

Start the presses

Presses in the 18th and 19th centuries were hand powered. Type was set by hand, a roller inked the type, and single pages were fed into a press by hand. This labor-intensive process was tedious and slow.

By the 1850s, technology made possible the mass production of newspapers using presses powered by steam engines. Type was still set by hand until the latter part of the century with the introduction of "linotype" machines that had keys like those on a typewriter.

Presses older than 20 years are often approaching the end of their expected life cycles. These presses typically print about 45,000 papers per hour and can print full color on a select number of pages.

Today's state-of-the-art presses are far more efficient than the ones they are replacing. They utilize computer-controlled motors, operate more quietly, and require far less maintenance because they have fewer components.

New tower presses are manufactured in a vertical configuration to save much-needed floor space. They print about 80,000 papers an hour. The same press can print on different size and weight papers simultaneously and can print full color on each page.

MAN Roland is the world's largest manufacturer of newspaper presses. One of every 3 newspaper presses in the world is manufactured by this company. One of its new presses is six stories tall and more than two football fields long.

Digital printing is another printing innovation. Just as digital cameras are changing how we take, process, and manipulate photos, digital printing enables presses to be smaller and controlled by software.

If we look into the distance, some futurists are predicting that newspapers will be "custom-made." That is, newspaper subscribers will tell the newspaper what types of news coverage they want. The newspaper will place in each person's home a special printer and every day, the newspaper will transmit a copy of that day's custom-made newspaper via the Internet. It will be designed to meet the customer's specifications for news. Do you think this might really ever happen? Well, guess what. Several leading world newspapers are participating in a test being coordinated by Personal News, a company in the Munich-Augsburg area of Germany.

Composing Room

The newspaper pages with final copy, headlines and graphics are "composed" on a computer by page designers working on the copy desk and in the editorial graphics department. The process is entirely electronic.

In the old days — just a few years ago — once the copy was edited it went to the composing room. There men and women used Exacto® knives to cut out articles they then "glued" in place on page boards, which were full-sized sheets of graph paper. They used hot wax to place the articles and images onto the correct pages. The wax held them in place and allowed the compositors to reposition them as necessary. Borders or rules were created



Pressmen check newspapers for color and alignment.

with colored tape of various widths.

When the completed pages were approved by an editor, they were taken to the camera room, where they were placed on a glass-covered tray that tilted vertically in front of a six-foot camera that looked like one your great-grandparents might have used. The camera operator snapped a picture and the full-sized broadsheet or tabloid-page negatives were developed inside the camera and dried as they were delivered to the adjoining stripping room a few moments later, where workers created a separate film for each of the production colors needed to create full-color pictures — cyan, magenta, yellow and black — CMYK. (Every color picture in your newspaper is produced from these four colors and each color requires a separate negative.)

Pagination

Copy and images are sent electronically to a paginator who lays out the pages on a computer and electronically sends them to the composing room. There the pages are paired in the order in which they will be printed. This is different from putting the pages in numerical order.

For example, take a look at the four pages of a single sheet of a newspaper. If the page is pulled from a section that has 20 pages, you will see that pages 1 and 20 — the first and last pages — are paired or "married" to each other. They are printed as one sheet. In like manner, pages 2 and 19 are printed together as are pages 3 and 18, 4 and 17 etc. When the pages are in

order, they are sent electronically to the imagers. The imaging machines convert the digital computer language to film, which is then taken to the plate room as it was in the past.

Plate Room

Printing plates are flexible, light-weight aluminum sheets that are treated to be sensitive to light, much like photographic film. Before the plates can be used, a machine punches holes along the side, like the holes in composition paper. The plates are stacked inside a plate-making machine, ready to slip into place when the film is ready.

The films — negatives that will be used to print pages — are stacked on the edge of the machine into which they will be fed one-by-one, either automatically or manually, depending on the machine.

When film enters the machine, a vacuum pulls it flat against the aluminum plate onto which a bright light burns the image. The plate moves on a conveyor to a second machine that develops the image and scrubs away the plate's protective film. When the image is fully developed, a conveyor feeds it into a final machine that bends the edges where the holes have been punched. Then the plates are ready to be "tied on" or "bent on" to the printing press.

At some newspapers, pages are transmitted directly from the computers to the presses. That's a far cry from the days when customers would receive their morning paper 45 minutes late because the van

carrying the plates from the newsroom to an offsite printing plant got a flat tire.

Press Room

When the plates are ready, pressmen attach them to cylinders in the web presses — so called because of the way the newsprint weaves through them. Web presses simultaneously print both sides of the continuous newsprint roll. The presses are designed so that a new roll falls into place when the previous roll is used up.

The ink spreads over the plates. An electrical charge causes the ink to adhere to the copy. Images that are exposed in the developing stage are transferred — backwards — to a rubber blanket that stamps the impression on the newsprint as it speeds through the press. This process of transferring ink from the plate to the blanket and from the blanket to newsprint is called offset printing.

The entire process takes a fraction of a second once the presses get rolling. Adjusting and testing make the process begin slowly, but the presses then begin running very fast. More impressive than mere speed, each four-color picture is a composite of four pictures. The newsprint passes rapidly through cyan, magenta, yellow and black presses to build a four color picture in the blink of an eye. The precision required to print four perfectly registered pictures — along with all the other pages that are cut and folded in less than a second — is an exceptional feat of technology.

What happens to newspapers after they are printed? They are strapped in bundles and taken to loading bays where trucks wait to carry them to their destinations.

Presses often start running between 11:00 and 11:30 p.m. By about 11:40, the first bundles are being loaded for outlying areas. The destinations farthest away are shipped first. All of the 1-star editions are on their way by about 1:15 a.m. (One or two stars in the folio of the cover identifies the edition. The word "FINAL" appears above the last edition of the morning.)

The pressmen make any changes that have come from the newsroom since the first run started, and the 2-star edition starts rolling off the presses at about 1:45 a.m. By 3:30 a.m., all the newspapers are on their way.

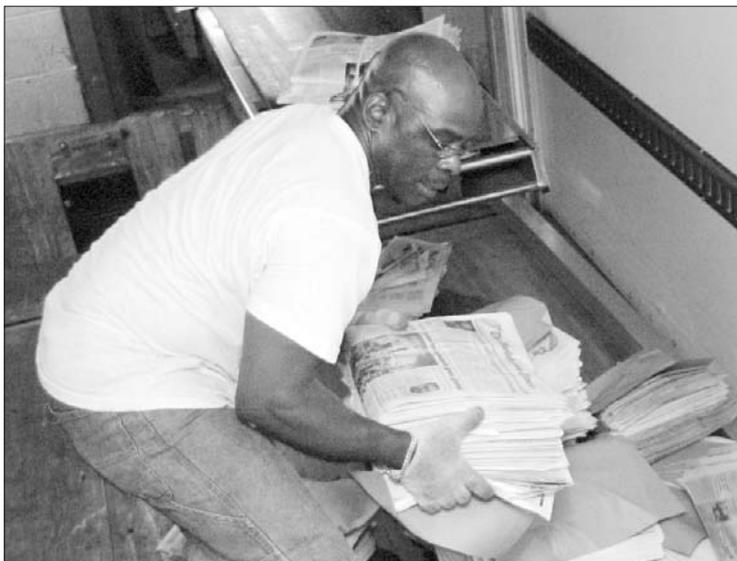
Sunday newspapers are usually much larger than weekday editions, because of more advertising and additional features.

CIRCULATION

The Circulation Division is responsible for all sales of the newspaper. Circulation is critical to a newspaper's success because advertising rates are linked to a newspaper's readership. The more readers a newspaper has, the more it can charge to advertise in its pages.

Paperboys used to be the most visible circulation department employees, throwing newspapers from their bicycles to subscribers' front doors. Then girls started taking newspaper routes. Now, at most big newspapers, adult route carriers throw newspapers from their cars or vans before most of us are out of bed in the morning.

The director of a circulation department plans how to maintain and increase the newspaper's circulation. He is responsible for providing newspapers for special events and promotions; coin rack placement, repair, and maintenance; street hawkers; route carriers; their managers and supervisors; back issues; data entry; and customer service.



Newspapers are loaded onto waiting trucks and vans and for delivery.

When the newspapers reach their intended regions, they are delivered to distributors or carriers. Some newspapers are placed in stores, others in coin racks and still others are delivered to homes, schools, hospitals, hawkers (people who stand on street corners selling the newspapers) and hotels.

In addition to delivering the newspaper, circulation also seeks to increase readership by undertaking campaigns that use telemarketing, direct mail advertising, special promotions, rack cards, and kiosk sales. This requires familiarity with the demographic make-up of the market and how the many sections of the newspaper meet each person's individual needs.

Circulation is also responsible for handling all of the needs of our customers through the Subscriber Services Department. If subscribers want to start, stop, or report a service issue, they contact this department. Customers can speak directly with a live representative, use an automated voice response system, or send information via the Internet.