INVESTIGATIONS OF HISTORIC TEXTILES
THROUGH JACQUARD WEAVING TECHNOLOGY

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by

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INVESTIGATIONS OF HISTORIC TEXTILES
THROUGH JACQUARD WEAVING TECHNOLOGY

The large scale jacquard weavings presented in my thesis exhibition reflect my interest in a range of traditional textile patterns and the exaggeration of motifs, materials, and scale to emphasize the luxuriousness of ornament and its transient meaning. Computer technology is another integral aspect in the development of the work, allowing for a direct connection between the design created on the computer and the output of the information on the digital loom. This technology provides the flexibility to alter, overlap, and integrate complex patterns in the creation of these richly textured weavings.

In early history, woven fabrics were made without the use of tools. Two sets of flexible, linear elements were interlaced in the creation of a cloth. With time, tools were introduced as a means to weave more quickly and accurately. The first looms were composed of simple parts that kept the warp taut. This greatly simplified the task of inserting the weft into the structure. Not satisfied to weave just a plain fabric, the desire for complex patterning and decoration inspired the continual evolution of the loom. The culmination of these modifications resulted in the design of the jacquard loom in the early 19th century. This allowed elaborate and intricate textiles to be woven with greater speed, accuracy, and efficiency.

Early jacquard looms relied on a mechanical operation to transfer the fabric design into a draft and finally into a series of punched cards that were readable by the loom. This process was very specialized and required considerable time and effort. Although elaborate patterns could be woven quickly, the work involved in getting the design ready to be woven was still extensive. Substantial labor was also required to make changes to a design; therefore, weavers were limited in their options. It was not until the late 20th century that digital technology was introduced in an industrial setting as a key component in expediting the design and weaving process. In more recent years, this specialized equipment has become available to the hand-weaver.
The digitization of tools for designing and weaving complex compositions, using sophisticated software programs and the Thread Controller TC-1 jacquard loom, from Norway has motivated my study in this medium. The computer as a tool provides flexibility, speed, and a very accurate depiction of the proposed weavings. Digital technology also provides a direct means of transferring images from books or from life into the virtual realm for inclusion in my art. In my thesis series, designs were inspired by digital photographs of historic textiles, decorative motifs, and my daily encounters with patterns in domestic environments. These photographs were downloaded into the computer as raw data for the development of more complex compositions. The images were manipulated digitally through Photoshop® and JaqCAD® design software. The graphic images could be translated into weavings because there is a direct correspondence between the pixels on the computer screen, and the warp and weft threads of the weaving. Each pixel of the virtual design represents the intersection of these two elements.

The combination of curvilinear motifs and geometric patterns provided the foundation for all of my ideas. The flowing, ornamental forms were created through the simplification and reorganization of parts of traditional decorative patterns that were digitally documented through my research and travels. Selected primarily from Italian textiles and wallpapers these motifs became the focus of my compositions. They were scaled and positioned in relation to the pattern that was created in the ground. To provide a strong visual contrast to the arabesque forms, the surrounding fields were composed of geometric patterns generated through computer processing. Familiar patterns such as plaid and argyle are easily reproduced in the virtual environment of the CAD software program. These patterns are based on the grid and are a direct reflection of the process of weaving – vertical lines referencing the warp and horizontal lines referencing the weft.

Creating the designs on the computer was the first step in the process of producing the weavings. Once the graphic images were composed, the design was transformed into a weaveable file. Weave structures were digitally inserted into the design to create the proper relationship of warp and weft. This interaction affects the value and texture of elements and is
perceived as a code that can be read by the loom so the piece can be woven.

The materials used in this series of weavings remained consistent. Black matte cotton was the dominant material integrated with shiny, white rayon or some kind of textural rayon/cotton blend. Limiting the color palette emphasized the physicality and tactility of the plane. The most distinctive aspect of my material choice was the integration of strips of carefully cut newspaper. This not only created a strong visual interest but contributes to the conceptual reading of the piece. Newspaper was selectively inserted by hand during the weaving process. It appears only in the shapes of the ornamental, arabesque motifs. (Figure 2) This overall gray, mundane, and perishable material is ironically used to define what is often perceived to be the most luxurious or decorative forms. The material is very thick and bulky, adding a level of textural dimension. However, the very nature of the material will cause it to discolor and possibly disintegrate over time. It serves to question the idea of value and excess.

Common to all the compositions is the juxtaposition of the isolated ornamental motifs and the continuous repetition of elements in the ground. What distinguishes each of the pieces are the varied spatial relationships that were created through the overlays, or changes in value of the shapes, and the proportion of both the motifs and the overall size of the weavings. They vary in size, from the smallest 27" x 56", (Figure 1) to the largest 9 ft x 4 1/2". (Figure 7)

Historically, textiles with large, ornate motifs were reserved for royalty or the wealthy. Patterns and motifs were scaled in relation to the size of the plane they were intended for, such as garments, wall coverings, and upholstery fabrics. In these weavings, the motifs were enlarged to a more unexpected scale, progressively increasing throughout the series. The motif became purely symbolic - a large opulent ornament very reminiscent of a coat of arms or a family seal. The excessive scale and seeming importance suggested by size and placement is contradicted by the fact that they are constructed from newspaper. Taking patterns out of their functional contexts gave me the opportunity to explore design elements for visual effect and meaning. Using digital jacquard technology facilitated this exploration.
Figure 1

Three Damask
Figure 2

Three Damask (Detail)
Figure 4

Floral Porter (Detail)
Figure 5
Plaids and More
Figure 6
Plaids and More (Detail)
Figure 7
Argyles and Overlays
Figure 8
Argyles and Overlays (Detail)