The silk autograph quilt recently acquired by The Metropolitan Museum of Art is one of the finest examples of the period, exquisitely made and well preserved. Created by a highly skilled needlewoman, it is remarkable for its brilliant colors and complex design, known as “Tumbling Blocks,” which produce a visually striking pattern, full of optical play and subtle intricacies. The design, composed of silk fabrics cut into diamonds and triangles, forms a trompe l’oeil effect, resembling a three-dimensional block or cube, silhouetted against a black background. The quilt, following an ingeniously crafted and well-planned layout, skillfully enhanced the three-dimensionality of the pattern through her selection of a variety of silk fabrics and their arrangement within the composition. Each block, made up of three fabric components, contains one white silk diamond with an inked signature as the top surface of the cube and two colored- or patterned-fabric diamonds (turned on their sides), as the V-shaped side panels (see Appendix). Black silk triangles flank each unit and, when joined together, create the rich and textured black background.

Three hundred and sixty signature blocks, plus ten partial blocks along the top (without the white signature diamonds), make up the quilt. The blocks are organized into thirty-six and one-half rows (oriented horizontally) and twenty columns (oriented vertically), alternately offset, with ten blocks across each row. Examining the seams along the inside of the quilt top, we can reconstruct the sewing sequence that the quilter used to piece it together: first she stitched the individual diamonds into blocks, then connected the blocks into columns, and finally seamed the columns together across the entire width. In total, she cut and stitched 1,840 individual silk pieces to create the quilt.

The quilt contains more than one hundred and fifty different silk fabrics. Such a wide array represents many types of goods manufactured in the period. For the most part, they appear to have been imported from Europe, although it is possible that some of the solid-colored fabrics might be of American manufacture. Some were produced as dress goods, though most of the silks used are actually ribbons, whose decorative selvaged edges have been seamed into the quilt and are visible on the reverse of the quilt top (Figure 1).

The different fabrics appear to be randomly distributed throughout the quilt, although the simplicity of this seemingly casual planning is deceptive. In some cases, the artist incorporated the same individual fabric in five or six different blocks, even though she never repeated the exact combination of fabrics within the blocks. Her methodical distribution of the various fabrics creates a harmonious and nonrepeating vista across the surface of the quilt. At least five different types of black fabrics are used in the background triangles, and several different types of white silk make up the signature diamonds.

Traditionally, quilts were made from fabric scraps and remnants saved from various family sewing projects. Bits and pieces were salvaged from favorite garments or other items perhaps too tattered, frayed, or unfashionable to be worn again. Some of the fabrics we find in the signature quilt had obviously been used prior to their presence in the quilt—evidenced by stains and marks of wear—possibly as parts of dresses or bonnets, while others were pristine and new at the time they were cut into the triangular and diamond-shaped sections. Some individual diamonds are actually made up of several components seamed together. Holdovers from an earlier time, the seams are testament to the original function of the fabric, for example, as part of a garment (Figure 2). Other seams found in some of the diamonds result from intentionally joining narrow ribbons together in order to span the width required for the diamond shape and must have been sewn at the time the quilt was made.

The quilter used a selection of various types of silk fabrics and ribbons. Patterned or textured in the weave of the cloth, these include solid-color and polychrome plainweaves and satins, stripes, checks, plaids, moirés, and...
and ikat and *chiné à la branche* (both dye-patterning techniques). Some are more complexly patterned with supplementary weft, brocaded wefts, and other woven float weaves. Several of the ribbons can be found in multiple colorways—that is, the same woven pattern made in different color combinations—providing a glimpse into the textile manufacturers’ variety available at the time. One very interesting group of ribbons has resist-dyed warp-and-weft ikat, which reveals a distinctly Indian or Southeast Asian influence, fashionable in French silks in the mid-nineteenth century. Warp printed silk ribbons, such as some of those found in the quilt, were also known to have been manufactured in America, though primarily later, in the 1890s. Further research on these ribbons will help to determine their place of manufacture.

The quilt face is composed of hand-stitched components, each piece seamed to its neighbor in small, fine overcast stitches. The sharply pointed and uniformly regular shape of the blocks indicates the high degree of skill and craftsmanship that went into the making of the quilt. In order to ensure the sharp corners and exact fit of the blocks to each other, each individual piece would presumably have been basted temporarily around a template, most likely of heavy paper. Although there are now no traces of the templates, remnants of the basting threads are visible from the back; these were cut to release the template after the seaming of the blocks was completed (see Figures 1, 2). Even where the threads are gone, the needle holes (located about one-quarter of an inch above the seams), visible from the front, trace the construction process.

In general, the quilt is in an excellent state of preservation, with its brilliant palette primarily made up of colors produced with natural dyes (some of which were industrially processed by this period). The colors include vivid safflower pinks, insect reds, and indigo blues, as well as many other combinations of dyestuffs creating the reds, purples, yellows, greens, browns, and blacks, and all, for the most part, have been well preserved. Safflower pink is a dyestuff that is very sensitive to light and pH, and it was used in some of the solid-colored satins, moirés, and plaid. A few of these pinks have faded slightly, but, remarkably, most have retained their brilliant hue throughout the quilt. Additionally, several of the early synthetic dyes, notably a mauve color, along with a sulfonated blue, can be found in the quilt.

Among the delicate silk fabrics composing the quilt, many are in pristine physical condition, the result of the good care taken in preserving it over time. Most of the fabrics are of weighted silk—a finishing process popular in the nineteenth century that used the addition of metallic salts to enhance the physical quality of the silk during manufacturing. The weighting, or “loading,” of the silk resulted in a heavier fabric, which had an appeal in its drape and hand. Some of these weighted silks have begun to split, a characteristic long-term effect of the process.

The white silk diamonds (probably sewn to their rigid templates) were sent away to be signed by the selected participants, and as a result a variety of household inks were used in the signatures. The inks vary in type, color, and characteristics. Some are black, others
are more grayish in hue. Some have run on the silk, probably at the time of the writing, due to the diluted strength of the ink solution and to the finished surface of the silk fabric. The inks of the period were most likely composed of an iron-tannin mixture,\(^8\) or possibly of a carbon-type. Chemical reactions between some of the inks (presumably the iron-gall type) and the silk have caused deterioration in the ground fabric. In these areas, the silk has almost disappeared, leaving only the negative shape of the signature. One signature (S. G. Goodrich) was drawn in a rare turquoise blue ink.

The quilt is lined with a red silk fabric, composed of five narrow panels (each 16\(\frac{3}{4}\) in. loomed-widths) seamed together. A dark red silk grosgrain ribbon was finely stitched in matching silk thread around the edges of the quilt, attaching the front and back together. There is no stuffing in this quilt, nor are there any actual “quilting” stitches between the top and backing. This confirms the impression that it was most likely intended as a showpiece and not to be used on a bed. Small metal rings were stitched to the top for hanging.

Upon examination of the reverse of the quilt top, one curious event in the history of the quilt is revealed. Small needle holes outlining the shape of a diamond can be seen. This seemed to indicate that at some time in the past, one of the diamonds had probably been covered up with a patch, stitched to the quilt after the backing had already been attached. The diamond that had been covered is not one with a signature, but rather, one with a poem in which the last two lines read: “She contemplates with dread / So many in a bed.”

While the maker of the quilt placed the poem on the lower-right corner—with its veiled reference to the number of people represented by their signatures sharing the space within the bedcover—perhaps one of her descendants thought it was too risqué and decided to cover it up. By the time the quilt reached the Museum, the patch had been removed.

Appendix

The fabrics composing the design block (defined as one top diamond, two side diamonds, and two lower triangles) that includes the signature of Abraham Lincoln, as an example, were analyzed (see Figure 3).\(^9\)

The documentation of the textile components for this unit follows. This includes the upper diamond with the signature (labeled Fabric A), the left-side diamond (Fabric B), the right-side diamond (Fabric C), the lower-left black triangle (Fabric D), and the lower-right black triangle (Fabric E) (see Figure 4).
be used in the quilt, leaving the holes that mark the fabric in a one-inch-square grid pattern.

Fabric D, triangle (lower left)
Fabric type: black silk fabric
Fabric structure: warp-faced plain weave
Warp: black silk, slightly Z twisted, 160 per in.
Weft: black silk, no twist, 80 per in.
Color: black, yarn-dyed. EDS analysis indicates the presence of large amounts of lead and iron, in both warp and weft yarns, and some tin in the warp yarns.
Condition: generally good, with a few small holes
Fabric orientation as used in quilt: warp direction vertical
Other: high degree of luster in the silk

Fabric E, triangle (lower right)
Fabric type: black silk fabric
Same fabric as Fabric D
Condition: somewhat weaker condition than D, with some vertical tears
Fabric orientation as used in quilt: diagonal

Sewing threads:
Connecting design elements:
A to B: white silk thread, 2 Z-twist, S-plied
A to C: red silk thread, 2 Z-twist, S-plied
B to C: black silk, 2 Z-twist, S-plied
B to D: black silk, 2 Z-twist, S-plied
C to E: black silk, 2 Z-twist, S-plied
Basting thread used for sewing template: white cotton, 2 Z-twist, S-plied, waxed (?)

Comments:
This particular design unit has a more subdued palette, compared with most of the other units in the quilt. Perhaps this is intentional, in deference to the signer of the white diamond, who was noted for his humble beginnings. The use of the same black fabric for the two triangles occurs in perhaps two-thirds of the quilt. The color of the sewing thread changes throughout, harmonizing with the fabric colors.

From the elemental analysis, we can conclude that some of the fabrics were “weighted” silks. We can assume that the presence of lead in the black silk comes from lead acetate, known to have been used as a weighting substance in the nineteenth century.

NOTES

1. The “diamond” shape is a parallelogram, 2½ in. high x 3½ in. wide at the points. All diamonds are exactly the same size and proportion, but because of their orientation they appear to be a different shape. The triangles are exactly one-half the size of the diamonds.

2. The lower edge of the quilt had been too tight and for conservation treatment was opened up. This allowed for examination and photography of the construction details of the quilt that would not normally have been seen.

3. The stitches are extremely fine, with ca. 25 per inch. Seams are
ca. ½ in. or 1 cm. The stitches would have been done from the back and are thus nearly invisible from the front.

4. This observation is confirmed by historical documents, noted above in Amelia Peck’s essay.

5. Mauve, or mauveine, is considered one of the first synthetic dyes, discovered by Sir William Henry Perkin in 1856. See Helmut Schwerppe, Practical Information for the Identification of Early Synthetic Dyes (Washington, D.C., 1987).

6. The quilt came to the Museum in an old, handwoven cotton pillowcase—possibly from the same period. How long it had been kept in the pillowcase is not known, but it had been kept out of the light and showed few signs of previous use. It had been preserved by the descendants of Adeline Harris Sears until it came to the Museum in 1993.

7. The weighting process can be applied to yarns prior to weaving or to the fabric as a whole. See Appendix for identification of metallic salts on sample fabrics.

8. For example, Elijah Bemiss, who wrote his treatise on American colorants in The Dyers Companion in 1806, provides two recipes for black ink (New York, 1973 [pp. 289-290]). One includes nut galls, copperas, alum and gum arabic, rainwater, and vinegar or sour beer. Another uses ripe walnut “shook,” oak sawdust, blue galls, copperas, and gum arabic, along with rainwater.

9. Fabric structure was analyzed under 8x magnification. Fibers were identified under 400x magnification. Sample identification and separation by author. Inorganic elemental analysis EDS (Energy Dispersive X-Ray Spectrometry) was conducted by Mark Wypyski, associate research scientist, Sherman Fairchild Center for Objects Conservation, MMA. Dye analysis was not conducted at this time.