Art

for the
people

They say a little knowledge is a dangerous thing, but in the case of image editing it can help you to create great pictures and stunning graphics, according to Ken McMahon. Our workshops show you how.

I t's no secret that photography has come a long way in the past few years. In fact it's probably no exaggeration to say that the past decade has produced more technological change than since WH Fox Talbot discovered the amazing things you could accomplish with silver-coated paper. Evidence of the impact of digital technology on photography is all around you. On the advertising hoardings you pass on your way to work, the pictures in your daily newspaper, the images on the websites you browse and the graphics displayed behind the presenter on the early evening news.

Digital image editing makes it possible for professionals to quickly produce effects that previously would have taken a lot of time and cost a great deal of money. It also makes possible things that would never have been achieved, regardless of the time and money available.

Images frequently undergo all kinds of digital processing. The art of montage – producing a new image from bits of

several others – has blossomed in the digital age and we now take for granted unlikely photographic images of elephants on roller skates, cars driving on water, and mythical beasts. Not to mention less noticeable digital tweaking that gives us blemish-free models with startling eyes, sleek cars with reflection-free bodywork and holiday resorts with emerald seas, azure skies and beaches digitally denuded of their occupants.

The software tools used to accomplish all this are available to anyone with a modest PC. Adobe Photoshop is the industry standard application responsible for most of it. But even the most basic of packages aimed at the home user is now capable of many of Photoshop's tricks. Photoshop 5 LE and Paint Shop Pro 5.1, on which the following workshops are based, both have advanced features like layers, alpha channels, layer masks, sophisticated colour balancing and web-optimised output.

Plug-in filters provide image-enhancing tools like unsharp masking or other special effects and a vast range of third-party plug-ins provide additional effects and features.

ILLUSTRATION DANIEL MACKIE

Take a trip to plug-in city

If there is something your image-editing application can't do, the chances are there's a plug-in that will fill the gap. Plug-ins will work with Photoshop and any other application that conforms to Photoshop's plug-in architecture. Paint Shop Pro, for example, seems happy with most third-party plug-ins. While there were compatibility problems with early plug-ins, nowadays if application developers say their products are plug-in compatible they are probably telling the truth.

Of course, the only way to be 100 per cent sure is to try it, and many plug-ins are shareware or available as demos or trials.

Plug-ins come in two flavours. Most commonly they add one or a suite of special effects to your filters menu. Good examples include Human Software's Squizz, Xaos Tools Terrazzo and Alien Skin's Xenofex.

Squizz, is a Goo-style filter which offers brush-based, grid-based and envelope distortion effects. Terrazzo is useful for generating kaleidoscope-style tessellated background patterns and Xenoflex is the latest product from alien Skin – producers of the Black Box and Eye Candy effects suites.

Less fun, but perhaps more useful are the production tools which offer everything from image-enhancement tools to database facilities for keeping track of all your digital camera pictures. This category includes packages like Intellihance, Corel Knockout (not really a plug-in, but a standalone app), Imagebook, and Pantone's Hexwrench.

If it's productivity tools you want, an upgrade to Photoshop 5.5 might be a better option. Version 5.5 includes many of the advanced masking features that used to only

be available via plug-ins; it also provides good-quality text effects.

Plug-in suites like Extensis Phototools and Kai's Power Tools (KPT) provide lots of functionality and a stunning array of effects that it would be difficult and less fun to produce in any other way. If you want to try out plug-ins online, including Intellihance and Photoframe, go to www.creativepro.com.

There's a lot of shareware and demos just waiting to be experimented with. So there's no excuse not to take a few plug-ins for a test run.

Here are some sites with worthwhile downloads: www.andromeda.com; www.alienskin.com; www.altamira-group.com; www.gamutimaging.com; www.autofx.com; www.creativepro.com; www.vertigo3d.com; www.corel.com; http://shareware.cnet.com.

As our workshops show, you don't have to be a professional to achieve professional results. A little knowledge can go a long way to improving your pictures and helping you create stunning graphics. An understanding of the workings of certain features, together with a basic operational knowledge of a few key tools will enable you to get great results quickly.

All these workshops were all produced on a 350MHz PII machine with 64MB of RAM and a 10GB hard drive. No matter what your system, a quick check of your hardware configuration will speed your work up and avoid crashes.

Image-editing applications eat memory and hard disk space. Generally, the image you are working on is stored in RAM. Memory is also required for layers, alpha channels, undos and the clipboard, in addition to the operating system and any other applications you might be running. When your application runs out of RAM it turns to the hard disk for help, making use of it as virtual memory to store image data.

So, the first rule of fast working is to install as much RAM as you can afford, because once you start to make use of virtual memory, things will start to slow down appreciably. Typically you'll need five times the size of your image file, so if

your pictures are 1,024 x 768 resolution – just under 4MB, 24MB of spare RAM would be adequate. But if you are working on A4 300ppi (pixels per inch) scans, you'll need 10 times that amount. It's not essential, it just speeds things up.

If you do have to make use of virtual memory, it helps if you have one contiguous block – either allocate a partition on your hard drive exclusively for you image-editing application, or optimise your drive frequently.

While you are working you can help to keep memory and disk usage down by frequently purging the undo buffer and deleting unused layers and channels. After copying large amounts of data to the clipboard, once you have pasted, purge the clipboard by selecting a few pixels from the current layer and performing another copy.

Layer upon layer

One of the biggest advances in image editing, layers, first appeared in vector graphics applications like Freehand and Illustrator and made the crossover when they were introduced in version 3 of Photoshop.

Like many new features of bitmap image-editing packages, the primary function of layers is to overcome the destructive nature of pixel

# Picture framing in Paint Shop Pro 5

Straight edges can be a bit, well, straight, and photos often look more interesting with a less exacting border. In this walkthrough we'll produce an art border that you can use to give your photos a more attractive edge. We're going to make use of alpha channels and layer masks to create borders so they'll be non-destructive – your original image will still be intact, viewed through the frame mask. So, if you change your mind you can choose a different frame, or remove it.

1 Open up your image and make sure the layer and controls palettes are visible. Add a new layer and call it Frame 1. Don't worry about the mask options at this stage. Select Image/Canvas size and add about 10 per cent to the image dimensions to give a white border, then, in the background layer, select the border using the magic wand, invert it (Shift & Ctrl & I) and switch to the Frame 1 layer.
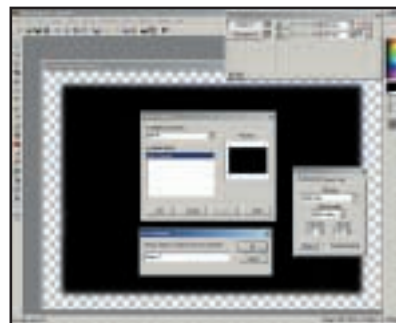
2 Modify/Contract by about 12 pixels then Press Ctrl & H and feather the selection by 12 pixels to get a soft edge, then switch to the Frame 1 layer, flood-fill the selection with black. This is our basic frame. Select Mask/New/From image and check Create mask from source opacity, then click OK. Next select Masks/Save to alpha channel, click OK in the Save to Alpha dialog and call the channel Frame 1.
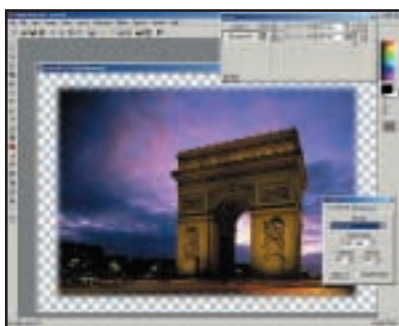
3 Make the Frame 1 layer invisible and activate the background layer. Select Mask/Load from alpha channel and choose the Frame 1 alpha. Toggle the Enable layer mask button on the background layer to see what it looks like with and without the frame. Now we're going to create new frame masks using the paintbrush and spraycan.

4 Duplicate the Frame 1 layer and call it Frame 2, make the other layers invisible so you can see what you're doing. Select the paintbrush tool and in the controls palette set the paper texture and choose a brush tip. Paint around the edges of the black rectangle until you're happy with the result.

5 As in step 2, create a new mask from the image and save it as an alpha channel (call it Frame 2), then make the background layer active and load the new mask. You can continue making as many frames as you like in this way. Several of the paper textures including canvas, dark weave and asphalt produce good results. Experiment with brush tip settings and combinations. You can use the same settings with the eraser tool to remove mask as well as add it.

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processing. Once you do something to the pixels in your image it's done for good – almost. You get one chance to undo it if it doesn't turn out right.

These days, there are sophisticated history features that provide multiple undos, but even these work in a linear fashion; you can undo any number of actions, but only in reverse order. Layers provide the opportunity to carry out non-destructive editing that you can undo without affecting work you did after the original edit.

One way this can be used to good effect is in combination with the clone tool, much favoured for taking out unwanted image details like lampposts, trees, washing lines and ex-partners. Cloning requires careful setting of the tool options and repeated strokes with the right brush settings to achieve a seamless, invisible result. Often it's a question of trial and error, but it's not always obvious something's not right until way down the line, and if you clone on the background layer there's nothing to do but start again.

You can avoid having to rework by duplicat-

If you need more screen room in Photoshop, click on the centre button at the bottom of the tool palette to select Full screen mode with menubar, or press f to toggle between screen modes. Press tab to toggle all floating palettes.

# Making the most of digital pictures with Photoshop LE

You can download images from your digital camera and view or print them as they come. But with just a little effort you can transform them into pictures you can be proud of. How far you go is up to you. Here we've started with three simple steps – cropping, levels adjustment and unsharp masking – which all your pictures will benefit from, before graduating to some advanced tinkering with colour and tone.


1 Open your image and choose Save As, using a new filename and format. Most digital cameras store images as compressed JPEG s. Using the best-quality camera setting will save you effort. Don't resave images in JPEG format as the compression will reduce image quality. Choose Photoshop .psd format to preserve quality and keep all your layer and channel information. You can save to a flattened, compressed format when you're finished.
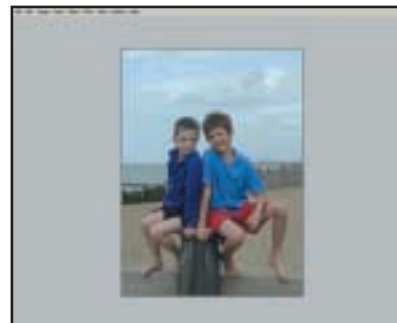
2 To drastically improve the impact of your photos, click on the marquee tool and hold until the flyout appears, then select the crop tool. Drag a box around the area you want to keep, then press Return. Shoot at the highest resolution setting on your camera, because once you've cropped the picture, there are far fewer pixels in the image. But this also works to our advantage, speeding up all the work we've yet to do – which is why we cropped the image first.
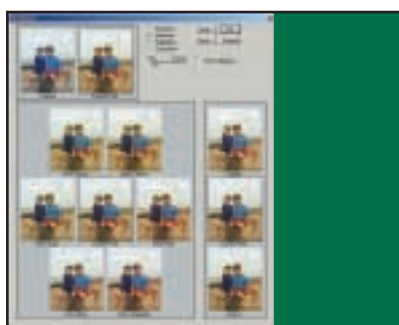
6 The variations default tends to ladle on the colour in bucketloads, so first adjust the slider to the fine end of the scale, that way you can add small increments. The radio buttons are set to add the colour in the midtones, which is on the beach where we want it, but depending on the image you might want to change this to add colour in the shadows or highlights. If you add too much of a colour, just add its complementary, or Alt-click on the cancel button to reset.
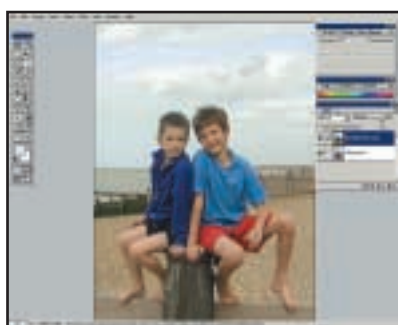
7 Incidentally, the sharp eyed among you may have noticed that before altering the colour balance with variations we introduced a new layer by dragging the background layer onto the new layer button in the layers palette. Creating a new layer on which to make changes is always a good idea because, by adjusting the opacity slider you can blend the adjusted layer with the original one, varying the degree of the original effect.

8 All this warming up hasn't done our sky any favours. It wasn't too blue to begin with and now the clouds have a creamy tinge. Select the magic wand tool and set a tolerance of about 32 in the tool options palette. Use Select/Grow to catch adjacent sky pixels you didn't get first time then press Ctrl & C followed by Ctrl & V to copy and paste the sky into a new layer. Click on the eye icon next to the existing layers to turn them off and you can see your sky layer in isolation.

QUICK TIP

In Photoshop, click the preview checkbox on and off to see a before and after preview in the main editing window.

ing the background layer and cloning on a duplicate image above it. That way, you always have the untouched background layer to fall back on. You can simply copy the messed up bit from the background back into your retouching layer and start again, or make use of the opacity and blend modes to merge the two to better effect.

Once we had layers, the obvious thing to do was play around with how they interacted by varying the opacity – making topmost layers transparent, revealing layers underneath. You can

also get a lot of mileage out of blend modes that determine how pixels on the upper layer interact with those below. Lighten and darken can be used for subtle retouching and modes like multiply, dissolve and colour burn and colour dodge can be used to great effect.

From opacity and blend modes it was but a short step to adjustment layers. These are image adjustments that sit on a separate layer above the image layer and can be edited themselves in isolation from the layer to which they apply. For

3 There aren't many images that don't benefit from unsharp masking, particularly if you're using a budget camera with a less than sparkling lens. The trick is not to overdo it. Choose an amount between 100 and 200 per cent, a radius between 0.5 and two pixels and a threshold of 0. Experiment with the sliders to see which settings give the best results and watch out for JPEG artifacts – blocky pixels and halos – which can be exaggerated by unsharp masking.


4 Press Ctrl to bring up the levels dialog. The histogram shows the frequency of pixels across the tonal range from black (0) to white (255). You'll often find this clipped at either end where there are no or few areas of highlight or shadow detail. Our photo has a pretty good tonal range, but there are no whites and the contrast can be improved by dragging the input level slider down to 240. Or you can click the Auto button to map the darkest pixel to black and the lightest to white.

5 For a seaside shot, our image looks a little cool, so we'll make a colour adjustment to warm things up. From the Image menu select Adjust/Variations to add red, green and blue (Additive Primaries) and yellow, magenta and cyan (Subtractive Primaries). Yellow and blue are complementary; adding one has the opposite effect to adding the other, so if you add equal amounts of each you get back to where you started. Magenta is the complementary of green and cyan of red.
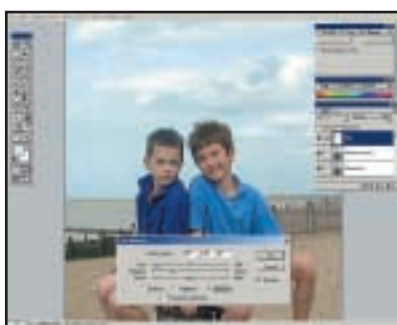
9 Select Rename Layer from the layer palette menu and call the new layer sky, then select Image/Adjust/Colour balance. Trial and error will help you achieve a realistic looking sky, but you will need plenty of cyan and a little magenta, all in the highlight area. If you check Preserve Luminosity the tonal values in the sky won't get darker, even though you're adding colour, though this can give an unrealistic day-glo effect. If your sky is over the top use the opacity slider to tone it down.
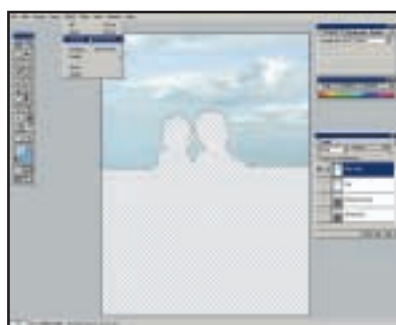
10 Better, but still a bit gloomy. Why not replace the cloudy sky with something altogether more summery. Let's face it, on an English beach this is about the only way you're going to get the desired effect! Duplicate the sky layer by dragging it onto the new layer icon. Using the magic wand click in the transparent area below the sky (turn the other layers of if you like) and then Select/Inverse.

11 Using the eyedropper select an area of the sky close to the horizon then click the background colour swatch and pick a deeper sky blue. Using the gradient tool, drag from the bottom to the top of the sky selection. This looks thoroughly strange because there's a clear blue sky, but no shadows. However, by experimenting with opacity and layer modes (overlay works particularly well) you can achieve a natural-looking compromise.

example, you can colour balance an image using an adjustment layer and then later reduce the opacity of the layer to lessen the degree of adjustment, or remove it altogether. Again, the underlying pixels are untouched.

If you want to work quickly and efficiently, two features of image-editing applications you should get to know well are alpha channels and layer masks. RGB colour images are made up of three channels: one stores the pixels for the red image data, another the green, and the third the

blue. You can view the separate channels in Photoshop LE by pressing Ctrl & 1, 2, or 3 (press Ctrl & ~ to get all three back together again).

Additional channels can be used to save selections. Once you have saved a selection to an alpha channel it's available for you to load back in at any time, so you don't have to bother making the same selection over and over. What's more, you can edit the alpha channel, filling areas, applying effects filters and transformations to alter the way it works.

QUICK TIP

Unless you're actually making use of plug-ins, remove them from the plug-ins folder. Your image-editing application will launch more quickly and use less memory without them.

Text effects and animations in Paint Shop Pro 5

We're going create some glowing text from scratch. It doesn't require any plug-ins, filters, complicated channel juggling or blend modes – the soft edge effect is achieved using the feather command. Our glow is made up of three colours, each of which occupies its own layer. A layer mask is used to define the shape of the glow. You can use this as a button, a navbar, or just for display type. We'll also show you how to use Animation Shop to give life to the image.
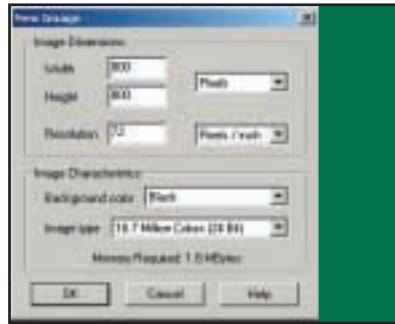

1 Select File/New and enter the image dimensions in pixels. I've chosen 800 x 800 so you can see what's going on in the screenshots. You can always work big and sample down before creating a GIF file. Select 16.7 million colours (layers won't work in 8bit mode) and make the background colour black. Activate the layers palette by clicking the toggle layers palette button on the top toolbar.
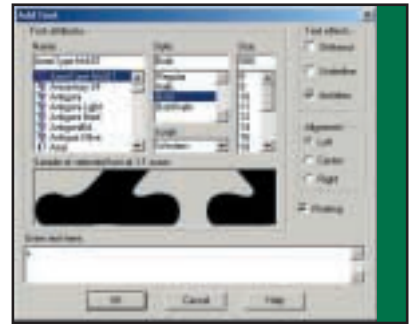

2 Click the Add new layer button on the layer palette. In the layer properties dialog call the layer TYPE. Make sure the 'Mask is enabled for this layer' and 'Mask is locked with layer' checkboxes are checked and click OK. Click the Layer visibility toggle on the background layer to turn it off. Select the text tool and click in the centre of the layer. Enter your text (experiment to get the size right), but leave edge room for the glow. Make sure the antialias and floating boxes are checked.

6 Incidentally, as we are not making use of the layer masks, other than to save selections, you can turn them off (last button from the right in the layers palette). Interestingly, if you leave them on, they will dim your glow slightly because the feather command works both sides of the selection border, so your flood fill will be two pixels wider than the selection. We may be able to make use of this 'accident' when it comes to animating the graphic.
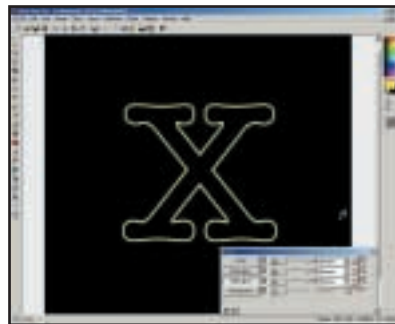
7 Now for the yellow glow. Duplicate the White glow layer, rename it Yellow glow and reposition it below the White glow layer. Create a selection from the layer mask, expand and feather it in the same way as for the White glow layer. Remake the layer mask from the expanded and feathered selection. Double click on the foreground colour swatch, select a yellow from the basic colours, and use flood fill. Select a green and repeat this step to produce a Green glow layer.
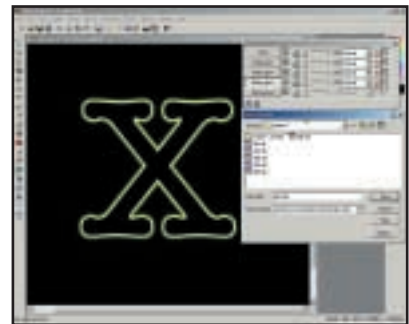
8 We are going to save seven cells to import into Animation Shop. First make only the background layer visible and save a copy as cell1.gif. Next make the TYPE and White glow layers visible, with the layer mask turned on and save a copy as cell2.gif. Turn the layer mask off to increase the White glow and save a copy as cell3.gif. Save two GIF cells for each of the Yellow and Green glow layers (the first with mask on, the second with it off) and you will have seven animation cells.

Layer masks are a lot like alpha channels, only they are linked to a particular layer. Masks control which parts of an image are displayed and which are hidden. In Paint Shop Pro the solid black areas show 100 per cent of the layer and the white areas nothing, in Photoshop it's the other way around, though you can invert the default setting. For example, if you used the gradient fill tool to fill a layer mask from solid black at the bottom to white at the top, the layer would show solid at the bottom, fading to transparent at the top.

Layer masking is used a lot in photomontage work to blend images together with a soft edge. It gives absolute control over which parts of the image are revealed and hidden and it's non-destructive – the original image is unaltered.

Next come selection tools, which have become increasingly effective in recent years and now any image editor worth its salt provides a number of ways to sort the pixels you want from those you don't. As ever, Photoshop has the best selection, though even the most budget packages will offer

3 Right click on the topmost 'Floating Selection' layer and select Defloat from the popup menu. Then create a layer mask from the current selection using Masks/New/Show selection. To view the mask select Masks/View Mask (if you turn off the TYPE layer you can see it more clearly). Now you can select none (Ctrl & D) – you can get back your selection at any time with Shift & Ctrl & S.
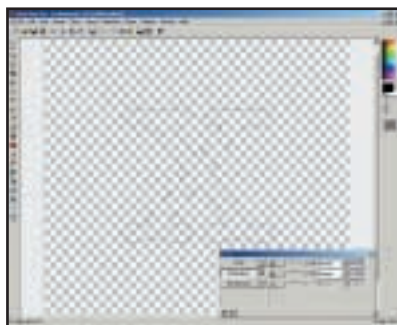
4 We now have a black X on a black background! Don't worry, it's the backlit glow that will make the type visible. Duplicate the TYPE layer by dragging it onto the new layer button in the layers palette. Double click on Copy of TYPE and rename it White glow, then close the layer properties dialog box and drag the new layer below the TYPE layer. Press Ctrl & A, followed by del to clear the layer, then Shift & Ctrl & S to make a selection from the layer mask.
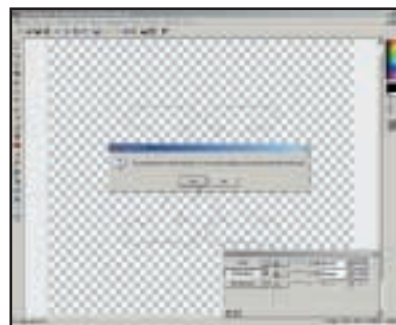

5 We need to expand and feather the selection. From the Selections menu select Modify/Expand and enter a value in the number of pixels box. I've chosen two, but the effect will depend on the size of your image. Next Modify/Feather, this time we've gone for four. Remake the layer mask from this new selection – click yes to replace the existing mask. Fill the selection with white by clicking the background/foreground toggle and using the flood-fill tool, then select None.

9 Open Animation Shop (File/Run Animation Shop) and run the animation wizard from the file menu. The wizard is fairly self-explanatory. The default frame delay is one-tenth of a second, so unless you have lots of frames you will need to lengthen this or your animation will be over in the blink of an eye. As I don't want the animation to loop I've unchecked this option.

10 Click Add Image to include all of your cell files and use the move up and move down buttons to put them in the correct order. Click Finish to build the animation and you can now see each of the frames in a filmstrip format. Select View/Animation to see how it looks in motion.
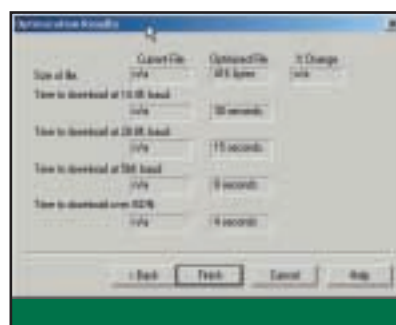
11 Lastly, you need to ensure that your animation is optimised for the web. The optimisation wizard does this for you, making appropriate colour depth and palette decisions, removing redundant frames and compressing the file so it will download quicker. You have to be careful with this and some tweaking may be necessary to achieve the best results. The optimisation wizard also provides a handy report that tells you how long your file will take to download.

some variation of the magic wand tool that picks up pixels of similar value based on an initial sample and a tolerance value.

Recent new additions to Photoshop 5.5's selection box include a magnetic lasso and pen tools, magic and background eraser tools (see this issue's *Hands On Graphics & DTP*) and an extract command. All these are designed to make the job of removing the main subject of a photograph from its background much easier. To do this kind of thing manually requires tricky tedious, time-consuming tracing.

Whether you want to produce complex multi-image montages, sophisticated titles for a home video, or graphics for your website, today's image-editing applications provide all the tools you're likely to need. Improvement of your digital photos is within quick and easy reach. Basic knowledge of the way image-editing tools work can make the difference between a professional-looking result and a dog's breakfast. So, what are you waiting for?

QUICK TIP

Use websafe colour palettes if producing images for the web. In Paint Shop Pro choose Colors/Load palette and safety.pal in palettes folder. In Photoshop 5 LE select replace swatches from swatches palette menu and use Web Safe Colors.aco.