Join up the **dots**…

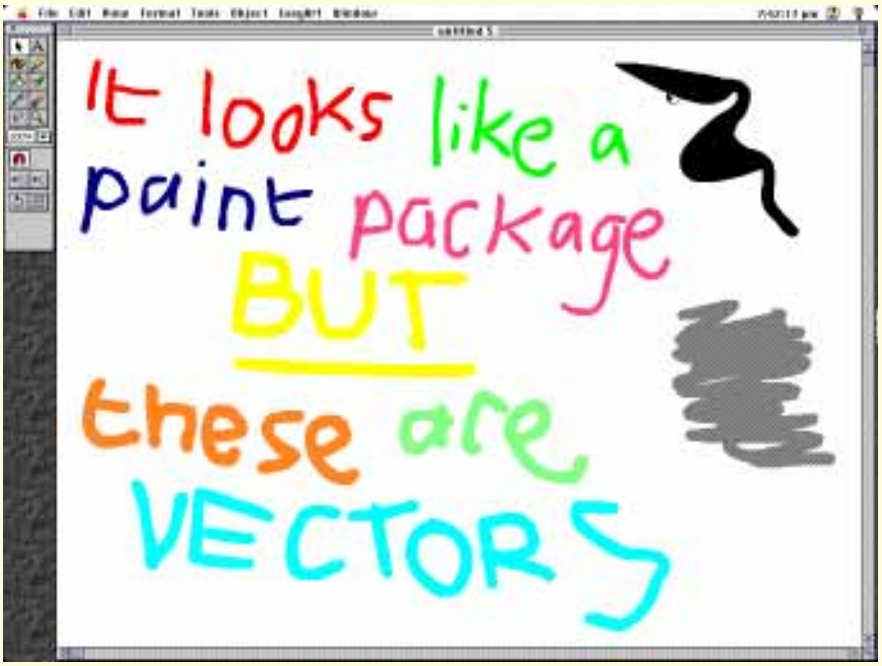
…to reveal good, budget drawing packages. Gordon Laing fills in the detail on paint packages that are easy to work with, remarks on bitmap tracing applications, and uses an unusual cordless tablet pen.

Whenever I write a group test of software or hardware, I always try to provide lots of boxes on related technologies or concepts. Judging by the amount of feedback we get at the *PCW* office, it would seem that these information boxes are sometimes more popular than the actual buyers' guide feature within which they have been included. Two topics which always seem to generate interest are: "pens and graphics tablets" in the paint and photo-retouching features; and "bitmap tracing" in the scanner group tests. This month, I'm going to examine both subjects in more detail.

Before going any further, it's all very well extolling the virtues of high-end drawing packages such as Macromedia FreeHand, Adobe Illustrator and, to a certain extent, CorelDraw, but for most users they're far too expensive, sophisticated, and difficult to use. It's easy to forget that these apps are supposed to allow you to draw on a computer, and should therefore feel as natural as drawing with a pen.

Get smart

As far as painting packages are concerned there are some brilliant low-end products, but good budget drawing apps are much thinner on the ground. There's Serif's DrawPlus 2 reviewed in our September issue's *First Impressions*, but the most impressive I have seen recently is SmartSketch, by FutureWave Software (available from CGS ComputerBild for a giveaway price of £49.99 on Mac or Windows).



The really nice thing about paint packages is that they're dead easy to work with: just wave the mouse around with a suitably sized brush and you get your desired shape. The problem is that they are bitmaps of fixed resolution, which either means huge file sizes to counteract the blockiness, or poor enlargements and prints.

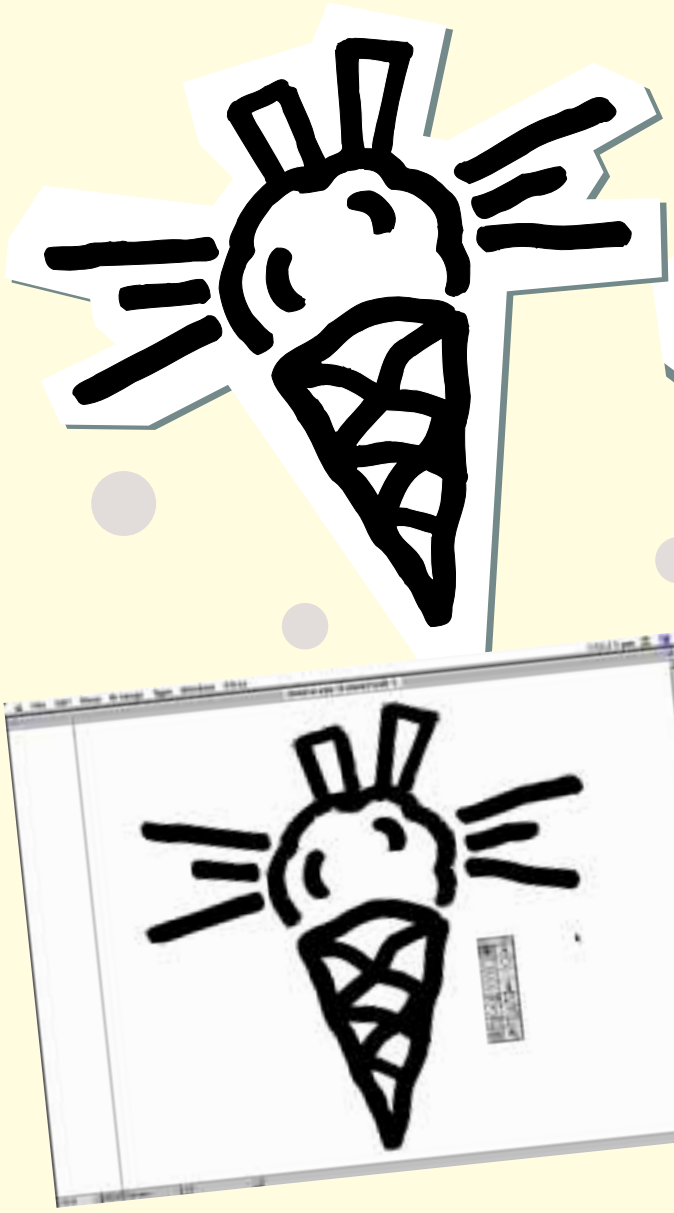
The answer is drawing packages which describe shapes with device, and hence resolution independent vectors… but hang on, that's a bit of a mouthful. The idea is that instead of painting a line of jerky dots, a drawing package says: "Join two dots here and here, with a line this thick." This message is then interpreted and displayed or printed as best the device can, whether it be a low resolution screen, mid-resolution laser, or high resolution image setter.

The beauty of this is that the same vector file is used for all devices: its suitability ranges from low to extremely high resolution. Better still, vector files are usually quite compact thanks to their basic geometric descriptions. If this were a bitmapped file from a paint or photo retouching application, a high resolution version would be huge due to the greater number of pixels required to describe finer detail.

But the reason we don't use vector drawing applications all the time is twofold: firstly, they don't handle continuous tone photographic images very well, and secondly, they're not that easy to use.

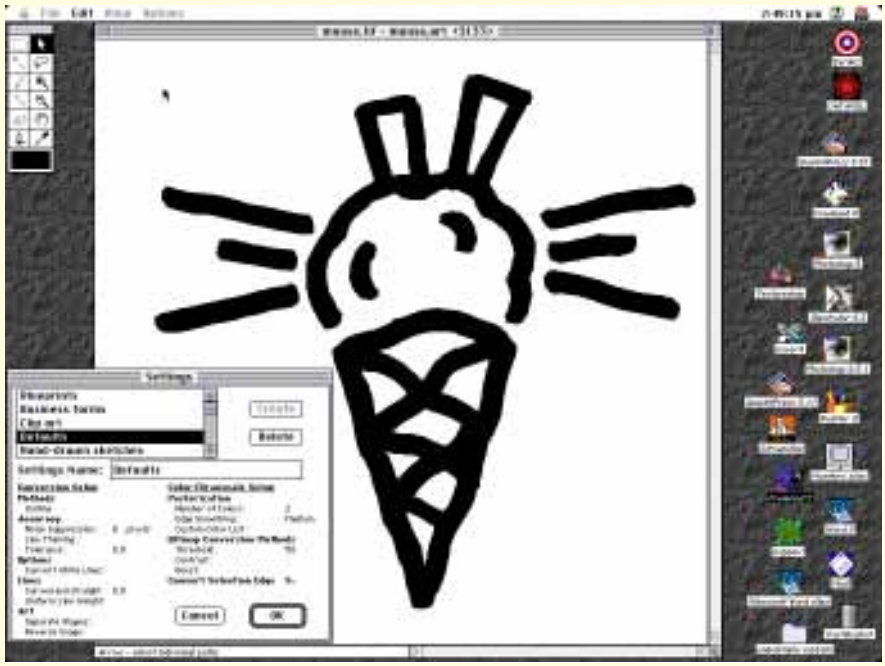
A vector shape is made up of at least one bezier curve, passing through or between at least two points. The shape is defined by the nature of the points and the direction of the curve as it passes though them. In simpler terms, if you want to modify the shape, you must manually adjust each point, forcing the line which passes through it to twist and turn until it's just right.

These are known as path operations and were covered in much greater detail in an earlier *Graphics & DTP* column (*PCW*



Tracing photographic images often produces interesting posterised effects

Below Fig 1 *Adobe Streamline importing a bitmapped TIF and tracing the outline*
Above Fig 2 *The traced image in EPS format opened in Macromedia Freehand*
Top Fig 3 *The traced EPS placed directly in Quark Xpress — look, no snaggies!*



April '95). Suffice it to say that you can't casually doodle in a drawing application in the same way as a paint package.

Until, now that is. I recently met up with the Wacom people, who demonstrated their latest pens and graphics tablets with numerous software packages, including the aforementioned SmartSketch.

What really appeals to me is how easy it is to sketch and doodle away in SmartSketch, just as you would with a paint package. The important difference is that, as with any other vector drawing application, you can stretch and reshape the images .

The really clever part is that you don't have to select suitable points in the path, then drag and modify the handles to create the desired effect. Instead, with SmartSketch, you grab anywhere you want on the path and drag away.

There's an eraser tool as well, pretty much unheard of in most drawing apps, which works in exactly the same way as in a paint package. Just rub away, and SmartSketch will rejoin the broken paths automatically.

Finally, I must mention the optional shape recognition facilities which, as their name implies, recognise your quick sketches as common shapes and corrects them. Draw a rough circle, polygon or line and SmartSketch will neaten it up for you.

We'll be doing a full review of SmartSketch in the near future, but I felt I had to let you know in advance about the usability of this package, which is remarkably simple and intuitive.

Putting pen to tablet

Returning to the subject of Wacom, the launch I mentioned earlier was concerned with some neat new pen and tablet products. If you thought that pressure sensitivity was the be-all and end-all of tablets, think again. Wacom has come up with the UltraPoint Eraser, a cordless tablet pen which actually has a rubber on the non-pointy end — an electronic rubber, that is. It looks like a pencil with an eraser on the end, which seems a little silly, but is in fact really rather good.

Whereas previous models carried electronics only in the tip of the pen, Wacom has fitted electronics into both ends of this new pen. When it is turned upside down, suitably equipped software notices the change in ends and reacts accordingly. Conventionally, you would have it select the erasing tool, but there's no reason why it couldn't be assigned to anything else, very much like pressure sensitivity. I had been sceptical, until I saw it demonstrated in Adobe Photoshop 3 (version 3.04), Fractal Design's Painter 3, SmartSketch, and even Microsoft Word and Excel, where it was used to delete unwanted words or cell contents.

It really is intuitive to use, and works well. This UltraPoint Eraser should be the standard pen with all Wacom tablets by the time you read this, including the new 4in x 5in ArtPad II.

Another clever idea of Wacom's is to fit an ink or leaded pencil nib onto some of its pens: this way, you place a sheet of paper over the tablet's surface and draw naturally, leaving a mark behind just as you would when using a pen or pencil. Very cunning. Take a look at this month's Gadgets spread (on page xxx) where, amongst other goodies, are three new Wacom pens: the ink nib, pencil nib and eraser models.

Tracery

If imitation (or copying) is the sincerest form of flattery, then I would say that bitmap tracing applications are some of the nicest around. Every time I mention tracing, in the information boxes I include with scanner group test features, I get loads of enquiries. So here's something to satisfy those whetted appetites.

As I have mentioned, vector descriptions have several advantages over bitmaps, like scalability, device independence and small file sizes. However, bitmaps are the raw output of scanners and that's what is used to digitise original artwork.

By original artwork, I'm referring to paper-based illustrations such as signatures and company logos. If you want to use these in electronic documents like DTP pages, you'll need to scan them at a sufficiently high resolution. Although this will work, sometimes the file size becomes too large, or you may want to modify the shape without losing quality. Simply, you want to convert it into vector-based form.

The process of converting a bitmap to a vector is known as tracing, and is performed by a variety of applications with this facility built-in (such as Macromedia FreeHand). Under Windows there's the CorelTrace module of CorelDraw, which has now been present for several versions, the most sophisticated of which is StreamLine 3 by Adobe (sadly, for the Macintosh only).

They all do the same thing to varying degrees of complexity. At a basic level, the bitmap is usually opened in TIFF format. Then the application traces the outline, ignoring the very small steps inherent in bitmaps. By the end of the process, a vector outline of the original shape remains.

All tracers offer options to vary the accuracy of the outlining process, and a fair amount of trial and error may be required before the desired effect is achieved. In most cases, it should be as accurate as possible but not to the extent that every step of the bitmap is recorded. Whereas in other circumstances, a rather pleasing effect may be produced with a loose outline.

The more sophisticated tracers are able to detect a user-defined number of colours, resulting in a posterised effect. Continuous tone colour photographic images do not trace well most of the time, but very interesting results can be discovered with a little experimentation.

The best results are achieved with simple bitmaps such as basic logos or signatures, preferably in few colours (or only one). *PCW* needed to trace a hand-drawn logo. The original bitmap was subsequently traced in StreamLine *(Fig 1)*. The vector shape is shown in FreeHand *(Fig 2)* as a screenshot, and finally the EPS itself *(Fig 3)* which, barring disasters, should be nice and smooth. Notice how StreamLine has spotted the gaps and created white vector shapes to represent the holes.

Just my type

Probably the last of the new *PCW* fonts is Bell Gothic, seen above in Roman face. This is a classic face, ideal for a style that will be respected. It was designed by CH Griffith in 1938 and is on the BitStream books. Contact the usual suppliers.

Font of the Month

Bell Gothic

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abçdéfghijklmnöpqrstuvwxyzß&1234567890

PCW Contacts

Please do let me know if you have any comments — write to the usual *PCW* address, or those suitably equipped can email me as **gordon_laing@pcw.ccmail.compuserve.com**

Faces **01276 38888**
FontWorks **0171 490 5390**
CGS Computer Bild **0181 679 7307**
Adobe **0181 606 4000**