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The Social Fabric: Deep Local to Pan Global

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Rahul Jain's Reimagined Velvet Drawloom

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When renown textile historian and researcher Rahul Jain invited me to come to India to see his reimagined velvet drawloom, I jumped at the chance, gathered a group of close friends/textile colleagues, and booked flights that brought us to Mumbai, and then Varanasi in January 2016. In the group was Eva Basile, longtime Jacquard instructor for the Foundation Lisio in Florence, Italy; Judy Ness, tapestry weaver; Rolly Thompson, expert on alpaca/sheepwool breeding and Peruvian textiles; Carol Ventura, art historian at Tennessee Technical University and Guatemalan weaving scholar; and Michael Pickett, my son and business partner in Mihara Shibori Studio. I highly recommend doing fieldwork with colleagues because each lends expertise and insight: awareness increases, and experiences are enriched. I am especially thankful for Carol Ventura who took the majority of photographs during our visit. Not only is she a much better photographer than I am, but she freed me to concentrate on comprehending the loom and its workings.

The loom was not located in the ancient city itself but in a traditional weaving village, Cholapur, 15 kilometers away. It was well off the beaten tourist trail and took an hour's drive over very rough roads. Not on the map, few road signs, none pertaining to Cholapur, lack of street signs and house numbers, it was difficult even with guides and directions. Like doing fieldwork in Turkey and Uzbekistan, it would have been impossible for me to gain entry as an outsider, but with Rahul Jain's blessing, doors opened wide. In Cholapur masterweaver Shamin Ansari warmly welcomed us to his family, home and workshop.

Velvet is a pile weave structure. Its tufted surface takes two sets of warps, a supplementary pile warp and a ground warp and crossing ground wefts and velvet wires. The pile is created by lifting the pile warp over a slim channeled or round velvet wire and then weaving it in with ground wefts. Common grounds include plainweave taffeta, basketweave gros de Tours, and satin on 5 or satin on 8. The number of weft shots between velvet wires depends on the ground weave. Likewise, the interlacement of the pile warp and the ground depends on the ground weave, but generally occurs towards the middle. In plainweave ground, the velvet wire is typically followed by three wefts with the interlacement on the second shot. Generally, each dent in the reed has one or several pile units and the ground warps to support it. In cut velvet, several velvet wires must be woven in before the first wire can be safely released by inserting a sharp blade in a miniscule groove on the top of the wire and drawing it down its length. In uncut velvet, round velvet wires are inserted, and woven with the ground, and then withdrawn, one by one, leaving rows of tiny loops. Typically, a western velvetweaver works with a set of three wires but the number varies depending upon the type of velvet, the sett, the threads, the ground weave, etc. Unlike some Asian velvets, all the cutting is done while on the loom. In velvet the pile surface is the right side of the cloth, and the velvetweaver weaves it right side up. In solid velvet all the pile units are lifted over the velvet wire and then woven into the ground. Row by row the pile surface forms making an even plane. In figured velvet not all the pile is raised but follows a point paper design drawn on graph paper which indicates the pile units to be lifted in any given horizontal row of the design. The areas with no pile, voids, are equally important design elements. The higher pile plane is a plateau above the lower ground plane. In Italian the term *cesellato* and in French the term *ciselé* refer to this chiseled out appearance; however, these

weavers use these terms specifically for figured velvets with cut and uncut pile with voids. The velvet we saw on Rahul Jain's loom was a voided velvet with all-cut pile and satin on 5 ground. Rahul Jain's velvet drawloom is a formidable sight. Although I first felt overwhelmed, my 35 years of experience handweaving figured velvet on a manual Jacquard loom at the Foundation Lisio and my research on handweaving velvet practices at other ateliers in Italy, France, England, Japan, and Turkey boosted my confidence to persevere and make sense of this diaphanous complexity of silk threads. To steady my nerves I told myself, it's a loom, just follow the warps, see their paths, figure out how warp tension is maintained, and what makes the sheds. Also, my study of the Zhang rong velvet drawloom at the Silk Museum in Suzhou, China served as a valuable tool to compare and contrast the systems.

The velvet drawloom dominates the workspace comparable to a large middleclass living room. Since no description in the literature of the seventeenth century Mughal velvet drawloom or its operations exists, Jain undertook experimental archaeology. He carefully examined Mughal velvets in museum collections and did extensive analysis of the specimens in the Calico Museum in Ahmedabad. In 1993 he formed ASHA, a drawloom weaving workshop in Delhi. If 'ASHA' is an acronym, my research was unable to reveal its long form. He gathered his team of young, skilled artisans who were open to experimentation and hypothesized with them, explored, prototyped, and fabricate the tools and apparatus that could reproduce high quality Mughal and Safavid silk fabrics. It took two years before they achieved the results they desired. Their first exhibition called 'Minakar: Spun Gold and Woven Enamel' viewed at the Delhi National Museum in 1997. In Delhi Jain's team first modified standard modern floorlooms. but for the reinvention of a velvet drawloom, he moved the operations to Cholanpur, the home territory of the Ansari silkweaving clan, where there was a strong traditional for weaving famous Benaras brocades using a pit drawloom. This loom differs from other traditional Indian drawlooms in that it employs a jack system to raise shafts and has a warp beam with a pawl and ratchet system to advance the warp and maintain good warp tension. Jain directed the project and a dedicated graduate student worked on-site with the artisans.

photo taken by Carol Ventura at Shamin Ansari's workshop in Cholanpur, India

Like other Indian handlooms, the masterweaver works seated at ground level with the treadles below ground level, out of view, and the jacks to raise the warps overhead. At his back large

windows shed even light over the work area. Before him stretches the impressive loom, not a heavy, sturdy frame but a collection of light-weight wooden parts and lots of dangling string. Although it appears relatively flimsy compared to hunky western looms, this pit loom has stone-slab uprights that are driven deep into the ground. The loom is stable and has no need to be bolted to the floor or walls for support. Now for an overall look at the parts of the loom as seen from the masterweaver's point of view. Parallel to the front of the loom is the beater with its reed. Behind it is a bank of 21 shafts, above are the jacks and cords that attached to seven treadles below. In back of these shafts is the bewildering system of crosscords and drawcords that make the pattern lifts, then the platform for the draw person who controls the pattern lifts and is perched above the three planes of pile warps and the closer to the floor ground-warps plane. When at rest the ground warp is tensioned between the cloth beam in front and the warp beam in the back of the loom. Still further back is the velvet bobbin rack, a bleacher-like wooden structure holding the pile warps wound on quills.

photo taken by Carol Ventura of the figured velvet on the velvet drawloom

The exquisite figured velvet on the loom was a voided cut velvet design. The cloth measured 36 inches from selvage to selvage, a standard weaving width for powerlooms, but much broader than most handloomed figured velvets. The all-cut pile design had a cluster of stylized tulips, in full bloom and bud, repeated four times across the width of the fabric. The coral flower petals sprang from graceful light green leaves outlined in dark green. Each cluster stood like an island surrounded by a lower field of sky-blue silk. The blue silk facing weft concealed the satin on 5 ground of gold silk. The floral cluster itself was bilaterally symmetrical on a vertical axis: the righthand side mirroring the left. This clever design trick simplifies the pattern lifts; however, the tulip clusters were repeated in half-drop up the fabric which meant two complete sets of pattern lifts and twice more work. Just visible at the top of the woven web is the start of the half-drop repeat which makes the brick-like format. At the selvage near the top of the woven cloth one can get a glimpse of the prongs of the underneath temple that stretches the cloth crosswise and keeps the width constant. A beige cloth covers the woven velvet protecting it from any abrasion from the weaver's movements. The woven velvet disappears into the pit. A cloth beam on which to store the woven velvet is not visible. Jain said that they wove lengths of two or two-and-a-half meters so perhaps the storing of the woven velvet without crushing it is less of a problem.

photo taken by Carol Ventura of the point paper design

The point paper design of the floral cluster was drawn on graph paper measuring 10 squares by 10 squares. The right side is mirrored on the left. One side took approximately 120 to 130 squares to complete one repeat. In the photograph the weavers are holding right and left sides of drawn on point paper motif so that we could see the full design motif.

Directly in front of the weaver is the swinging beater that hold the metal reed, the *phanni*. The reed is divided into spaces called dents, *ghar*. It establishes the sett which is the density of the warps and the width of the cloth. This velvet uses a reed with 40 dents per inch. The pile and ground warps are sleyed through the reed in precise order. In each dent are five gold silk warps to weave the satin on 5 ground and three pile units, one coral, one light green and one dark green. From a similar sample of the velvet cloth that Rahul Jain gifted me, I cannot determine if the three pile colors were sleyed in succession and then the five ground warps or if in each dent the ground wefts were split into two groups to flank the three piles. This splitting up of the grounds into a group on either side of the pile is a common practice at other ateliers because the pile is sandwiched in and thus clenched more firmly in place. Another visit would help me clarify these details and most probably raise other questions.

photo taken by Carol Ventura of the beater and 21 shafts

diagram drawn by Barbara Setsu Pickett of clasp heddles

Behind the reed are the 21 shafts, *kandhi*, that create the sheds needed to weave this figured velvet. In weaving a shed is made when the warps separate into two levels, one level above the shuttle carrying the crossing-thread, the weft, and one level below. But first understanding the Indian heddle is crucial to comprehending the whole system. On western looms the metal heddles are held on a frame and string heddles slung between an upper and lower bar. Both are called shafts. Both heddles have a fixed eye at the midpoint, and the warp passes through that eye and subsequently lifts or lowers in conjunction with the shaft. On Indian drawlooms, the heddle, *bai*, is formed by a pair of string loops, one from an upper bar and one from a lower bar, that clasps at the center. The warps enter either above or below the clasp. Every set of raising shafts has its counterpart of lowering shafts. The sinking shafts are tied up to an intermediate bar, the *paosar*, to equalize tension and then to a treadle. When a treadle is depressed, a sinking shed is created. The rising shafts are controlled by treadles attached to a simple jack system that causes the shaft to rise when the treadle is depressed.

The bank of 21 shafts govern the movement of the pile warps acting as a unit, *en masse*, the ground weave, and the sheds for the embellishing facing wefts. The 21 shafts arrange in five successive groups. Working back from the reed, the first three shafts lower the pile warps; behind them are five shafts to lower the ground; then three shafts for raising the pile for interlacement; then five shafts that weave the one-over-four twill facing weft; and lastly five shafts for raising the satin on 5 ground.

photo taken by Carol Ventura of Belal Ansari preparing a pattern lift of pile

Behind the bank of shafts is the heart of the drawloom, the apparatus that allows specific pile units to be lifted to form the design. It is an ingenious system of crosscords and vertical drawcords with their accompanying leashes. It takes only string and cord, no expensive heavy equipment, but incredible understanding. I was reminded that my mentor Ruth Clark once told me a general rule that the lower the technology, the greater the skill needed. Rahul Jain jokingly told me too that string is cheap and easily replaced. The horizontal bank of crosscords, the *paggia*, stretch about a foot off the floor held in place by sturdy stone uprights. Each crosscord handles a specific selection of piles following the point paper design. A leash, a *naka*, makes the selection by a knotted string loop that goes around the pile unit or units and returning to the crosscord. The number of pile units encircled depends upon the *découpure*, the step determined by the design. The smallest step is one, meaning that each square on the point paper design represents a single pile unit. This is the most refined step and makes for the smoothest curves in designs. For slightly coarser renderings, each square stands for two adjacent pile units to work in unison, and this velvet has that *découpure* of two. Each crosscord has the number of these loops, more accurately called leashes in drawloom terminology, needed to create the design across the width of the warp. The floral pattern we saw had four repeats of the flower clusters across the width of the warp so that selection would be repeated four times on that crosscord. If the pattern design needed 200 different lifts, then the *paggia* would correspondingly have 200 crosscords. Attached to each crosscord is a vertical drawcord, a *naqsha dori*. Similar to the *paggia*, it also has a leash, the *kheva*, similar to the *naka*. In the simplest of pattern weave sequences there would be one crosscord for each row of design and its vertical cord. The sequence of pattern lifts is similar to the treadling sequence on standard floorlooms or the lags in a dobby chain. For this velvet I noticed that the *kheva* leashes were color coded, green and coral, to indicate the parts of the design they controlled. This *naqsha* system was organized into four groups, two groups for the four repeats of the design and two more groups for the next half-drop set. My present understanding of *naqsha* is rudimentary at best, but I plan to continue my research, delve into its subtleties and unravel the mysteries of the *jala* system for translating a to-scale design sketch into a drawloom mounting. I realize that I have lots to learn. There is no better way to find the holes in your knowledge than to couple hands-on experience with feedback from a kind and willing mentor.

photo taken by Michael Pickett of the mantha, the pattern-lifting fork

photo taken by Michael Pickett of Belal Ansari using the mantha

Directly in back of the *naqsha* is the platform where the masterweaver's younger brother Belal performs his job. The ground warp travels from the warp beam held close to the floor and goes under the reed with its three layers of pile—the coral on top, the light green in the middle, and the dark green below it. For a pattern lift of the pile he pulls the *kheva* leashed towards him and gathers up the vertical drawcords on a large wooden forklike tool, the *mantha*, and twists it to raise the selected pile units. Then masterweaver's wife Rijvana inserts the left-side wooden angle hook, an *ankda*, and Shamin enters its partner hook on his right to equalize the pattern shed opening.

photo taken by Michael Pickett of the ankda, the angle hook, to hold the pattern lift

photo taken by Carol Ventura of the squared cloth beam that holds the ground warps and the reed that organizes the pile

The pile warps travel under the Belal's platform through another reed further back and under a rod, one for each pile color, then onto the velvet bobbin rack. The rods separate the pile into three layers with the coral pile on the top level, the light green pile in the middle, and the dark green pile at the bottom level. The ground warp goes under this secondary reed and is securely wound on a squared-off warp beam, the *tur*. Notice that stone uprights provide the support and tension for the ground warp. I realize now that I did not see any lease sticks for the pile units to indicate their precise order. When a pile unit breaks or needs replacement, a cross would tell exactly where the new pile needs to go.

photo taken by Carol Ventura from the narrow path between the left and right-side sections of the velvet bobbin rack

photo from Rahul Jain of the entire velvet drawloom and pile bobbin rack viewed from the left side

Jain's velvet bobbin rack is pure invention unlike any other that I have studied. It holds and organizes the 4200 pile units wound separately on quills. It reminded me of bleachers in a sports stadium or a Roman amphitheater with its stair-step seating. There were four sections of bleachers, two on the right side and two on the left with a narrow walkway down the center. Each section held 1050 quills, i.e. 350 quills for each pile color. The quills were organized on ten horizontal wooden slats: each slat was drilled with 35 sheathed holes through which one pile unit passed. The lowest tier was at the bottom and each tier stepped back higher and wider. This stepping out insured that the dangling quills would not foul each other. The topmost 10th tier was above my head. On the wooden slat the three sheathed holes look like a diagonal twill line with the coral pile warp on top, then the light green pile and then the dark green pile at the bottom. Each quill is weighted with a ten-gram, 'U' shaped weight to maintain even tension. From the masterweaver's viewpoint the pile unit closest to the left-hand selvage comes from the lowest slat on the outer left section the set of three holes nearest to the masterweaver.

photo taken by Michael Pickett of father Shafi Ulla Ansari as he monitors the pile

The weave sequence includes all the lifts and falls of the shafts, the passing of the shuttles, and the entering and removal of velvet wires. One complete sequence makes one line in the graphed point-paper design. It is a slow process requiring unrelenting focused attention and coordination. It takes four persons to weave the cloth, and a full day's production only yields one inch or two centimeters of woven figured velvet. The masterweaver sets the pace and leads the operation. He works on the right side of the cloth, not on the wrong side as in brocade weaving. He sits and operates the seven treadles that lowers shafts and the overhead levers that raise them. It is his skill that achieves the exquisite woven cloth with dense even pile of the floral design contrasting with the field of glistening blue ground. The density of the pile is significantly greater than in many European velvets that have 13 to 15 piles per centimeter. The masterweaver's three helpers have less demanding jobs. Their tasks require close attention but less skill. Shamin's younger brother Belal controls the pattern lifts. He pulls the drawcords following the design sequence, increases the separation and lift by inserting a large wooden fork device, the *mantha*, making sure that the pattern shed is clean. The masterweaver's wife Rijvana sits to left of her husband. Her job is to insert the left-side wooden angle hooks, the *ankda*, to widen the pattern shed opening while Shamin places its partner hook on the right side. The brothers' father, Shafi Ulla Ansari, also a masterweaver, patrols behind the velvet bobbin rack's four sections and

troubleshoots the quills. He fixes pile breaks and eliminates snags or tangles. Uneven tension in the pile causes flaws in the velvet. He uses the narrow walkway between right and left side banks to reach problems.

photo taken by Carol Ventura masterweaver Shamin Ansari cuts velvet

The masterweaver initiates the weave process by inserting a naked razor blade in the miniscule channel on the top of the velvet wire on the left and carefully drawing the blade down the channel to the right until the wire is freed. He is now ready to reinsert the wire for the next pile lift. After his brother selects and lifts the next pattern group, he inserts the wooden fork to open the shed wider, clearing any slack pile units. The wife takes that pattern group and wields her angle hook on the left while her husband does the right side. He now enters the velvet wire on the right and positions it with the cutting slot up. He closes the shed and holds the wire in its proper position with the beater. The next series of weft shots weave the satin ground on 5 by passing the boat shuttle, the *dharki*, loaded with fine silk thread. This shuttle is a traditional silk shuttle made from water buffalo horn. Its polished surface is smoother than hardwood and is less likely to catch or snag the silk. The satin weave takes five lifts. On the third lift all the pile units are also lifted and interlaced into the ground. Strangely in my notes I only recorded four lifts. This needs follow-up attention. If only four satin wefts are thrown between velvet wires, then the interlacement would not fall on the same shaft but work its way through the five shafts in rotation. After the satin weave two more shots of facing wefts are woven in twill. The facing wefts show only on the right side of the cloth because they go under only one ground warp and over four. They have the greater visual impact. Often the facing weft is metallic gold or silver lending a jewellike quality to the cloth. This completes one rotation. The masterweaver swings his beater driving home with approximately eight blows the web.

India has been a dream destination for me for a long time. When I was 10-years-old, I had a photo cut from a National Geographic magazine of Jantar Mantar, the celestial observatory built in the 1700's in Jaipur pinned up on my bulletin board. To me it looked like a modern jungle gym inviting imaginative play. Much later in 1985 I attended a marvelous exhibition at the Metropolitan Museum of Art in New York City called simply 'India!' and saw a fantastic Mughal royal tent of the 17th century made of handwoven crimson velvet embroidered in glittering metallic gold. Then in 1986 I saw a traveling exhibition called 'India, A Festival of

Science' at the Oregon Museum of Science and Industry, OMSI, in Portland, Oregon. There I met a Jacquard designer and weaver, Ansar Ahmed Ansari who was then 37-years-old and an expert on Jacquard brocade for silk sari production. He with fourteen other artisans traveled with the show. He erected and demonstrated brocade sari weaving on his Jacquard loom. After shadowing him for several days, he gave me his business card and invited me to visit him in Varanasi. Then 30 years later I took my trip. As it turned out when I met and talked with Rahul Jain's protégé Abbas Khan, I learned that his mother worked on that Met exhibition and was responsible for bringing that tent from its permanent home at the Mehfangarh Fort Museum in Jodhpur. Also, when I met and talked with Rahul Jain's colleague Sribhas Chandra Supakar, a member of All India Handloom Board and of the National Center of Textile Design, I found out that he knew the Jacquard weaver I met at the OMSI exhibition and it was Sribhas' father Jadunath who was the director of the Weavers' Service Center and who selected Ansar Ahmed Ansari to represent Indian silk weaving. It illuminated for me the importance that museums play, and it dawned on me that my longtime interest in India spanned generation and that I was now dealing with the next generation. India cannot escape its past: it nurtures strong threads of continuity and evolves traditions. Wouldn't be great to collaborate on an exhibition of contemporary drawloom weaving practice and inspire the next generation, here and there, to create new wonders to behold?

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