VI

CONCLUSIONS

The present study dealt with the experimental printing techniques on a small scale, which were developed so as to simplify the printing.

The conclusions are given as:

I. Designs from their suitability of printing.

II. Effects produced in printed illustrations.

III. Transfer printing aspects with reference to the influence of synthetic polymer emulsions for improving the transfer printing ability.

I. Designs from their suitability of printing

For the development of the experimental technique, designs were prepared, analysed and studied for their suitability for the printing material to be used.

The following conclusions were drawn:

a. Designs like those in the tie-dye work, where only dots are used to form designs, dotted rubber can be used as a printing material.

b. Designs where lines are used, linoleum can be used as a printing material. Lines and space suitably used created depth in a design.

c. Spray printing/granulated texture effect in designs can be obtained by using U-foam as the printing materials.

d. Designs where a single form is repeated, a tone effect can be created to make the design less monotonus, by using flocked and unflocked linoleum surface together.

II. Effects produced in printed illustrations

The effects produced by the use of different printing materials were studied by preparing illustrative samples on fabric and paper. Linoleum, dotted rubber and U-foam were the printing materials used. A tone effect in the design by differential surface absorption of linoleum was obtained.

The following conclusions were drawn:

a. Linoleum when used as a printing material gave uneven/ textured effect due to its non-absorbant surface.

b. Suitable modification of the linoleum surface by using cellulose flocking powder makes the surface absorbant and gives prints with greater colour depth.

c. Tone effect was produced by using unmodified and modified linoleum surface together. Block printing effects also varied with different materials, dotted rubber, for tie and dye effect, spray printing/speckled effect for U-foam.

III. Transfer printing aspects with reference to the influence of synthetic polymer emulsions for improving the transfer printing ability.

Transfer printing with disperse dyes is generally used for polyester fabrics. In this study along with polyester, cotton and polyester:cotton blend fabrics were also used for transfer printing. Cotton which is not receptive to the disperse dyes was made receptive by using synthetic polymer emulsions namely: acrylic emulsion, polyvinyl acetate emulsion, and polyvinyl alcohol emulsion, as a finish. To study improvements in transfer printing the synthetic polymer emulsions were incorporated in the printing paste. This was further developed by using synthetic polymer emulsion as a finish on fabric and then printing the finished fabric with a paste containing synthetic polymer emulsions.

The following conclusions were drawn:

a. The transfer printing ability of the fabrics increased with the increase in the polyester content of the fabrics.

b. The synthetic polymer emulsions imparted thermoplastic nature to the non-thermoplastic fabric cotton, and made it receptive to the vapours of disperse dye resulting in improved transfer printing ability. 100 percent polyester fabrics which are as such receptive to the disperse dye

could not be made more receptive by using synthetic polymer emulsion as finish. Transfer printing on cotton and polyester:cotton blends can be improved by making the cotton component receptive to the disperse dyes by using synthetic polymer emulsions as finish.

c. Transfer printing ability of 100 percent polyester can be improved by using the synthetic polymer emulsions in the printing paste. Transfer printing ability of cotton and polyester:cotton blends can be improved by the combined use of the synthetic polymer emulsions as a finish and in the paste.

d. The synthetic polymer emulsion polyvinyl alcohol when used in the printing paste increased the vapour pressure of the disperse dye more than other polymer emulsions and thus improved the transfer printing ability of all the fabrics.

e. Acrylic emulsion or polyvinyl acetate when used as a finish and polyvinyl alcohol when used in the printing paste gave the optimum increase in the transfer printing ability of all the fabrics.

f. The transfer printing ability of all the fabrics decreased with the increase in the sublimation fastness of the disperse dyes.

g. Washing fastness of the unfinished fabrics and fabrics finished with acrylic emulsion, both printed with paste containing polyvinyl alcohol was checked. Unfinished fabrics showed poor fastness to washing especially with 100 percent cotton fabrics whereas the finished fabrics showed comparatively good washing fastness.

This was because the finish being thermoplastic in nature, when heat is applied while transfer printing it readily absorbs the dye and entraps the dye within itself. When mild washing treatment is given to the samples at room temperature the dye which is entraped cannot come out as the temperature is much lower than that which caused the dye to get entraped into the finish. Whereas in unfinished fabrics the dye is just superficially deposited so it comes out during washing, since there is no finish which gets thermoplastic and heat set.

The results of this study can be utilized for small scale or household printing. Just as embroidery, patch work and other trimmings are used to decorate the garments and household linen by women, this simple techniques of printing can also be utilized.

The synthetic polymer emulsions used, can be used in various concentrations and the effects can be studied. Dyes having unequal sublimation fastness can be used side by side by using and by not using the synthetic polymer emulsion to get good colour depth. The economic aspects of the use of the synthetic polymer emulsions would also be interesting to study.