Barbutte Rhino Tutorial

This is a tutorial on one method of modeling a Barbutte helmet with Rhino. This was a project inspired by the Renderosity Rhino3D Forum's Challenge of the Month for April 2000. This is by no means the only, or best, way of modeling this item, it is just the way I happened to go about it. This page has many graphics, so be warned, it may take a while to load.
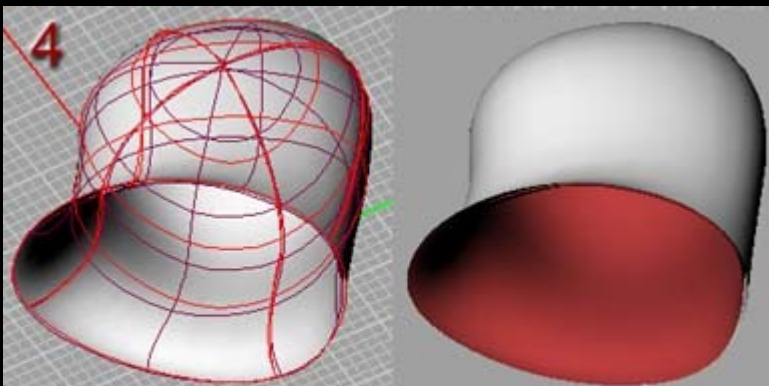The backgound images that I traced for the profiles may be obtained here.
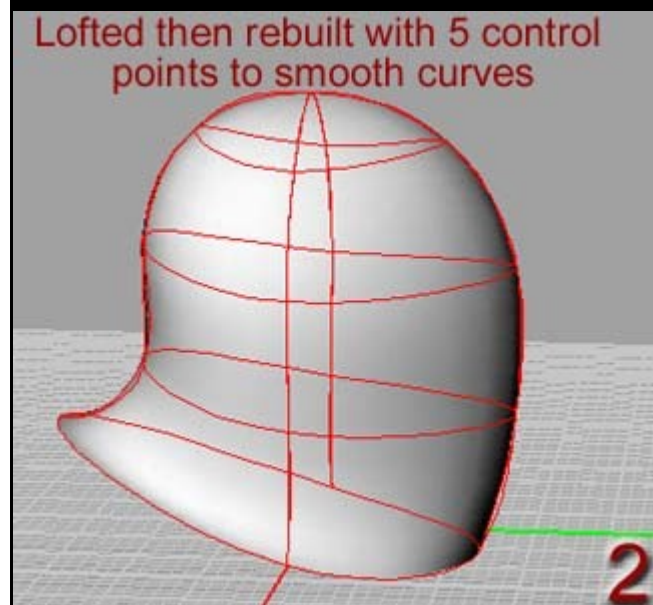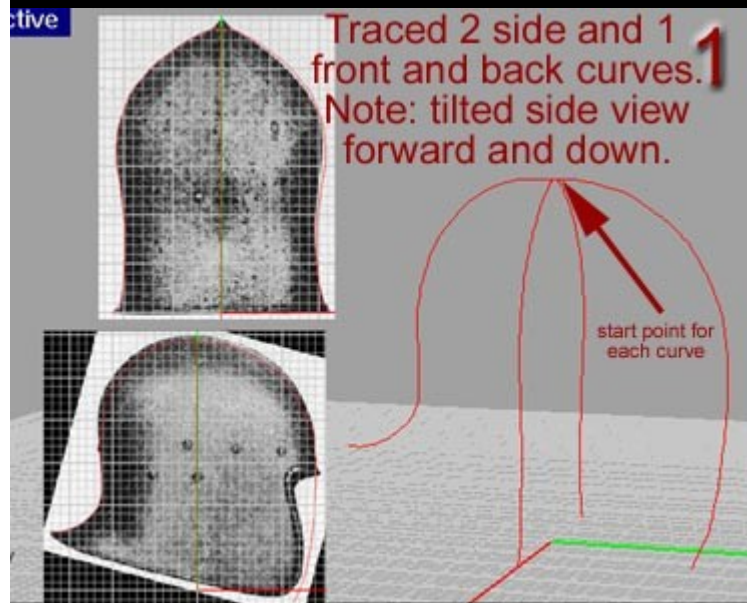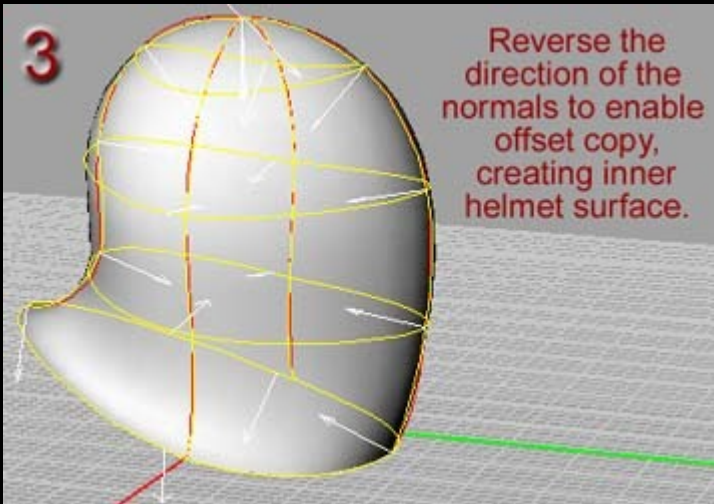
3 Reverse the direction of the normals to enable offset copy, creating inner helmet surface.

4 Use Offset Surface to make inner copy. Rebuild with 8 in both U and V directions to simplify and smooth. Set to contrasting colour and check no intersections occur with outer surface. Flip outer surface normals back to original.
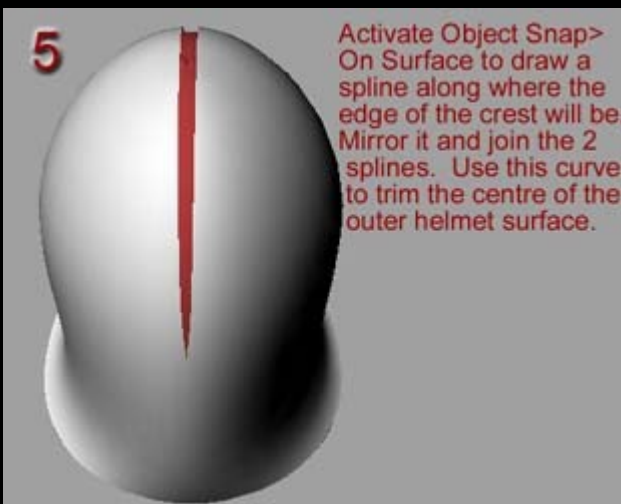

5 Activate Object Snap> On Surface to draw a spline along where the edge of the crest will be. Mirror it and join the 2 splines. Use this curve to trim the centre of the outer helmet surface.
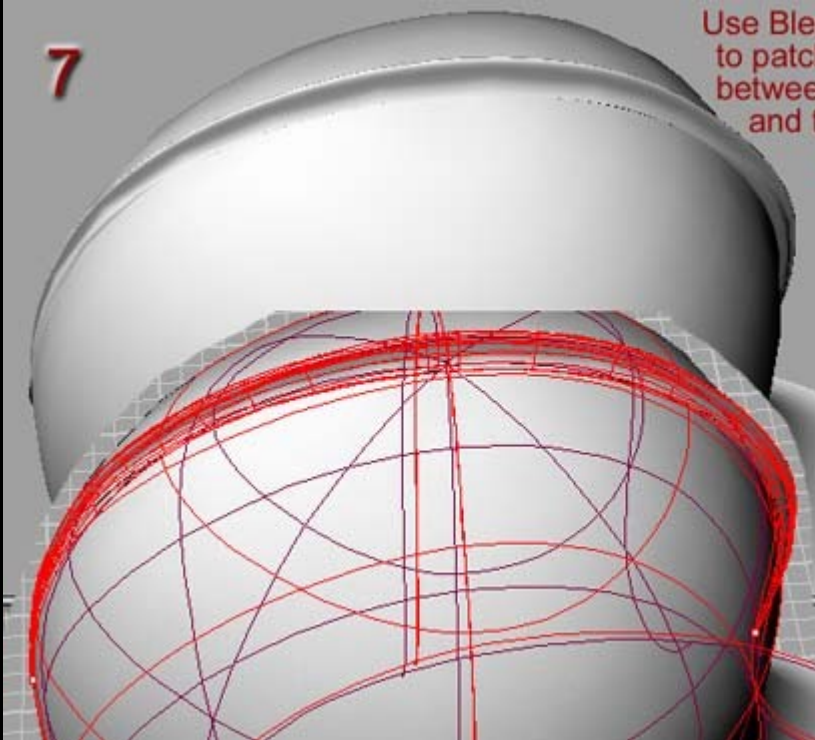
6 Create the profile of the crest at the vertex of the helmet in the front viewport. Create a rail for the crest to follow and one point at each end of the rail. Use Sweep 1 Rail using centre curve for rail and each point and the profile curve.
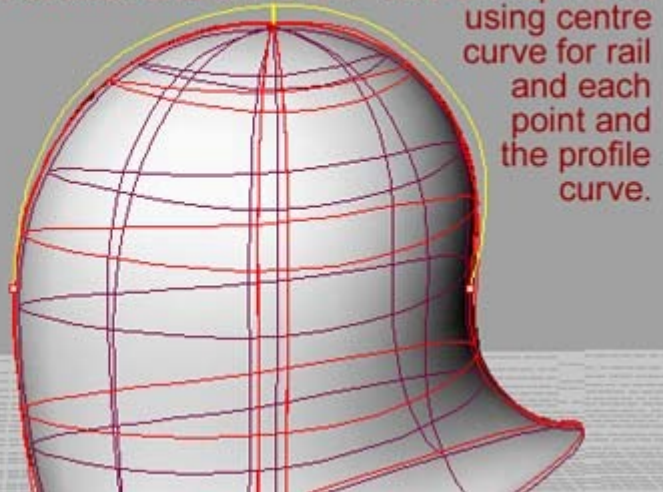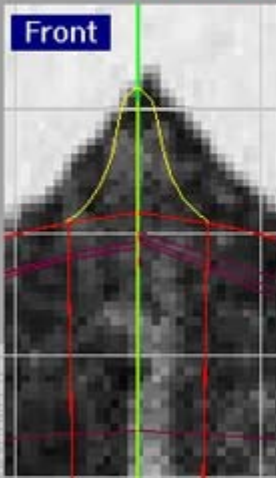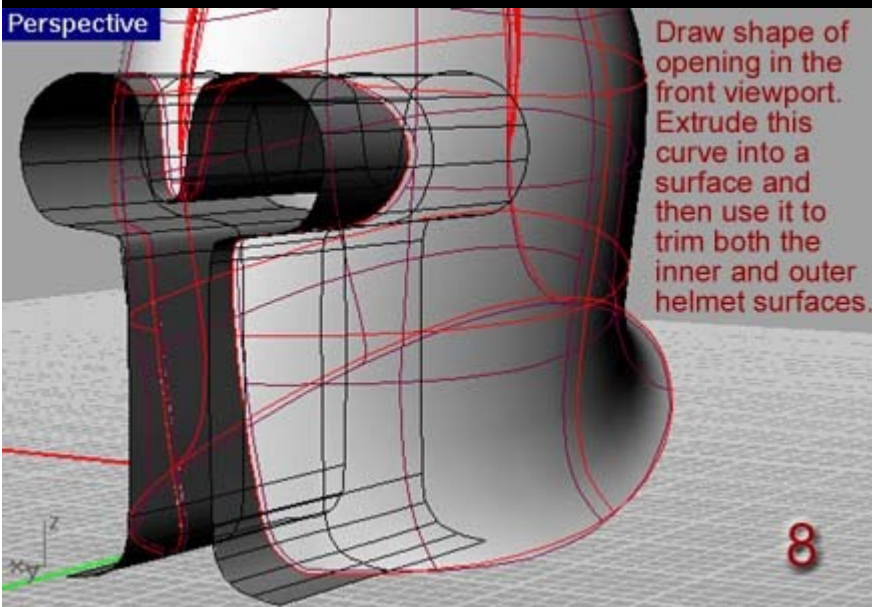
Front

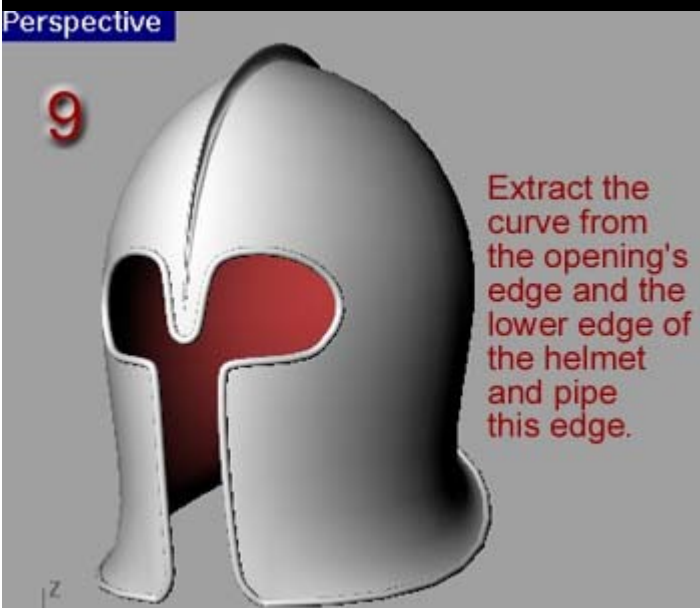**7** Use Blend Surface to patch the holes between the crest and the helmet. Join these surfaces together.

Draw shape of opening in the front viewport. Extrude this curve into a surface and then use it to trim both the inner and outer helmet surfaces.
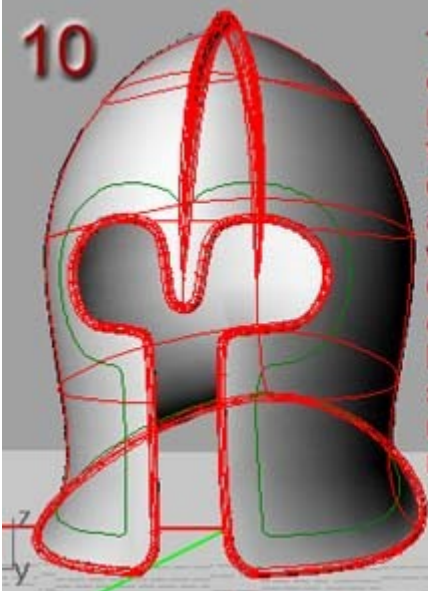
8

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Extract the curve from the opening's edge and the lower edge of the helmet and pipe this edge.

10

To start creating the inner trim, a curve on the surface of the helmet needs to be created a set distance from the edge. Select the edge curves and pipe these curves with a large diameter (10x the pipe that was done on the edge). Use the Curve>From Objects>Intersection command to find the point the large pipe intersects the helmet surface. Delete the pipe and clean up this new set of curves. This is now shown as the green curve.

11 Pipe the new curve using a smaller diameter than the edge pipe. This new pipe should now track flush along the surface of the hemet and not extend through the inner helmet lining.
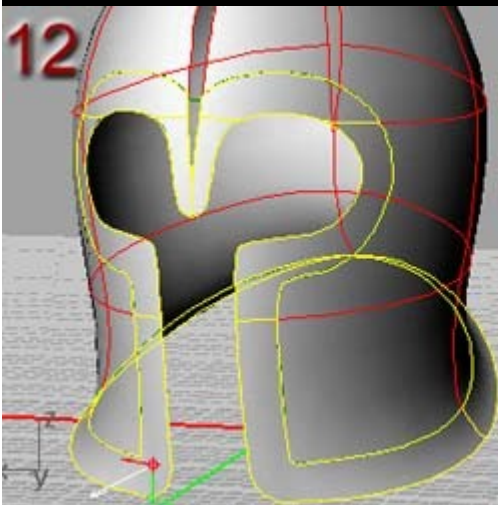
12 Split the outer helmet with the new curve. Select the outer split area and use the Curve>Offset command to create a new copy less than the small pipe's radius in the direction of the surface normal. (white arrow)
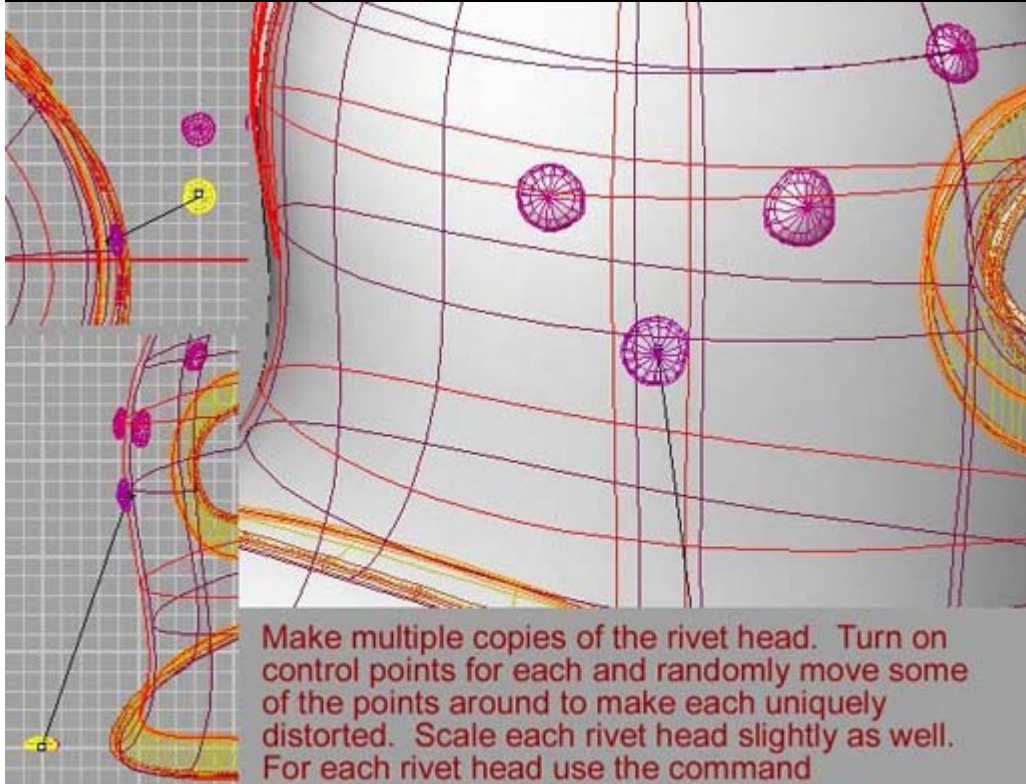
13 Each pipe and decorative trim surface have now been put on separate layers with different OpenGL Render colours to check for proper overlap with no gaps. If necessary pull control points to fix any problems.
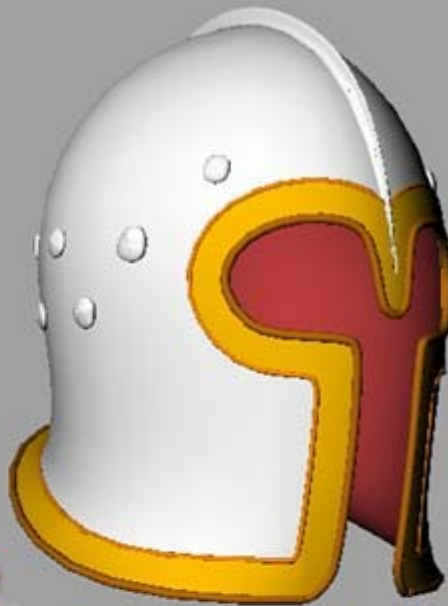
Create a rivet head
by drawing a spline
and revolving it.
Make it deformable
with at least 16
control points.

14

Make multiple copies of the rivet head. Turn on
control points for each and randomly move some
of the points around to make each uniquely
distorted. Scale each rivet head slightly as well.
For each rivet head use the command
Transform>Orient On Surface to place them
around the surface of the helmet. A bit of
randomness here is good.

15

The
Barbutte