A Drop Of Fount Can Work Wonders . . .

For baptismal purposes a *font* and water go together. But a *font* or *fount* is also a complete assortment of type of one sort, with all that is necessary for printing in that kind of letter. In this article the *fount* system is shown to be an important but often neglected part of lithography – a 'poor' relation to the ink . . . The paper, entitled "Founts – a technological up-date", was given by Trevor Allen, chemist-in-charge of founts for Mander Kidd, before the West of England branch in November, 1986.

The fount system is an important but often neglected part of lithography – a 'poor relation' to the ink. Supply of fount tends to be changed much more regularly than ink and yet it is often little understood. In fact, in lithography ink and fount are really two sides of the same coin and given a print problem there are often two alternative routes to its solution – modification of ink or modification of fount.

Fount supply has a rather chequered history. Originally printers made their own founts and then, following major developments in litho plates, and particularly the intoduction of the deep etch plate, the plate manufacturers began to take over responsibility for fount development and supply, and some still do. But fount manufacture became more specialised and complex, particularly with faster running presses, and independent chemical manufacturers began to concentrate solely on fount.

Then, of course, it is no accident that ink makers should supply founts for reasons which should become apparent. Four aspects of founts and their development are: fount additives – what they contain, control of founts on the press, the ink/fount relationship, and fount application to dampening systems.

Fount additives contain: water, acid salts/gum (plate etch), buffer (pH stabiliser), wetting agents (reduce surface tension), preservative (prevent bacteria growth),antifoam, calcium binder (tie-up calcium in hard waters), and anti-corrosives (protect metal parts of press).

The predominant constituent of fount is water which, however, is deficient for press dampening and requires chemical modification. The wetting capacity of a liquid in contact with a solid surface is measured by its surface tension. The higher the surface tension the poorer the wetting capacity, the lower the surface tension the better the wetting capacity of the liquid.

Water is a poor wetting liquid with high surface tension and, therefore, materials are added to reduce its surface tenson and thereby improve its wetting. Alcohol serves such a purpose and also minute quantities of chemicals called surfactants or wetting agents. It is, however, not wise to reduce surface tension unlimitedly since not only are solid surfaces of the press more efficiently wetted but also the ink, leading to excessive emulsification. It is necessary to achieve the correct balance of wetting.

Good wetting of the non-image areas of the plate is greatly assisted if the damping water is acidic. Traditionally a combination of acid and gum gives best disensitisation, acting as a plate etch. The degree of acidity is reflected in the pH value and the pH range most satisfactory for printing is 4.5-6.0.

On the press pressures can arise which can change pH (eg, paper, ink, bacteria, calcium in water) usually making it less acid. This can upset the balance on the press and affect print quality. Special salts called buffers are, therefore, included to maintain a stable pH.

On a press, too, bacteria can find their way into the system by various routes and they tend to thrive on fount additives. Overnight press stops and warm conditions aggravate the problem and the result can be clogged-up pipes, objectionable odours and chemical effects which can cause a deterioration in print performance. Preservatives are, therefore, included to destroy bacteria.

Where there is a combination of air and fast water movement then the possibility of foaming arises. Such conditions can arise on large fast running presses and the presence of foam, apart from being messy, can result in uneven feed of damping water. Antifoam additives are included to prevent foam formation.

Our mains water supplies are dependant on the history of the water from the point when the rain hits the ground. Hard waters contain a lot of dissolved salts, soft waters contain few dissolved salts. Dissolved calcium can react with ink or fount on the press and affect print performance. So a chemical is included to 'bind' the calcium and render it inactive.

The simplest method of dosing fount is to mix by hand. This, however, is time consuming and impractical for large, fast run-

Fig 1