Natural **selection**

Photo-retouching of bitmapped images is a tricky business. Gordon Laing takes you through it with one good eye and a steady mouse hand.

Virtually every process in the world of graphics and DTP consists of making a selection, then doing something to it. This month is not about the wealth of things you can do to a selection, but the process of selection itself.

Selections in the clean-cut world of vector drawing apps are totally straightforward — just point at the desired object and click. Multiple selections can be made by shift clicking each element, or dragging a marquee around them. It's just as easy within DTP.

It's photo-retouching of bitmapped images that often becomes tricky. The human eye can easily spot a person posing in front of a country landscape, but to the computer, it's just a load of coloured dots. There are often occasions when

you'd like to select, say, the foreground object to protect it against any changes, or cut it out and place on a new background altogether. Anyone can do a good physical job with pair of scissors, but digitally it can prove difficult.

The most obvious route is to draw a line around the object by hand with the scissor or freehand selection tool, for which you'll need a good eye and a steady mouse hand. There's also the problem that most applications won't allow you to go back and edit this outline path, unless it was created with vectors. This feeling of better-get-it-right-first-time doesn't half loom over you and induce the wobbles. It is an option however, and sometimes ideal for basic rough selections; see *Fig 1*.

When you've got large regions to

recolour or delete, it can be very satisfying to select huge sections with the rectangular, elliptical or freehand tool and wipe the lot out in seconds. More often than not, you'll probably still have to go in and carefully outline a shape, but all those nerves could be eliminated with a bit of haphazard wiping out.

Before going any further, it's worth briefly taking stock. A selection can be any shape or size, but must be closed without any gaps. Most applications allow multiple selections to be made, such as two separate trees against the same background, and are usually implemented by holding the shift key as you make each additional selection.

A selection is usually indicated on screen by a moving striped line, not at all dissimilar to the flashing lights surrounding a Las Vegas sign and often known as marching ants. The selection is everything contained within this or these outlines. Many apps allow you to make an inverse selection, with everything outside the outlines selected. This is useful if, say, the object you want to select is complex and on a plain background. Select the background, go for inverse, and the complex object becomes the selection; see *Fig 2*.

Virtually all paint or photo-retouching apps have at least rectangular and perhaps elliptical selection tools, which you drag out to size with the mouse; these are frequently known as marquees. The freehand tool, where you literally draw out the shape by hand, is often known as a lasso.

Abracadabra

The fun really starts with the temptingly titled Magic Wand tool, found in higher-end retouching applications such as Adobe Photoshop. The magic wand selects portions of an image based on the colour similarities of adjacent pixels. The degree of similarity is set by the user.

In theory you could select an entire object in a single step with the magic wand see (*Fig 3*).

In practice, it helps if the object is made up of similar colours and the background is

1

jonelvis.tif (1:3)
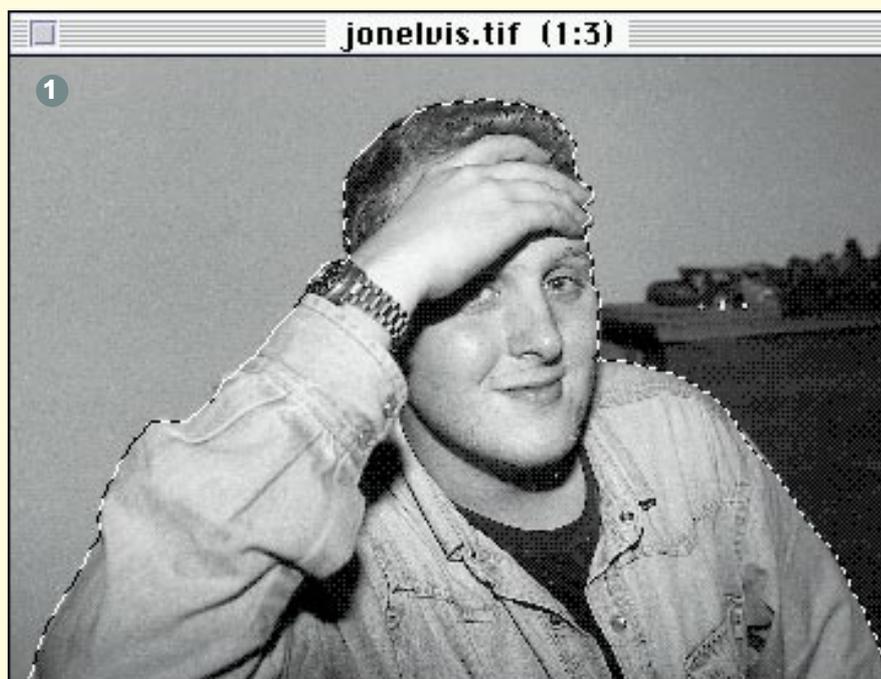
Fig 1 *This cheeky chappie surrounded by a dotted line is an example of making a selection by hand. It's quite rough and ready, but this hand-drawn technique is quick and works well in many situations*
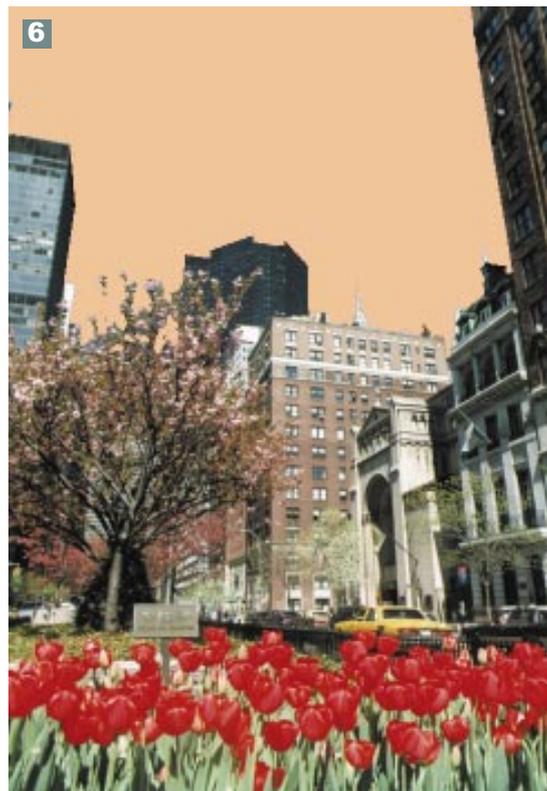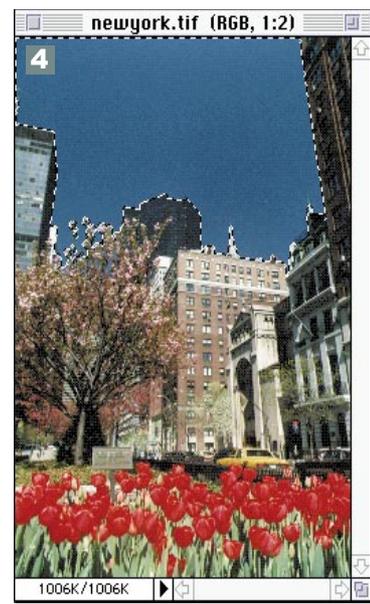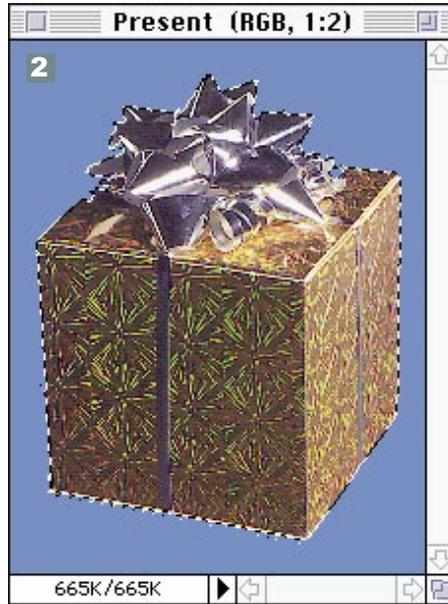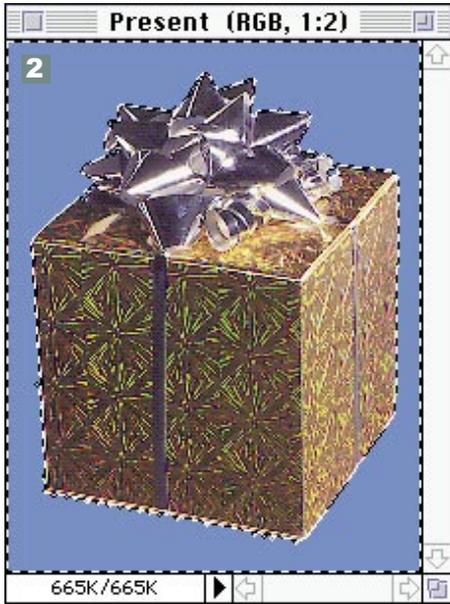
*The rather tempting present, **Fig 2 (top left)**, could prove difficult to select. Instead, select the background then choose Inverse to grab the prezzie **Fig 2 (above centre)**. Part of the CD's surface, in **Fig 3,** has been selected; choosing Similar has selected all other yellows, leaving the text untouched. **Fig 4 (top right)** shows the Magic Wand in action, selecting the whole area of sky in one step; now change it to any time of day**(Fig 6)**. The parrot **(Fig 5, bottom left)** illustrates the perils of pasting a selected bauble; the bauble in **Fig 5, bottom right,** has been selected with anti-aliasing and had its contrast adjusted to better match the background*
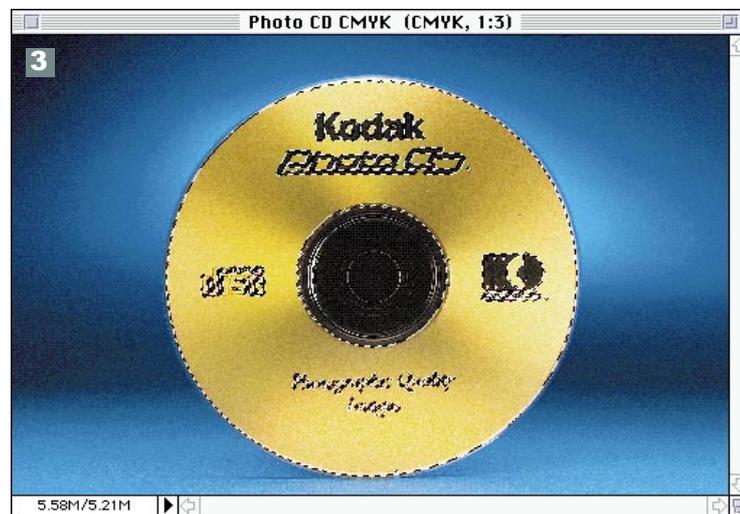
Bulmer MT

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abçdéfghijklmnöpqrstuvwxyzß&1234567890
¼½¾⅛⅜⅝⅓⅔ ff fi fl ffi ffl 1234567890

completely different. You'll usually have to play around with the tolerance level until the wand accepts the range of colours required, to select the desired region.

Remember that holding shift as you re-click the wand will allow you to select specific similar areas, while apps such as Photoshop additionally offer a similar option, which selects all areas in the image with a similar range of colours (see *Fig 4*).

Sometimes the wand works perfectly first time, grabbing the desired area without complication, whereas with others it may be virtually useless.

Remember, the inverse function can be really handy. In the case of my famous Christmas Card, which I won't reproduce due to physical threats from colleagues, I began with a photo of myself against a virtually black background. Wanting to select myself for pasting onto a totally different background, the easiest way was to roughly retouch the background until it was completely dark and select the entire thing with one fell swoop of the magic wand. Going for inverse selected everything that wasn't the background (i.e. myself) and bingo, I was off.

So by one means or another, you've selected the desired region. In some instances you'll only do this in order to alter the colour balance or brightness of, say, the sky in the background. However in others, you'll want to physically cut out the object and stick it on another background.

This is where you may run into unexpected difficulties. First of all it will be immediately apparent if you haven't cut out the shape properly: a bit of rogue background here, a chunk missing there all add up to an incredibly unconvincing composite. This somewhat cheesy effect may indeed be what you're looking for, but if you want a convincing, realistic result, there are a few additional tricks up the digital retoucher's sleeve.

Ultimately, the best advice is to blur the outline of the object so that the rough edges don't stick out so much. So long as the colour balance, contrast, focus and grain match up reasonably, this should do the trick. You could blur the edges of the pasted shape manually, or remove offending pieces of old background, but there are techniques available which may render a great deal of hard work unnecessary.

Anti-aliasing

Anti-aliasing already effectively smooths edges by popping dots of intermediate foreground and background colour around coarse outlines. Most magic wand tools offer an anti-aliasing option which immediately smoothes the edges, ready for user-friendly pasting onto another background (see *Fig 5*).

A more advanced blurring option is to *feather* the outline by a user defined number of pixels. This more sophisticated technique, along with vector-editable clipping paths will be covered in next month's column. Until then, happy selecting.

Font of the month

This month's featured font is one of the latest releases from Adobe.

Bulmer, originally designed by William Martin in 1790 and re-penned by M.F. Benton for publishing in its current form between 1927 and 1928, is a smart and classy typeface, ideal for when you want to look good.

Adobe has released an additional Expert Set, featuring a variety of specialist characters. These include fractions, ligatures, and an entire set of small capitals. Several of these are shown on the bottom line, in the illustration above.