tornasol fabrics stems from the prohibition of silk for native women, or rather reflects the modified incorporation of a foreign, expensive material into a long established Andean weaving tradition. Other examples of silk used as hidden weft yarns in a warp-faced weaving tradition, can be seen in examples of what are probably late 17th or 18th century womens' mantles and headcloths from the Lake Titicaca region. In these Lake fabrics, we find the possibly illicit use of silk weft yarns to produce in these exceptionally, fine high status, yet typical, warp-faced, warp-patterned fabrics.

Tornasol as weaving effect

Historically, we know little about the highland weaving patterns of the pre-Spanish period. Although extant warp-faced, warp-patterned textiles from the pre-Conquest period are very rare, those which have survived in the burials, for example, along the South coast do not exhibit the weaving effect of a tornasol fabric. I believe that this 'effect' is entirely a European construct adapted brilliantly by Andean weavers, and incorporated into the highland weaving tradition. To trace this process of how it became incorporated into the weaving vocabulary, we need to examine some precursors in the Inka weaving traditions, and to understand the characteristics of the fabrics, themselves.

For the Inca, the fabrics of the highest quality were called *cumbi* which, according to the late 16th and early 17th century dictionaries and other sources, seem primarily to refer to tapestry woven cloth. Extant garments of the Inca elite were all tapestry woven¹⁶, produced under the auspices of the royal workshops.

In the post-Inca period, the tornasol fabric associated with nobility and high status, as a fabric type, however, does not evolve from a tapestry tradition. The tornasol fabric depends on the ability to partially exposed weaving elements—either through spacing between warps and wefts, or through flexing the fabric to reveal the hidden element. In tapestry, or weft-faced weaving, the solidity of the fabric does not allow any of the underlying warp yarns to be exposed, and the resultant fabric itself is not as flexible. These features make it impossible to create the same special shimmering effect when folded or moved. However, the idea to create a cloth with a certain type of visual

¹³ Silk primarily came through import from China (via Alcapulco ports) and was also raised in Mexico, beginning in the sixteenth century. In one of the Gremios of Lima governing the "Gorreros y sederos, [hatmakers and silkworkers] 1608 number 17...ordered and mandated... that the silk sellers do not mix silk of the 'misteca' with the silk from China in fringes or other things." (author translation) (Quiroz Chueca, Francisco, *Las Ordenanzas de Gremios de Lima* (s. XVI-XVIII). Lima: Artes disenografico, 1986. p. 19)

¹⁴ These shipments included silk cloth, and also yarns, in bulk used as packing materials. The silks were precious, and trade from the port of Callao, near Lima to the Colonial cities in the highlands followed both land and sea routes. See William Shurz, *The Manila Galleons*, NY, Dutton, 1939

¹⁵ Shurz, 1939.

¹⁶ See J. Rowe, 1979 "Standardization in Inca Tapestry Tunics" *In Junius Bird Pre-Columbian Textile Conference*. Textile Museum, Washington, D.C. pp 239-264.

surface play could still be achieved—in another way—through the mixing of colors—not by juxtaposing them in warp and weft, but rather, within a single yarn.

For the most part, pre-Conquest Andean weavers did not create plyed, two-colored yarns¹⁷. Where it does occur, is a rare exception. In the evolution of the post-Inca weaving traditions during the early periods of Colonial rule, though, mixing of contrasting colors in the ply, or sometimes winding two separate colored 2-ply yarns together—was used as a method for creating a specific type of color effect.

Chi'mi

Known in Aymara as '*ch'imi*', the mixing of two colors, often those which are closer in hue, such as brown and purple, or black and blue, could be used to re-create some of the 'shimmering' lustrous effect of the 'tornasol' fabric. Often seen in the plain sections—the 'pampas'-- of warp-faced woven mantles of the 18th-19th centuries, this speckled color effect has a subtlety and richness quite different than what would have been achieved with the plying of more contrasting colors, like red and white, or blue and yellow¹⁸. In the layout of the textiles, it is generally used in wider sections, to amplify the full color effect, rather than in the narrow stripes of the *pallai*. (or pattern areas). Today, we generally associate this effect with warp-faced weaving-- particularly the mantas of the altiplano-- but some pre-cursors indicate that it was also used in the post-Inca 'cumbi' Colonial tapestry weave tradition.

The earliest example I have found of the use of *ch'imi* in a tapestry-woven garment is in an Inca-style Colonial uncu¹⁹ where the effect is used in the ground of the tunic. It is a *tocapu* waistband tunic with a pair of pumas at the lower base of the stepped *ahuaqui* neck yoke. From the fineness of the weave, and the technical features of the treatment of the warp ends, I estimate the date of this tunic to be late 16th century. The ground of the tunic is composed of a red and blue plyed yarn, which creates a kind of 'tornasol' effect of a purplish color. Constructed as a '*chi'mi*', the overall effect is that of a 'tornasol'. To date, it is the only uncu amongst all of the thirty or so extant examples of the Inca style colonial garments that I am aware of, with this particular weave effect. There are several other *tocapu* tunics with a puma neckline and purple ground. One belonging to the Textile Museum has an unusual reddish-purple dyed color in the ground weave²⁰. The hue of the color is unusual and it is slightly uneven as a result of its dyeing process. The resulting color is remarkably close to the overall vibrant effect of the plied red and blue yarns from the first tunic. Perhaps purple, in general, as a dyed color primarily made up of a double-dyeing process in which a yarn is dyed first with one color, then over-dyed with the next, had some special connotation²¹. And in this

¹⁷ Warp yarns, of cotton and wool, often brown and white or two shades of brown, are found to be plyed in various coastal weaving as well as highland. These, however, are not meant to be seen—but are covered in weft-faced weavings. We have very few archaeological examples. (Some Paracas embroideries, some Nasca and possibly some rare cases in Wari/Tiahuanaco tunics but not generally in Inca garments.)

¹⁸ Guaman Poma describes the fifth Inca King, Capac Yupanqui as wearing the mantle of "encarnado mezcla de colorado". In other words, with two shades of red, mixed together. Ayala, Guaman Poma de *El Primer Nueva Coronio y Buen Gobierno* [1613] 1989 Paris, pg. 101.

¹⁹ The tunic is in a private collection.

²⁰ TM 1984.50.1 Textile Museum, Washington, D.C.

²¹ Purple dyeing in the highland was achieved in a variety of ways. The most common would have been the over-dyeing of cochineal and indigo. Purple was also used by the Inca, in a very deep shade, to connote

example, the visual intensity and liveliness of the color itself would seem to have some special significance. Interestingly, Melendez indicates that while Medieval Spanish use of 'tornesol' as a term meant 'visos' [luster], she cites early sources that postulate that it might connote a color dyed in a fermented bath, which gave the cloth a violet blue color. (azul violaceo)²².

Colonial Documents

Documentary sources, primarily written by Spanish observers and Spanish-educated native nobility, provide us with some clues as to the types of garments, and variations of cloth used by native Andean people, during this early transitional period after the conquest. In studying these sources, I have found references to the tornasol fabric, which provides additional confirmation as to its use in the late 16th- to early 17th century in the Andes.

A 17th century manuscript by Martín de Murúa, *Historia General del Perú* belonging to the J. Paul Getty Museum,²³ contains 46 colored drawings of the Inca kings and queens, wearing their traditional royal garments. The manuscript was written by a Spanish friar, but the artist or artists who illustrated the manuscript demonstrate intimate knowledge of Andean color values and garment design, representing the garments in ways that integrate recognizable renderings of native Andean textiles, combined with what appears to be stylized European design conventions. Murúa's manuscript, completed in 1613, is one of the few written sources from the period with polychrome illustrations. These colored drawings illustrate the succession of Inca rulers and their wives, as royal couples engendering the legitimacy of Inca rule from the mythic Manco Capac, who came out from the mythic origin caves of Paucaritambo, to Huascar Inca, who was killed by the Spanish conquistadors in 1532. After examination of the manuscript in detail, I believe that the depictions of the garments, rather than being merely stylistically Europeanized, are in fact illustrating a specific European fabric type—that of tornesol. In the colored illustrations, most of the mantles (and even some of the uncus) of the Inca kings appear to be represented as 'tornesol' fabrics²⁴. Generally, they are shown as blue and pink or green and yellow.

black – as we see in some of the Inca 'key' tunics. In the colonial period, if not before, sometimes purple was achieved by the dyeing of a red color (probably cochineal, but could also have been *Relbunium*) with an iron mordant. Cobo, in the early 17th century is the first to note this practice. B. Cobo, 1956 *Historia del Nuevo Mondo* [1653] Madrid, vol 1, pp; 113-116.

²² Martínez Melendez, 1989 p. 516

²³ Ludwig ms. XIII, 83 MP159. J. Paul Getty Museum, Los Angeles. I had the great privilege to examine this manuscript intensively, as a Getty Museum Guest Scholar, Oct-Nov., 1999. My research, during this residential fellowship period focused on Inca and Colonial colorants used to depict textiles in the manuscript, analyzed with the Paper Conservator, Nancy Turner, and conservation scientists David Scott and Narayan Khandekar, the Getty Museum Conservation Laboratory.

²⁴ Of course, the drawings themselves, follow a European style, far more than those of Guaman Poma (although some of the illustrations are considered to have been done by Guaman Poma – see J. Ossio, Una nueva versión de la coronica de Fray Martín de Morúa. *Revista del Museo Nacional* XLVI: 567-75. Also, E. Phipps, *Investigation of the Colorants in the Marín de Murúa Historia General del Perú*, ms report 1999). While we cannot use the illustrations as 'verbatim' evidence, I think that they do reflect a predominance of fashion of the period, and is not merely the result of random, artistic license taken by the

Contemporary to the Murúa manuscript, Guaman Poma de Ayala, an Andean native produced a book with a series of over 400 folios of drawings and text, depicting Colonial life. He also presents the lineage of the Inca kings and queens, and described each according to their character and deeds, as well as the type and color of their garments. “Mango Capac”, for example, the first mythical Inka king, is characterized as the father of the Incas, who constructed the Coricancha, the great temple of the Sun in Cuzco, and instigated the practice of the worship of the sun, the *huacas* and other sacred things. He is described as wearing his crimson mantle, and his tunic, with a red upper section, three rows of *tocapu* (the Inca royal insignia) at the waistline and light blue below.

Topa Inca Yupanqui, the 10th Inca king, wears a special uncu with *tocapu* overall, and a manta which, according to Guaman Poma, was “torne azul”. Assuming that the term, which he uses several times,²⁵ is not a transcription error for ‘torne a sol’, I think that it would have referred to a blue shimmering ‘tornasol’ fabric—like the one excavated by Bandalier in the late 19th century, in Bolivia belonging to the American Museum of Natural History, New York, with its blue warp and pink weft²⁶. (Fig. 4). Murúa strikingly shows him also wearing his blue *tornesol* mantle, shown with its pink iridescent accents²⁷. (Fig. 5)

These colonial documents confirm, both visually, and in textual references, that the *tornesol* fabric was used in the late 16th century in the Andes. It is interesting that, in both contexts, these artists are assigning the use of this fabric, of European origin, to the imperial garments of the Inca kings. In fact, they are attributing the use of the fabric prior to its actual appearance in the Andes, which is a part of the process of Colonial revisionist history.²⁸

Summary

While the Spanish brought with them extreme political, religious and social programs disenfranchising the native populations and altering the history of the entire continent, certainly the Andean weavers, if nothing else, would have admired the luxurious cloth of their attire. That appreciation of the richness and beauty brought new ideas, and resulted in these surface effects created by the weaver, engaged in the creative adaptations of cultural values. They represent a manifestation of the process of adaptation and co-

artist. In Murúa, at least thirteen of the fifteen illustrations of Inca kings have ‘*tornesol*’ type mantles indicated. The women depicted in the manuscript do not wear *tornesol* *llicllas*.

²⁵ Also, the twelfth Inca Guascarina is described as wearing a light blue mantle, with a shirt of the upper part *torne azul*, three rows of *tocapu* in the middle, and green below. (Guaman Poma, p.116 Paris 1989 edition) author translation.

²⁶ According to notes in the AMNH, the pieces as “found in a square adobe at Pata Kamaya, Bolivia.” It is 19 ½” H x 18” w. Blue/purple camelid warp and red silk weft. It has 2 white silk heading cords, and has old silk repairs.

²⁷ Guaman Poma de Ayala, *Historia* 16, pg. 104. There is little concordance between Guaman Poma’s description with Murúa’s drawings. Rather than describing the clothing in the text, as Guaman Poma does, he refers to the drawing, indicating. “Su figura es esta que se ve.” His figure is as you see it (referring to the drawing.)

²⁸ See J. Rappaport 1990, *The Politics of Memory: Native Historical Interpretations in the Colombian Andes*. Cambridge University Press, Cambridge.

opting of a valued attribute from one culture, by another. They in turn become one of the hallmarks of Andean cultural identity, and in doing so are testaments to the complex cultural interchange of the Colonial process.



**Figure 1: Tornosol dress
(Collection of N. Kajitani) and
Mantle (Collection of author).
Photo: author**

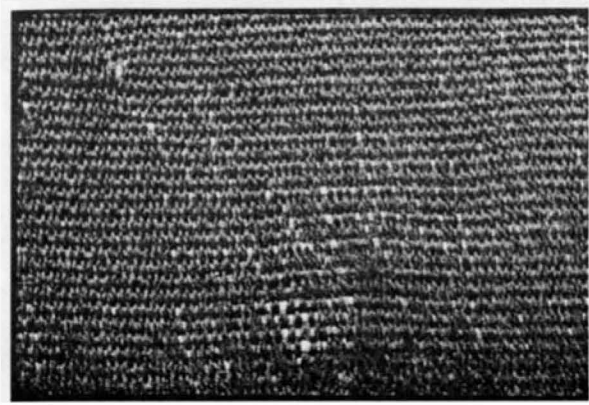


Figure 2: Detail of Mantle: Plainweave with black camelid warp, pink silk weft, 10x magnification. Photo: author



Figure 3: Detail, painting "Vanitas Allegorie" by Antonio de Pereda, c. 1654, Kunsthistorisches Museum, Vienna

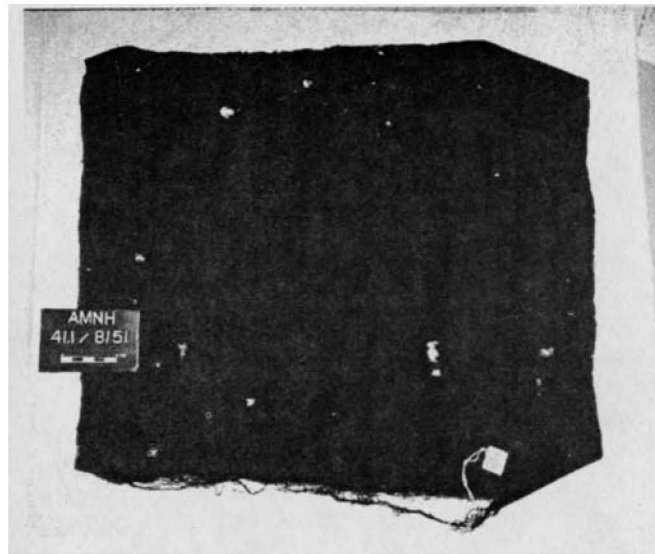


Figure 4: Tornosol mantle excavated by Bandalier at Pata Kamaya, Bolivia. American Museum of Natural History, New York 41.1/8151. Photo: V. Roussakkis



Figure 5: Capac Yupanqui with blue tornesol mantle. Marin de Murua, Historia General del Peru. J. Paul Getty Museum, Ludwig ms. XIII, 83MP159 folio 59r. Photo: Courtesy J. Paul Getty Museum