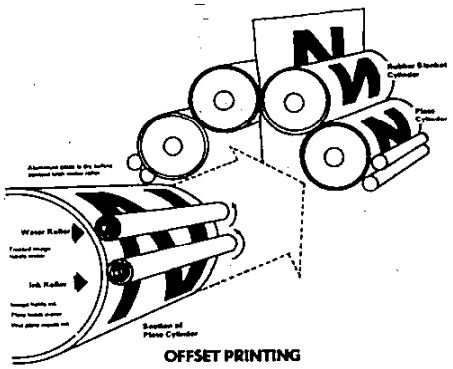
How Offset Printing Works



OFFSET PRINTING

The workings of the offset printing process at the new Observer plant are really very simple. The basic principle to keep in mind is very old: Oil and water do not mix.

To start with, the offset printing plate is perfectly smooth, unlike the letterpress plate which uses raised metal surfaces to pick up ink and transfer it to paper.

Those parts of the offset plate which were not exposed to the intense light of the plate burner will attract water when the plate passes over a water-covered roller in the press. Those parts of the plate which were exposed, however, chemically repell water.

WHEN THE prepared plate is put on the press, it is locked onto a large printing cylinder which rotates the plate first against a water-covered roller and then against an ink-covered roller.

The water adheres to the unexposed areas of the plate and is repelled by the exposed areas. When the plate then rolls against the ink covered roller, the ink (which is made with an oil base) sticks to the plate where there is no water (the exposed areas) and is repelled from the plate where there is water (the unexposed areas).

The plate continues to rotate, pressing against another large cylinder covered with a thin rubber pad, called a blanket. The ink on the plate is transferred (offset) onto the rubber blanket exactly as it was originally laid down on the plate.

IT IS from this rubber blanket that the ink is at last transferred to the web of paper passing through the press. The blanket cylinder barely "kisses" the paper web, leaving a crisp, sharp printed image.

The ink dries as the web of paper moves through the press, over large metal formers that put in the center fold, and into the folder, where the paper is folded across the front and cut to the proper size.

FROM THIS explanation, it's easy to figure out why offset printing is better than letterpress.

Offset plates are lighter than the heavy metal ones used in letterpress, allowing more precise tolerances in the design of the press.

Further, when a page is composed in letterpress "hot type," an intermediate step before making the plate involves pressing a heavy paper mat down over the page. This results in fuzzing of the edges of the type, producing a less sharp image than in offset.

Lastly, when a letterpress plate transfers ink on its surface to the web of paper, it does so with enormous force, often crushing the paper and leaving blurred edges around the type and making the pictures less sharp than offset.

By contrast, the repulsion of ink and water in offset is very precise and extremely sharp, giving the type and pictures in offset their characteristic crispness, which you see in each edition of your hometown newspaper.