

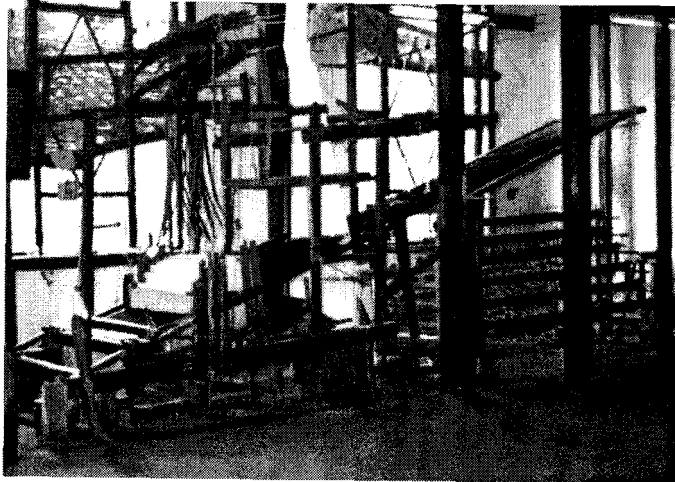
## Velvet Weaving on a Chinese Drawloom

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The Suzhou Silk Museum has two operational looms on display that weave velvet. One produces solid velvet with an ingenious cloth beam that prevents crushing the pile. The other is an elaborate drawloom with its pagoda-shaped bobbin rack that makes figured or voided velvets, called Zhang rong. It is the only velvet drawloom left in China. The museum opened in 1991, and was the first silk museum in China. It was the dream of Dr. Qian Xiaoping, who spent ten years gathering local support and the money necessary for the building project. When I visited in 1999, there were about 100 people employed at the museum. About twenty artisans demonstrate traditional textile crafts in the great hall filled with authentic traditional hand looms and equipment. The public were able to view tasks like reeling silk by hand, ko' ssu tapestry weaving, Suzhou style embroidery, 16-shaft brocade weaving, drawloom brocade weaving, solid velvet weaving, and the Zhang rong, figured velvet weaving. Around 30 people ran in the museum's gift shop and 50 worked in administration. The museum also had a sericulture hall, exhibition space for ancient silk artifacts, a research and fabric analysis laboratory, a reproduction laboratory, and an embroidery and brocade hall. The museum has become an important research center to study ancient specimens from recent digs and to innovate new sericulture technologies.

The Zhang rong velvet draw loom is an imposing sight. From one end where the weaver sits to the other end behind the bobbin rack it measures approximately 19 feet. Like the solid velvet loom it is made out of wood, high in the back and low in the front. The weaver sits close to the ground and in fact the nine treadles that operate the shafts are in a pit below ground level. In back of the beater are 4 shafts that carry the pile warps and eight shafts that control the ground or foundation warps.

The pagoda-like bobbin rack in back of the main loom stores and manages the pile warps that makes the tufted surface.



The bobbin rack measures approximately 6.5 feet long by 4 feet wide by 4 feet tall. It has six tiers graduating from the widest on the bottom to the narrowest on the top. Each tier has a left and right side and an upper and lower register that holds the quills. Each register holds 36 quills so there are 72 quills per tier or 432 quills per side or 864 quills in the whole bobbin rack. Each quill carries two pile units of three strands each for over 5000 total pile strands. The quill unwinds according to the dictates of the design. The tension of the pile unit is controlled by a clay or stone main weight and a glass or porcelain counterweight. All 5184 warp strands are kept in alignment by the comber board-like apparatus. It is made of wood, perhaps bamboo slats laid to form a grid that is 72 slots long by 24 slots wide. One pile unit is threaded per slot. For each pile unit there are eight silk threads that weave the ground, so in the reed you see 2 pile units followed by 8 ground warps. This velvet bobbin rack differs significantly from the systems used in Europe, Turkey and Japan.

Master Zhu Yunxiu is the only Zhang rong velvet weaver left in China. Before mastering the drawloom, she wove on Jacquard looms for more than 20

years. She has been the demonstrator of this technique since the museum opened. She learned the craft from Master Xie. When she weaves Zhang rong velvet, she works with an assistant. The assistant is perched high in the loom behind and above the shafts. It is her/his job to make the precise sequence of pattern cord lifts to create the design. Every string in an elaborate chain marks a particular spot in the design. The assistant pulls the string to determine which pile warps should rise and become tufts. The assistant makes the shed by pulling firmly back on the pattern string. The pattern strings form a huge loop and the complexity of the design is often expressed by the size of this loop of pattern cords. They are called a big or little draw. About 16 pattern cords are loosely tied in a bundle; however, this is not a precise unit and its simple purpose is to keep the job tidy.

The master weaver creates the velvet design by inserting slim round stainless steel wires under the raised pile units. The wires are held in a special bamboo container that is inserted into the shed. It is rounded and smooth to prevent damaging or snaring the silk. A little jiggle releases a single wire. The master weaver follows the velvet wire with a series of ground wefts using two shuttles. She cuts out the wires with a special knife. The master weaver working in unison with a trained assistant make figured velvets with cut pile on satin ground. The motifs are often the auspicious symbols or floral patterns. The design is repeated five times across the 29-inch width of the fabric.

The Suzhou Silk Museum is performing a critical role: it houses and analyzes silk masterworks and trains artisans to preserve the crafts. I would like to return to further my research. In particular I would like to study the velvet structure and weaving process used to make the unique double-faced velvet cloth that has cut velvet on the top surface and uncut loops on the bottom.