Metal Thread Examination

for Determining the Date, Origin and Distribution of Indonesian Songkèt Weaving

presented by
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A. INTRODUCTION

Malaro (1985:3) states a museum definition as "*a public or private nonprofit agency or institution organized on a permanent basis for essentially educational or esthetic purposes which, utilizing a professional staff, owns or utilizes tangible objects, cares for them, and exhibits them to the public on regular basis*." Considerable resources are required to store and conserve the museum object collections, and indeed to have access to them, can only be justified if the archives are available for use in the broadest sense. This requires that the collection be stored with the accessible information, and that this information be held on an organized documentation system. Also, the collection management is at the heart of a museum operation, because without collections there would be no broader issues of context and interpretation (Pearce, 1990: 67 & 113).

In this connection, other authors[2] provided the theoretical and empirical studies concerning cultural materials. They tried to measure the objects' *structure* and *property* in reconstructing the human behavior involved in their *processing* and *performance*[3]. The author (1995a,b,c) then applied their system to study of Indonesian textiles, assuming that textiles are decontextualized objects.

This paper discusses three metal threaded cloths, designated as TEX.01, TEX.02 and TEX.03 (see table 2) with the reference textiles. These three cloths are private collections which were purchased by Mr. Wahyono Martowikrido at Surakarta (Central Java), in 1985. The trader said that the cloths came from a small northern coastal village called *Sendang Dhuwur* of Tuban (close to Paciran), East Java. According to the historical records, this *Sunan Drajat*[4] site was influenced by Islamic culture since 1551, when Arabic traders started coming to Lasem harbor.

Each object was photographed in full, close-up and specific pictures. Additionally, photomicrographs (with magnification 16 to 400 times) were taken for specific materials, color, or motifs. All the data is documented as on table 2, enclosed. The author categorized the metal applications following Indictor (1987), Indictor and Ballard (1989), and Montegut *et.al*. (n.d.), see table 1a. This categorization is illustrated on the full-colored three dimension picture (see Subagiyo, 1994b) and for renewed categorization, see table 1b-c. (Subagiyo, 1995b,c.). In the curation process, a comparative analysis was

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[2] Clifford (1988:224), Kashiwangi (1976), Pearce (1989:99), van Vlack (1985) and Vandiver *et.al.* (1991:xix).

[3] *Structure* refers to atomic, crystal, micro and macrostructure which are arranged as if on a ladder at different levels of scale. *Processing* involves a change in interior structure and/or external form of raw materials and results in a hopefully useful object. Processing results in a measurable transformation of such *properties*, as electrical, optical, mechanical, or other physical or chemical characteristics, and hopefully, in a desirable and measurable change in performance. In this case, *performance* involves distribution, use, techno-function, socio and ideo functions (Vandiver, 1991:xix and xxviii).

[4] Sunan Drajat is a Moslem master, who teaches islamic rules.

done and the objects were interpreted or recontextualized, as illustrated on figures 1, 2, 3, 4 and 5.

The reference samples (incl. three metal applied fragments with nos. AA, AB, and AC) were taken from textile collections of the Indonesian National Museum (tables 1b-c and 3a-b), that had been organized on a relational database management system (Subagiyo, 1995a). This system has the capability to recognize textual data, image, sound and full-motion image/video. Figure 5 illustrates this system ability to compare and/or select thousands of pieces of data and organize it into the useful information.

B. SONGKET WEAVING AND ITS ATTRIBUTES

Jasper and Mas Pirngadi (1912:238) defines the term '*songkèt*' as '*a process of lifting and bringing the metal threads warps down in order to form designs*'. Also, Suwati (1986:8-15) states other authors' classification of 'songkèt', as: '*metal (gold or silver) threaded fabrics coming from a certain region within Indonesia*', or as '*an inserting technique for threads*'.

Subagiyo (1994b) states that textile '*weaving/ nonweaving* and *coloration*' techniques vary from region to region within Indonesia. Polychromatic dyes, pigments, various metal threads, beads, sequins and mirrors are used to complete the ornamental designs on such textiles. He explains the term *songkèt* as '*continuous supplementary metallic and/or colored wefts or warps*'. Therefore, the supplementary thread runs from one edge to another edge (from the top to the bottom, see the directions on figure 4) or from one end to another end of the cloth. He also discusses some variations of the songkèt based on technical, material, and structural studies. These are known as '*sungkit*' and '*pilih*'. *Sungkit* is defined as '*discontinuous supplementary metallic and/or colored wefts (none for warps), that it runs from specific areas or certain motifs only*'. *Pilih* is defined as '*cross-concealing of the inserting wefts (never warps) onto one or two warps*'.

The author used the metal threaded cloths from the Indonesian National Museum. The textile object with Inv. no. 1097d from Sukapura, West Java, with '*songkèt ganda*' (double songkèt, supplementary weft and warp) and Inv. no. 21338 from Palembang - South Sumatera with songkèt on the rèp (warp faced plain woven) silken fabric. There are the songkèt like cloths, which are called '*ginggam songkèt*' (Inv. nos.: 5079a-d). The *ginggam songkèt* is, however, correctly called a *double-faced-plain-woven fabric* in black and white (see Wahyono, 1994). Other textile objects, (Inv. no. 9597) from Aceh show that the metal threads are arranged to be a '*weft compound figured woven fabric*' called *damasks*; (Inv. no. AA) is a discontinuous supplementary metal thread on *damask* cloth. The museum has also *kain limar* (Inv. no.: 20385) using the *songkèt* technique on *ikat*.

Lastly, the author describes similarities-dissimilarities between parts of, individual or complete Indonesian textiles and the methods for structural, material and technical analysis. The results were used for an *authenticity study*, to obtain relative date, origin and distribution, based on their relational elements, i.e.: formal, stylistic and technological attributes[5]. This method is presently called the *Conditio Post Ante Quem*.

[5] *Formal attributes* are features such as the shape of artifact, its measureable dimensions, and its components. *Stylistic attributes* include decorations, color, surface finish, and so on. *Technological attributes* are those covering the material used to make an artifact and the way it was made (Fagan, 1991:132).

C. EXAMINATION RESULTS AND DISCUSSION

The examination results for Object # TEX.01

This rectangular cloth, with dimensions 57 by 332 centimeters, has the four folding lines in the warp (long direction). By considering the size and its folding direction, it indicates that the cloth was used as a *kêmbên* or *wastra*.[6]

This dark red (*merah anggur*) colored silk cloth contains metallic threads using the *songkèt* technique and colored threads using the *sungkit* technique (see Subagiyo, 1994b.).

The metal threads are arranged to form various motifs (*pola hias*) on the six specific wide lines (*bands*). M*otif waru*[7] (*Hibiscus* leaf like motifs) are arranged in the combination (*face-to-face*) of two curves on the first line. M*otif kêmbang cêngkèh*[8] (clove flower like motifs) are arranged on the second and fifth lines. Double "S" twinning motifs are arranged on the third line. Eight pointed star motifs in the diamonds are arranged on the fourth line. Lastly, *motif kêmbang cêngkèh* in the diamonds are arranged with colored threads on the sixth line.

By considering the pattern, design and motifs (pola, desain dan ragam hias), this cloth appears to be from Minangkabau (Padang, West Sumatera), East Coastal Sumatera, Palembang or Surabaya. If it is, however, classified according to its function, this cloth is similar to *kain dringin*[9], see figure 2, which is a cloth that is used as *kain kêmbên* or *wastra* by royal Javanese ladies of Yogyakarta, Surakarta, Jepara or Gresik.

The non-songkèted cloth is plain woven (1/1), has a density of 22/20 threads per square centimeter. Sizes of the warps are irregular an the wefts are regular. Both, light red (*merah jambu*) colored warps and dark-red (*merah anggur*) colored wefts are weakly plied.

The songkèted cloth is plain woven (1/2), which is different from the non-songkèted cloth. Under microscopic examination, the songkèted cloth shows that the wefts are doubled with each different color. Both, dark red & bright-red (*merah cerah)* colored wefts and light red colored warps are weakly plied.

Structural examination of the ground fabric shows that the fiber is silk (under microscopic examination 400X). The metal thread consists of a metal strip which is wound onto a goldish colored silk core (under microscopic examination 16X). This structure of metal thread is categorized III or K-3a (see Indictor and Ballard, 1989:67), and the width of the strip is 0.5 mm.

Based on the stylistic analysis (see figures 3~5); this songkèt and sungkit combined cloth is that of *kain dringin*. The results of the material analysis, including its distribution, indicates there are metal threads that are usually used in Java. In this case, the author examined reference samples from Aceh, Padang, Payakumbuh, Palembang, Sukapura (Tasikmalaya), Surakarta, Dayak-Kalimantan and Lombok.

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6 Kêmbên or wastra is a covering cloth for a woman's top, it is worn to cover a woman's body between the *tapih* and *kêmbên penutup dada*. Tapih is a woman covering cloth or skirt, it is worn to cover a woman's body from ankle to waist. Kêmbên penutup dada is a breast cloth. [See Jasper & Pirngadi (1916), Subagiyo (1995b)].

7 Waru is *Hibiscus tiliaceus* L. (Malvaceae).

8 Cêngkèh is *Syzygium aromaticum* L. Merr. & Perry (Myrtaceae).

9 See Fischer (1987:15), Jasper & Pirngadi (1916), Subagiyo (1995b).

The examination results for Object # TEX.02

This rectangular cloth, with dimensions 93x224 cms., has a background color of dark red (*merah anggur*). This silk cloth is richly songkèted with metal threads. These metal threads are songkèted to form the pattern and motifs in harmony (*pola dan ragam hias yang serasi*) with the dark-red back-ground color.

This cloth is divided into two parts: *badan* (body) and *kêpala* (head). The head is divided into four wide lines (*bands*). The stylized *pucuk rêbung*[10] or *tumpal* motifs are filled with *motif kêmbang mêlati*[11] or jasmine flower motif and *motif suluran* or tendrils (on first line from the end, see the directions on figure 4), divided diamonds (on the second line), *motif tumpal* or triangles (on the third line), and *motif kêmbang lombok*[12] on the diamond (on the fourth line). In the body, there are many star motifs that are spread throughout the cloth (*bintang bertabur*); and tendrils which are on the top and bottom of the *kaki kain* (edge of the cloth).

The non-songkèted cloth is plain woven (1/2), has a density of 27/22 threads per square cm. There are two plied dark red wefts and one plied light red colored warp with regular (diameter) threads. The songkèted cloth is plain woven (1/2), has a density of 26/33 threads per square cm. The examination of the metal thread structure is categorized as III or K-3a. The width of the strip is 0.5 mm and the core of the metal thread is three weakly plied yellow colored silk fibres.

Based on the stylistic analysis (see figures 3~5); this cloth with songkèt and sungkit techniques is that of *kain tapih* (*sinjang*)[13], which is a woman's covering cloth. The results of material analysis including its distribution shows that it has metal threads which are usually used in Java. In this case, the author examined reference samples from Aceh, Padang, Payakumbuh, Palembang, Sukapura (Tasikmalaya), Surakarta, Dayak-Kalimantan and Lombok.

The examination results for Object # TEX.03

This rectangular cloth, with dimensions of 95 x 228 cms., has a background color of dark red (*merah anggur*). The silk cloth is richly songkèted with metal threads. These metal threads are songkèted to form the pattern and motifs in harmony (*pola dan ragam hias yang serasi*) with the dark-red background. This cloth is divided into two parts; *badan* (body) and *kêpala* (head). The head is divided into six wide lines (*bands*).

In the head of the cloth, there are *daun waru* motifs (the first line from the end of the cloth, see the directions on figure 4), back-to-back tendrils (the 2nd line), stylized *tumpals* or *pucuk rêbung* with ornamentation of *kêmbang mêlati* and tendrils (the 3rd line), divided diamonds (the 4th line), *pucuk rêbung* (the 5th line) and *kêmbang lombok* in the diamonds (the 6th line). The body of the cloth, contains a *kawung* pattern (one of the famous ceplokan designs), and tendrils are on the top and bottom of the *kaki kain*.

The songkèted cloth is plain woven (1/1), has a density of 36/24 threads per square cm. There are two plied dark red wefts and one plied

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[10] Pucuk rêbung is a young bamboo plant.

[11] Kêmbang is a flower and mêlati is *Jasminum sambac* Ait. (Olacaceae).

[12] Lombok is the fruit name of the *Piper retrofactum* Vahl. (Piperaceae) and possibly that of the *Capsicum annum* L. or *Capsicum frustescens* L. (Solanaceae).

[13] Tapih or sinjang is a woman's covering cloth, it is worn to cover a woman's body from ankle to waist. **Bêbêd** is a man's covering cloth, it is worn to cover a man's body from ankle to waist.

light red colored warp with regular (diameter) threads. Both regular warp and weft threads are dark red. The weft threads are more tightly plied than the warps.

The examination result for the metal thread structure is categorized as III (K-3a), and the width of the strip is 0.5 mm. The two plied core of metal thread consists of three weakly plied goldish yellow colored silk fibres. Based on the stylistic analysis (see figures 3~5); this songkèt cloth is that of a *kain tapih* (*sinjang*).

General Discussion

An authenticity study of Indonesian songkèt weaving is illustrated on figure 1, which then is clearly defined and applied as shown on figures 2, 3, 4 and 5. Lastly, this study determined the metal thread to be a parameter (*Conditio Post Ante Quem*). With this authenticity study, this author tried to learn the background of the songkèt cloths with a wide range of aspects, such as: origin, date and distribution. His study can be started from the function, technique, material and other relevant aspects.

Figure 5 and tables 1b-c, 2 and 3 show the results of typology ~ stylistic analysis. One or more parts of attribute(s) from unknown textiles could be compared to other part(s) of known or unknown textile attribute(s). Therefore, incomplete textile, fragments or textiles in a debris, may be studied as well.

On table 1b, metal threads are categorized as K-2a, K-2b, K-2c, K-3a, K-3b, K-3c, K-4a, K-4b and K-4c. These categories may be applied to Indonesian textiles using the nine following techniques; embroidery, couching, songkèt, sungkit, tapestry (*weft faced plain weave*), kêlim (*slit or interlocked tapestry weave*), damask, crocheting (*lace*) or fringe. The back-ground of the cloths are *ikat*, plain weave, tapestry, rèp (*warp faced plain weave*), twill or damask woven fabric. In this case, all of the metal threaded cloths should not technically be called songkèted cloths (*kain songkèt*). And according to the technical terms (see figure 2), the songkèted cloths are not always associated with metal threads (see the songkèt definition above).

Subagiyo (1995b) provided the stylistic analysis[14], which is a study of patterns[15], designs[16] and motifs[17]. He classified the textile objects into c*lothing*, *costume*, *ceremonial objects* and *decoration*/*composite*[18], see figures 3 and 4. Lastly, the object materials and technicalities were related to the textiles grouping. Since, the formal, stylistic and technological attributes are applicable to the textiles from any place, date, etc.; this authenticity study uses these relational elements. Additionally, there is the

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[14] Stylistic analysis = the study of style as a means of analyzing works of literature and their effect, now often, specif. such study using mathematical and statistic methods (Guralnik, 1982:1416). **Typology** = (1) the study of types, symbols, or symbolism. (2) symbolic meaning or representation; symbolism (Guralnik, 1982:1539).

[15] Pattern = (1) a model or plan used as a guide in making things; set of forms to the shape of which material is cut for assembly into the finished article *[a dress pattern].* (2) an arrangement of form; disposition of parts or elements; design *[wallpaper pattern]* (Guralnik, 1982:1043).

[16] Design = (1) a plan or sketch to work from, pattern *[a design for a costume].* (2) the art or making designs or patterns. (Guralnik, 1982:382).

[17] Motif = a main element, idea, feature, etc.; specif., a) a main theme or subject to be elaborated on or developed, b) a repeated figure in design (Guralnik, 1982:929).

[18] **Clothing** = usual/ casual cloth, daily wears, such as: T-shirt, pants, skirt, etc. **Costume** = the style of dress, incl. accesories; typical of certain country, period, profession, etc. A set of cloth as in such a style, as worn in a play or a masquerade. A set of outer cloths for some purpose or occassion. **Ceremonial Object** = textile material/ object that is specially used for ceremonial purposes, but not incl. clothing or costume. **Decoration & Composite** = textile materials/ object that is used for decorations or as composites, but not incl. clothing, costume or ceremonial objects.

analysis for raw materials up to the finished objects, which then are related with the distribution and/or date.

Indictor (1987) described the geographic distribution of metal application on historic textiles from all over the world. He noted that there are uncertain results for the Category III (usually called '*lamellae*'), which came from China, Japan, India, or Europe. Indictor's (1987:13) description of the Category IVa (K-4a) says if the substrate contains red colored material, then it can be assumed that the 17th century metal thread came from China. This high iron and aluminum content material is called '*bole*'. However, K-4a categorized metal thread does not always consist of bole.

According to Indictor (1987), the author inspected the reference samples from Aceh (inv. no. 21359) and Lombok (inv. no. 3507), on table 3b., from the 17th century. Both samples have bole substrate. The National Museum's inventory notes that this '*kain saput*' came from Lombok in 1865, and was registered by R.M. Soedibio at 4 May 1940. The reference textile # 13b/L.95, on table 3a., has two types of metal thread (K-3a and K-4a). By studying the mentioned reference samples (# 21359 and 3507), this cloth possibly originated in 1865 as the three (K-3a categorized) metal threaded cloths appear to have the same age.

The metal threads (K-3a) in the Indonesian songkèt weaving were categorized according to the metal applications on historic textiles indicating that the materials originally came from Europe (Indictor & Ballard: 1989). Montegut *et.al.* (n.d.) says the making of the thinned metal strip is considered to have originated Europe, and Category IVa (K-4a) came to Indonesia as imported materials from China or Japan. This opinion was confirmed by the author (Subagiyo, 1995c).

Montegut (n.d.:5-8) says that some K-3a categorized samples were made in Europe, India, Persia, or China. Specifically, he uses elemental analysis for describing the category III sample. It has a trace element of nickel (Ni), so that the composition is gold, silver, copper and nickel (Au:Ag:Cu:Ni). He said that the Indians made the category III sample by combining silver with the gold thread. There was also a difference in the Au:Ag:Cu composition of the inner and outer part of European's metal strip (thread). On table 1c., this author also provides the elemental and technical analysis for metal threaded cloths.

Three metal threaded cloths (TEX.01; TEX.02 and TEX.03) were found (purchased) at Surakarta - Central Java. In the aspects of Javanese tradition, the cloth with # TEX.01 was used as *kain dringin*, and the cloths with # TEX.02 and # TEX.03 were used as *kain tapih* or *sinjang* in a wedding ceremony. Jasper & Pringadi (1912) mentioned these types of cloth might be made in Java (i.e. Surabaya), but the materials were possibly imported from abroad. The historical records inform us that since the 1400s metal threaded and silken fabrics were brought by Arabic, Chinese and Indian peoples as a commodity. They came to eastern coastal areas of Sumatera, northern coastal areas of Java and possibly to Nusatenggara. In the 1600s, the Dutch and Portuguese came to the areas with similar cloths.

D. CONCLUSIONS

Indonesian songkèt weaving can be described by its formal, stylistic and technological attributes. These defined attributes can be used for comparative analysis to organize textile objects. Considerable resources are required to store and conserve textile collections along with the document-ation. The author has tried to describe how an authenticity study is carried out, how textiles and their attributes are related with the accessible information and how this information is held on an organized documentation system.

The importance of the metal thread cannot be understated in an authenticity study. This is done through structural analysis and categorization. The present condition of the metal thread must be preserved, because of its sensitivity to abrasion, loss and other physical problems. Metal threaded cloths must be well conserved, never wet cleaned, and only treated by a professional textile conservator.

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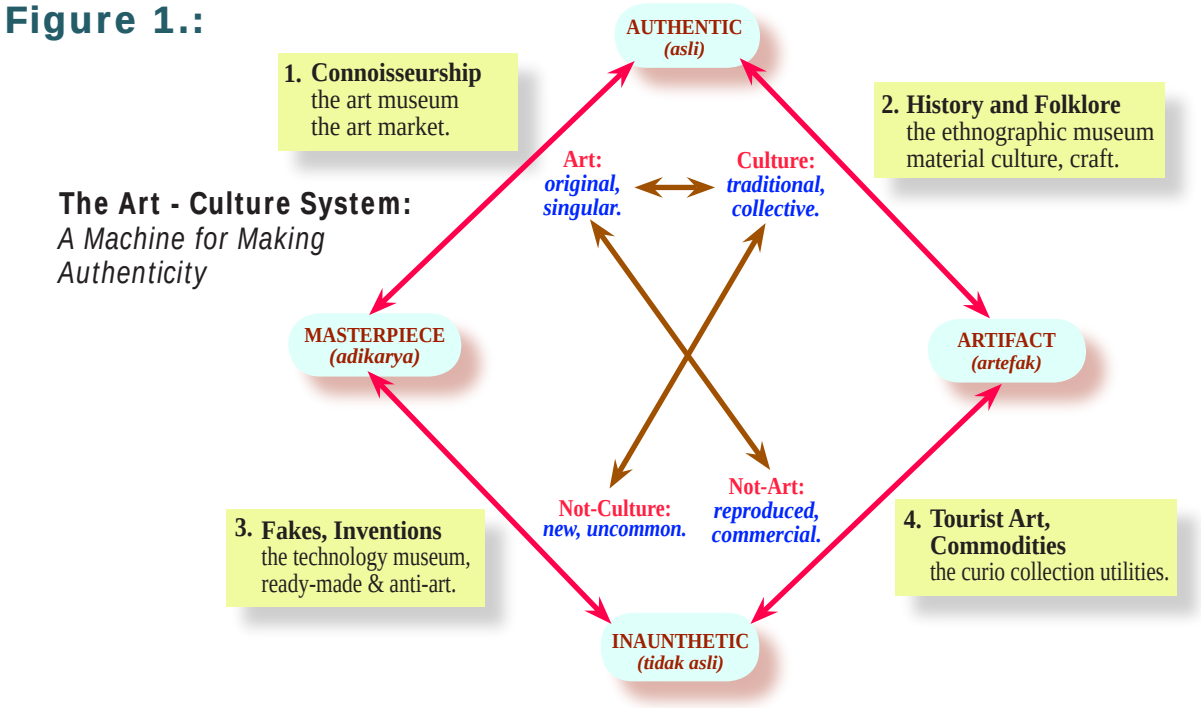
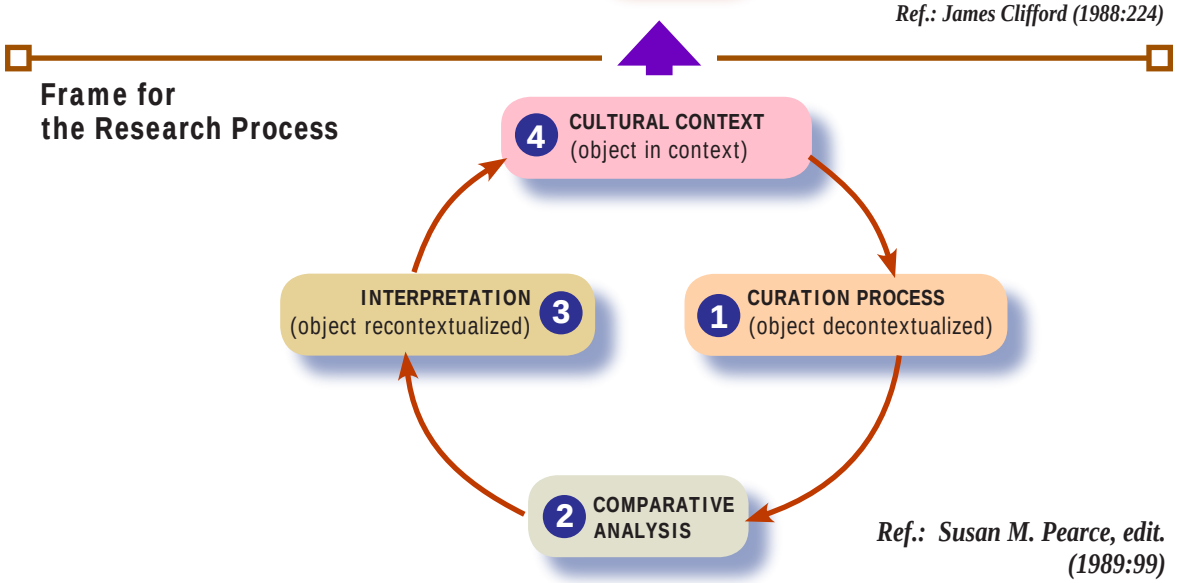
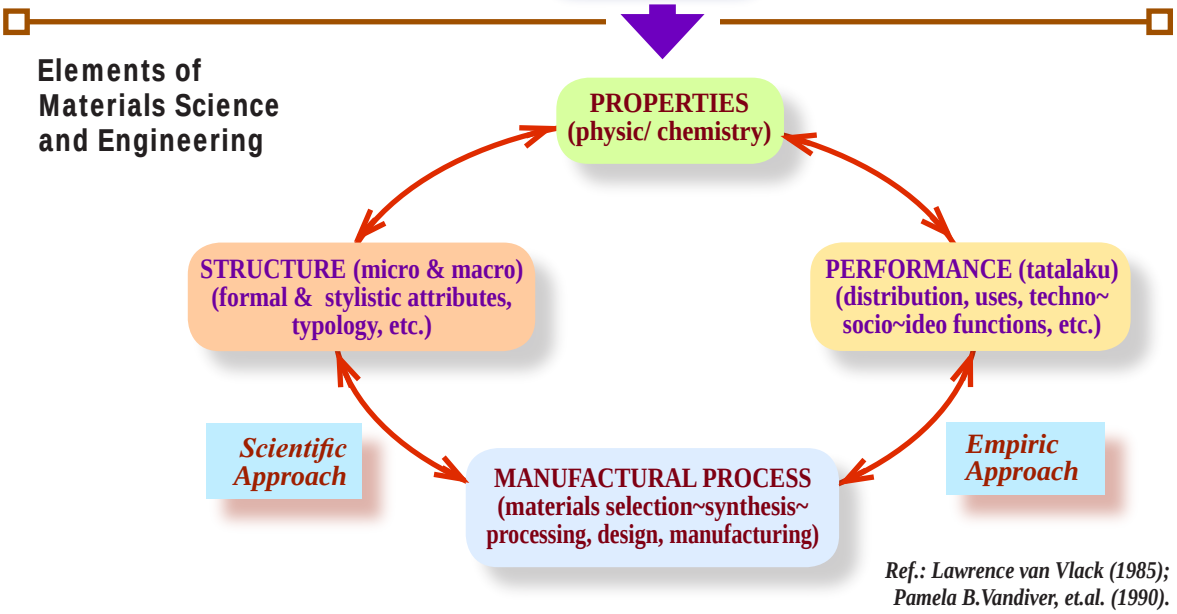
Figure 1.:



Ref.: James Clifford (1988:224)



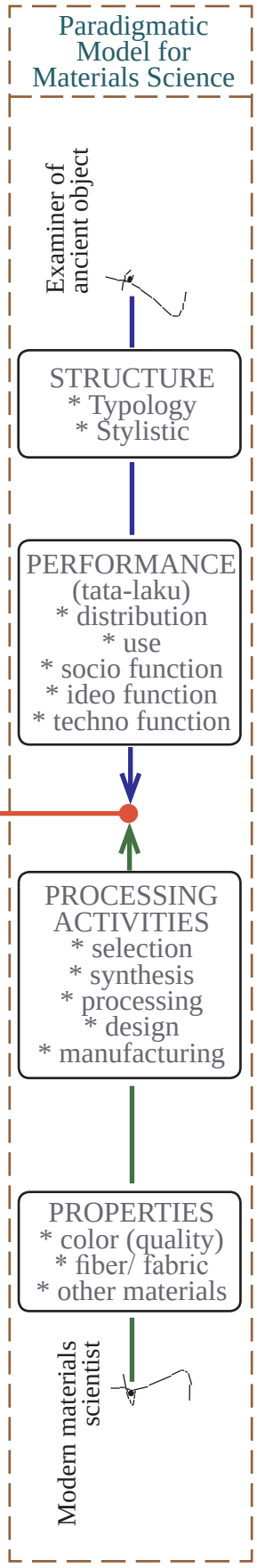
Ref.: Susan M. Pearce, edit. (1989:99)



Ref.: Lawrence van Vlack (1985); Pamela B.Vandiver, et.al. (1990).

Figure 2.: Taxonomy of Indonesian Textiles

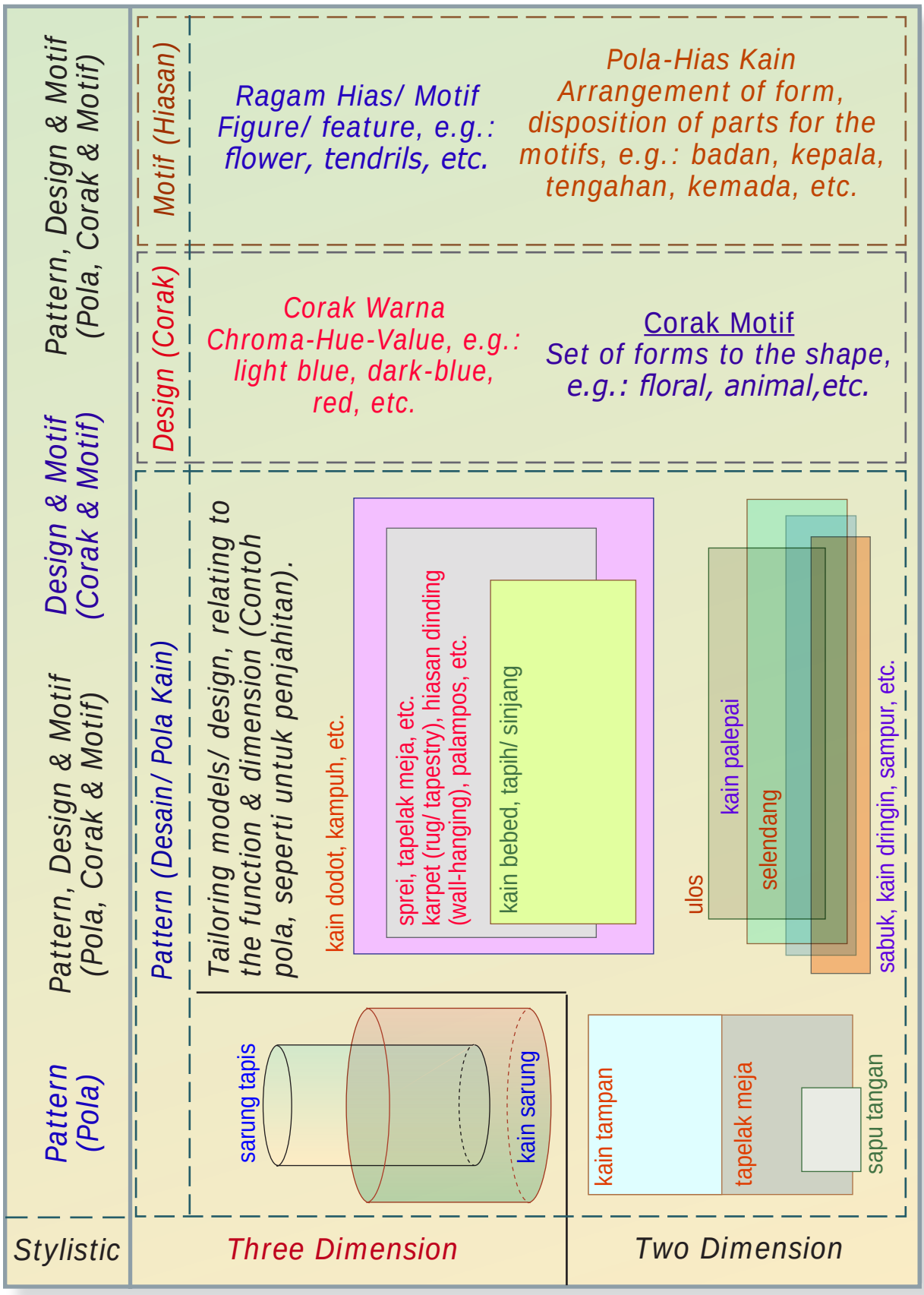
GROUP	SUB GROUP	DERIVATIVE NAMES AND DESCRIPTION	NOTATION (CODE)
A. PHYSICAL CONDITION (object structure and non-structure)	1. TYPE	a. kain (cloth); d. sarung (tubular cloth); c. etc.	A.1.a. A.1.b.
	2. DIMENSION	a. length; b. width; c. etc.	A.2.a.
	3. MOTIF	* GEOMETRIC MOTIFS (G): a. tumpal (triangle); b. meander (winding or criss-crossing lines); c. swastika (hook or key design); d. pilin ganda (double spirals); e. parang rusak; f. kawung; g. etc.	A.3G.a. A.3G.b. A.3G. ..
		* HUMAN-MOTIFS (H): a. man; b. woman; c. etc.	A.3H.a. A.3H. ..
		* ANIMAL MOTIFS (A): a. reptil (kadal); b. fish (ikan); c. etc.	A.3A.a. A.3A. ..
		* FLORAL MOTIFS (F): a. sulur-suluran (tendrils); b. bunga (flower); c. etc.	A.3F.a. A.3F.b. A.3F. ..
		* MISCELLANEOUS (M): a. pemandangan (landscape); b. gunung (mountain); c. mahameru (heavenly mountain); d. lidah api (flame); e. kapal (ship); f. etc.	A.3M.a. A.3M.b. A.3M. ..
	4. COLOUR	a. natural (polos); b. blue; c. green; d. etc.	A.4.a.
	5. MATERIALS	a. fibers; b. metal thread; c. colorant; d. etc.	A.5.a.
B. PROCESSING ACTIVITIES (technicalities)	1. WEAVING AND	a.plain weave (polos); b. twill (kepar); c. satin; d. tapestry (warp faced); e. kelim (slit/ interlocked tapestry); f. damask (flat reversible design); g. rep (weft faced); h.etc.	B.1W.a. B.1W.b. B.1W. ..
	NON WEAVING PROCESS	a.braiding (kepang/anyaman); b. knotting (simpul/ kait); c. netting/knitting/lace (jala/ rajut/renda); d. brocade (weft patterning in bright colors & floated in tabby weave/ twilled ground fabric); e. couching (danpel); f. applique (perca); g. quilting (calam); h. pilih (chosen inserting threads in regular wefts); i. songket (supplementary weft/ warp); j. embroidery (sulam); k. embroidery tufted (lamkorjang); l. sungkit (discontinuous supplementary wefts); m. etc.	B.1NW.a. B.1NW.b. B.1NW.c. B.1NW.d. B.1NW.e. B.1NW.f. B.1NW.g. B.1NW.h. B.1NW.i. B.1NW.j. B.1NW. ..
	2. COLORING PROCESS Dyeing	a. material classification: *natural dyes; ** synthetic dyes. b. general application: * ikat (on yarns); ** batik and plangi/jumputan/tritik (on fabrics). c. dyeing technique (recipe/ procedure): * mono/polychromatic dye (one/more dyes). ** un/mordanted dye (without/with metal salt).	B.2.a.(*) B.2.a.(**) B.2.b.(*) B.2.b.(**) B.2.c.(*) B.2.c.(**)
	Pigmentation	d. material classification: * organic pigments; ** inorganic pigments. e. general application: * printing (sablon); ** free hand painting (colet/ prada). f. pigmentation technique (recipe/ procedure): * adhesive/ binder: cellulosic based (starch, etc.); protein based (animal glue/ ancur; albumen/ putih telor, etc.); etc. ** pigmentation fineness: water-prada (prada air/ yeh); sticking-on prada (prada pel-pel); etc.	B.2.d.(*) B.2.d.(**) B.2.e.(*) B.2.e.(**) B.2.f.(*) B.2.f.(**)



Source: Subagiyo, 1994b.

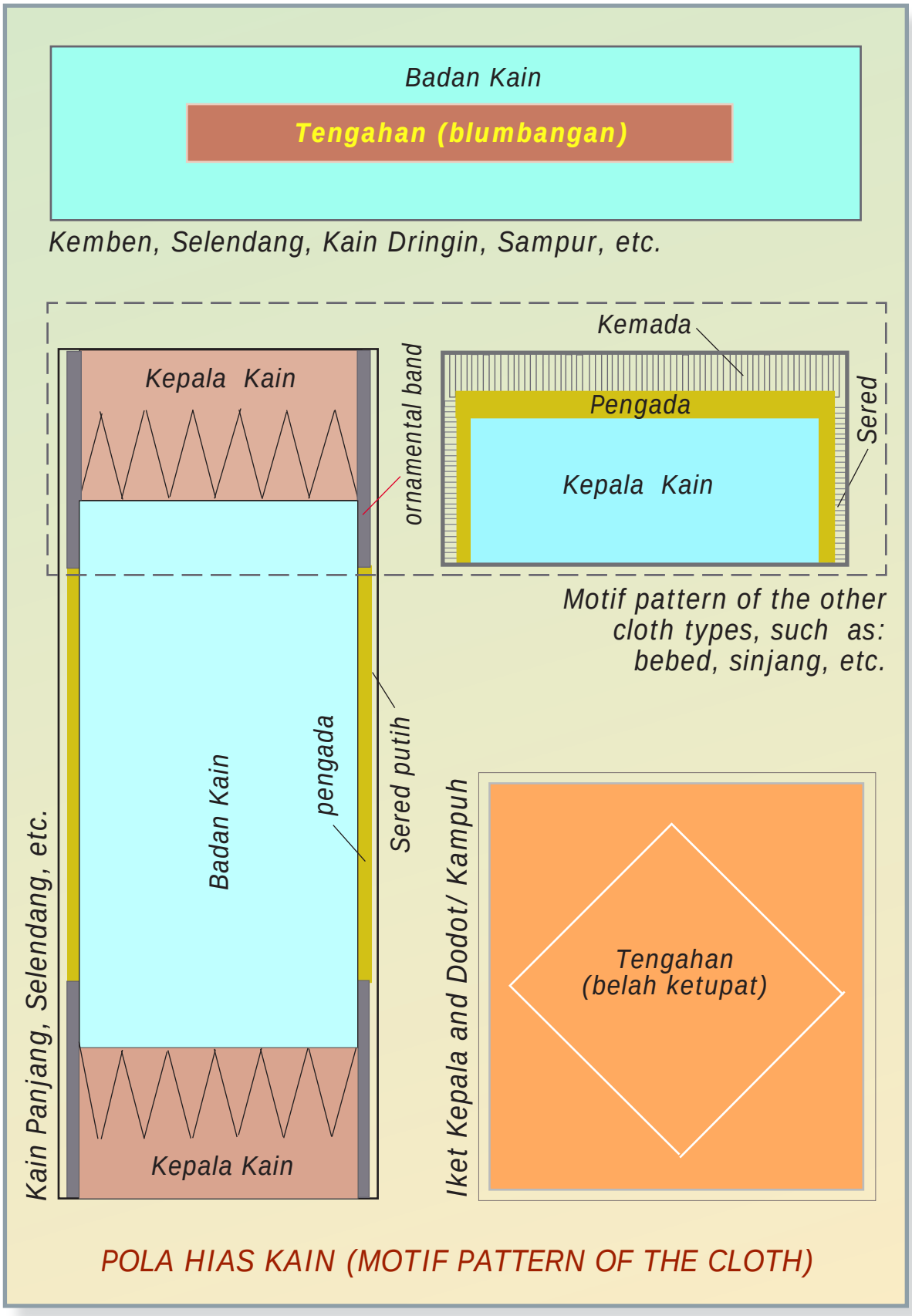
Notes: 1.The derivative names, descriptions and notations are going to be described on figures 3 and 4. Therefore, the stylistic analysis will be simplified by using the notations (for metal application notations are mentioned on table 1b).

Figure 3. Typology and Stylistic Analysis



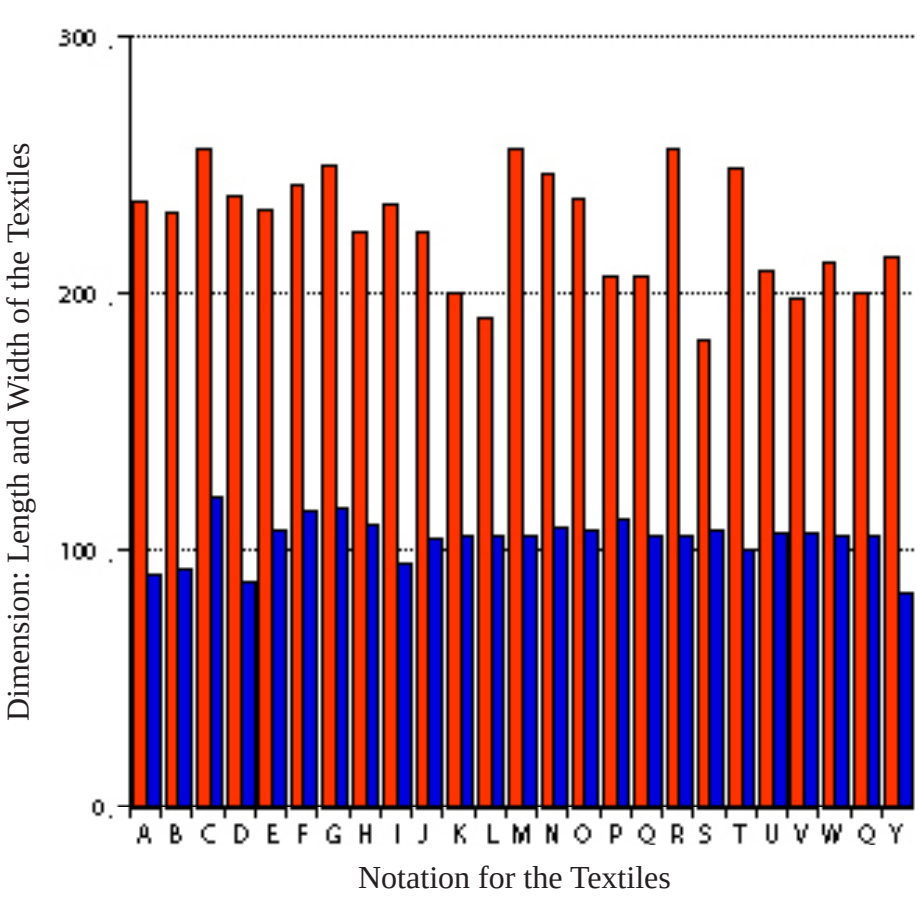
Source: Subagiyo, 1995b.

Figure 4. Patterns & Motifs of the Cloth (Pola Hias Kain)



Source: Norwani (1989:62), Subagiyo (1995b).

Figure 5. Stylistic ~ Dimensional Analysis
With Ranges of Length: 83~120 and Width: 180~256



Notation and Inv. Number of the Textiles

Item #	Notation	Inv. #
1	A	10139
2	B	14311
3	C	17133
4	D	18764
5	E	19061
6	F	19063
7	G	20461
8	H	20466
9	I	20507
10	J	20540
11	K	21380
12	L	21391
13	M	21428
14	N	21466
15	O	21736
16	P	21811
17	Q	23107
18	R	23108
19	S	23113
20	T	23157
21	U	23461
22	V	23472
23	W	23488
24	Q	23579
25	Y	23719 u.

Source: Subagiyo, 1995a.

Table 1a. The Five Categories of Metal Applied on Historic Textiles

Category	Descriptions
I.	Metal applied (with adhesive) to already woven fabrics.
II.	Metal wire or flattened strips.
III.	Metal wire or strips wound around fiber core.
IV.	Metallic surface applied (with adhesive) to organic wrapping wound around fiber core. a. Organic = cellulosic. b. Organic = proteinaceous.
V.	Metallic surface applied (with adhesive) to organic strips. a. Organic = cellulosic. b. Organic = proteinaceous.

Source: Indictor and Ballard (1989:67).

Table 1b. The Renewed Five Categories of Metal Applied on Historic Textiles, Techniques, and Notations

Category	Metal Applied Description and Technique	Notation*
I.	Metal applied (with adhesive) to already woven fabrics. a. powder (prada air or water gilding) b. leaf, strip (prada pel-pel or sticking-on gilding)	K-1 K-1a K-1b
II.	Metal wire or flattened strips. a. flattened strip (embroidery, couching) b. wire (songket, sungkit, tapestry, kelim, lace) c. spirals (embroidery, fringe)	K-2 K-2a K-2b K-2c
III.	Metal wire or strips wound around fiber core. a. flattened strip (songket, sungkit, embroidery, damask, fringe, etc) b. rings (embroidery, couching, etc.) c. disc (embroidery, couching, etc.)	K-3 K-3a K-3b K-3c
IV.	Metallic surface applied (with adhesive) to organic wrapping wound around fiber core. a. Organic = cellulosic (songket, embroidery, etc.) b. Organic = proteinaceous (songket, embroidery, etc.)	K-4 K-4a K-4b
V.	Metallic surface applied (with adhesive) to organic strips. a. Organic = cellulosic (couching, applique) b. Organic = proteinaceous (couching, applique)	K-5 K-5a K-5b

Source: Subagiyo, 1995c.

Notes: * For specific materials (major metal elements), put an extension symbols: 1 for 'gold', 2 for 'silver' and 3 for 'other metals' after the notations above in the brackets '( )'. Example: K-1a(1) means that 'gold powder applied (with adhesive) to already woven fabric'.
Avoid to use 'this extension', if the materials are not recognized correctly.

Table 1c. The References for Renewed Five Categories of Metal Applied on Historic Textiles and Their Notations

Item No.	Inv. No.	Provenience	Accession Date	Notations		
				Metal Application and Materials**	Ground Fabric Technique***	Metal Application Technique***
1	03507	Lombok	26 Jan. 1865	K-4a(2)	B.1W.a (tabby)	B.1NW.i (songket)
2	04728	Aceh	Aug. 1941	K-3a(1)	B.1W.a.	B.1NW.i
3	05819	Madura	13 Jan. 1887	K-3a(1)	B.1W.f & B.1NW.a	B.1W.f & B.1NW.e
4	08341	Sumatera?	2 May 1941	K-3a(2)	B.1W.a	B.1NW.i
5	08677	Dayak Kantuk	Feb. 1947	K-3a(1)	B.1W.g	B.1NW.l & B.1W.e
6	09597	Aceh	28 Dec. 1900	K-3a(2)	B.1W.f	B.1W.f
7	09817*	Palembang	10 Dec. 1900	K-3a(3)	B.1NW.a	B.1NW.m
8	12915	Cianjur	4 Mar. 1907	K-3a(2)	B.1W.a	B.1NW.i
9	13234	Aceh	9 Aug.1900	K-4a(1), K-5a(1)	B.1W.a	B.1NW.e & B.1NW.f
10	21338	Palembang	3 Jan. 1936	K-3a(2)	B.1W.g	B.1NW.i
11	21359	Aceh	2 May 1936	K-4a(1)	B.1W.a	B.1NW.i
12	22050	Sumatera ?	May 1931	K-3a(1)	B.1NW.c	B.1NW.c
13	23113	Surakarta	1938	K-1a(1)	B.1W.a	B.2.f (prada, ancur)
14	23628	Batu Sangkar	3 Jan. 1940	K-2a	B.1W.a	B.1NW.i
15	26494	Dayak Iban	21 Jan. 1949	K-2c, K-3b.	B.1W.a & B.1NW.m	B.1NW.m & B.1NW.e
16	000AA*	Fragment	?	K-3a(3).	B.1W.f	B.1NW.l
17	000AB*	Fragment	?	K-1b(1)	B.1W.a	B.2.f (prada, ancur)
18	000AC*	Fragment	?	K-1b(1)	B.1W.a	B.2.f (prada, oil)

Notes: * P.Y. Subagiyo & Melanie E. Feather with SEM/EDS at Conservation Analytical Laboratory of the Smithsonian Inst. provides that the collection no. AA consists the element of copper (major); no. AB consists the elements of gold (major) and copper (minor); no. AC consists the elements of gold (major) and iron (minor); and no. 9817 consists the element of lead (major).
** These notations refer to table 1b.
*** These notations refer to figure 2.

Table 2. The Examination Results for Three Metal Threaded Clothes

Object Number	General Descriptions: size, color, motif, materials.	Fabric Construction: density, ply, others.	Metal Thread Category & Others [1]	Comments:
TEX.01 (songketed part)	57x332 cm., dark-red; silk.	22/20; plain-weave (1/1); warp=light red, weft=dark red.	K-3a(2), WS=A, TN=S; Core= silk, goldish yellow.	Kain Dringin.
(non-songketed part)	57x332 cm.; diamonds, waru, S-letter; dark-red; silk.	25/28; plain-weave (1/2); doubled wefts, single warp.	———	
TEX.02 (songketed part)	93x224 cm.; stars, tumpals, diamonds, tendrils; dark-red; silk.	27/22; plain-weave (1/2); warp=light red, weft=dark red; doubled wefts, single warp; wefts plied more tightly than warps.	K-3a(2), WS=A, TN=S; Core= silk, yellow, PN=3, TN=S.	Sinjang.
TEX.03 (songketed part)	95x228 cm.; waru, tumpals, diamonds; dark-red; silk.	36/24; plain-weave (1/1); warp & weft=dark red, weakly plied.	K-3a(2), WS=A, TN=S; Core= silk, yellow, PN=2, TN=S.	Sinjang.

Source: Subagiyo, 1995c.

Table 3a. The Examination Results for Reference Clothes

Object Number	General Descriptions: size, color, motif, materials.	Fabric Construction: density, ply, others.	Metal Thread Category & Others [1]	Comments:
23113 b. (56B/2)	108x182 cm., dark-red; silk.	19/14; regular warps and wefts.	K-1a(1).	Kain Cinde, Prada, Surakarta, Acc. date: 1938.
4728 (60B/5)	———	32/32; regular warps and wefts.	———	Kain Songket, Java.
23260 (60B/3), Embroidery, China.	30x104cm.; human, flowers, tendrils, birds; dark-red; cotton.	———	K-4a(2), TN=Z; Core= silk, light red, PN=3,TN=S(Z/Z/Z).	Embroidery, Couching, China.
23276 (60B/3), Embroidery, China.	46x144cm.; human, flowers, dragon; dark-red; cotton.	———	K-4a(1), TN=Z; Core= silk, light red, PN=3(2/2/2), TN=S(Z/Z/Z).	Embroidery, Couching, China.
13b/L.95 Embroidery, (?).	83x200cm.; flowers, tendrils; blue, green, orange, red, yellow, violet; silk.	———	K-3a(2), TN=Z; Core= ramie?, light red, PN=2, TN=Z. K-4a(1), TN=Z; Core= ramie?, light red, PN=2, TN=Z.	Embroidery, Couching, (?).

Source: Subagiyo, 1995c.

Notes:

1. PN = Ply Notation; TN = Twist Notation; WS = Width of (metal) Strip in mm., with three categories, i.e.: A = narrow, 0.25-0.50 mm., B = medium, 0.60-1.00 mm., C = wide, > 1.00 mm. (Indictor & Ballard, 1989:74).

Table 3b. The Examination Results for Reference Clothes

Object Number	General Descriptions: size, color, motif, materials.	Fabric Construction: density, ply, others.	Metal Thread Category & Others [1]	Comments:
5821 (5B/2), Songket, West Sumatera.	———	———	K-4a.; core= silk, yellow, PN=6?.	———
10790 (?) (15B/2), Songket, Aceh.	80x419cm.; stars, tumpals; dark-red; silk.	———	K-4a(1), TN=Z; Core= silk, natural.	Songket & Sungkit, Aceh.
21359 (15B/3), Songket, Aceh.	64x254cm.; stars, tumpals; dark-red; silk.	———	K-4a(1) with 'bole', TN=Z; Core= silk, natural.	Songket, Aceh, Acc. date: 2 May 1936, 17th c. (?)
8341 (5B/2), Songket, Sumatra.	55x190cm.; stars, diamonds; dark-red; silk.	———	Doubled K-3a(1), TN=S; Core= silk, natural, PN=3.	Songket, Acc. date: 2 May 1941.
3507 (54B/9), Kampuh/ Saput, Lombok.	81x594cm.; jelamprang, tumpals; dark-red; silk.	———	K-4a(1) with 'bole', TN=Z; Core= silk, natural, PN=2.	Songket, Acc.date: 26 Jan. 1865, 17th c. (?). Registered by R.M. Soedibio at 4 May 1940.
12915 (60B/5), Songket, Java.	130x190cm.; diamonds; dark-red; cotton.	———	K-3a(2), TN=S; Core= silk, natural, PN=2.	Songket/ Sungkit, Cianjur-Priangan. Acc.date: 4 March 1907.
1095 (60B/5), Songket, Java.	62x200cm.; diamonds, kembang lombok; green; cotton.	———	K-3a(2), TN=S; Core= silk, yellow.	Songket/ Sungkit, Sukapura-Priangan.
1096 (60B/5), Songket, Java.	61x226cm.; diamonds; dark blue; cotton.	———	K-3a(2), TN=S; Core= silk, yellow.	Songket/ Sungkit, Sukapura-Priangan.
28522 (5B/2), Sungkit, Sumatera.	64x246 cm.; 8-pointed star in a diamond, hook & rhomb, geometric pattern; dark red; silk.	———	K-4a(1), TN=Z; Core= silk, natural, PN=3(2/2/2), TN= Z(S/S/S).	Songket/ Sungkit, Sumatera.
8677 Kalambi, Dayak - Kalimantan.	———	———	K-3a; Core= silk, goldish yellow.	Tapestry, Rep, Kelim.

Source: Subagiyo, 1995c.