

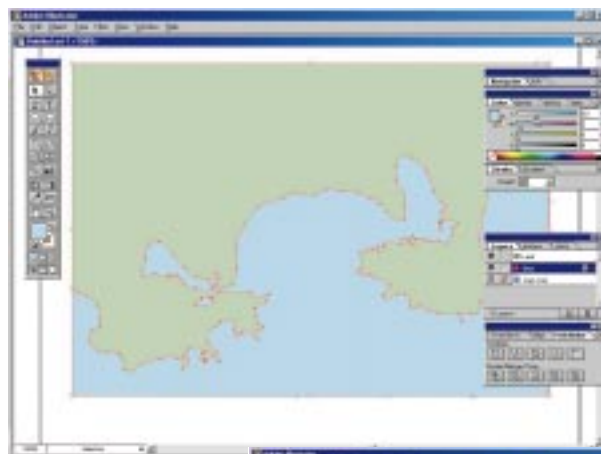


Road sense

Ken McMahon produces a map that, hopefully, will **show him the way** to go home.

Given the past interest in map making, and the sad fact that I can hardly make it from the pub to my front door without persistent directional guidance, now seems like a good time to take a more detailed look at the art (science?) of cartography. In this month's column we'll take a look at producing the basics — coastal outlines, roads and labels — in Illustrator 8, although it would be much the same process in any good vector drawing package.

1 The first stage in producing any map is to find and scan a source image. If this is a rough sketch you've produced yourself, fine. If you're using an existing image, check the copyright details. Save your scan as a greyscale tiff and import it into Illustrator using the Place command. Ensure the link box is checked, otherwise the file will be embedded in the Illustrator document. Select Options for layer 1 from the Layers palette menu and check the Template box — this dims the layer to make it easier



◀ **DUPLICATING THE COASTAL PATH TO PRODUCE LAND AND SEA OBJECTS**
▼ **LAYERS APLENTY: DETAIL FROM THE MAPS IN MINUTES BERLIN TOWN PLAN**

2 Create a new layer and call it sea. Using Illustrator's new pencil tool, trace the coastline. You can set the fidelity and smoothness of the pencil tool by double-clicking on it. If you make a mistake, just go over the incorrect

path with the pencil tool and Illustrator will delete the old path section, replacing it with your new effort.

3 When the path is finished, create a new layer and call it land. With the coastline still selected, choose Transform/move from the Object menu, enter zero values and press the Copy button to duplicate the coast path on top of itself.

To move the new path to the land layer, drag the coloured dot that appears to the right of the layer name in the layers palette to the land layer.

4 Use the pen tool to finish off the land and sea areas by clicking on one of the endpoints and completing the box. You can now fill the land and sea areas with appropriate colours. This is one of

many ways of producing coastal areas. You could create a rectangle for the sea and overlay it with the coastal outline on the land layer, or use the Divide pathfinder filter to divide a rectangle in two with a coastal path. Having filled the land and sea you now cannot see your map scan, so select Artwork mode from the view menu.

5 Create a new layer and call it roads. As with coastline, the new pencil tool is great for creating roads — the pen tool can be used as well. Trace off all the roads with a 2pt black-stroked path and check all the intersections, ensuring the paths join neatly. Turn off all the other layers, press Ctrl-A to select all the roads and duplicate them using Objects/Transform/Move/Copy and set a new stroke width of 1pt white.

6 You may need to do some cleaning-up at the junctions, but you should now have a network of 1pt white roads with a 0.5pt black outline. If you need to edit any of the road paths, it's simpler to



▲ **MAKE YOUR SCAN LAYER A TEMPLATE AND YOU'LL BE ABLE TO SEE IT IN PREVIEW MODE**

to trace, locks it, and makes the image non-printable. It also

means that when you switch to Artwork mode, the scan will still show in Preview mode. This is useful because you can get filled objects out of the way, allowing you to trace underlying detail.

MAPPING WEB SITES

www.garmin.com/cartog.html

Cartographic information from the GPS people.

www.digiwis.com

Producer of Mountain High digital maps.

www.ocad.com

Ocad is a shareware mapping program we looked at in Hands On last year. You can get it from this web site.

www.mapsinminutes.com

Telephone 01840 212135

www.cartography.org.uk

BCS is regarded as one of the world's leading cartographic societies and its web site promotes all aspects of cartography.

<http://acorn.educ.nottingham.ac.uk/ShellCent/maps/>

These web pages summarise a research project that set out to discover some of the factors that make maps easy to read and use.

<http://www.pcug.co.uk/~MapMaker/>

The web site of MapMaker Ltd, developer of MapMaker Pro software reviewed in PCW February 1997.

The web site has shareware, free maps of the world and the UK, plus mapmaking articles.

<http://www.geo.ed.ac.uk/home/giswww.html>

This is a comprehensive index of web sites likely to be of interest to map makers. It's maintained by Bruce M Gittings and Anup Pradhan at the Department of Geography, University of Edinburgh, in collaboration with the Association for Geographic Information.

<http://www.shed.ac.uk/uni/projects/sc/index.html>

The Society of Cartographers. This web site is not yet available, but it will be starting a PostScript library of copyright-free maps. FTP archive also includes free software downloads including specially designed cartographic fonts.

<http://uk.multimap.com/partners.htm>

Multi Media Mapping has created an interface that enables web-site designers to include maps in their web pages. You just put the full UK postcode in a URL, and Multi Media Mapping will return a map showing the location of that postcode.

get rid of the white overlay, edit the black and then re-duplicate it. I've tried simplifying things using Illustrator's new art brushes to create a "road" brush, but this doesn't work too well because the black outline stroke doesn't maintain a consistent width. If anyone knows why this is, I'd be glad to hear from them.

7 You can add other geographical features — railways, footpaths, boundaries, etc — in the same way. Using a separate layer, editing is easier and you can switch individual features on or off to customise your maps. If you're creating maps with boundaries it's often useful to create a filled object for each segment and have overlapping common borders. The easiest way to do this is to create the overall outline, draw in the borders and then use the pathfinder filters to carve up the cake.

Just a minute!

If you want maps without the effort, there are a number of vendors who provide detailed maps in PostScript format. Some of the best are produced by Maps in Minutes (MIM). MIM products include maps of the British Isles at 1:5 million, 1:2 million, 1:1 million and 1:750,000 scales. There's also a vast selection of world maps at various scales and projections. MIM provides more detail than you're ever likely to want and intelligent use is made of layers, so if you don't want a grid, water features, small towns or the Channel Tunnel, you can just turn them off.

If you've a lot of map work to do, MIM could be a big timesaver. The only drawback I see is the licensing arrangements. Though no more restrictive than that from the OS, it's not exactly a "pay once and do what you like" affair. There's an annual licence fee, a requirement to publish a copyright credit, and restrictions on sales to third parties and book, magazine, CD and internet publishing. MIM supplies files in Illustrator or Freehand format. The MIM people are very accommodating and a phone call will provide the answers to any questions you have about formats or anything cartographic.

COPYING OS MAPS

It is highly advisable to ensure you're not breaching copyright when using a map as a reference for tracing. Crown copyright exists only for 50 years, so if you've any maps older than that you can do what you like with them.

➔ **To copy Ordnance Survey (OS)** maps you must obtain a licence and pay a per copy royalty charge. This ranges from two and a half pence (there is a minimum charge of £16 for 30 copies of A6 size) for copies up to A6 size, to £6.40 for A0 size.

➔ **The OS produces** five leaflets with detailed information about its

copyrights and royalty charges.

You can get this in Acrobat format from the Ordnance Survey web site at www.ordsvy.gov.uk or you can contact the OS at:

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