

too the probability that bending at the point of peel is responsible for most of the change.

We have investigated bending further by the apparatus shown in Fig. 9 and, although the effect of this is greater (particularly on curl), it seems a valid method for testing the effect of bending on paper. The VVP results of Table 3 are of importance to printers, as they demonstrate the effect of this bending on printing properties and suggest that the first printing may be expected to affect later printings. A high VVP indicates a strong surface. As the wire side is known to be stronger than the top side in uncoated papers, it would be worthwhile always printing the wire side first. The effect of bending is more noticeable on the outside of the bend and printing the top side first would therefore produce more bad effects likely to be shown in later printing. When coated paper is used, it may for similar reasons be worth trying the other side of the sheet, although the wire side cannot readily be identified.

Our figures have been obtained on three substances of art paper. It has not been possible to draw many valid conclusions about the effect of substance, as with all the tests, the 136 g/m² art paper has fallen out of the sequence suggested by the other two. This appears to be due to the difference in paper quality other than substance and is particularly obvious in Table 3.

We would hesitate to suggest that previous bending could regularly be used to reduce misregister in multi-coloured printing, but it is possible that paper treated in this way is worth further investigation.

REFERENCES

1. Kohler, S., *Svensk Papperstidn.*, 1953, **56** (5), 157-172
2. Kubát, J., *Svensk Papperstidn.*, 1954, **57** (8), 307-308
3. Kubát, J., French Patent 1 241 13318 (August 1960)
4. Clupak Process, British Patent 777 621 and *Paper Tech. Rev. of Ind.*, 1963, 21-22, 24
5. Page, D. H. and Tydeman, P. A., *Paper Tech.*, 1960, **1** (5), T207-T218
6. Borchers, C. M. and Bruno, H., *Intl. Bull. Printing & Allied Trades*, 1958, **80**, 96-100
7. Truman, A. B. and Hudson, F. L., *Paper Tech.*, 1962, **3** (1), T1-T8
8. Banks, W. H. and Mill, C. C., *Proc. Roy. Soc.*, 1954, (223A), 414-419
9. Mardon, J., Truman, A. B., O'Blenes, G. and Meadley, C. K., *Pulp & Paper Mag. Can.*, 1958, **59** (9), 135-155
10. Melia, M. C., *Unpublished work*
11. Truman, A. B. and Hudson, F. L., *Pulp & Paper Mag. Can.*, 1962, **63** (6), T299-T306
12. Voet, A. and Geffken, F. C., *Ind. Eng. Chem.*, 1958, **43** (7), 1 616-1 624
13. Fetsko, J. M., Shaeffer, W. D. and Zettlemoyer, A. C., *Tappi*, 1963, **46** (3), 157-162
14. Hsu, B., *Tappi*, 1963, **46** (7), 438-442
15. Tollenaar, D., *Intl. Bull. Printing & Allied Trades*, 1956, **73**, 76-80
16. Jackson, M. and Truman, A. B., *Paper Tech.*, 1965, **6** (3), T45-T51