EMBROIDERING AND SEWING-MACHINES. The word embroidery, as employed in the writings of the ancient historians, has reference to all kinds of ornamental work done with the needle; the embroidery comprehending within its meaning every description of decorative needlework, including tapestry and some descriptions of weaving. At the present day, however, the application of the term is much more limited, relating to one kind of needlework only, which, nevertheless, enables great variety, both as to the materials employed and the mode of using them. The recent invention and amazing extension of sewing-machines give a new scope to the term; seeing that the embroidery and sewing machines are so nearly alike in principle, that they had better be described together. It will be convenient, therefore, to treat the subject here under the sub-headings, Hand Embroidery, Embroidering Machines, and Sewing Machines.

Hand Embroidery. Some of the modes of hand embroidery partake of the nature of Tatting; but there is one method, in which a very rich effect is produced by inserting pieces of cotton wool, or slips of prominent cut to suit the device, between the fabric upon which the embroidery is executed and the thread of silk or other material of which the pattern is formed, so that the embroidery may be raised considerably above the surface. Gold and silver thread are often used in embroidery with good effect, and spangles or tins are occasionally mixed with the needle-work. The fabric to be embroidered is usually stretched in a kind of frame or loom, and the pattern is drawn either upon its surface, or, if it be too transparent, upon a piece of paper applied underneath it.

The Orientals have always paid more attention to this art than Europeans. The Hebrews had elaborate embroideries in their tabernacle and on their priests' vestments. The Egyptians embroidered their linen garments, and the linen-wrappers of their mummies. The Greeks, the Etruscans, and the Phrygians, were all skilled in this art. The Persians, too, when discovered by the Spaniards, astonished them by their elaborate embroideries of gold and silver on furs. In the embroidery of the middle ages, priests' vestments, hangings, veils, canopies, curtains, door-screens, and corridor-linings, were all operated upon by the needle; noble ladies and their hand-maidens produced the specimens for domestic use; while nuns produced the chief portions for ecclesiastical and sacred adornment. There are three modes practised in those days:—the line embroidery, in which the threads were laid flat on the groundwork; the raised, in which the threads were in relief, and rendered by means of various materials, such as parchment, or paper placed beneath the thread; and the gimped, in which the figures were formed by cords of gold, silver, or silk, and pieces of velvet, satin, silk, or gold. The finest modern examples of hand embroidery are those produced by the Chinese, Turks, Hindoos, and Persians; some of these workers put as many as 700 stitches in a square inch.

Embroidery, as a handcraft employment, is in our day singularly affected by changes of fashion. About the year 1846, embroidered dress-pieces for ladies came into vogue; and in a short time there was employment for 2000 hand-embroiderers in London alone, and many thousands in print in Scotland and Ireland. A pattern was made on the muslin or other material; the stuff was then distributed by travelling agents; and after the embroiderers had worked it, the agents re-collected it. Such dresses are now (1860) nearly out of fashion, and embroidery (as a regular branch of trade) is chiefly applied to window-curtains, table-covers, valences, borderings, and other furniture fabrics. The sewed muslin work, sent out by Glasgow manufacturers to the Scotch and Irish peasants, a very small facility in doing embroidery work whenever the fashion tends in that direction.

At the Paris Exhibition, in 1855, several machines were shown, much used in France for pricking or piercing the lines of embroidery, to enable the embroiderers to transfer these lines to the cloth by rubbing coloured powder through the holes. This pricking, which is a very tedious process when performed by hand, is effected by the machine with great rapidity and precision. A jointed frame carries a needle, which vibrates vertically by means of a tensile and connecting cords passing over pulleys. The pointer or pricker, when guided over the traced lines of the design, will make as many as seventy or eighty holes in an inch.

Mr. Hope, in 1855, patented a method of producing effects somewhat resembling what is called Özelwerk, but not actual embroidery, but by printing patterns on the textile material, either by block-printing alone, or by block-printing combined with embroidery. The pattern is then subsequently finished at pleasure by the needle. Any tint or shade of colour may be used, different from that of the printed material. Surface-printing will suit in some instances, but block-printing is better, seeing that it causes the colouring material to enter more deeply into the fibres.

What is now called Berlin Work, though not exactly embroidery, may be briefly touched on here. Miss Lambert, in her 'Handbook of Needlework,' gives some interesting details concerning this branch. The kind of work itself is, of course, old enough; the only novelty in the case was bestowed on the production of patterns. About the year 1865, a Mr. Phillipson published some patterns, which, being badly executed and devoid of taste, did not meet with encouragement. In 1870, Misses Wittich, a lady of great taste and an accomplished needlewoman, justly appreciating the advantages which the art would derive from the production of better patterns, prevailed upon her husband, the printer, to undertake the work, and they brought out a series of designs. He did so; and the designs were got up in a superior a manner, that many of the first patterns which were issued from his establishment have had a continual demand almost to the exclusion of the earlier patterns. The design and arrangement of these designs are paid as artists, in proportion to their talents. The cost of the first coloured design on paper (divided into small squares) varies from three to thirty or forty guineas; but in some instances, such as the large patterns of Bolton Abbey, Boscobel's Garden, &c, it is considerably more. The colouring affords employment for men, women, and children. A dozen or so of copies are given to each person at a time, with the original design as a model. The earnings vary from three shillings a day, according to the age and skill of the persons employed. Berlin workers have had their work facilitated by an ingenious frame, registered by Mr. Lisbe. From a flat horizontal stand rise two pillars, which support the frame somewhat in the same way as a toilet looking-glass is supported, so that the frame may be placed and secured in any convenient position. The canvas or other woven material is wound on rollers, which turn easily on their axis. The canvas or other woven material is wound on rollers, which turn easily on their axis. The rollers are worked by small handles, and the small crotchet-wheels to prevent them from slipping backwards. The side or slanting edges of the canvas are kept stretched by two rods. By this means the Berlin worker or embroiderer can work on a piece of canvas of almost any length.

In reference to the designs for patterns in hand embroidery, Mr. Walls, in a paper drawn up in 1856, said: "In embroidery, the utmost naturalness of form is required, and the designs must be simple and neat, nothing being given way to a chaos of design more suited to production by the needle. Much of this is doubtless to be attributed to the severe
character of the ecclesiastical embroidery, for which there has more recently been so large a demand."

Embroidery: Although embroidery has, until within a few years, been a purely handcraft employment, chiefly cultivated by females as a tasteful and elegant occupation or amusement, it has also assumed the character of a manufacture, a most ingenious machine for executing it having been invented about 1690. This invention contrivance, which enables a female to embroider any design with 80 or 110 needles as accurately and expeditiously as she formerly could with one, requires the labour of one grown person to superintend it, and of two children to change the needles and work them. The needles are so fitted that their threads are used, and to watch continually for any irregularities of action which may need attention. The chief parts of the machine are briefly described as follows: The needles, which are provided with both ends, and have their eyes in the middle, so that they need not be turned round between each time of passing through the web, are passed backwards and forwards by the action of small pinchers, of which there are two pair to each needle, one on each side of the web, each pair being alternately employed in pushing and pulling the needle through the web. As soon as the needles have passed completely through in either direction, a kind of carriage or frame, which carries the series of pinchers by which they have been drawn through, begins to move along a railway so as to draw the needles to the full length of their threads; after which the carriage returns to its original position, and its pinchers draw the needles again through the web, to be received on the opposite side by the other set of pinchers, which then retire with them in like manner. So far as the action of this part of the machine can affect the matter, the needles are continually and as often as convenient—i.e. once in four or five minutes—are brought to the top of the web and drawn through it, and the frame is again passed to the other set of pinchers, which receive them and pass them to the next series. Every needle of the series is then passed through the web, and drawn until its thread is brought home; after which the needles return to their original position, while the working of the carriage another point, or rather series of points, of the web is brought opposite to them ready for the return stitch. By such means every needle of the series produces a distinct and separate copy, on a small scale, of the pattern, the arrangement of which is exactly the same as in the case of the web-frame that the corresponding point of every enlarged scale, the flower or device to be embroidered. The operator brings the point of the pantograph successively to every point of the pattern device at which the needle is placed to plant a stitch; and by this means each stitch is made with a web-frame that the corresponding point of every enlarged scale, or place where a flower is to be worked, upon it, is brought opposite to the point of one of the needles. The mechanism by which the pinchers are worked is the same as that to the other side of the web, and the needles are moved in a straight line, and the frame is again passed to the other set of pinchers, which receive them and pass them to the next series.
ployed in those two portions of the United Kingdom; but in England and Wales the American machines are virtually shut out.

In both England and America the use of the machine is largely extending. The shirts, collars, and men's clothing sold in the London shops, are in considerable part either stitched or sewn by machines. Army clothing is beginning to be sewn in the same manner, especially in Ireland, where the cheaper American machines may be employed. Mr. Peter Tait, of Limerick, in evidence given before the Contracts' Committee of 1858, stated that he cuts out army clothing by steam-power, and effects much of the sewing by machines worked also by steam-power; he can make 4000 suits of infantry clothing per week, if needed; and employs several hundred men in the finishing operations, none at less than a guinea a week. In America, Cincinnati is the great clothing town for the Western and Central States. The articles are cut out in large warehouses, then given out by contract to master-tailors, who employ hands by the day or by the piece; sewing-machines are very largely employed in the making up, each doing as much work as ten hand sewers. In 1851, there were 108 establishments employing 10,000 hands; and in the next eight years there was a large increase. The owners of most of the establishments are German Jews, and the workmen Germans.