and ESC-U to feed the paper up half a line — useful for subscripts. The daisy wheel equivalent of emphasised text on a dot matrix is called *emboldening* — where each character is printed four times to make it stand out. The Diablo code for this feature is ESC-O. Emboldening script, however, drastically reduces the print speed.

Some daisy wheel printers allow you to vary both the distance moved between characters and the line spacing. If this is so, then the printer can be used to create graphic images or screen dumps, just like a dot matrix printer (see page 344). If a screen pixel is 'on' then the daisy wheel prints a full stop, if it's 'off' then a space is printed. By reducing the distance moved between characters, a whole horizontal line of the screen can fit across the paper. Similarly, the line spacing is reduced so as not to leave a gap between the lines. The process is, however, very slow.

One feature not seen on dot matrix printers is the ability to centre headings automatically. Sending ESC = to a Diablo printer will centre the rest of that line between the margins. Another novel feature is the decimal tab: ESC-H will cause all numbers to be printed with the decimal points aligned, which is a useful feature for sums of money.

The more expensive daisy wheel printers can usually perform proportional spacing. With this feature the pitch is not a standard 10 or 12 characters per inch. Instead, it varies depending on the width of the character being printed. For example, the character 'w' is much wider than the character 'i', so with proportional spacing the carriage would not advance as far for an 'i' as it would for a 'w'. What this means is that characters in successive lines of text do not fall exactly underneath each other, and the overall effect is more pleasing to the eye. The lines of text that you are now reading are proportionally spaced. Often a special daisy wheel is necessary to use this feature correctly, but it is turned on and off using escape codes — like any other printer effect. On a Silver-Reed EXP 770 printer, the codes ESC-P and ESC-Q turn the proportional spacing on and off.

For a business, a daisy wheel printer can easily be justified; for most home computer owners it probably can not. There is an alternative though, and that is to adapt an electronic typewriter. Daisy wheel printers cost more than electronic typewriters, even though they both use the same print method. Until recently, however, typewriters could not easily be connected to a computer — they had no interface circuitry or RS232 socket. But now every electronic typewriter on the market either comes with a built-in computer interface, or can be fitted with an interface kit for about £100. The great advantage in adapting an electronic typewriter, apart from saving about £200 over a comparable daisy wheel printer, is that it can still be used as a conventional typewriter. So you have both a typewriter, for typing a short letter or addressing envelopes, and a daisy wheel printer for word processing.

Quality At A Price

Print sample with 10 characters per inch
Print sample with 12 characters per inch
Print sample with 15 characters per inch

A half-line feed is used for subscripts:-
H_2O

ESC-E turns on the automatic underlining and ESC-R turns it off.

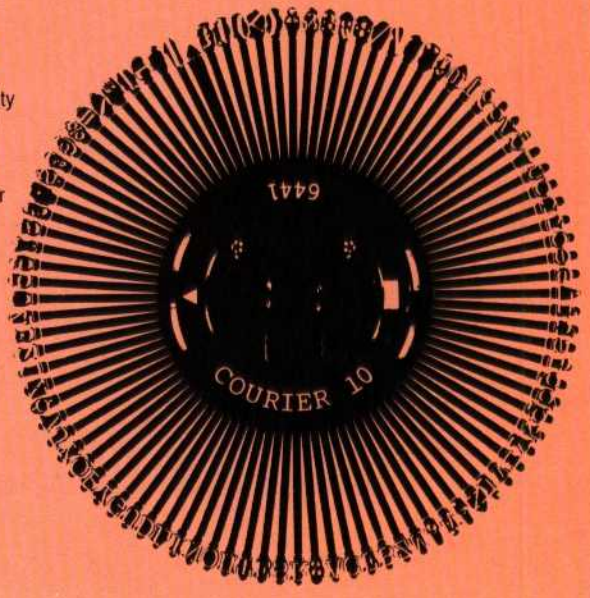
Bold print makes text **stand out** from the rest of the text.

The ESC= code is used to centre text:-

A Centred Heading

These lines of text were printed without the proportional spacing feature. Note especially how the numbers 0123456789 are spaced out. Without proportional spacing, the width of each character is the same. For example, a 'W' is the same width as an 'i':-
WWWWWWWWWWW
iiiiiiiiiii

These lines of text were printed using the proportional spacing feature. Note especially how the numbers 0123456789 are spaced out. Using proportional spacing, the width of each character varies. For example, a 'W' is much wider than an 'i':-
WWWWWWWWWWW
iiiiiiiiiii
The overall effect is to make the text more attractive.



More expensive and less flexible than a dot matrix printer, the daisy wheel produces typewriter-quality printing and proportional spacing. The wheel itself (distinctly flower-like) is easily replaced by another in a different typeface or style