

not a few of them connoisseurs of high class work, have visited Messrs. Warners factory and admired these valuable fabrics as they have been turned out of the quaint old fashioned hand looms". For the coronation of King George V. The Cloth of Gold for the Super Tunica which is worn by the King under the Pallium. A very rich satin for the Queen's dress and purple and crimson velvet. (The Royal Robes were worn again at the Delhi Durbar). Also a figured velvet for the thrones.

For the Coronation of King George VI. The Royal Purple velvet for the robes of the King and Queen and the Princesses Elizabeth and Margaret Rose. The Cloth of Gold for the canopy to be held over the King during his Anointing, Silk Satin for the Queen's dress and other fabrics for the Abbey. (The velvet for the Queen's robe and the satin for her dress were made of English silk from Lullingstone Castle).

3. THE WEAVING OF VELVET

The making of velvet is a very ancient craft, and is believed to have been first practised in Italy in the 13th century. It has always been a highly specialised branch of the silk weaving industry. Various types of velvet, including imitations of silk velvet in less expensive materials, are now made on power looms, but the fine rich fabric of the quality used for the Royal Robes is only woven on hand looms.

The loom on which the Queen's Purple will be woven is identical with that used for hundreds of years. There are two warps; the ground, and the pole which makes the pile of the velvet. The weaver inserts three wires across the fabric as she weaves, with the silk threads of the pole stretched over the wires. When the third wire is woven in she cuts the silk over the first wire which she then lifts out and the cut ends of the silk stand up as a pile. There are over 16,000 such ends of silk to every square inch of velvet. The cloth is 21" wide. To cut the silk she uses a sharp blade held in a metal frame called a truvat. The slightest variation in the sharpness of the blade or the tension of the warp will change the colour of the velvet: this gives some idea of the skill and concentration required of the weaver. No other fabric has the same depth and intensity of colour. Before it is cut the silk dyed for the Queen's purple is a strong rich colour, but when it is cut it is dark almost black in the shadows, turning to a floruous and rich purple as the light strikes it.

Amongst the outstanding achievements of Warners

during the last quarter of the 19th century was the revival of the Silk Figured velvet weaving in this country.

4. THE PURPLE

The splendid purple dye so prized by the Ancients was derived from certain molluscs or sea snails which are presumably the Buccinum and Purpura described by Pliny and large quantities of the shells have been discovered in heaps close to Ancient Dye Works at Athens and Pompeii. These molluscs are found throughout the whole of the Mediterranean and indeed in numerous parts of the world. varieties exist which may be used for dyeing.

The method employed by the ancients is described by Pliny. The shade of purple varied and two kinds were recognised, TYRIAN and BYZANTIUM PURPLE.

Owing to the vast quantity of shells needed to produce the dye it was of stupendous price and was coveted in the Ancient World and the Middle Ages for its rarity. The conception of the deep red colour was bound up with magic, fertility and power, and purple was held to be the purest incarnation of red. PURPLE as a symbol of power became a ROYAL COLOUR - "who goes in purple, rules". Purple was so closely linked with the idea of sovereignty that conferring the purple on one of his subjects by a monarch was tantamount to the granting of Kingly rank. When Christianity replaced the old order purple achieved a fresh symbolic significance.

Nowadays the same incomparable colour can be obtained by using synthetic dye-stuffs supplied, in this case, by Imperial Chemical Industries.

5. THE ROYAL PURPLE VELVET FOR H.M. QUEEN ELIZABETH II

The velvet, which is all silk, 21" wide, and over 20 yards will be required to make the Royal Robe.

The raw silk comes from Zoe Lady Hart Dyke's Silk Farm at LULLINGSTONE in Kent where for some years a serious effort has been made to produce a commercially usable silk. (This silk was used for the Queen's robe in 1937 - see above).

From Lullingstone the silk went to Glemsford Silk Mills, an old throwing mill in neighbouring Suffolk, where two threads of the raw silk were "thrown" together. From there it came to New Mills to the DYEHOUSE to be DEGUMMED and DYED to the rich purple shade, an expert and ticklish job to match exactly the deep colour in the cut pile of the fabric. From thence to the WINDING on to bobbins, then to the WARPING and TURNING ON and so to ENTERING in the loom, by Mr. J.W. Beard who, for the fourth time, is contributing his skill to the richness of the Coronation

ceremony. (He joined the firm in 1896).

The fabric is being woven by Miss Lily Lee (who wove the Coronation Robe for H.M. Queen Elizabeth, the Queen Mother) and Mrs. Hilda Carver. Both are highly skilled weavers specialising in the weaving of real silk velvet. The rate of weaving is about half a yard a day.

When woven the velvet will go to the robe makers, Messrs EDE & RAVENSCROFT of London and from there to the ROYAL SCHOOL OF NEEDLEWORK to be richly embroidered.

6. OTHER WORK OF THE SILK WEAVERS AT NEW MILLS.

The hand loom silk weavers continue to flourish beside the power looms. Their work is for lengths woven in special designs and colour for particular places. An immense number of designs is available and a large number of looms and mountures so that the designs can be woven in a great variety of quality - damask or brocatelle, brocade or tissue, or any other of the many types of rich silk fabric. The tradition comes from Spitalfields which, in turn, inherited the tradition of the ancient world. The many designs available reflect the history of silk weaving from the 15th century to the present day. Warners regard this work as a CONTINUATION of a GREAT TRADITION rather than the reproduction of the work of past ages.

The weaving includes fabrics for the curtains and coverings in the Royal Palaces, for the British Embassies abroad, for Cathedrals and Churches, for the Halls of City Livery Companies, for public buildings of all kinds, as well as private houses.

Wherever individual pieces are required the hand loom remains a useful and economic method of production. Where greater lengths are required the power loom is used. At the present time Warners are experimenting with the weave for a silk fabric in a rich design for the covering of large parts of Westminster Abbey during the Coronation Ceremony. At the last Coronation they wove on power looms brocatelle for this purpose.

SILK PROCESSING AND WEAVING DEPARTMENTS
AT NEW MILLS, BRAINTREE

The Studios

Here the designers produce original sketches and adapt and copy historic fabrics and records. Each design is drafted on to squared paper, each small square representing one or more intersections of warp thread with weft thread in the woven cloth. Narrow width hand looms are employed for trials of fabric design and structure.

Card Cutting

From the squared paper designs the perforated cards are cut. These form the media by which the design is translated via the Jacquard machine on the loom to the fabric.

Dyehouse

Silk which the Throwster has doubled and twisted to form a finished thread is received at the Mill in the form of skeins. After first having the natural gum removed by boiling, the skeins, suspended on sticks, are partly immersed in the dyebath and the silk gently turned by hand or machinery. Thus all parts of the skeins receive the dye liquor evenly. After dyeing the skeins are hydro extracted and dried in heated rooms. The dyehouse also contains an up-to-date Pressure Dyeing Plant in which are dyed many of the other yarns which are used alone or in conjunction with silk.

A dye chemist keeps the closest watch on modern developments of dyes and techniques. He ensures that all the beauty of historic colours is retained when matching old dyestuffs with modern synthetic dyes and that fastness to fading etc. is of the highest order obtainable.

Winding

The dyed skeins are unwound onto flanged bobbins for in this form the silk is more easily manageable in the subsequent operations of warping and weft winding. Other coarser yarns are wound onto cardboard tubes, the nature of the yarn enabling the package to retain its shape without flanges. On a doubling and twisting machine two or more threads may be twisted together to form a

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thicker and stronger yarn.

Hand Loom Warping and Turning On

The warp which provides the longitudinal threads in the finished fabric is made by winding the desired number of threads from bobbins by hand onto a vertical warping mill. A warp may contain many thousands of threads and the required number is obtained by repeatedly winding a small number of threads upon themselves round the cylindrical mill. The total traverse of each group of threads being the total length of the warp. The resultant 'rope' of threads is removed from the mill, tensioned on the Turning-on-Frame and the parallel threads spaced out to the required width before being wound onto the warp roll ready for the loom.

Quill Winding

The silk for the weft is wound by hand onto small bobbins or "Quills".

Hand Looms

Cloth is formed in the loom by interlacing the warp or longitudinal threads with the weft or transverse threads. The warp is contained on the warp roll which is positioned in the back of the loom and the threads drawn forward through the eyes in the harness and through the comb-like reed to the front of the loom. The warp may be entered by hand through the harness mails and reed - a tedious process - or joined to an old warp already in the loom by twisting together corresponding threads in each warp.

Above the loom is the Jacquard machine through which passes an endless chain of perforated cards. These cards operate, through a series of hooks, the harness cords and thus control the order of interlacing of the warp threads according to the design.

The weaver by rhythmic movements of leg and arms depresses the treadle operating the Jacquard machine thus parting the warp threads, drives the shuttle containing the weft through the divided warp and beats up the resultant "pick" of weft by means of the reed in the swinging "slay".

The fabric is finally removed from the loom and has any loose ends trimmed off.

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Power Loom Warping

Here the warp is built up in sections on a horizontal mill, the resultant set of parallel threads being turned onto a warp beam direct from the mill itself.

Pirn Winding

Weft for the power loom is wound by machines onto "pirns" which fit into the shuttles.

Power Loom Weaving

The same principles which have been described for the hand looms apply to the Power Loom Department. However the joining together here of new and old warps is done by a knotting machine which selects corresponding threads of old and new and joins them with a knot. Those movements which on the hand loom are controlled by the weaver are carried out here mechanically. The weaver has still a big part to play, for besides replenishing the shuttles with weft and mending broken threads, she must be ever alert that quality is maintained and faults at once detected and corrected. For simple fabrics the Dobby operating a series of harness shafts takes the place of the Jacquard.

Inspection, Measuring and Picking

When the fabric is removed from the loom it is inspected, measured and cleaned of stray threads. Each yard of cloth undergoes no fewer than three close inspections for quality before leaving the factory.