Textile Printing

Second Edition

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Society of Dyers and Colourists

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From the preface to the First Edition

Textile printing is probably best described as an industrial art, having a long history and an assured future. It has become more dependent on the sciences than it was, but will always be a multidisciplinary activity, requiring more than a knowledge of science and technology.

The need for a textbook has been evident for some years, as the techniques, substrates and colorants in use have changed so dramatically since the admirable *Principles and practice of calico printing*, by Knecht and Fothergill, was last revised in 1952. The present work is intended to provide the information and understanding required by students preparing for the Associateship examinations of the Society of Dyers and Colourists. Many others, we hope, will also find it of value.

For those readers with practical, rather than academic, objectives, perhaps looking for answers to specific technical questions, a warning may be necessary. In a short book on such a substantial subject, some generalisations are inevitable but dangerous. Successful printing depends not only on using the appropriate materials and techniques, but also on the coordination of many individuals' skills. Printing machines have been compared to musical instruments, in that the results obtained depend on who is playing. In any printworks, the difficult patterns are given to the best printers, but even the best printer has to work within the limitations of his equipment and his supporting team.

Before describing current techniques, a brief discussion of the historical development of textile printing may be helpful. The English term 'printing' was coined in the 18th century and is derived from a Latin word meaning pressing, the word 'impression' being similarly derived. At that time printing was normally achieved by the use of wood blocks, with raised printing surfaces, which required pressure to obtain good contact between the fabric and the colour on the block.

Wood blocks were certainly used for printing illustrations in books at around 1400, and on linen hangings at about the same time. In China, they had been used in the 10th century. Stencil printing of playing cards was established in around 1440, and engraved-copper-plate printing was used in Venice in 1450. Techniques used on paper were naturally tried on fabrics, but often required long processes of trial and error before they could be successfully adapted.

Techniques of resist dyeing, mordant printing and painting had been developed in the East at a much earlier period. Herodotus wrote of the painting of garments in the 5th century BC, a dye that was probably indigo being used. In fact, it was the enormous demand for colourful hand-painted cotton fabrics, imported from India in the 17th century, that stimulated the inventiveness and drive of the

European pioneers. By 1842 some 90% of British prints were produced on machines, rather than by hand block and, at about that time, 60% of the cotton fabric produced was printed. The pioneer printers of Europe not only developed the machinery and mastered the art of using suitable thickeners, but were also innovators of the factory system.

LESLIE MILES

Preface to the Second Edition

The 1981 edition was widely welcomed and became a standard textbook. But it was clear that a second edition was required and we have taken the opportunity to effect some significant updating. The whole book has been updated and I hope that it will prove to be of lasting value, to students and the industry around the world.

The near demise of roller printing since 1981 prompted the replacement of the first chapter, which was a very thorough account of this technique, by one on the historical development and the traditional methods of printing. Screen printing is certainly the dominant method at the present time, but block printing and roller printing are still of some significance and of technical interest. I am pleased that we have included both this time. The other development that we have reflected is the substantial use of computer-aided design (CAD) and of computers in screen production in printing processes. The extension to jet printing, with its potential of very quick response, is not yet beyond the development stage – for flat fabrics – but may be important for a future editor.

My thanks are gratefully recorded to all the authors, especially Ian Rattee who has provided invaluable expertise on transfer printing (originally dealt with by the late Frank Jones). I wish to acknowledge the assistance of Paul Dinsdale (the Society's editor) and Carol Davies for her expert typesetting and layout. Jean Macqueen has improved the text significantly and provided the index, for which I am indebted. I am also grateful for all those individuals and organisations who granted permission to reproduce illustrations, as signified in the figure captions.

LESLIE MILES