



**ORGANIC
MODELLING
*IN BRYCE 3D***

organic modelling in Bryce

BEFORE WE BEGIN

Before we start, I think it is important to mention that my creative process perhaps doesn't have much to do with Bryce, or even computers. For me, the computer is merely an engine that I use to make my ideas real. Therefore, my images don't have much to do with modeling tricks, or 3D effects, but rather, begin with the idea I am trying to express. Once that is tangible, then I manipulate the computer, bend IT to my will, so to speak. Many people can create directly on the computer, but I must draw out my ideas first, so I can kinesthetically and visually understand ('grok' as so wonderfully put by Robert Heinlein) where I am headed.

STEP ONE - SKETCHING

Initially, I sketch many ideas on paper. The rough sketches here show figures I am developing to go in a Bryce scene with the 'Bryce-Hog' as shown above. Firstly, I want a menacing figure that will tower over the bike, suggesting 'power over power', so I roughly sketch a dragon-like figure. Well, a little too classical in style, so I roughly sketch a more biomechanical arm, that will make the creature fit with the scene. All along, I am considering how these elements will work together in Bryce. I am not necessarily going to use these drawings as exact templates, but they remind me of the 'mood' that I'm after. Also at this stage, I am thinking about textures and lighting, although I won't add textures usually until I am refining the model, and lights very last



STEP TWO - TERRAIN PAINTING

Next I put aside my sketches, and start to paint directly in Bryce's terrain editor. For this tutorial, I am going to get you straight into the specifics by building up the arm. First, I will paint up the basic form. How much I separate the elements depends primarily on how much control I want over their relative positioning (e.g., do I want that joint to bend?). So, I will start with the mid section of the arm.

Figure 3 shows the basic shape. I have started with a symmetrical lattice at 512 resolution, which gives me brush sizes large enough to get a basic shape. I am working with low levels of gray shade, and not much flow, as you can see in fig 3. The bad news here is that painting in the terrain editor is much like using an airbrush, and can be very painstaking. You have to be aware that this is not traditional spline or polygon based modeling, but depends on how you layer the gray levels, and build them up. It is almost impossible to backtrack, and if you paste out to Photoshop or Photopaint or whatever software you use, you will lose the clarity of Bryce's internal grayscale resolution. If you can put up with this, then by all means do. Now I am going to add some more detail, as I have roughly the right height I want, to achieve a 'rounded' look.

Remember all I am doing is constantly changing my brush sizes, and the flow and hardness of the brush. I use dark colours to subtract, and light colors to add. Simple! I am happy with the way the component is progressing, so now I change the resolution of the terrain to 1024, to start painting in the finer details. This is where you can give your object some class, enhance it's realism by painting in subtle organic touches, as in fig 5.



Figure 3 I have started with a symmetrical lattice at 512 resolution, which gives me brush sizes large enough to get a basic shape

As you see, we are building up some detail in our painting. Don't be afraid to cut loose a bit, free form lines translate quite well in the terrain editor, and add realism.

Here is a quick render of our element so far, with texture applied. It's rough and ready, and I would probably refine it more, depending on how enthusiastic I was about the model. Remember also, that you are actually 'painting in the bumps'. I hardly ever use bump mapping, as a painted terrain with a smooth texture will sometimes look incredibly real.

At this stage, you can also apply some of the effects in the terrain editor, such as 'mounds' then undo the effect, and change the brush type to 'paint effect' and selectively paint it back in to provide more variation.



Figure 5 This is where you can give your object some class, enhance it's realism by painting in subtle organic touches.

From then on, it's pretty much repetition, I duplicate the terrain to give me a good starting point, and model the next piece, keeping in mind where the models will join. I've deviated quite a bit from the drawings, but well, it doesn't matter.

So, a render of the progressing arm. Notice the more components you add, the more overall 'look' you develop, so even if you make some mistakes' in the terrain editor, you don't always need to fix them, as often they add to the look. Bio-mech etc. creatures are very rarely perfectly formed.

the finished product

This particular creature is turning out quite robotic, never mind, just let them grow I say!

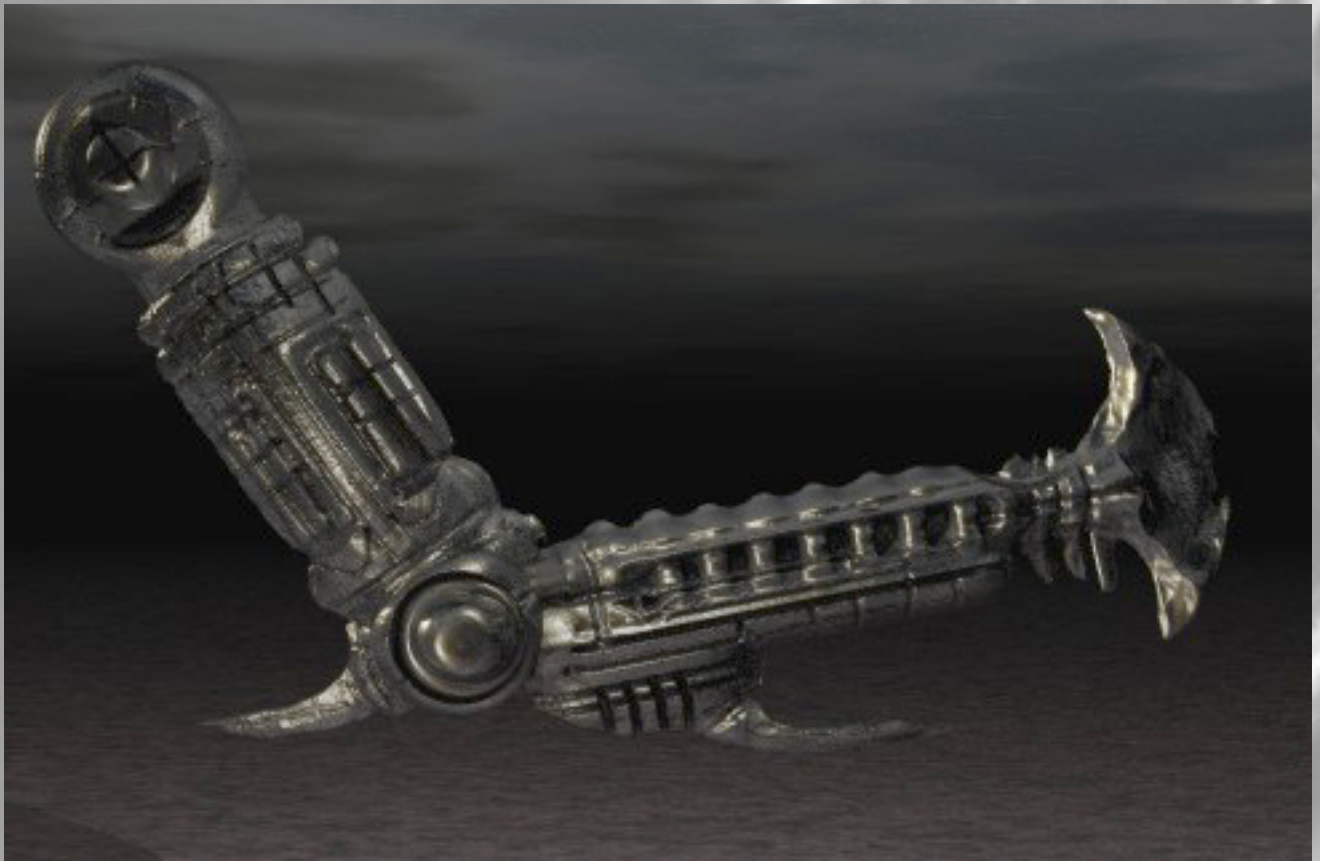
These techniques can be used to model pretty much anything you want. sometimes it is harder to get objects like pipes, but remember, it is all an illusion, and I tend to modify my models to suit what is possible, if need be. Also, you can adjust the terrain clipping to deal with 'injection molding' edges on your lattices

STEP THREE - TEXTURES / LIGHTING

I tend to keep my textures simple, and NOT too reflective! Reflections don't exist much in my

murky Bryce world, most of these creatures are not fond of mirrors, being not all that pretty. It's usually good advice to match ambient colors on materials, but I find that I get good results if I 'correspond' ambient color to create a mood, not necessarily using the same colors. Thanks go to Robert Bailey, as I use many of his textures as a base.

Lighting. I sometimes use many low wattage radial lights, to bring out hints of detail here and there. Usually I move them around until I sense an overall 'wholeness'. Textures and lighting are very much subjective things.



F i n

Open up some of my scene files and have a play. The components that this tutorial is based on can be found in the scene 'Reality Engine exposed'