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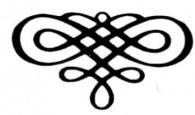
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Wallpaper

a history



Foreword by David Hicks

RIZZOLI
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Mosaic paper (seventeenth century)

To imitate mosaics of flowers or landscapes, the *dominotiers* used a process which was a combination of marbling and printing methods. They used wooden blocks, engraved with wide, well-hollowed lines a centimetre deep. The block was then placed on the tub of water, on the surface of which floated the paint; the raised parts of the wood absorbed the paint, leaving a network of blank areas in the water. The wood block was then removed and the paper laid down so that it took the colour except where the wood had soaked it up. Depending on the design to be reproduced, the operation was repeated until all the paint was used up.

Papier de tapisserie (seventeenth century)

The French word *papier de tapisserie* refers both to paper that imitates high warp tapestry, and to wallpaper in general. Hanging a paper on the wall came to be called in French *tapisser*. Even today wallpaper is often called *tapisserie* in French.

In imitating tapestries the draughtsman would draw out the chosen subject on sheets of paper pasted together in the same format as the tapestry. When the drawing was ready, it was cut into sheets of suitable size for printing. The *dominotier* would then engrave each section onto wood blocks, with small strokes, using the veining in the wood to imitate the weave of the tapestry. The blocks were then inked, and the sections printed. Once the ink was dry, the sections were painted or highlighted in different colours, then put together, their edges overlapping, to recreate the original design.

Architectural landscape wallpapers were produced by the same means. Only the black outline was printed in ink, the other colours being applied with a stencil made of thin card. This had to be waterproof if it was to last. It was therefore coated with a mixture of burnt walnut oil, litharge mixed with the ash of old stencils and of horses' bones. The coated card had to be absolutely dry before use.

A yellow ink, extracted from boiled buckthorn berries, was later added to the colours used for *papiers de tapisserie*, as was Burnt Siena; flesh colours did not appear till the end of the eighteenth century. For fixing, gum arabic was used. In spite of this, the colours did not always adhere properly to the paper and sometimes came away on the fingers or the brush. There was also the further difficulty of the fragility of the paper support. To counteract this a texture imitating tapestry was added to the paper, and a canvas lining was tacked to the wall before hanging the paper.

Block printing (eighteenth century onwards)

Preparing the paper

Until the invention of the continuous paper roll and of offset printing, wallpaper was printed on sheets of paper stuck end to end, then sized and sometimes smoothed and finished. Generally, twenty-four sheets, joined at their broadest edges, made up a roll, or what British manufacturers called a 'piece'.

In order to make the piece, the paper was laid flat at one end of a table much longer than the finished piece. With a small flat piece of boxwood rounded on one side, twelve sheets were laid out, each one overlapping the next by an inch or two. The paper gluer would then place a heavy stone on these twelve sheets, laid out to his left, to secure them in position, and lay out twelve more sheets to his right in the same way. He then spread flour paste over the twelve sheets on his right, then over the ones on his left, taking care not to overlap one side more than the other, so that the edges of the section would be constantly in a straight line (which he checked against the edge of the table). Once the first twelve sheets had been pasted, a thick plank would be laid on them, with a heavy stone on top, and left to set. The other twelve sheets would be stuck together in the same way, and the whole would thus make up the piece, which was then printed

Preparing the ground

The ground is merely paint applied to a sized surface. First, round, long-bristled brushes are used to apply the still-warm size. The worker takes a brush in each hand and rapidly goes over the entire surface of the paper section. At the same time, one or two assistants follow him with long, wide brushes, like those used in France for sweeping floors. With them they go lightly over the places where the first worker has spread the size, so as to even it out thoroughly. This procedure is carried out on very long tables so that the sections can be stretched at full length.

Once the section is sized, it is laid out on poles so that it can dry easily, and when it is completely dry, an even tint of paint is applied and dried in the same way before going on to the next stage.

Smoothing the paper

The instrument used is a piece of wood, just over 3 inches long, which is attached by a forked handle to a strong wooden pole, itself fixed to the floor by an iron bolt long enough to have a certain pliancy. This

Wallpaper: A History, Rizzoli, New York

vertical pole also has a fork projecting from it further down, which holds a copper cylinder that revolves on two pivots. The cylinder is about 1½ inches long and 1 in diameter (3.5 x 2.7 centimetres). It is not perfectly round: the ends are of a slightly smaller radius than the middle, and the edges are rounded. This is to prevent the corners cutting the paper.

The smoother is long enough to reach the edge of a sturdy table of very flat hard-wood, on which the work is done. The tension in the overhead beam means that the smoother runs on the table with a more or less even pressure. Greater evenness can be achieved by attaching a weight to the end of the beam, which gives a leverage effect. The worker lays the section on the table upside-down, with the coloured side to the table. Holding the smoother in the cup of his hand and moving it in all directions, he smooths the paper perfectly, but does not polish the colour, which remains matte.

Glazing the paper

The tool used for giving a glazed or satin finish is the same as the one used for smoothing, the only difference being the fitting at the end of the pole. This time it is not a metal cylinder, but a rough short-bristled brush, mounted on a swivel which allows it to lie flat on the table in any position. The worker lays the section on the table the right way up, the colour face up. He dusts it with a very fine Briançon chalk called talc or mica, and brushes it hard. This operation polishes the coloured side.

Manufacturing the blocks

For printing wallpaper, wooden blocks like those used for printed canvas are used. They carry in relief the design to be reproduced in colour on the paper. To avoid warping, they are made of three small pieces of wood, each just under ½ inch (about 9 millimetres) thick, of which two are white woods and the third is apple or pear wood, these being more compact and having a fine grain. The three pieces are glued tightly together across the grain. The design is engraved on the perfectly smooth, flat surface of the third.

The draughtsman draws only the outline of the shapes that are to appear in relief, with very thin clear lines, before he hands the block over to the engraver. As many blocks must be prepared and engraved as there are shades to be reproduced.

The blocks cannot be very large if they are to be handled easily and give a good finish. The drawings on each block must co-ordinate perfectly and show no gaps or spaces. The draughtsman therefore marks the block on every corner with a register mark which the engraver respects. The trick is to put these marks into flowers, stems and suchlike, so that

they will disappear when the printing is finished. All the blocks intended to be part of a single design must bear the same register marks so that all the sections of the design tally. The engraver, with gouges, chisels, scoops and so on, digs out the wood surrounding all the lines which are to remain in relief and are used to apply paint to the paper. He scores all the shaded areas deeply with a thin sharp chisel before removing the surrounding wood and at this point drives tiny wooden wedges into the block for delicate lines or dots, if the design requires them.

As many blocks are required as there are shades in a design so, to print a rose, three reds each darker than the last must be applied, plus a white for the pale parts, making four different blocks for one single flower. Just as many are needed for the leaves and for the stem. And if yellow and violet flowers are added, assuming that each of these colours includes four other shades, the one bouquet of three flowers will require twenty separate blocks.

Since the blocks have register marks, the design can be repeated to cover the whole piece, with no risk of confusion. The engraver places the mark so that when the second block is applied, the trace of the previous one is hidden by the new colour; when the section is finished, there should be traces only of the first and last register marks.

Printing from wood blocks

The tray for the paint is about 10 inches (24 to 27 centimetres) deep. It is filled with paper scraps covered with water to a depth of about 6½ inches (16.2 centimetres). A wooden frame, on which a piece of calf skin has been tightly stretched, is placed so that it rests on the water. The frame fits tightly into the box, and any gaps are sealed with water-proofed battens so that the water will not seep up. On the skin is laid a second frame made of a piece of broadcloth which, like a sieve, will take the paint to be used for printing. One frame is needed for each colour. The water serves as a mattress so that the block will touch the cloth evenly and an equal quantity of paint will be picked up at every point.

The sturdy bench on which the printer works measures about 4 inches (10.8 centimetres) thick by about 6½ feet (2 metres) long, 2½ inches (6.5 centimetres) wide, supported by strong square legs with good cross-bars. At the back of the bench is mounted, solidly and permanently, a very strong wooden cross-beam which serves as a support for the lever which is used continually in the printing. This lever is about 8 feet (2.5 metres) long and is used to press the block down to the required extent. This method is preferable to the older system of tapping the blocks with hammers, which had the drawback of noise and the risk of shifting the blocks, as well as wearing them out faster. The table is



Engraved woodblock.

covered with several thicknesses of cloth nailed to the edges to form a kind of mattress, to facilitate the printing and to save wear of the block.

With everything laid out in this way, the printer stands in front of his bench, with the tub of paint to his right and pulls out the sized paper from its roll, which revolves freely on a thin iron rod resting on two wooden brackets that are firmly attached to the underside of the bench. The cloth in the paint tray is coloured with a brush, as lightly as possible. The printer takes the block in his right hand, presses it gently onto the cloth and then places it carefully on the paper at the point shown by the register marks. Then he places on the block a trestle-shaped wooden clamp and brings down onto this the lever fixed to the cross-beam, presses firmly, then releases it, removes the clamp and delicately lifts off the block without letting it slip. He puts more paint on the cloth if necessary and then repeats the same manoeuvre until the section is finished. It is then taken to the rack to dry completely before the next colour is applied.

All the colours are printed in the same way, with various blocks to give the different shades, and it is in this part of the process that the quality and evenness of the work are determined. The borders are printed in the same way and with equal care. Depending on the size of the design, there will be one, two, three, or four across the width of the roll.

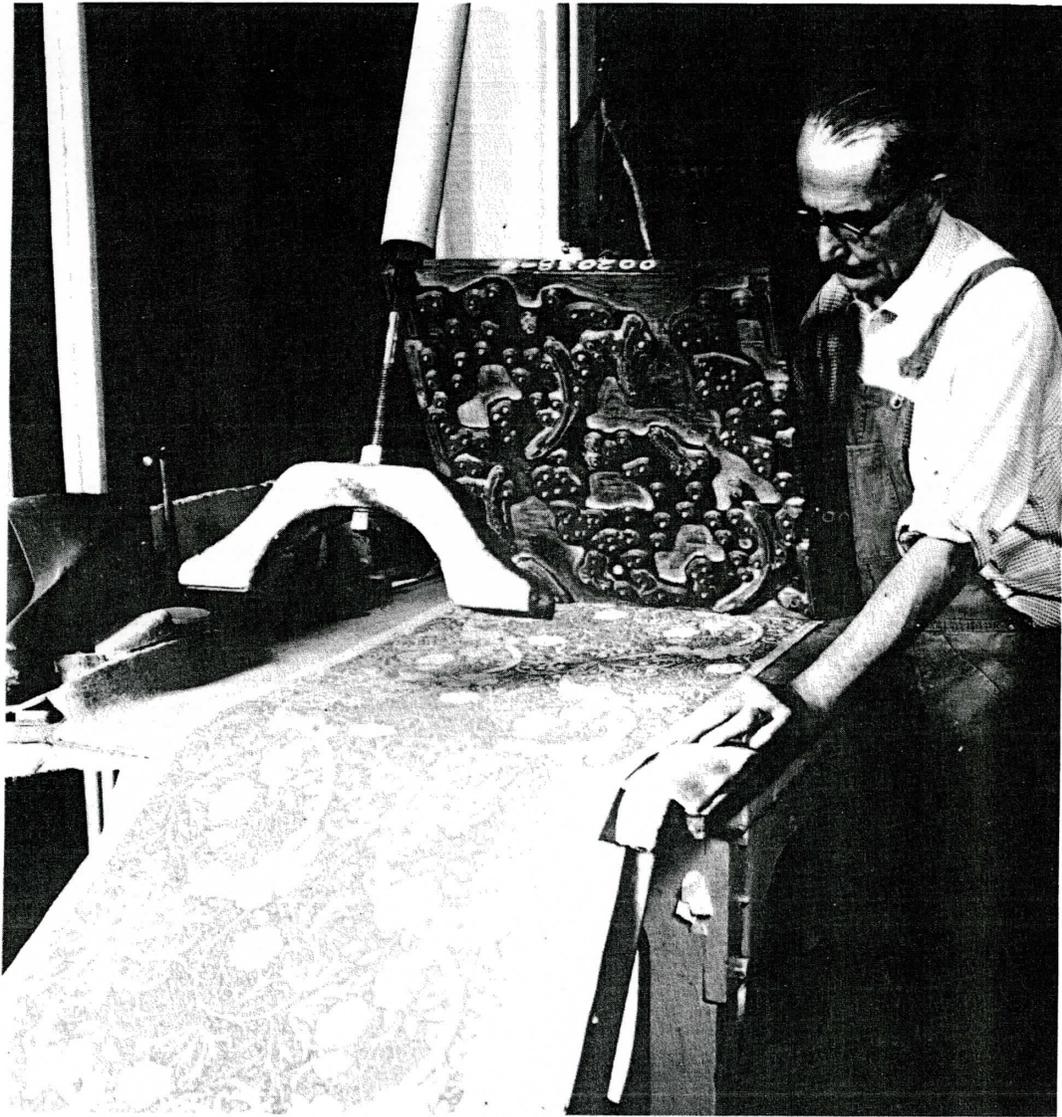
Once a section is completely printed with one colour, the printer checks it and if he notices any mistakes, corrects them by applying the missing colour with a paint-brush. Care must be taken to correct each colour as it is printed before going on to the next stage. When all the various phases are complete, the wallpaper can be delivered to the customer.



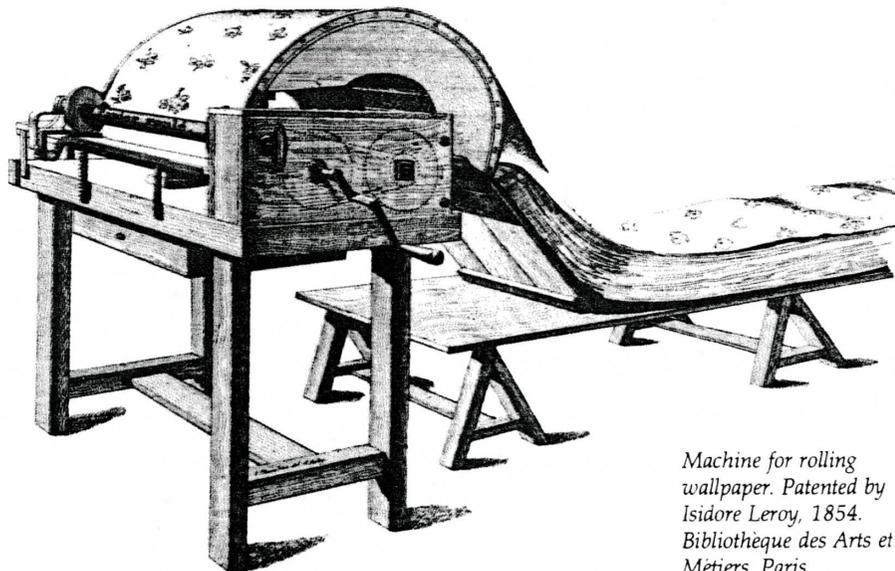
Wooden cylinder for copperplate engraving.



Engraved wooden cylinder for printing.



*Block printing the final (eighth) colour on Seaweed,
a design by William Morris.*



*Machine for rolling
wallpaper. Patented by
Isidore Leroy, 1854.
Bibliothèque des Arts et
Métiers, Paris.*

THE MANUFACTURE OF WALL PAPERS.

The white paper comes into the factory from the paper-mill in large rolls. It varies in weight according to the particular use to be made of it; much heavier stock is required, for example, for "leather" paper than for the ordinary wall hangings. The first step in the process of printing is what is called "grounding." This is applying a tint over the whole surface of the paper by a machine made especially for the purpose, in which color is applied evenly over the surface by a series of brushes. Then the paper is caught up in loops and carried by an endless chain over steam pipes, thus becoming dry as it slowly makes its journey of about four hundred feet. It is then reeled up, and is ready for the printing. These grounding machines can carry two widths of paper simultaneously, so that the process is a rapid one. "Mica papers" are grounded in the same way as those in plain colors.

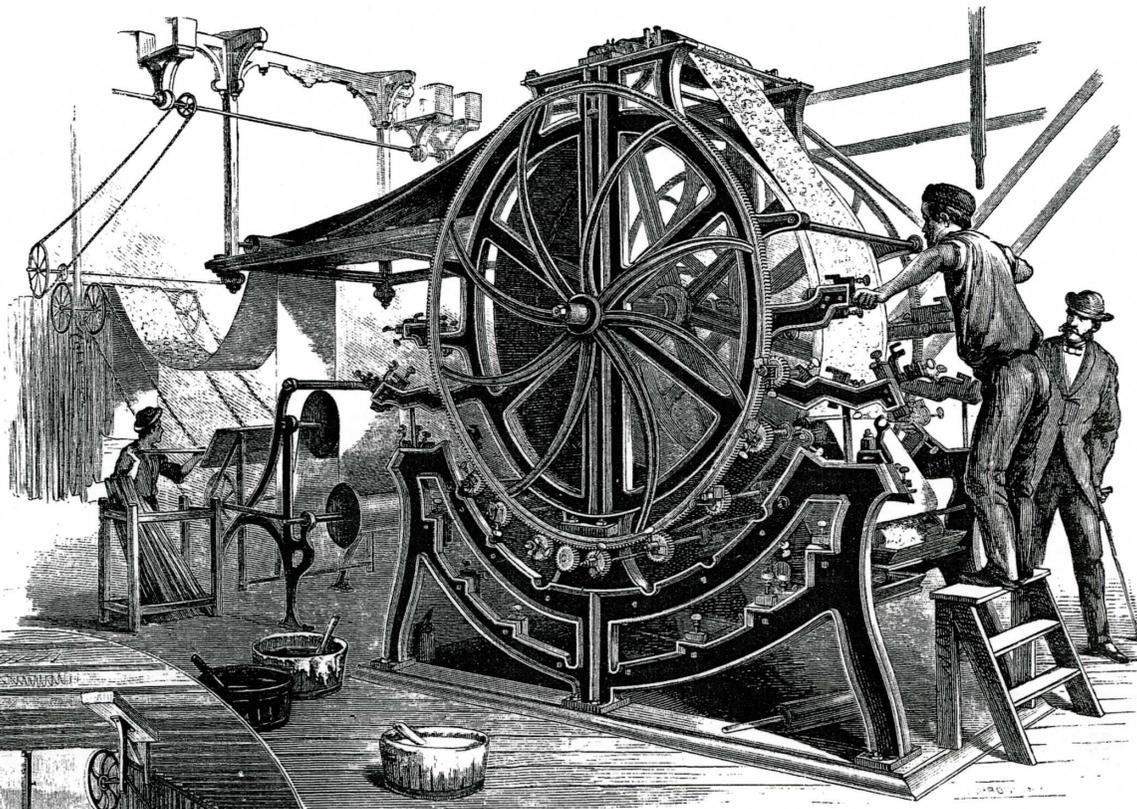
The next step is the printing. This is done on machines such as that represented in the engraving. This machine can print twelve colors at a time. Machines capable of printing in eight colors are quite common and largely used.

The pattern having been designed and the colors chosen, there must be a roller for each separate color, with the corresponding part of the pattern cut on it, and the rest left blank. The rollers consist of a body of wood, with the pattern worked on them in brass and felt. The work on the rollers must be done with great accuracy, for the different parts of the pattern must be adjusted to a nicety.

gold dust on the proper parts, which have been printed in varnish instead of color; the gold adheres to the varnish, while the colors have become sufficiently dry not to hold it. In some of the papers the gold, or bronze, or other metal is applied by hand. The portion to be bronzed is printed in varnish, then it is liberally dusted over with the metal powder. When the superfluous powder is brushed off, the masses of gold, or silver, or bronze shine out, with the result of enhancing the beauty and effectiveness of the whole.

Following the paper along, we reach the end of the moving railway which carries it. Here the sticks which have supported it in its long festoons are thrown out, and the

Some papers are hand-printed. This is done in working off specimens, that effects may be determined and patterns fixed upon. It is done also in the production of special patterns made to order, or in cases where the quantity to be printed would not warrant the expense of preparing the rollers for the machine. It is done also in those cases where the pattern is, as it were, built up by layer after layer of "flock," resulting in very rich effects. Some of the "leather" papers have raised figures upon them. These papers, which are very thick and heavy, are stamped in a machine similar to other machines for the same general purpose. Some of the most gracefully elegant papers are embossed.



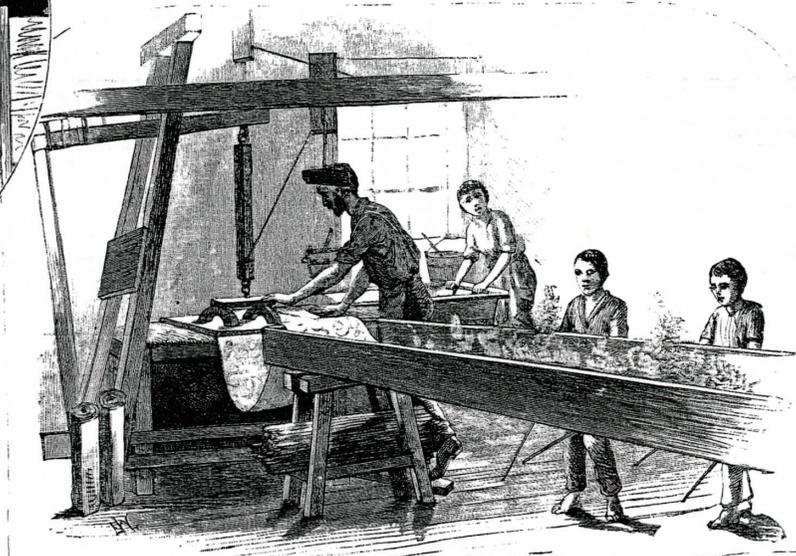
THE TWELVE-COLOR PRINTING MACHINE.

paper placed upon a movable rack, ready After the printing and gilding, they are run through a sim- to be reeled into rolls for the market. [Continued on page 339.]



READY FOR REELING UP.

Everything being ready, the rollers and their troughs of color are adjusted, the reel of grounded paper begins to pass over the great cylinder. Here it gets a spot of crimson, the blushing center of a rose perhaps, while the next roller imprints the dark green of a leaf. And so it touches roller after roller until the whole pattern is produced in completeness and beauty. As it emerges from the machine it is caught on sticks that rest in notches on an endless chain, and so in graceful festoons is slowly carried over steam pipes, which rapidly dry it. If there is any gold in the pattern, at one point in its progress over the drying coils the paper passes through an auxiliary machine, which deposits



"FLOCKING."

THE MANUFACTURE OF FINE WALL PAPERS.

A magazine article on late 19th century wallpaper making, including descriptions of applying the ground, drying the paper, printing in twelve colours, flocking and gilding. From the Illustrated London News, 1881.