ILLUSTRATION & IMAGE EDITING

Gimp Fixing smiles

ON the DISC

Michael J Hammel helps you brush up on masks, scissors, the Clone tool and other *Gimp* techniques to create a dentist's vision of the perfect smile.

I grafted a dog's head on to a man's body to show what an important role transparency plays in merging images. If you missed the issue, call 0870 837 4773 or +44 1858 438795 for overseas orders.

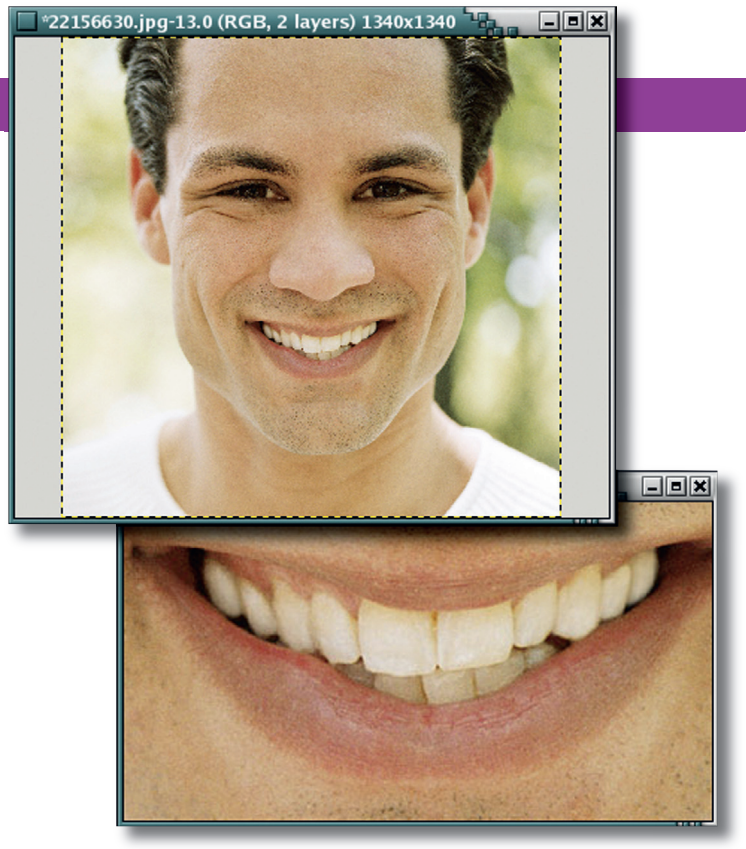
A fairly easy way to get started using *Gimp* in a small graphics business is to create print adverts for local magazines and newspapers. Actually, most advertisers don't really know how to create graphics that draw eyes to an advert that eventually leads to revenue for the business. You'll often find poor designs done by local print shops that crowd images with too much text or bathe an image in a rainbow of colours that cost an arm and a leg to print but end up bleeding and fading on cheap paper. Picking out poor adverts and approaching the advertiser with alternative designs can often lead to the start of repeat business with a loyal customer.

This month's project comes from just such a real-world encounter. My wife created some adverts for a local catering business, which happened to do a job for a dentist's office party. The dentist, just getting started in the area, needed to produce advertisements of his own and contracted my wife to produce a print ad for his office. The requirements for the ad included using a picture of a male model sporting a big, bright smile. She found several potential images in stock image collections and purchased the one I'm using here. I did the patchwork for her to clean up the smile and she submitted the ad, along with some other designs, to the client.

The client loved the modified image but in the end rejected the ad in favour of a completely different design that removed the smiling person completely (something she had recommended from the start, mind you). Still, the modified image came out so well that I felt it worth sharing the design process with *LXF* readers.

This tutorial is more advanced than some of the others I've done recently. You won't be able to just follow along and do what I do. The goal here is to put into practice what you've been playing with all this time. At some point the wheels have to hit the pavement, and this tutorial is a good example of how that happens. What is more important is that this is what *Gimp* is all about – doing real work. Eventually you have to stop exploring your tools and just use them. Now's the time.

THE PROJECT



To be fair, he's not a bad-looking guy as he is, and the original image was reasonable, but this ad was for a dentist's, so anything less than the perfect smile just wouldn't do. There are three main fixes required: clean and straighten the top teeth; clean and straighten the bottom teeth; and adjust the bottom lip to make it more symmetrical.

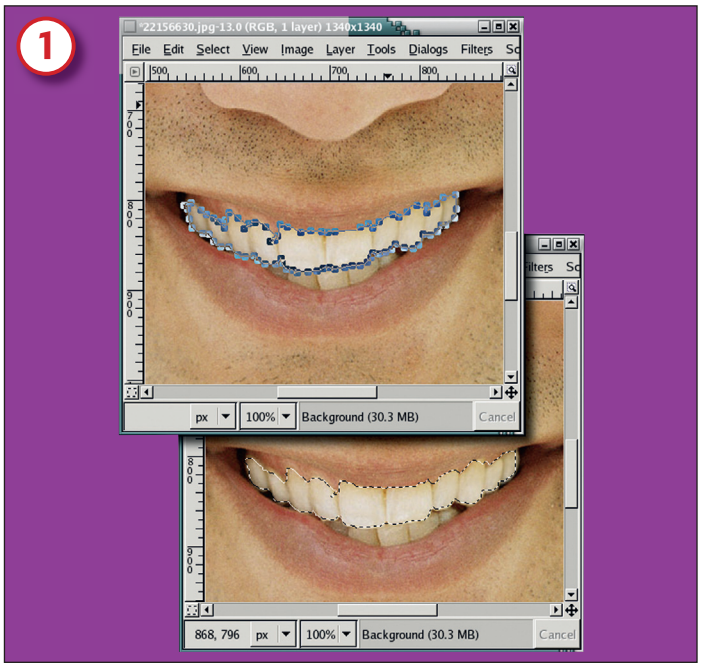
The bottom lip is the easier fix, but we can only do this after we've fixed the teeth. This is because the lower lip will be adjusted using the *IWarp* plugin, and we're better off doing that after the new, improved top and bottom teeth have been merged into a single layer.

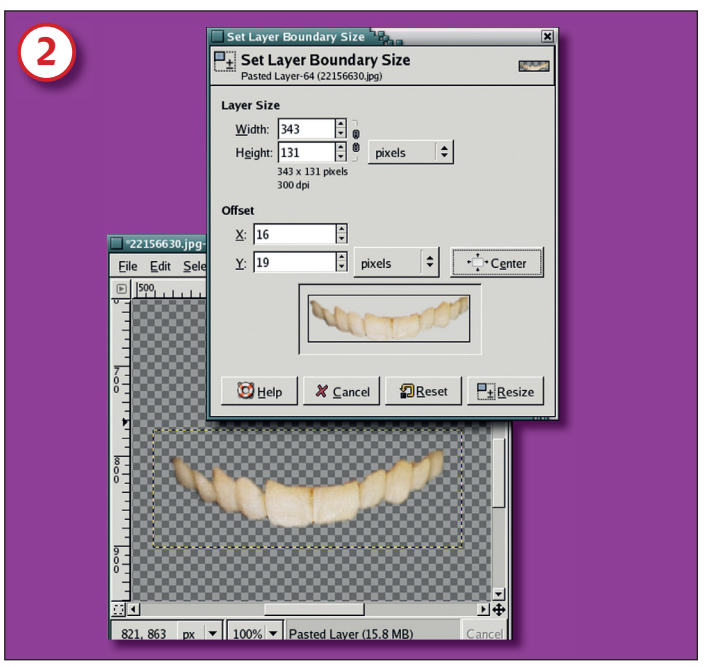
The upper teeth present three problems:

- They aren't symmetrical.
- They aren't even at their lower edges.
- They aren't white.

None of these will be especially difficult to fix, but it will take some skill to create the initial selection. To make the teeth symmetrical I'll be using some large patches created from selections. To fix the lower edges I'll be using the Clone tool on a separate layer. Cleaning the teeth needs to be done after patching and cloning, and then only after merging any layers that make up the visible upper teeth. Wait till you've done all that before you brighten the teeth, and it should help guarantee that you don't end up with strange blotches where colour changes weren't uniform.

THE SOLUTION





1/ Use the Scissors for an accurate copy

The first thing we want is a copy of the upper teeth: we'll use the Scissors tool for this. This tool works by looking for natural edges between anchor points. In this example I've clicked very close together, creating a large number of anchor points – this enables me to create a selection that matches the teeth very closely. We'll be blending the copied teeth in with the original image, so we don't need an exact match here.

Once the outline is created (remember that the anchor points can be moved before you create the selection), click inside the anchor points to convert them to a selection, then save this selection to a channel.

2/ Create a new layer for the selection

Feather the selection by five pixels, then paste a copy of the selection in as a new layer. The layer window will be snug around the copied selection, and you'll need some extra space to work in here, so expand the layer size a bit (Layer > Layer Boundary Size). Turning off the background layer, you can see what you need to work on! What I noticed most about this image is that the left-hand side of the top row of teeth is a little better off than the right; so we'll copy left to right first, and work from there.

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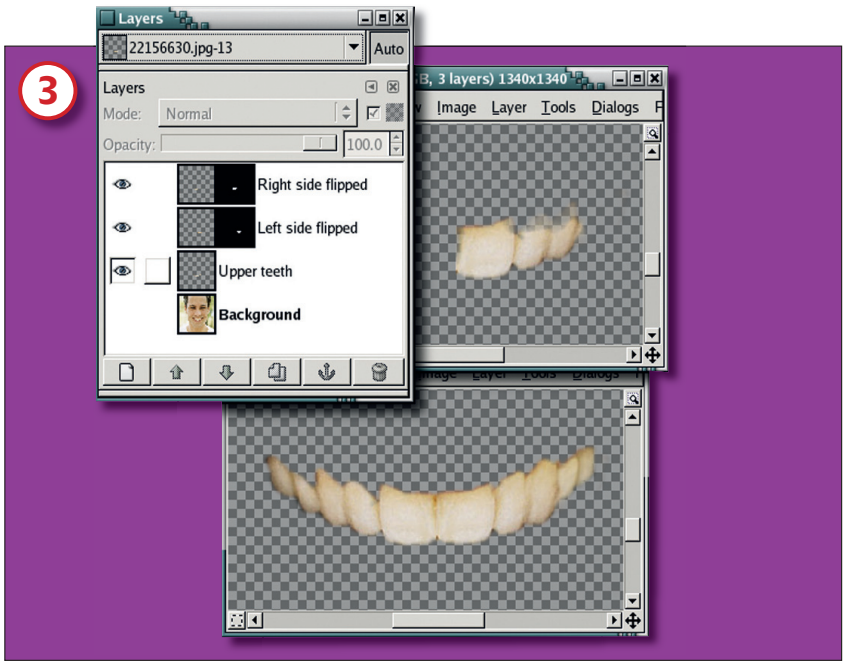
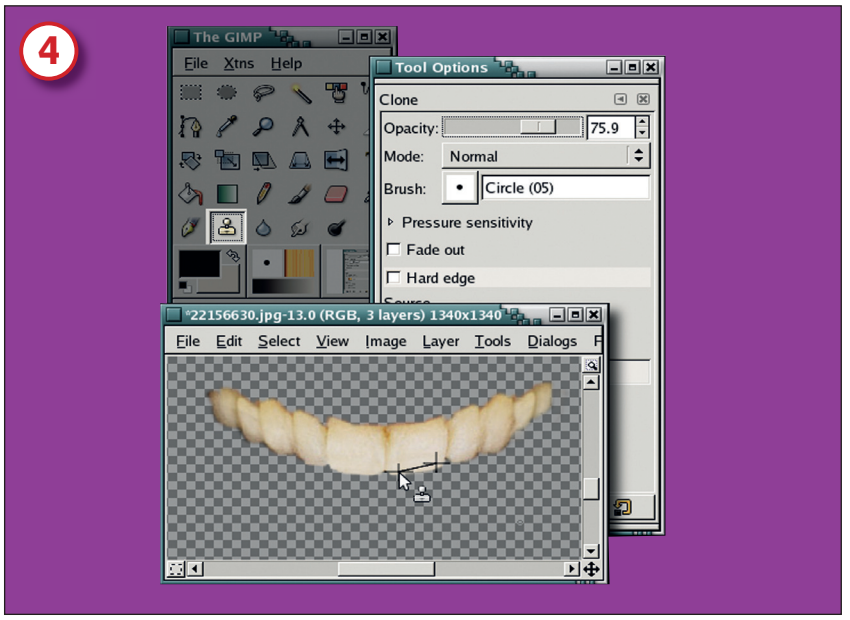
3/ Replace imperfect teeth

Create a rectangular selection around the left half of the teeth, copy and paste the selection, convert the floating layer to a new layer, then flip it horizontally. The selection doesn't have to be perfect – it gets blended into the other teeth with a mask anyway. Then place the copy over the right-hand side of the teeth, add a layer mask and blend the copy into the original teeth using the mask. The two teeth furthest right are better than the two furthest left, so we can mask out the copies of those left-side teeth completely.

This image shows the flipped and masked layer and the teeth with the masked copy overlaid on the original teeth. To complete this process, we need to copy the right-hand side teeth on to the left and merge with a mask again. The result is a more balanced appearance to the shape of the teeth.





4/ Straighten out the smile

You should now merge these three layers (original copy of upper teeth, right side flipped and left side flipped) together. Employ the Clone tool to straighten the lower edge of the front teeth. Pick a soft-edged brush to give weight to the lower edge of these teeth, then a hard-edged brush to clone the straight edge. Take the clone source point from just above where the cloning is started and draw a straight line (hold down the Shift key while dragging the mouse) with the Clone tool. Turn the brush opacity down slightly to add blending to the clone process.

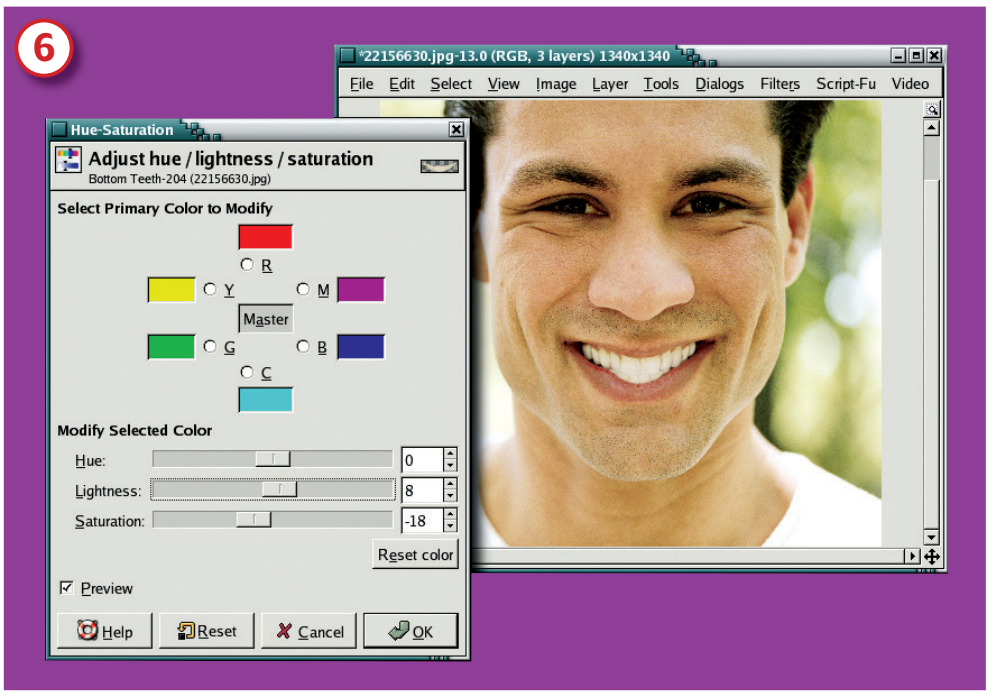
5/ Tidy up the bottom row

The same process is applied to the bottom teeth:

1 Selection.
2 Copy.
3 Paste to new layer.
4 Copy right side.
5 Flip.
6 Move to left.
7 And finally, merge.

You don't have to do much to the bottom teeth, however, because their cutting edge is hidden behind the top teeth. You can also see that the amount of upper gum showing on the left-hand side is greatly reduced, and the gap between the teeth on the right is also reduced. On the lower teeth, the left side no longer appears to be receded from the front of the mouth.

After all this, the alignment of the teeth is greatly improved. Next we should attend to their colour.



6/ Adjust curves and saturation to whiten the teeth

So far I've focused on the teeth, ignoring the context of the picture. When adjusting the smile's colour you need to step back and look at it within the colour range of the whole image. If you don't do this you risk making the teeth too bright, causing the effect to look fake.

The yellow tint and dark stains in the teeth can be fixed in a number of ways. It's easy to adjust the curves, but in this case it would leave the top teeth too bright. We can adjust the bottom teeth with curves, though, so they have the same lighting appearance as the upper teeth, which should bring them out from the shadow and into line with the upper jaw. You'll need to make only minor adjustments to the saturation (reducing it slightly to remove the stains and yellow tint), and brighten them up slightly to make them appear whiter.

Perfection is achieved with one last tweak. The lower lip has slight bulges on either side. These are easily fixed with the *IWarp* plugin after merging all the layers together. To get to *IWarp*, right-click on the canvas and go to Filters > Distorts > IWarp.

QUICK TIPS

Touching up images

- **Copy. Paste. Add Layer Mask... Work on layer copies and then merge back into the original.**
- **Blend, blend, blend. Layer masks, reduced opacity on clone operations and soft-edged brushes help merge bits and pieces of images together seamlessly.**
- **Colour in context. Colour adjustments in portraits, especially those in flesh, bone or body tones, should be subtle. Reducing yellowing in teeth is a reduction in saturation and increase in lightness.**
- **Symmetry is ideal, but not real. Copying left-to-right sides of the upper teeth in this project helped provide some symmetry in the shape of the teeth, but blending those copies with the original helped provide enough variation to keep the copy-and-flip from being plainly obvious. Nature is nothing if not a wee bit random.**
- **Why did we save that selection? Because we just don't know when our experimentation with copying, cloning and merging will work out just right. It can take many attempts at trial and error to get it right. And all of them – in this project in particular – start with getting a copy of the original upper teeth. I didn't show that, but now you know why you sometimes do things that don't seem necessary.**

When you don't do those things, it's inevitable that you'll need them.

THE RESULT

The result is obvious: a little dental work can go a long way. This tutorial shows how important transparency is to the *Gimp* artist, but we've also used a number of simple techniques to carry out this project. Real-world applications like this are a good opportunity to practice what you've learned, and we'll do the same next month.

NEXT MONTH

Come with me on a trip through text effects to go beyond your everyday, canned logo effects.