Smoke Effect with Albrecht Durer’s Etching Style

1. Create a background image in Photoshop. I created a Hellhound creature with dark lines. Put a parchment texture on the background, below the line art. Make the Line Art’s layer be a Pass Through. Add an adjustment layer for Brightness/Contrast and put a light mask in the shape of the line art. This will make the background a little darker than the Hellhound. With a crosshatch brush, layer the crosshatch texture across the drawing for shading. Make the image small enough to work in a video (if it is too huge, the video players can’t play it).
2. Go to nDynamics and go to nParticles>Create nParticles and check Balls. Then click Create Emitter in the same place. Mess with the size in the nParticleShape’s Radius Scale graph for random sizes. Change the Radius Scale Randomize to around 0.4.
3. Make the Lifespan Mode Random Range and change the Lifespan to 7.0 and the Lifespan Random to 4.0.
4. Go to the emitter’s Attribute Editor and mess with the speed. Make the Speed Random around 0.6 for variations in speed.
5. Create a gravityField by going to Fields>Gravity. Make the Magnitude a negative number so the Blobbies go up. For light floating instead of falling up, you want to make it a small negative number, like -1.0.
6. Create a turbulenceField by going to Fields>Turbulence. Make the Magnitude 100. This makes the Turbulence strong. Move the turbulenceField above your Blobbies. Mess with the position until you get the angle you want. Now that we have the Blobbies the way we want the, we add the style of etching/cross hatching.
7. Open the Hypershade window (Found in Window> Rendering Editors).
8. MMB-drag a Surface Shader material into the work area and rename it the name of your texture (mine follows the tutorial so it’s named Cartoon).
9. MMB-drag a Condition Utility (found in the Hypershade’s Create> General Utilities) into the work area. Place it to the left of the Cartoon node.
10. Connect the outColor of the condition node to the outColor of the Cartoon node. You will have to open the Connection editor to do this (found in Window> Connection Editor).
11. Select the condition node and rename it ConditionA.
12. Open ConditionA’s Attribute Editor tab. Click the Color if False Map button and choose a Ramp texture from the Create Render ode window. A place2dTexture node will automatically appear with the new Ramp node.
13. Rename the Ramp node RampA
14. Select RampA and open its Attribute Editor. Have it so there is only one color handle, and it is white. Change RampA’s Interpolation drop-down to None.
15. MMB-drag a Surface Luminance utility (found in the Hypershade’s Create> Color Utilities as Surf. Luminance) into the work area.
16. Place the SurfaceLuminance node to the left of the other nodes.
17. Connect the outValue of the SurfaceLuminance node to the first-Term of ConditionA.
18. Connect the outValue of the SurfaceLuminace node to the vCoord of RampA. You will have to use the Connection Editor. This connection forces the render to select different pixels in the V direction of the ramp based on the amount of light of any given point on the assigned surface receives. If a surface point is dark, it gets a color from the bottom of the ramp. If a surface point receives a moderate amount of light, it gets a color from the center of the ramp. This is useful if you are doing multiple colors in your texture.
19. MMB-drag a second Condition utility into the work area. Place it to the left of ConditionA. Rename the new condition name ConditionB. Connect the outColor of ConditionB to the colorIfTrue of ConditionA.
20. MMB-drag a Sampler Info utility (found in the Hypershade’s Create> General Utilities) into the work area. Place it to the left of ConditionB.
21. Connect the facingRatio of the samplerInfo node to the firstTerm of ConditionB.
22. Select ConditionB and open its Attribute Editor. Set the Color If False attribute to 0,0,0.
23. Click the Color If True Map button, select As Projection in the 2D Textures section of the Create Render Node window, and click the Ramp texture button. Selecting As Projection creates the Ramp texture with a projection node and a place3dTexture node. Rename the new Ramp node RampB.
24. Create a new one-node camera by choosing Create>Cameras>Camera from the main Maya menu.
25. Assign your Insert\_Texture\_name\_here (Cartoon, in my case) material to your effect. Feel free to change the camera’s BG Color attributre.
26. Select the projection node and open its Attribute Editor. Change the Proj Type attribute to Perspective.
27. MMB-drag the new camera node, named camera, from the Cameras tab area to the work area and drop it on top of the projection node. Choose Other from the Connect Input of drop-down menu. The Connection Editor window opens. Connect the Message of the camera node to the linkedCamera of the projection node (The Message attribute is normally hidden. When you choose Left Display >Show Hidden in the Connection Editor, the Message attribute becomes visible at the top of the list).
28. When the camera node is connected to the projection node, the projection node will know to project from the view of the new camera and not the default persp camera.
29. Look at the camera icon in a workspace view. There should be a projection frustum (a pyramid shaped icon representing a camera’s view) extending from the camera icon toward the effect. If not, select the place3dTexture node that is connected to the projection node. This will select the frustum icon and allow you to translate it to a suitable location. If you would like to animate the camera moving, parent the place3dTexture node to the camera. Ultimately, this projection will allow the etching lines to appear continuously across multiple surfaces without distortion.
30. Select RampB and open its Attribute Editor. Place four color handles in the color field. From bottom to top it should be Black, white, black, white. Set type to V Ramp and Interpolation to Exponential Down. RampB will now produce an etched/line pattern.
31. Select the place2dTexture node of RampB. Open its Attribute Editor and change the Repeat UV Value to 65, 40. Choose larger numbers to make smaller/thinner/more lines.
32. Select ConditionB and open its Attribute Editor. Set the Second Term attribute to 0.3 and the Operation to Greater Than. ConditionB works as an as if statement. If the facingRatio of the samplerInfo node is greater than 0.3, ConditionB will output the line pattern of RampB as the color. If the facingRation is 0.3 or less, pure black will output as the color; ultimately, this creates a black “ink line” around the edge of the object/effect.
33. Select ConditionA and open its Attribute Editor. Set the Second Term attribute to 0.5 and the Operation to Less Than. ConditionA serves as a second if statement. If the outValue of the surfaceLuminance node is less than 0.5, the color output by ConditionB is selected (black lines). I the outValue of the surfaceLumiance node is equal or greater than 0.5, the color output by RampA (white) is selected. The surfaceLuminance node also controls the vCoord of RampA, so that if you choose different shades than just white, the color will be chosen based on the amount of light the surface receives.
34. Now you want to add Lighting. Go to Create>Lights>Directional Lights. You’ll want two directional lights. Then you’ll have to test multiple renders to decide on what angle you want your lighting and what intensity.
35. Once you have your scene, change your frames to the amount you want. Six seconds is around 203 frames and I started at 97 and ended my render at 299.
36. After you have your length, go to Rendering >Render Settings Window. Make your image format Tiff (tif) and your Frame/Animation ext to name.#.ext. Your file name will be the name of your Maya file if you don’t change it. Make your Start Frame 99 and your End Frame 299. Make your Renderable Camera the camera of your scene. Make the Image size what you want. I made the Width 960, the Height 540, the units pixels, and the Resolution 150. Once you’re done with the Render Settings go to Rendering> Batch Render.
37. Since I had a right and left smoke trail I changed my camera angle and lights to the other side.
38. Once you have the right and left smoke effect rendered out, separate the Right Images into a folder named R\_Smoke and the Left Images into a folder named L\_Smoke.
39. Drag both of the folders into Nuke. Each will appear as a Read node, showing your effect on the appropriate frames. I had to change my start and finish frames on Nuke to 97 and 299.
40. Add ColorCorrect nodes below the effects and make them a little lighter than the background, with the same shade as the background (use the highlight, gamma toggle). You can also make them a little transparent by messing with the master saturation.
41. Add EdgeDetect nodes below the ColorCorrect nodes. This will give your effect a solid line around it. This makes the effect resemble the style a little more.
42. Drag in the Background picture of the Hellhound.
43. Add Transform Nodes below the EdgeDetect nodes so you can move and size your effects how you want them in relation to the Hellhound.
44. Merge (over) the Left and Right effects. Then add another Merge (over). This will connect the first Merge with the Background picture of the Hellhound.
45. Connect the Merge2 (over) to a Write node and the Write node to the Viewer.
46. In the Write node make the file type mov and go to file and choose your render destination and file name. Make the Frame Range 97-299. Click the render button, make sure your range is from 97-299 and render out your final effect!

Work Cited

Lanier, Lee. Advanced Maya Texturing and Lighting. Hoboken, NJ: Wiley Technology

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