

JACQUARD PATTERNS IN HANDLOOM SARIS OF TAMIL NADU

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Abstract: *This paper discusses the prevalence of jacquard patterns in hand loomed saris of Tamil Nadu, India. While the jacquard system is now adopted by several weaving centres in the country, contemporary silk hand loom saris of Tamil Nadu showcase the immense range of designs possible with this modern technique, albeit with loss of traditional aesthetics.*

The traditional pattern repertoire of Tamil Nadu was geometric and simple. However, two major developments have impacted the design character of contemporary saris woven in the State. Jacquard shedding and textile CAD have emerged as revolutionary phenomena in design making, resulting in designs of great complexity, and at the same time simplifying the process of pattern formation on the handloom. I cite specific examples of design intervention by the co-operative sector as well as leading mainstream stores in Chennai, the State capital of Tamil Nadu, wherein, designs ranging from large narrative canvases to lengthy border repeats have transformed the handloom sari into a canvas for diverse themes drawn from the Indian panorama.

Keywords: *silk, sari, handloom, jacquard, Textile CAD*

1. Introduction

This paper examines the prevalence of jacquard weaving in the handloom traditions of Tamil Nadu, India. Tamil Nadu ranks among the major handloom weaving states in the country, with well-established co-operative and private networks of production. Based on my research that began in the first decade of the twenty-first century, I outline the influence of jacquard patterning and textile CAD in sari design. Both modern systems have impacted indigenous methods of pattern formation while enabling new trends in mainstream design.

The paper also contrasts the traditional method of pattern formation against the modern, thereby highlighting the scope and range of contemporary design trends. I cite specific instances of design developments by the Tamil Nadu Handloom Weavers' Co-operative Society Ltd., better known as Co-optex, as well as those initiated by two major private stores in Chennai – Rm. K. Visvanatha Pillai & Sons, popularly known as RmKV, and Pothys. Co-optex is the largest, oldest and one of the most effective of its kind in India. As apex body for the handloom co-operative weavers of Tamil Nadu, its design endeavours are directed by policies framed by the State Government. Developments by RmKV and Pothys are representative of private initiatives that have triggered major trends in handloom sari design. Both are popular mainstream stores in the commercial hub of Thyagaraya Nagar (T. Nagar) in Chennai, with branches in other cities as well.

2. Traditional Pattern Formation

In Tamil Nadu, the *kaitari selai* (handloom sari) was traditionally woven on simple throw shuttle pit looms with a ground of plain weave in cotton, mulberry silk and subsequently, mixed silk and cotton varieties. Framed by lateral borders and edged by the *pallu* (outer end-piece), the sari's lengthy planar space was distinguished by meticulous compositions of colour and pattern. Colour was particularly integral to the Tamil Nadu sari's identity, as it was often used in solid sections to demarcate the sari's constituent parts of body, border and *pallu*.

2.1 The adai system

Saris were patterned with the *adai*, an indigenous shedding device. The patterns were woven in yarn or in the case of finer saris, with *zarigai orzari* (gold plated silver wire wrapped around a degummed, twisted, mulberry silk core). The *adai* enabled extra warp patterning of borders; and extra weft patterning of the body motifs and *pallu*. The technique required the skills of an *adai* maker and worked on the principle of the stationary centre closed shed with a rising and falling top. Technically, the encoding of the extra warp border pattern was controlled by the *jungu*, while the extra weft *pallu* and body patterns were controlled by the *adai*. But it is common to refer to both devices by the generic term *adai*. The design was expressed as a graph for the picks to be encoded in sequential order; each blank square on the graph being related to a cross thread that was connected to its own loop. All loops in one pick were collectively tied in a bunch that was controlled by one *jungu* cord (or the *adai*). The entire assembly of encoded threads was mounted on the loom and each

cross thread was linked to a design heald with a glass bead in the middle and an iron needle called lingo at the bottom. The extra warp ends were passed through the glass beads. The *jungu* cords, each of which represent one pick, were operated sequentially to enable the design formation. Each *jungu* cord is equivalent to one punched card in the laced set of jacquard cards required for one repeat formation. Just as there are standard jacquard arrangements of 120 or 240 hooks, the complexity of *adai* patterning could be measured in terms of the number of *jungu* cords that were required to complete one repeat formation. With each pull of the *jungu* cord, the shed opened, bringing the corresponding extra warp ends above the sari ground. Two picks were woven to form the ground of the sari between each lift of the *jungu*.

2.2 Traditional patterns

The traditional pattern repertoire comprised striped and checked arrangements of yarn; as well as extra warp and weft *buttisand buttas* (small or large motifs introduced through spot weaving); and *pettus* (extra warp borders), many of which were developed as *getti pettu* (dense bands). More elaborate borders and *pallu* cross-borders were constructed by using one or two motifs as dominant elements and repeated in rows, or framed by other, smaller, supporting motifs and linear patterns. Complex patterns were introduced at the turn of the twentieth century, inspired particularly by the textiles of Benaras (presently Varanasi in Uttar Pradesh). However simple or complex, all designs conformed to a “graphic, two-dimensional style”[1]. The two-dimensionality resulted from patterns being geometricized to conform to the grid structure of woven cloth. The human figure was traditionally excluded from the pattern repertoire and made its appearance in marketed handlooms only in the last quarter of the twentieth century, although designs such as portraits of Queen Victoria were woven during the colonial period.

3. Pattern Formation with the Jacquard System

Unlike traditional shedding with harnesses that lift sets of ends, the jacquard system allows each warp thread to be controlled individually. Punch cards control the sequence of picks in a design repeat. As it is possible to lift warp threads in any order and number for each pick, the process offers the highest level of warp yarn control. This enables unlimited varieties of pattern weaving and permits large and complex repeats.

Although the jacquard was introduced into the Tamil region in the first quarter of the twentieth century to facilitate the weaving of bordered cloth, it was adapted for sari weaving much later. Arani is considered to be the first to embrace the new technology in a large scale in the State. Arani practiced single shuttle weaving unlike other centres where three shuttle weaving was used for weft interlocks of solid colour contrasts to differentiate between body and borders (*korvai*). The jacquard figuration was easily adapted to single shuttle silk weaving. Conservatism among the weavers and the additional costs of loom modifications delayed the acceptance of the jacquard in older and well established silk centres. In the early 1960's, ninety five jacquard devices are recorded to be in use in Kancheepuram, and that too only by weavers' co-operatives [2]. The bulk of the centre's famous silks were all patterned with the *adai* (Figure 1). In 2013, the *adai* has almost become a relic of the past and is discussed with nostalgia by older weavers and textile enthusiasts as a lost artisanal trait of the Kancheepuram tradition. Further, jacquard weaving fetches higher wages for the weaver and is employed to implement even simple patterns that could have been easily achieved with the *adai*



Figure 1. Weaving with the *adai*
Kancheepuram, August 2004



Figure 2. Multiple jacquard system
fitted above a throw shuttle pit loom

There was no significant change in design vocabulary when the jacquard was first introduced. The 1952 report by the Textile Enquiry committee set up by the Government of India mentions the weaving of fabrics with intricate body patterns as being outside the capacity of jacquard devices prevalent in the mid-twentieth century. On the other hand, contemporary jacquard patterning demonstrates major advancements in design complexity. Even while working within the parameters of single and double jacquard fitted pit and frame looms of 120 and 240 hook capacities, designers have created large scale repeats and complex pattern combinations within the same sari by using the multiple jacquard systems (Figure 2). This features a combination of shedding devices that include two healds to control the ground ends, a separate jacquard to control extra warp ends in the border and other jacquards to weave extra weft designs in *pallu* and *buttas* or patterns in the body. As illustrated by Figure 3, four repeats have been developed by designer R. Shanmuga Magesh for the sari designed for Co-optex. Cards encoding the border repeat will be set on one box. Two repeats will be used for the *pallu*, and the fourth will form the body pattern.

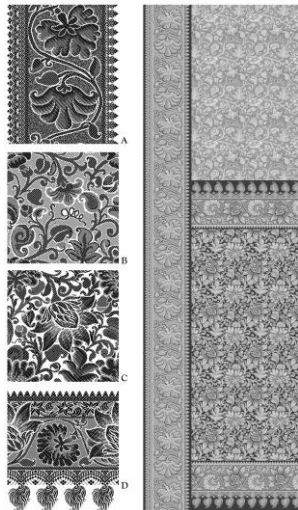


Figure 3. Artwork by R. Shanmuga Magesh, Vishal Textile Studio, Chennai, for wedding sari commissioned by Co-optex, 2004 – 2005. Artwork courtesy of the designer



Figure 4. Khajuraho Sari, *Divine Collection*, Pothys Image source: Pothys print advertisement, The Hindu, Space Marketing Feature, 16 October 2006, 1, Chennai edition.

In the case of larger patterns, such as a single selvedge to selvedge *pallu* repeat, the cards are split into multiples of 240 and 120 hook jacquard boxes that operate in conjunction with each other to control the shedding required for each pick. I cite another design by Magesh, this time developed for Pothys. The *Khajuraho* sari *pallu* was woven using three jacquard boxes in a 'V' draft configuration, and a separate box for the border repeat (Figure 4). In 2013, Co-optex released a new line of wedding saris that would be custom made on order with woven portraits of the bridal couple on the *pallu* (Figure 5). Equalling the complexity involved in such *pallu* designs, are extremely lengthy borders. RmKV's tribal art inspired *Chitra Worli* [sic] (Warli) silk sari featured a continuous border repeat that extended from the edge of the *pallu* to nearly 3 metres into the body and an elaborate 2000 hook *pallu* jacquard requiring over 40,000 cards. The store has developed a signature line of designer saris numbering over thirty two that it refers to as "theme silks" or *kadhai sollum pattu* (narrative silk). Of these, the *Hamsa Damayanti* sari has a *pallu* woven with a panel replicating the 1899 painting of the same name by Raja Ravi Varma (Figure 6). The design was controlled by 55,000 jacquard cards, of which 10,000 formed the lengthy border repeat. Complex jacquard configurations have also been used in non-pictorial designs. In 2007, Pothys released a floral themed sari called *1000 Pookkal* (flowers) composed in a checked layout that required 1, 56,391 cards in a 2,400 hooks jacquard repeat.



Figure 5. Pallu of wedding sari, Co-optex, 2013



Figure 6. Hamsa Damayanti theme silk, RmKV



Modelled sari photograph courtesy of RmKV

4. Computer Aided Design

The design possibilities of the jacquard are immense and wide ranging, especially when realized in conjunction with Computer Aided Design, better known as CAD. The procedure for converting art work into jacquard CAD involves the following steps: “motif drawing” either directly on the computer or scanning images from paper or cloth; “editing” the motif to arrive at a single colour outline; “colouring” the outline and ground according to envisioned areas of different weaves; “weave mapping” to assign weaves for every coloured area; “float checking” to control excessive floats and check bindings; “yarn mapping” to assign warp and weft yarn in required count, twist, colours and other parameters; and generating the graph representation for preparation of the jacquard cards. CAD facilitates easy and quick translations of the weave design as the pixel grid of the computer monitor can be equated to the point paper used in conventional repeat formations, and the screen resolution of the monitor can be configured so that each vertical pixel represents an end, and each horizontal one, a pick. The ease with which complex designs can be translated into weave repeats, and woven with the convenience of the jacquard has enabled designers to cross conventions and explore imaginative patterns and layouts for the sari. Further, weave mapping allows a variety of interlacements between the extra warp and weft yarns and the ground fabric unlike the earlier two dimensional horizontal floats which distinguished the surfaces of traditionally woven motifs. CAD is recognized as a means of enhancing and rejuvenating handloom production by many interested parties, including government policy makers.

5. Design trends

My research indicated that the unprecedented variety and complexity of contemporary sari designs achieved through jacquard weaving and textile CAD has been one of the most significant developments in the contemporary handloom scenario of Tamil Nadu. Motifs have been adapted from non-textile sources like architectural and sculptural forms traditionally visited for small ornamental patterns but now captured in their full and monumental scale. Figures appropriated from painted traditions and other sources including photo realistic and calendar imagery affirm the frequent crossing of borders between high and popular art as well as art and craft in postmodern practice.

As illustrated by the RmKV *Hamsa Damayanti* theme silk (Figure 6), new meanings emerge through the referencing of culture and country which transform the sari into a sari-canvas, communicating ideologies of myth and nationalism, and reasserting the past through icons that are new to tradition. The figurative content of contemporary design is a bold statement of newness that defies classical aesthetics while being typical of postmodern preoccupations with the image. In the same genre are saris that celebrate Tamil heritage as evident in the *Thirukkural* sari, woven by the Sirumugaipudur Sri Ramalinga Sowdambigai Weavers’ Co-operative Society, under the aegis of Co-optex in 2008. The *pallu* of the sari bears the image of the Tamil sage-poet Thiruvalluvar. His treatise on ethical living, the *Thirukkural*, containing 1330 *kurals* (aphorisms written as couplets) is woven in sequentially numbered text boxes on the body of the sari. The sari also carries images of monuments erected by the Government of Tamil Nadu to honour Thiruvalluvar. The society claimed to have woven the sari as a prototype for handloom possibilities, using 96,450 jacquard cards, at a cost of Rs. 327,000.

At the same time, it is observed that not all saris are conceived as pictorial compositions. The majority of contemporary designs are floral or geometric, but with far greater intricacy. Several saris feature hybrid and eclectic groupings of motifs, showcasing a “cut and paste” design culture.

6. Conclusion

As shown in the examples presented in this paper, the prevalence of the jacquard system in Tamil Nadu has effected a radical shift in design character by facilitating the weaving of complex and large scale designs. Textile CAD has likewise widened the design repertoire of the State. Designs featuring intricate patterns, flamboyant *pallus*, narrative compositions and lengthy border repeats have transformed the handloom sari into a canvas for diverse themes that showcase the heritage of the State and country in large scale splendour and minute detail. Nevertheless, indigenous artisanal skills have declined and traditional design aesthetics has been compromised by the emergence of these new design trends. The handloom sector is now sustained by modern technology to produce saris that are as much products of the machine as they are of the hand.

References

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All photographs unless otherwise acknowledged are by the author. Tamil terms are transcribed as close as possible to vernacular pronunciation, with the English morpheme plural-s added to express plurality.

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