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<th>Printing technology : options for small newspapers.</th>
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<tr>
<td>Author(s)</td>
<td>Thomas, Jacob.</td>
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Printing Technology:
Options For Small Newspapers

By

Thomas Jacob
PRINTING TECHNOLOGY:

OPTIONS FOR SMALL NEWSPAPERS

THOMAS JACOB

MAY 1992
Traditional Production Process in a Newspaper

Hand Composing
Block Making

Proofing
Corrections
Page Layout

Plate Making
Printing

Prepress

Press
PREPRESS

DISADVANTAGES OF TRADITIONAL METHOD

- LABOUR INTENSIVE
- TIME CONSUMING
- OCCUPIES LOT OF SPACE
- CORRECTIONS ARE TEDIOUS
- BLOCK MAKING COSTLY AND TAKES LOT OF TIME
PREPRESS

OPTIONS FOR SMALL NEWSPAPER -

- HOTMETAL  
  -
- CONVENTIONAL PHOTOTYPESETTING
- DESKTOP PUBLISHING - DTP  

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TRADITIONAL PHOTOTYPESETTING

Pasteup

Examples are Linotype, Monotype, Compugraphic

Proprietary systems
- CRT based
- Laser based

Output on Typesetter

Galley outputs on bromide

Platemaking & Offset printing

Photographs are screened

Temporary Workers Give Relief in Overworked 2nd Shift in Harwood Plant

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Conventional Phototypesetting Systems

- Proprietary systems - dependence on the vendor
- Very costly
- Consumables like photographic paper, chemicals for DEV / FIX of bromides are expensive
- Spares and maintenance
DTP

- Desk Top Publishing
- Most cost effective technology for a small newspaper
- Standard hardware & software
- Most of the prepress work could be done on DTP
- DTP revolution started with the introduction of laser printers
- Laser printer together with personal computer and low cost pagination software brought publishing onto the desktop

- The term desktop publishing was coined by Mr. Paul Brainerd of Aldus Corporation in 1984 when he introduced the PAGEMAKER software for the Apple Macintosh computer
Components of a simple DTP system

Computer

Laser printer

Hardware

Software
A bigger system

scanner

Personal Computer

mouse

Laser Printer
Production Process in a DTP Environment

- Text / News matter is keyed into the computer using a word processing programme
- Lineart & photographs are scanned in using a scanner. Artwork is then cropped into the required size
- Text & graphics are then paginated (paste up) on the computer using a page layout software
- The final page is then output on to the laserprinter. The output can be on a paper or a transparent sheet.
- This output could be used for making plates for subsequent printing on offset
DTP - some advantages

- Complete prepress work could be carried out on the DTP by one or two persons.
- Eliminates typecases, manual proofing, pasteup blockmaking etc.
- Less space and time
- Artworks like cartoons, maps etc could be included in the newspaper with little effort
- WYSIWYG - What you see is what you get
DTP - options

- Wide range of DTP equipments are available. However they can be classified into two major categories

1. Apple Macintosh Platform
2. IBM PC and Compatibles Platform
Apple Macintosh Platform

- Pioneer

- Apple introduced Macintosh computer in January 1984

- Macintosh and Laserwriter Page Printer started the DTP revolution

- Easy to use and learn due to object oriented user interface

- Single vendor
Apple Hardware

Computer: Mac Plus, Mac SE
Mac II series
Mac Quadra

Scanner: Apple one scanner

Laser Printer: LaserWriter, LaserWriter Plus
LaserWriter II series
Some common software programmes for Apple Platform

Word processing
MacWrite
Microsoft Word

Graphics
MacPaint
MacDraw
Free Hand
Adobe's Photoshop

Page Layout
PageMaker
Ready Set Go
Quark Xpress
## Apple Platform - Economics

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<tr>
<th>Hardware</th>
<th>Model</th>
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<tr>
<td>Mac LC II</td>
<td>4 MB, 40 MB, Mouse, colour Monitor</td>
<td>US$3175</td>
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<tr>
<td>Mac II si</td>
<td>5 MB, 80 MB, Mouse, colour Monitor</td>
<td>US$4570</td>
</tr>
<tr>
<td>Apple scanner</td>
<td>300 dpi, 256 greylevels</td>
<td>US$1903</td>
</tr>
<tr>
<td>LaserWriter II f</td>
<td>300 dpi</td>
<td>US$4300</td>
</tr>
<tr>
<td>Product</td>
<td>Price</td>
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<tr>
<td>LaserWriter II g</td>
<td>US$ 5,390</td>
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<tr>
<td>300 dpi</td>
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<tr>
<td>LaserMax</td>
<td>US$22,819</td>
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<td>1200 x 800 resIn</td>
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<table>
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<tr>
<th>Software</th>
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<tr>
<td>Microsoft Word V.5</td>
<td>US$ 454</td>
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<tr>
<td>PageMager 4.2</td>
<td>US$ 728</td>
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<tr>
<td>FreehAnd 3.1</td>
<td>US$ 545</td>
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<tr>
<td>Adobe Photoshop</td>
<td>US$ 912</td>
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IBM PC - platform

- Includes IBM personal computers and its clones
- Models are generally categorized as PC, PC/XT, PC/AT
- Various types of monitors, mouses, harddisks are available from vendors
- Uses MS-DOS operating system which is not as easy as Apple Macintosh
- Wide range of programmes are available for various applications like accounting, inventory etc.
- Relatively inexpensive due to availability of clones
- MS - Windows is a programme which makes the IBM PC's easy to use. Makes the PC similar to Apple Macintosh
Page Description Languages

- Page description language describes text & graphics for reproduction on an output device

- Examples of page description languages are postscript ace, tex, interpress,

- Postscript - most important

- Was developed by Adobe systems, initially for Apple LaserWriter

- Has now become the de-facto industry standard
• Resolution independent. Can output on a laser printer as well as a high resolution typesetter

• Postscript files are created by page layout programmes like PageMaker, Quark Xpress etc

• After the pages are created by the page layout programme it is send to the laser printer or a typesetter, where the controller (also known as RIP - Raster Image Processor) translates the file into tiny dots which form the printed image
Some issues on DTP & Asian Languages

- Asian Languages are more complex and has a large character set

- Require more processing power that Roman - Latin based languages

- Availability of fonts

- Initially, postscript was considered slow for Asian languages. Now with more powerful computers at lesser prices the situation has changed

- Keyboard design and productivity

- Phonetic keyboard design
OFFSET LITHOGRAPHY

PRINTING OPTIONS

LETTER PRESS

GRAVURE

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• **LETTERPRESS** - Ink is carried via raised printing surface

• **GRAVURE** - Ink is carried in incised areas of a printing plate onto which the paper is pressed to pick up the ink

• **OFFSET** - Unlike the other two, uses a plain surface
OFFSET LITHOGRAPHY

- Commonly referred to as offset
- Offset printing is the most suitable option for a small newspaper with DTP
- Is based on the principle that oil & water do not mix
- A chemically treated aluminium plate is exposed with the required image & developed
- The image area of the plate will repel water and allow the oily ink to adhere
- On the press the plate is mounted on a cylinder that is being constantly wetted and inked. Because the ink and water do not mix, ink stays only on the printing areas of the plate, from where it is offset onto a rubber cylinder and then on to the paper.
OFFSET PRINTING OPTIONS

SHEETFED

WEB OFFSET
SHEETFED OFFSET

- Sheetfed press prints one precut at a time

1 colour sheetfed
SHEETFED OFFSET

- Flexible in terms of different sheet sizes
- Quality is good
- Four colour printing can be done by passing the sheets four times through the press, in case of a single colour machine.
- Speed generally ranges between 5,000 to 8,000 impressions per hour
- Sheetfed machines do not produce a newspaper in its final form. The sheets have to be folded & inserted
WEB OFFSET

- Prints on a continuous reel of paper. At the end of the press the WEB is folded and cut into signatures

WEB offset with two WEB's
WEB OFFSET

- In WEB offset printing, complete newspaper (printed, folded, and inserted) is delivered

- Enormous increase in capacity due to high speeds ranging from 10,000 to 60,000 impressions per hour

- Startup waste in high

- Ideal for large print orders

- Colour printing is possible through satellite units
PRINTING

- Is the most expensive part of the newspaper production

- Investment on a printing machine, whether it is sheetfed or Web, is very high

- If used only for the printing of newspaper, return on investment will be low. Income can be supplemented by taking up job work.

- Other alternatives are:
  1. To contract out the printing
  2. To set up a common printing facility and share the common facilities among publishers.
Reproduction of Photographs

- Printing presses can print only solid colours

- To reproduce the various grey shades in a photograph, the image must be screened, i.e. converted into a pattern of fine dots, whose size and placement gives the impression of various shades

- In the traditional method, photographs are screened by using repro cameras
Another option is to use a scanner

In a DTP environment, the photograph is scanned into the computer, where it can be sized and cropped.

The photograph could be placed in the required position on the page, by the pagination programme.

The complete page with photographs could then be output on a laser printer or a high resolution typesetter.
The quality of the output depends on the resolution of the output device.

Higher the resolution, better the quality.

The quality on a 300 dpi laser printer will not be very good.