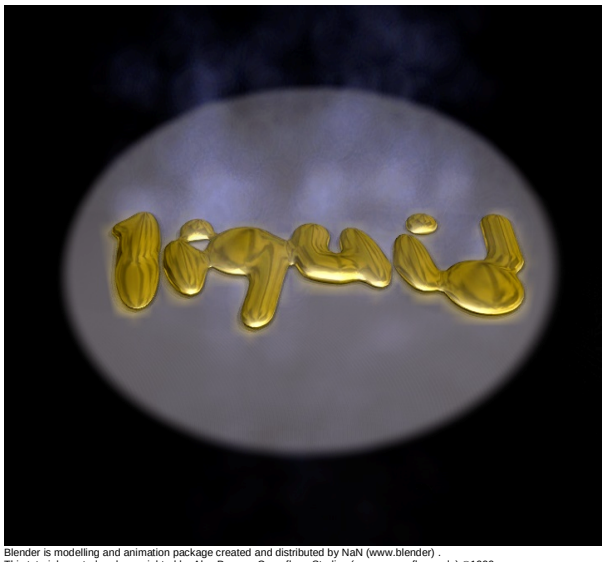
Liquid Metal Tutorial

Version 1.1
Alex Penner, **Camouflage Studios**
www.camouflages.de



THEMES: Metaballs, Particles
SKILL: Beginner/Intermediate
C-KEY: Planar environment mapping only

About

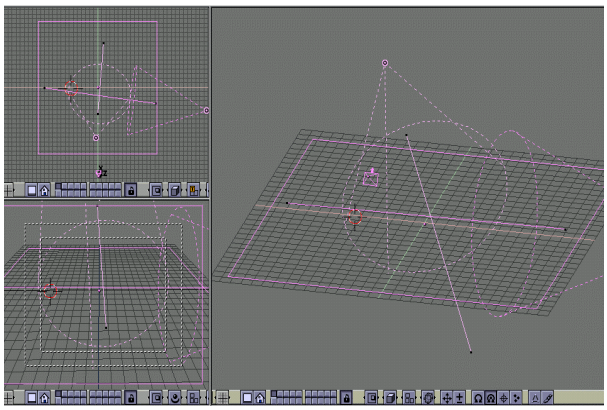
Let's look on the very interesting Blender features: metaballs and particles.

Metaballs operate on the surface of each other so you can simple create organic looking objects. Metaballs in Blender are very basic however. You can use ball and tube primitives only. That should be enough for the liquid metal animation.

Particles are developed very well, even compared with other very expensive 3D software. You can create very realistic fire, smoke, snow or many other things with. We will use particles to create a vapor going from the melting metal.

Let's go!

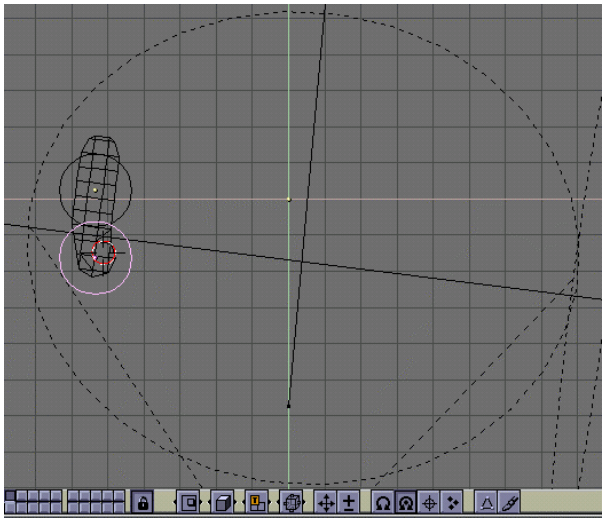
Create a camera and plane if they are not exist. Enlarge the plane and create lamps. I used two spots.



Letters

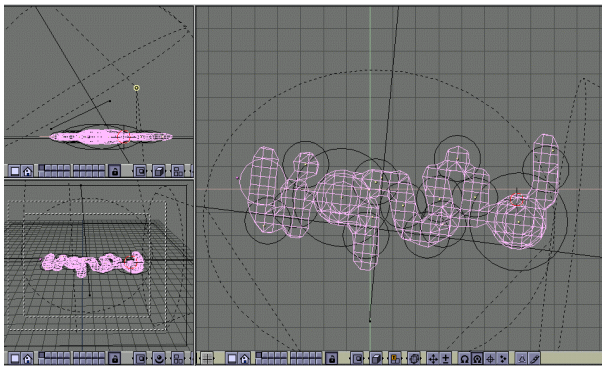
Now create a text we should see after the metal melted. I want that will be a word "liquid". Change to Topview, move 3D cursor to the plane and insert a metaball with SPACE>>Metaball .

This is the parent metaball for all others we will create later. You have to use this metaball to set up common properties you see if you select Meshedit (F9) in Editbuttons. We will create small "L" letter, so still in Editmode press TubeY green button and see the changes. Escape EditMode (Tab), Rotate your "L" letter, add another metaball and leave EditMode. Use GKEY to get this.

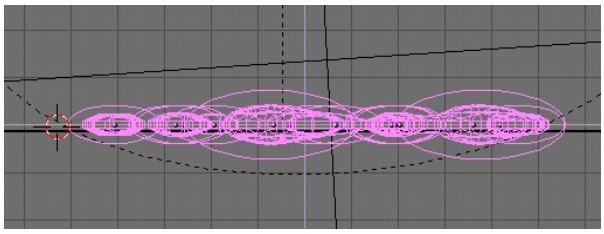


Process other letters in this way.

It is important to leave Editmode (Tab) each time and create all other metaballs as independent objects. You will get something like this.



Select all metaballs (be sure you selected all metaballs circles, not parent metaball only). Change to front view. We should scale our letters so they will look like blobs. Press SKEY, move your mouse vertically, then press middle mouse button. You can scale vertical only now. You should get this picture.



Make test rendering. The metaballs isn't smooth enough. Select parent metaball, press F9 and decrease the value of RenderSize slider.

Material

I want the letters have quicksilver look. Go to Material Buttons (F5) add a new one. Then go to Texture Buttons (F6) and add a new texture. Set [Image] as texture type and load "office1.rgb" image from official blender 1.02 tutorial.

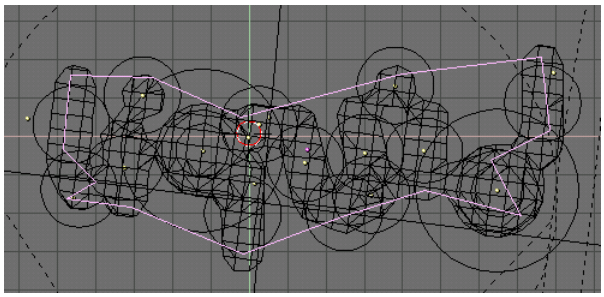
In Material Buttons window adjust some settings to get metal look for material:

- Spec: 0.4
- Hard: 8
- Ref: 0.3

Now change some texture settings.
Set Nor for coordinate input (left group of green buttons) and Cmir for mapping output (right group of green buttons). Set map type to Sphe. Set texture color to yellow. Be sure the No RGB button is pressed.

Vapor

We will use particles to create vapor going from melting metal. First we add a particles emitter. Add plane, subdivide it twice and locate plane vertices over the letters in top view. Escape EditMode and pace this plane under the letters in front view.



Go to Animations Buttons (F7), press New Effect and select Particles. Input this values:

- Tot: 2000
- Sta: -50
- End: 100 (Vapor will go away)
- Life: 70
- Rand: 0.08
- Force: 0.135

Go to Material Buttons, create new material, press Halo and adjust some settings:

- HaloSize: 0.9
- Alpha 0.04
- Hard: 1
- Add: 0

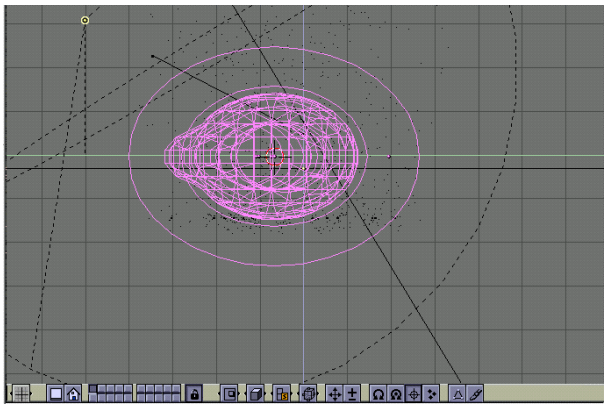
Set RGB Color to 0.6, 0.55, 0.7
All of these settings may be a little different for you, try to find the best.

Animation

Animation itself is quite easy. First I decide the whole animation would have 150 frames. Go to Display Buttons (F10) and set End to 150. Set current frame with ARROW KEYS (SHIFT+ARROW KEYS) to 125.

Select all letters. Press IKEY and choose LocRotSize to save values for location, rotation and size in the keyframe. Go to the first animation frame (SHIFT-LEFTARROW). Press SHIFT-S and choose Cur->Sel. Press

SHIFT-S and choose Sel->Cur after that. All metaballs should be located in one place now. Select side view, press SKEY and enlarge them all a little. Then use SKEY again, move mouse vertically, press middle mouse button and try to get something like a sphere or something like that.

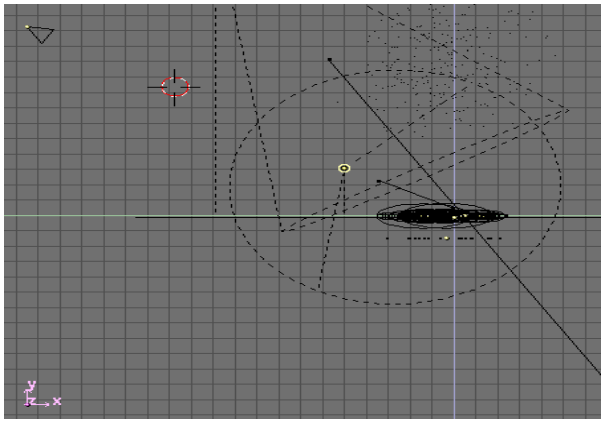


Be sure all metaballs are selected (not parent metaball only!). Press IKEY and choose LocRotSize.

We will make the similar thing with particle emitter. Go to frame 125 and select particles emitter. Go to EditMode (TAB), select all vertices (ALT-A), press IKEY and choose LocRotSize. Leave EditMode then. Go to the first frame. Scale the particles emitter plane to the size of the letters. Go to EditMode (TAB), select all vertices, press IKEY and choose LocRotSize. Leave EditMode.

Planar environment mapping (C-Key feature)

If you have Complete Blender (C-Key) it is quite easy create mirroring surfaces. But it is a bit tricky to get the same effect on planar objects.
First copy our plane to the second layer (or make it visible on the second layer). Select the plane, press MKEY, SHIFT+2 and Enter. Create an empty object SPACEBAR>>Add>>Empty. Move you empty to the camera position. Then press NKEY and set LocZ value negative.



Create a texture for the Plane now. Select EnvMap and set type as Anim. Type in the field Ob: the name of your empty object you created before “Empty” in our case. Select second box in “don’t render layer” buttons group. The idea is the scene will be rendered from the bottom (plane won’t be visible) and then used as texture on the plane.

Go to the plane material (F5) and set Csp and Cmir for mapping output. Try to render a test image. You have to move empty object sometimes to get good results. Play with ClipSta and ClipEnd values for texture too.

Bottom line

We used a reverse way to create this animation. You could use the same technique to melt the “Metaball Terminator” :-).

It would be very interesting if Blender will get other metaballs primitives, not only balls and Tubes. Write me if you enjoyed this Tutorial ;-)

Alex Penner, alex@camouflages.de
16.08.1999