

EMBROIDERY.

EMBROIDERY, the art of producing ornamental needlework-patterns upon fabrics of any kind. This art is coeval with the earliest and rudest manufacture of hair and woollen fabrics. It was one of the most important of the early arts in Oriental countries, where it is still practised with great skill and diligence. It is common among most savage tribes that wear any kind of clothing. The blanket-wrapper of the Red Indian is commonly ornamented with embroidery; the Laplander embroiders upon the reindeer skin that forms his clothes patterns worked with needles of reindeer bone, and thread of reindeer sinews and strips of hide. It is practised as a domestic art in our own country by all classes, from the princess down to the pauper school-girl, and is carried on in large manufactories by very elaborate machinery.

The Chinese are perhaps the most laborious and elaborate hand-embroiderers of modern times; their best work is upon silk. The figures are either in coloured silk alone, or in silk combined with gold and silver thread; the figures of men, horses, dragons, &c., being outlined with gold cord, and filled up coloured and shaded with silk. The Persians, Turks, and Hindus also still excel in embroidery; they use, besides silk and gold and silver thread, beads, spangles, pearls, and precious stones. The dress-shippers of Turkish women of all ranks are elaborately embroidered, usually with a precious stone or a glass bead in the middle of the toe-part of the slipper, and a radiating pattern in gold, silver, or brass wire and silk surrounding it. The Turkey carpet is a sort of embroidered fabric. See CARPETS.

Some of the Oriental and Indian embroiderers include in their work a great variety of materials besides those above mentioned; feathers are largely and very tastefully used; the skins of insects; the nails, claws, and teeth of various animals; nuts, pieces of fir, skins of serpents, &c., are among these. Coins, which are so commonly used as ornaments for the hair of unmarried women in the East, are sometimes also worked into their dresses with the embroidery. This is especially the case with the Turks and Georgians. The Indian women embroider with their own hair and that of animals.

Tapestry is a kind of embroidery, formerly done with the needle, but now chiefly with the shuttle. This kind of work is, in fact, intermediate between embroidery and weaving, and it is somewhat difficult to determine under which it should be classed, but in accordance with the definition given above, we shall only include needlework under embroidery, and tapestry will be separately treated.

For hand-embroidery, the fabric is usually stretched upon a frame, and the design to be worked is drawn upon it, or some other contrivance is used to guide the worker. If the fabric is sufficiently thin and open, a coloured drawing or engraving may be placed behind the work, and followed with the needle. A sheet of thin transparent paper, with lines upon it corresponding to the threads of the canvas to be worked upon, is sometimes used; this is secured by gum or wax to the drawing; and the design is copied by observing the number of small squares occupied

by each colour, and filling in the corresponding meshes of the canvas. *Berlin-work*, which is a kind of embroidery, is done in a similar manner, the pattern being an engraving on which the lines corresponding to the thread are printed, and the meshes filled up with the required colours, painted in by hand by women and children, who copy it from the original design of the artist. The name has been given from the fact, that the best patterns have, since 1810, been published by Wittich, a printseller of Berlin.

In France, pricked patterns are sometimes used, one for each colour, and coloured powders are dusted through the holes upon the fabric to be worked.

All these devices render the art of embroidery a mere mechanical operation, requiring no further artistic skill or taste than is exercised in knitting stockings; but when the embroidress draws the design in outline upon the fabric, and works in the colours with her needle under the guidance of her own taste, embroidery becomes an art that might rank with water-colour drawing or oil-painting; and it is to be regretted that so much time should be devoted by ladies to the mechanical, and so little effort made in the direction of truly artistic embroidery.

Muslin-embroidery has been very fashionable of late. This is purely mechanical work. The muslin is printed with a pattern made up of holes of different dimensions; these are cut or punched out, and their edges sewn with a 'button-hole stitch.' This kind of work is much used as trimming for ladies' clothing, for collars, and children's clothes.

Machine-embroidery has been practised with considerable success during the last quarter century. A machine was exhibited in the French Industrial Exhibition of 1854, by M. Heilmann of Mulhausen, by which one person could guide from 80 to 140 needles, all working at the same time, and producing so many repetitions of the same design. Although the details of the construction of this machine are rather complex, the principle of its action may be easily understood. The needles have their eyes in the middle, and are pointed at each end, so that they may pass through from one side of the work to the other without being turned. Each needle is worked by two pair of artificial fingers or pincers, one on each side of the work; they grasp and push the needle through from one side to the other. A carriage or frame connected with each series of fingers does the work of the arm, by carrying the fingers to a distance corresponding to the whole length of the thread, as soon as the needle has passed completely through the work. The frame then returns to exactly its original place, and the needles are again passed through to the opposite set of fingers, which act in like manner. If the work were to remain stationary, the needles would thus pass merely backwards and forwards through the same hole, and make no stitch; but by moving the work as this action proceeds, stitches will be made, their length and direction varying with the velocity and the direction in which the work moves. If 140 needles were working, and the fabric were moved in a straight line, 140 rows of stitching would be made; if the work made a circular movement, 140 circles would be embroidered; and so on. In order, then, to produce repetitions of any given design, it is only necessary to move the fabric in directions corresponding to the lines of the design. This is done by connecting the frame on which the work is fixed to an apparatus similar to a common pantagraph, or instrument so constructed that one end repeats on a smaller scale exactly the movements which are given to the other. See PANTAGRAPH.

The free end of this is moved over an enlarged copy of the design, the movement being a succession of steps, made after each set of needles has passed through; and thus the work is moved into the position required to receive the next stitch of the pattern.

This machine was subsequently patented in England, and many improvements have been made upon its details, but the principle of its construction remains the same.

Although it is *possible* to embroider any design with such machines, there are only certain designs that can be worked economically; for to do this, the patterns must be so designed as to consume each needleful of silk without waste. The length of silk required for each colour can be calculated with extreme accuracy, and the designer is usually limited by this requirement. A greater range is, however, obtainable by dyeing the same thread of silk in different colours, the length of each colour corresponding to what is required for producing the pattern; but a large demand for each pattern is required to render this profitable.